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## **Contents**

Author/Co-Author – with abstract ID	2 – 32
Orals by ID	34 – 393
Posters by ID	395 – 748

# A

Aanaes, Kasper	75	ALZAREI, ALI	673
Abadalkareem, Rana	188	Amaral, Raúl	686, 697
Abdel Fattah, Ahmed El Farouk	356, 357	Amin, Nikhil	648, 214
Abdel Hak, Balegh	3	Amin, Nikul	718
Abdel Moneim, Rasha	3	Ammar Mohd Amin,	792
Abdelhamed, Ahmed	40	Ammar Mohd	
Abdullah, Amr	666	Anadolu, Yucel	639
Abergal , Avraham	320	Anari, Shahram	37, 382
Abergel, Avraham	21	Anazawa, Utaro	515
Abi Hachem, Ralph	670	Anderegg, Nanina	34
		Andersen, Jonas	570
Abou-Zeid, Mohamed	716	Hjelm	
Abreu Pereira, Diogo	677	Anderson, Caroline	643
Acharya, Vikas	730	Ando, Yumi	379
Acke, Frederic	461, 626	André, Carla	505
		Andrews, Peter	141, 268, 279, 338, 407, 591, 683, 794, 456
Acke, Frederic	458	Andrews, Peter	557
Adam, Damien	179, 180	Andrews , Peter	675
Adams, Ashok	495	Angely, Christelle	471
Addison, Alfred	139	Anghel, Adriana	698
		Oana	
Aegakkatajit, Korrapat	613	Anghel, Alina	680, 698, 731
Agachi, Luminita	317	Georgiana	
		Anghel, Ion	362, 318, 680, 698, 731
Agius Spiteri, Marija	748	Anglitoiu, Alina	571
Ahmed, Sabahat	203	Anjo, César	769
Ahmed, Shahzada	87, 472, 487	AnmolSingh, Rajesh	684
Ahmed, Sharfi	193, 181, 185	Ansari, Edward	226
Ahmed , Shahzada	751	Anschuetz, Lukas	364, 365
AKAR, SERVET	656	Anselmo Lima, Wilma	556
Akazawa, Hitoshi	291	Anselmo Lima, Wilma	553, 554
Akdis, Cezmi	334	Anselmo-Lima, Wilma	211
		Anselmo-Lima, Wilma T	337
Akmenkalne, Liga	541	Antic, Svetlana	134
Al Romaih, Saud	327	Antonie, Catrinel	444, 688, 719
ALAMRI, ALI	673	ANTONIE, CATRINEL	671
ALANDEJANI, TALAL	673	Antonio , Salvati	465
Alanin, Mikkel Christian	75		
Albaharna, Hussain	638	Antunes, Luis	505, 507
Albawardi, Esam	703	Antunes de Almeida, Gustavo	782, 743, 746, 752
		Anwar, Bilal	565
Albu, Silviu	230		

ALFAWAZ, FAHAD	673	Anwar, Mohieman	722, 725
Alherabi, Ameen	213	Anwar, Mohiemen	760
Alkan, Uri	450	Anzai, Takashi	567
Allan, Ray N	431	Aoi , Noriaki	89, 88
Allan, Raymond	280, 281	Aoki, Satoshi	515
Allard, Annika	38	Araújo, Bernardo	733
Almeida, Catarina	776, 790	Araújo, Joana	769, 705
Almeida, Gustavo	699	Araya-Holmqvist , Susana	264
Almeida, Gustavo	758	Argyri, Elena	829
Almeida e Sousa, Cecília	481, 784, 493	Ariza, Adriana	621
Almomen, Ali	235, 236, 238, 239	Armengot Carceller, Miguel	253
Alobid, Isam	463, 578, 663	Arrick, L	775
Alobid Alobid, Isam	586	Arruda, Eurico	337, 553, 554
ALOULAH, MOHAMMED	673	Arruda, Luisa Karla	211
ALQAHTANI, A.	673	Arslan, İlker Burak	229
ALQAHTANI, ABDULAZIZ	673	Asaka, Daiya	540
Alredha, Donia	640, 649, 658	Ashida, Naoki	233
Al-Reefy, Hiba	666	Asimakopoulos, Asimakis	225
Alromaih, Saud	267	Aslanidou, Anastasia	487
Alsaleh, Saad	818	Asmar, Marc-Henri	267
ALSALEH, SAAD	673	Assumpção, Maíra	412
AlSamman, Amr	367	Atallah, Camila	501
Alshaikh, Nada	640, 646, 651, 673	Atkova, Eugenia	608
ALSHAIKH, NADA	635	Atta, Lucas	225
Alsharif, Saeed	173	Avci, Cigir Biray	474
ALSHEMMARY , FAHAD	673	Avdeeva, Klementina	457
Alusi, Ghassan	722, 725	Ayman, Muhammed	818
ALUSI, GHASSAN	500	Azer, Mark	303
Alvarado, Raquel	303, 513, 514, 516	Aziz, Imran	562
Alvarado, Raquel	323	Aziz, Mohammed	424

## Å

Åberg, Karin	690
--------------	-----

## a

anwar, mohiemen	500
-----------------	-----

## B

BABIN, Emmanuel	354	Berghi, Nicolae Ovidiu	240
Bachert, Claus	173, 187, 461, 626, 458	Bernic, Ana	350, 720, 761

Bachert, Claus	648	Bertazzoni, Giacomo	707
Bachmann, Gregor	672	Bertesteanu, Serban	444, 719
Bachmann-	209	Bertesteanu, Serban	688
Harildstad, Gregor			
Bae, Chang Hoon	217	BERTESTEANU,	671
		SERBAN	
Bafaqeeh, Sameer	607	BERTESTEANU ,	627
		Serban	
Bagca, Bakiye Goker	474	Bertoldi, Robert	661
Bagwan, Izhar	598	Bertoldi, Robert	676
Bahakim, Abdullah	155, 156, 176	Berube, Julie	179, 180
Bahgat, Ahmed	124	Beton, Suha	639, 653, 636
Bajaj, Yogesh	495	Betz, Christian	389
Bal, Suzanne	664	Beule, Achim	430
Balachandran, Arvin	816	Bhalla, Rajiv	789
Balaji, Natarajan	679, 674	Bibik, Pavel	147
Balci, Koray	656, 701	Biffen, A	775
Balica, Nicolae	313	Biggs, TC	333
Constantin			
Balica, Nicolae	312	Biggs, Tim	188
Constantin			
Ball, Stephen	108	Bignami, Maurizio	702, 770, 785, 777
Ballas, Konstantinos	80	Bilde, Anders	801
Bandi, Francesco	785	Birchall, J	775
Banga, Jasvinder Paul	168	Biron, Vincent	518
Barac, Aleksandra	134	Bischoff, Sabrina	590
Baranskaya, Svetlana	533	Blackshaw, Helen	82, 282, 629, 750
Barbeau, Jean	176	Bleys, Ronald L.A.W.	249
Barber, Brittany	518	Blomgren, Karin	286, 634
Barnes, Martyn	763, 774	Bogas, Gador	621
Baroni, Silvia	409	Boia, Eugen Radu	312, 313
Baroni , Silvia	465	Bois, Emilie	100
Barraclough, James	712, 764, 773	Bolzoni Villaret,	706
		Andrea	
Barroa, Jupiter Kelly	386	Borges Costa, Joana	624
Barros, Ezequiel	483, 486	Borges Dinis, Paulo	477
Barros, Ezequiel	769, 705	Boricic, Ivan	222
Bartel, Ricardo	269	Borner, Urs	365
Bartle, Janette	546	Bosch Lozano, Mari	149
		Carmen	
Bartolo, Amanda	61, 748	Bottier, Mathieu	471
Barzó, Pál	732	Bottoni, Grace	319
Basak, Hazan	639, 653, 636	Bouayed, Salim	167
Baschir, Sorin	410	Boudard, Philippe	196
Basetti, Siddharth	363	Bousquet, Jean	690
Bashyam, Anthony	598	Bousquet , Jean	580
Bast, Florian	363, 826	Bowles, Philippe	652
Bastier, Pierre-Louis	263	Bowles, Philippe	218
Bath, Andy	70	Bracanovic, Djurdja	134
Battaglia, Paolo	715, 785, 777	Bragança, Ronaldo	553, 554
Battaglia, Paolo	770	Branco, Mariana	505

Battaglia , Paolo	618	Bratt, Mette	419
Batty, Vincent	681	Braverman, Itzhak	739, 321
Baudoin, Tomislav	298	Bravo, Dawn	23
Baudoin, Tomislav	724	Bredahl, Henrik	801
Bebiano Coutinho, Miguel	784	Brehmer, Detlef	133
Beech, Tom	487	Brochiero, Emmanuelle	179, 180
Beegun, Issa	607	Brochiero , Emmanuelle	176
Beghal, Gurpreet Singh	215	Broza, Yoav	321
Beketova, Halyna	416	Brožek-Mądry, Eliza	708
Bektic-Tadic, Lilja	332	Brunckhorst, Oliver	369
Bektic-Tadic, Ljilja	191, 251	Brunet-garcia, Aina	253, 601
Belgrave, Danielle	352	Bucci, Alessandro	616
Bella, Zsolt	732	Bucher, Sarina	201
Ben Cnaan , Ran	21	Buckley , Joanna	587
Ben-Cnaan , Ran	320	Budu, Vlad	583, 581
Bendavid, Guillaume	225	Bugari, Radmila-Anca	410
Benjumea, Felipe	269	Bukhari, Deemah	213
Benjumea Flores, Felipe L.	178	Bulgurcu, Suphi	229
Bensafi, Moustafa	591	Bullido, Carolina	603
Bento, Raquel	647, 654, 659, 771	Burgess, Andrea	411, 678
Bequignon, Emilie	473	Burgess, Andrea	749
Bequignon, EMILIE	471	Bussi, Mario	729, 738
Berce, Cristian	230	Butler, Colin	71
Berchner- Pfannschmidt, Utta	168		

## b

beegun, issa	603
--------------	-----

## C

C. Pimentel, João	743	CHIMONA, THEOGNOSIA	184, 183
C. Pimentel, João	782, 746, 752	Chiou, Lun-Wei	420
Cabrera, M <sup>a</sup> Soledad	54	Chitsuthipakorn, Wirach	122
Cabrera Ramírez, María Soledad	53, 59	Cho, Jae Hoon	27
Cabrera Ramírez, María Soledad	32	Cho, Jin Hee	527
Cabungcal, Arsenio Claro	386	Cho, Kyu-Sup	385
Cagini, Carlo	585	Cho, Ryan, Hung Wai	423
Cajelli, Ana Laura	138, 136	CHO, JINHEE	509
Calder, Nicholas J	353	Choi, Bo-yoon	27

Calha, Mariana	655, 747, 755, 740, 741	Choi, Yoon Seok	217
Calha , Mariana	668	CHOI, GYEONGCHEOL	509
Callejas-Diaz, Borje	578	Chojnowska, Sylwia	231
Calsina, Marta	593	Chone, Carlos Takahiro	502, 503, 504
Cameron, Leslie	101	Chone, Carlos Takahiro	502, 503, 504
Campelo, Paula	700, 733	Choudhury, Natasha	610
Campo, Paloma	589, 621	Choudhury, Natasha	545
Campos, Ana	700, 733	Chow, Samuel MW	423
Cañamero, Maria Dolores	621	Chowdhury, Naweed	192
Canis, Martin	569	Chung, Hyo Jin	388, 532
Capellano, Andrea Maria	501	Chung, Seung-Kyu	520, 526
Capper, David	683	Cisa, Enric	269
Caradonna, David S.	445, 519	Cisa Lluís, Enric	178, 325
Cardell, Lars Olaf	721	Clark, Alan	139
Cardell, Lars-Olaf	227	Clark, Jessica	518
Cardelús, Sara	463	Clarke, Caroline	629
Carlos Neves, José	481	Clarke, Caroline S	750
Carneiro de Sousa, Pedro	624	Clarke, Peter	71
Caroça, Cristina	733	Cobzeanu, Mihail Dan	237
Carpenter, David	670	Cohen, Oded	175
Carpenter, James	629	Cohen Atsmoni, Smadar	13
Carpenter, James	750	Coimbra Henriques, António	484
Carrau, Ricardo	341	Colina Etala, Carlos	31
Carrie, Sean	108, 587	Colombo, Luca	594
Carrillo, Ryner Jose	386	Coman, William	378
Carter, Alison	711	Condeescu, Mihnea	444, 688, 719
Carvalho, Angelo	686, 697	CONDEESCU, MIHNEA	671
Carvalho, Miguel	776, 790	Connett, Gary	678
Carvalho, Tomás	755	Conroy, Katherine	762
Caselhos, Sergio	791	Constable, James	762
Caspar, Anne	430	Constant, Samuel	595, 614
Casselden, Elizabeth	220	Constantinidis, Jannis	371, 735
Castellani, Luca	685	Cooksley, Clare	19
Castelnuovo, Paolo	618, 683, 702, 706, 715, 770, 785, 777	Cooper, Lorna	44
Castillo, José Antonio	67, 68	Corbetta, Marco	594
Castro, Joana	507	Cordero, Arturo	463
Cataldo Russomando , Alessandra	97	Cornet, Marjolein	572
Caton, Nadine	545	Correia, Filipe	699, 758

Catrinel, ANTONIE	627	Correia Rodrigues, Pedro	477
Cavada, Marina	323	Correia-Rodrigues, Pedro	740, 741, 742
Cavalheiro, Sergio	501	Cortijo Gimeno, Julio	253
Cavazzana, Annachiara	165	Costa, Isabel	392
Caversaccio, Marco	364, 365	Costa, Joana	632
Cenk Celebi, Ali Riza	844	Costa, Marcos	501
Cerejeira, Rui	93	Costache, Adrian	362, 489
Cergan, Romica	489, 266, 318	COSTE, André	471, 473
Cesaratto Desrosiers, Hugo	327	Cote, David	518
Chan, Chun	537	Coutinho, Miguel	481, 493
Chandra, Rakesh	192	Covello, Vanessa	685
Chang, Jung Hyun	532	Cristofani-Mencacci, Lodovica	539
Chao, Jingdong	214	Crocetta, Francesco	439
Chao, Yun-Ting	343	Croy, Ilona	424
Chatzakis, Nikolaos	544	Cruellas, Francesc	269
Chelliah, Gladston	306	Cruellas Taischik, Francesc	325
Chen, Fenghong	512	Cruz Mojarrieta, Julia	601
Chen, Fuquan	843	Cuevas, Mandy	406
Cheng, Lei	843	Cuevas, Mandy	407
Cheng, Tracy	670	Cui, Shunjiu	166
Cheong, Ryan Chin Taw	496, 497, 498, 499	Culig, Josip	548, 568, 595, 614, 630
Cherkes, Maryana	162, 346	Cunha, Inês	483, 486
Chiba, Shintaro	157	Cunning, Nina	441
Chiba, Shintaro	12	Custovic, Adnan	352

## Ç

Çukurova, İbrahim	229
-------------------	-----

## D

Dabrowska-bien, Justyna	276, 277	Devars Du Mayne, Marie	473
Dabrowska-Bien, Justyna	273	Dheyauldeen, Sinan	402, 403, 404
Daer, Dili	843	Dhommée, Christine	471
Dal Fabbro, Mateus	502, 503, 504	Dhong, Hun-Jong	526
Dallan, Iacopo	539	Di Cintio, Giovanni	465
Daminda, Gnanapriya	331	Dias, Luís	392
Danansuriya, Manjula	331	Diaz, Debora	54
Danielidis, Vasileios	550	Dimitrov, Lilia	310, 440
Darbas, Benoit	358	Dinarte, Ane	337
Darby, Yvonne	340	Dinarte, Anne	556



Dastoli, Patrícia Alessandra	501	Dinarte, Vanessa	556
Datema, Frank	481	Dinis, Borges	740
Dawson, Rebecca	789	Dirla, Octavian	319
De Bernardi, Francesca	618	Do, Timothy	39, 514
De Boer, Nick	109	Dobre, Marioara	312, 313
De Bonnezeze, Guillaume	355, 358, 360	Dodhia, Sagar	215
De Corso , Eugenio	409, 465	Dogan, Remzi	30
De Dorlodot, Clotilde	226	Doğan, Remzi	205
De Gabory, Ludovic	196, 197	Doko, Sandra	724
De Servi, Barbara	568, 595, 614, 630	Domínguez , Sandra	54
De Vita, Carla	409	Domínguez Sosa, María Sandra	53, 59
De Vita , Carla	465	Domínguez Sosa, Sandra	32
Debry, Christian	196	Donato, Mariana	746, 752
Decuseara, Tatiana	583, 581	Dorminy, Cindy	192
Dehgani Mobaraki, Puya	585, 618	Dorminy	
Dejaco, Daniel	191, 251, 332, 622	Doros, Caius Ion	312, 313
Delhez, Amandine	225	Doty, Richard	101
Delidis, Alexandros	805, 806, 543	Doulaptsi, Maria	401, 544
Della-Torre, Emanuele	479	Doulaptsi, Maria	468
Delrez, Sophie	225	Doulaptsi, Maria	536
Demirović, Alma	724	Dragan, Alina	637
Denaxas, Spiros	629	Dror, Amiel	296
Denaxas, Spiros	750	Dryden, Matthew	280, 281
DENISA, MITRAN	671	Duarte, Catarina	642, 647, 654, 659, 771
Dennis, Simon	779	Duarte, Delfim	624, 632
Desroisers, Martin	156	Duarte, Delfim	677
Desrosiers, Martin	155, 267, 327, 176	Dubach, Patrick	365
Desrosiers, Martin	113, 179, 180	Dudas, Jozsef	683
Deutsch, Peter	764, 773	Dumitru, Mihai	240, 362, 489, 266, 318, 680, 698, 731
		Duong Dinh, Thien An	781
<b>d</b>			
de Bonnezeze, Guillaume	196	de Paula Santos, Rodrigo	501
de Borgie, Corianne	778, 759	de Toeuf, Caroline	800
de Gabory, Ludovic	35	dirla, constantin	726
<b>E</b>			
Earls, Peter	303	Ende, Jesse Alexander	303

Eça, Tiago	644, 771	Ene, Patricia Delia	680, 698, 731
Eça, Tiago	665	Engel, Nils	683
Eckert, Laurent	214	Epprecht, Lorenz	201, 202
Eckstein, Anja	522, 753, 168	Eren, Erdem	656, 701
Edmiston, Rachel	306	Eren, Sabri Baki	30
Egger, Matthias	34	Eriksson, Irene	38
Eguíluz, Ibon	621	Escabasse, Virginie	196
Eguiluz Gracia, Ibon	589	Escada, Pedro	452, 782, 94, 115, 699, 743, 746, 752, 758
Eisenbach, Netanel	296	Escudier, Estelle	471
Ekstrom,	75	Esmael, Mostafa	3
El Fouly, Mahmoud	716	Espino, Teresa	589
El-banhawy, Omar	307	Espítia Sierra, Karen L.	178
Elbay, Ahmet	29	Evans, Hannah	629, 750
Eldamaty, Ahmed Hesham	46, 48	Eviatar, Efraim	28
Elhassan, Hassan	770, 785, 777, 792	Eviatar, Ephraim	83, 204
El-kholy, Atef	754, 756	Eviatar , Efraim	41
Eloy, Philippe	436, 226, 434	Eyles, Caroline	82, 282
El-Shanawany, Tariq	751		

## F

Facchetti, Fabio	683	Filtensborg, Mads Vrelits	95
Faden, Daniel	152	Fischer, Jessica	591
Fahmy, Miriam	384	Fishchuk, Roman	129
Fan, Chunpeng	648	Fitzgerald, Deidre	744
Faoury, Morad	411, 749	Fitzgerald, Deirdre	657
Faraj, Nuha	213	Fleming, Sarah	854
Farinha, Rosa Roque	647, 771	Fliss , Dan M	320
Farneti, Paolo	432, 433, 438, 439, 525, 437, 446	Flögel, Ulrich	168
Farrugia, Eric J	748	Fokkens, Wytske	350, 664, 704, 767, 778, 759
Faulkner , Jack	545	Fonseca, Rui	791
Favoreto, João	101	Forde, Cillian	683
Feijen, Robert A.	177	Fornazieri, Marco	101
Felisati, Giovanni	685	Forster, Martin	683
Fenton, Tim	683	Fothiadaki, Ioulia Rafailia	468
Feo Brito, Francisco	589	Fothiadaki, Ioulia- Rafailia	544
Feran, Koray	625	Fotoulaki, Maria	36
Ference, Elisabeth	305	Frampton, Steven	749, 678
Ferguson, Mark	279	Frank, Giorgio	433
Fernandes, António	740, 741, 742	Frank-Ito, Dennis	670
Fernandes, António	668	Onyeka	
		Freire, Filipe	483

Fernandez, Florencia	136
Fernandez, Javier	621
Fernández, Cristina	67, 68
Fernández, Florencia	138
Fernandez-Miranda, Juan	152
Ferrari, Marco	702, 706, 707, 859
Ferraria, Lilia	505, 507
Ferraro, Milena	729, 738
Ferreira, Teresa	139
Fialla, Anette Dam	335
Fierens, Sylvestre	35, 263
Figueroa, Eduardo	138
Filipoiu, Florin Mihail	362, 318

Fu, Chia Hsiang	257
Fuchiwaki , takafumi	89
Fuchiwaki , Takafumi	88
Fuentes, Mireya	663
Fuentes-Prado, Mireya	578
Fujieda, Shigeharu	144, 623
Fujii, Tatsuya	223
Fujita, Taketoshi	47
Fujiwara, Takashi	81
Fukui, Hiroyuki	373, 223
Fulla, Marta	269
Fülöp, Béla	732
Fuzeta Eça, Tiago	477

## G

Gacesa, Dejan	66
Galli, Jacopo	409
Galli , Jacopo	465
Galloway, Jonathan	310
Ganz, Tomas	329
Garcia Cruz, Loida	31
Garcia Garza, Cesar David	149, 150
Gardner, Paul	152
Gaudin , Robert André	519
Gaur, Sumit Kumar	126
Gavriel, Haim	28, 41, 83, 204
Geber, Goran	724
Georén Kumlien, Susanna	721
Georgescu, Madalina	266
Georgieva, Nadya	123
Gerçik, Önay	656
Gerl, Jan Mikael A.	209
Gerlinger, Imre	604
Gershnel Milk, Dafna	33
Gerth-Kahlert, Christina	590
Gevaert, Philippe	461, 626, 458
Gevaert, Philippe	195

Goh, Liang Chye	816
Goh, Samantha	382
Golan, Yitzhak Izak	28
Golbin, Denis	457
Goldie, Simon	689
Golebski, Kornel	664
Gomes, Alexandra	791
Gomes, Patricia	791
Gomez, Francisca	621
Gómez Rebordinos, Elsa	59
Gonçalves, Ilidio	655
Gonçalves Ferreira, Miguel	481, 784, 493
Gonzalez Compta, Francesc Xavier	325
González González, Javier	31, 32
Gonzalez-Compta, Xavier	269
Gotlib, Tomasz	628
Gouilleux Gruart, Valerie	471
Goy, Andrei	466
Grachev, Nickolay	476, 457
Grachev, Nickolay	460, 480
Granada Mendez, Isabel	178
Grant, William	491

Geyton, Thomas	652	Gras-Cabrerizo, Juan Ramon	549
Ghedia, Reshma	722, 725	Grava, Lasma	448
GHEDIA, RESHMA	500	Gray, Stacey T	445
Gheriani , MMSc , FRCSI , FRCSEd , FRCSC, Heitham	63	Gray, Stacey T.	519
Ghosh, Samit	723	Grech, Gabriella	748
Ghosh, Samit	650	Grgić, Marko Velimir	724, 322
GHUFOOR, KHALID	500	Grigore, Raluca	444, 688, 719
Giblett, Neil	472	GRIGORE, RALUCA	671
Giddings, Charles	799	Gromov, Kirill	328
Giddings, Charles	537	Grossi, Anna-Sophia	118
Gigi, Dana	351	Gruber, Yuval	551
Gilberto, Nelson	743	Grullo, Precious Eunice	386
Gindy, Michal	295	Guarneri, Bruno	707
Giotakis, Aristeidis	191, 251, 622	Guducu, Cagdas	165
Giotakis, Aristides	332	Gudziol, Volker	591
Gladh, Hanna	264	Guedes, Luis	677
Glatre, Romain	100	Guha, Anasuya	17, 713
Gloeckle, Brigitte	538	Guliyev, Hasay	636
Gluck, Ofer	20	Gunduz, Ahmet Kaan	636
Gnanalingham, Kanna	789	Gutierrez-Cardona, Nelson	411
Gode, Sercan	474	Gwizdalska, Iwonna	276, 277, 259, 558, 563
Goffinet, Maxime	225	Gwizdalska, Iwonna	560, 273
<b>H</b>			
H. Alotaibi, Naif	818	Heyman, James	421, 478
Haack, Mareike	569	Hibiya, Remi	117
Habib, Al	63	Hidayati, Syfia	734
Habib, Al-Rahim	728	Higaki, Takaya	72, 110
Haehner, Antje	406, 597	Hijano, Rafael	593
Hagemann, Jan	389	Hildebrandt, Anne Marie	801
Haick, Hossam	321	Hilger, Andreas	151
Haku, Yasuharu	81	Hilton, Jennifer	421
Halderman, Ashleigh	247	Hilton, Jenny	475
Hallak, Bassel	69, 167	Hirata, Yuji	74
Haloob, Nora	760	HIroshiba, Shinya	105
Halperin, Doron	175	HITIER, Martin	354, 361
Hamada, Satoko	467	Hjalmarsson, Eric	721
Hamdan Zavarce, Miriam Ileana	178, 325	Ho, Debbie	683
Hamdy , Balegh	22	Hodson, Andrew	151
Hamizan, Aneeza	516	Hoehle, Lloyd P.	445, 519
Hamizan, Aneeza Wan	303	Hoffmann, Thomas	118

Hammarén-Malmi , Sari	704	Høiby,	75
Hammering, Anne	801	Holm, Anna	38
Han, Pengfei	591	Holtappels, Gabriele	173
Hanazawa, Toyoyuki	250	Holtappels, Gabriële	187
Hanseeuw, Bernard	455	Holtmann, Laura	753
Hara, Ryutaro	272	Holzmann, David	34, 201, 334, 380, 590, 596, 599, 798, 200, 202, 606
Harkness, Paul	429	Homma, Akihiro	19, 11
Harries, PG	333	Homma, Aya	11
Harries, Philip	188, 280, 678	Hong, Haiyu	512
Harries, Phillip	689	Hong, Sang Duk	526
Harries, Phillip	681	Hong, Seok-Chan	27
Harrison, Andrew	542	Hopkins, Claire	82, 215, 220, 265, 282, 363, 629, 750, 720, 761, 826, 842
Harrison, Laura	228, 691	Horii, Arata	291
Haruna, Takenori	246	Horoi, Mihaela	226
Haruna, Takenori	110	Horstmann, Mareike	168
Harvey, Richard	39, 323, 513, 514, 516	Hosemann, Werner	430
Harvey, Richard John	303	Hosokawa, Yu	515
Hasegawa, Masahiro	274	Hoving, Eelco W.	177
Hashimoto, Kengo	145, 552	Howard, David	683
Hata, Junnichi	210	Hox, Valérie	800
Hauck, Kerstin	118	Hsieh, Julien Wen	422, 454
Haxel, Boris	103	Huang, Qian	166
Hayama, Masaki	233, 254, 278, 289, 290, 375	Huang, Song	595, 614
Hayes, SM	333	Huart, Caroline	455, 612, 800
Hayes, Stephen	421, 475, 478	Huber, Gerhard	34
Hayes, Stephen	188	Hugentobler, Marianne	422
Haywood , Matthew	730	Huhtala, H	262
Hedeman, Carien	189	Huizing, Egbert H.	249
Hegazy, Mohamed	15	Hummel, Thomas	165, 285, 406, 407, 591, 597, 424
Helling, Sören	389	Hummel, Thomas	611
Hellings, Peter	401, 461, 626	Hummel , Thomas	419
Hellings, Peter W	458	Hurley, Rhona H	353
Hellkvist, Laila	721	Hutson, Kristian	535
Helvik, Anne-Sofie	419	Hwang, Chi Sang	795
Herbish, Yuriy	346	Hwang, Chi Sang	376
Hermesen, Mario	683	Hwang, Kyung-A	523, 524
Hernandez, Josefino	386	Hwang, Peter	450
Hernando, Harivelle Charmaine	386	Hwang, Yu-Jin	523, 524
Herzallah, Islam	213	Hytönen, Maija	704
Hettige, Roland	761		

**I**

Iakovou, Ioannis	36	Inoshita, Ayako	400
Ibrahim, Badr	180	Insley, Haydn	565
Ibrahim, Badr	179	Ioannidis, Dimitrios	779, 694
Ibrahim, Nour	296, 551	Iovanescu, Gheorghe	571
Ieridou , Fotini	245	Iqbal, Isma	587
Iglič, Urban	453	Iqbal, Maria	723
Iguchi, Hiroyoshi	803	Irimia, Larisa	661
Iida, Masahiro	78	Irimie , Larisa	676
Iijima, Masamichi	64	Isabey, Daniel	471
Iimura, Jiro	540	Ishida, Mariko	326
Ikeda, Hiroki	64	Ishikawa, Masaaki	252
Ikeda, Katsuhisa	117, 400, 567	Ishikura, Tomoko	300
Ikeda, Masao	64	Ismagilov, Eldar	426
Ikenberg, Kristian	34	Ismail, Mostafa	22
Ilgner, Justus	781	Ismail-Koch, Hasnaa	411, 689, 749, 678
Imoto, Yoshimasa	623	Ito, Shin	117, 567
Inaba, Yuichiro	530	Ivanoiu, Adrian	455
Inohara, Hidenori	254, 289, 290, 291, 375	Ivasivka, Khrystyna	162, 346
Inohara, Hideyuki	233	Iwanaga, Ken	81
Inoharara, Hidenori	278	Izquierdo, Julie	355

**i**

İşlek, Akif	701
-------------	-----

**J**

Jaafar, Mustafa	603	Jeong, Jin Hyeok	381
Jabarin, Basel	83	Jerman, Anze	682
Jackowska, Joanna	620	Jervis, Paul	691
Jackson, Laura	712	Jiang, Rong-San	454
Jackson, Richard	102	Jiangwei, Mo	824
Jain, Anurag	709	Jin, Seong Min	510
Jain, Raksha	247	Jin, Sung Min	256
Jakobsen, Yeliz	570	Jiotakis, Ioannis	543
Jang, David	670	Johari, Shirish	804
Jang, Hwan-Hee	523, 524	Johnston, Keith	666
Jang, Tae Young	194	Jones, Huw	675, 456, 557
Jang, Woo Youl	510	Jones, Louise	421
Jang, Yong Ju	314	Michelle	
Jangard, Mattias	264	Jones, Nicholas	228
Janovic, Aleksa	134	Jonstam, Karin	173, 187
Javer, Amin	728	JOO, Jae Woo	271
Javer, MD, FRCSC , FACS, Amin	63	Jorissen, Mark	461
Jay, Amrita	683	Jorissen, Mark	458
Jayakody, Nimeshi	779	Joseph, Jonathan	338
Jayaraj, Sam	711	Juliá, Berta	67, 68
		Jung, Ah-Yeoun	23

Jayaretna, Sanjeeva 464  
 Jayasena, Kantha 331  
 Jelínek, Jiří 112  
 Jennum, Poul Jørgen 801

Jung, Nam Yoon 42  
 Jung, Shin 510  
 Junkun, Zhang 824  
 Jurado, Raquel 589

## K

Kääriäinen, J 262  
 Kaczmarek, Mariusz 620  
 Kahilogullari, Gokmen 653  
 Kajino, Kohei 530  
 Kaleva, Anna 151  
 Kalish, Larry 39, 303, 514  
 Kalogjera, L 262  
 Kalogjera, Livije 724  
 Kambara, Rumi 291  
 Kamijo, Atsushi 857  
 Kamimura, Seiichiro 223  
 Kamimura, Sei-ichiro 373  
 Kanagalingam, Jeeve 311  
  
 Kanagalingam, Yasmine Xuning 311  
 KANAGALINGAM, JEEVE 354  
 Kanai, Kengo 72, 74  
 Kanai, Kengo 110  
 Kang, Eun-Ju 42  
  
 Kang, Hyang-Rin 523, 524  
 Kankainen, M 262  
 Karamchandani, Dheeraj 382  
 Karampekos, Nikolaos 726  
 Karampela, Kanela 80  
 Karatzanis, Alexander 468  
 Karatzanis, Alexander 536  
  
 KARAVELIA, ASPASIA 183  
 Karci, Bulent 474  
  
 Kariya, Shin 110, 246  
 Karjalainen-Lindsberg, Marja-Liisa 146  
 Karkos, Petros 245  
 Karkos, Petros D 371

Kim, Kyung Rae 381  
 Kim, Shinae 314  
 Kim, Subin 527  
  
 Kim, Yee-Hyuk 521  
 Kim, Yong Min 383  
 Kim, Yong-dae 217  
 Kim, Young Hyo 23, 194  
 KIM, DOYOUN 509  
 KIM, KYUNG-SU 376, 795  
 Kitamura, Takahiro 233  
 Kitamura, Yoshiaki 373, 223  
 Kivite, Anda 448  
 Kjeldsen, Anette 335  
 Drøhse 335  
 Kjeldsen, Jens 335  
  
 Kleinman, Shlomi 351  
  
 Klonaris, Dionisios 544  
 Knížek, Zdeněk 112  
 Kobayashi, Masayoshi 250  
 Kodama, Satoru 250  
 Kojima, Hiromi 210, 344  
 Kolanczak, Katarzyna 549  
  
 Kolator, Mateusz 293, 398  
  
 Koller, Julia 683  
 Koltun, Arkady 580  
 Komatsubara, Yasutoshi 246  
 Kong, Weijia 576  
 Konstantinidis, Iordanis 36  
 Kooper, Dick 109  
 Kopietz, Ferdinand 580  
  
 Koren, Ilan 351  
 Korsten-Meijer, Astrid G.W. 177

Karligkiotis, Apostolos	618, 785	Košec, Andro	298
Karligkiotis, Apostolos	715, 770, 777	Koskinen, Anni	704, 212
Karlsson, Agneta	721	Kotecha, Bhik	496, 497, 498, 499
Karpishchenko, Sergey	147, 169, 533	Kotzampasakis, Dimitrios	829
Karpov, Artemiy	533	Koulentis, Ioannis	543
Kaster, Friederike	522	Kouzaki, Hideaki	111
Kaufmann, Thomas	202	Kovacevic, Brigita	548
Kaulsay, Ranbir	579, 582, 584	Kovacs-Sipos, Evelin	200
Kauppi, Paula	704	Kowalik, Katarzyna	447
Kaura, Anika	338	Koyama, Takahisa	72, 74, 110
Kaushik, Vivek	96	Kozlov, Vladimir	294, 297, 328
Kawashima, Kayoko	158	Krabbe, Paul F.M.	177
Kawauchi, Hideyuki	461	Kragelj, Grega	453
Kawauchi, Hideyuki	89, 88	Krajinović, Milena	453
Kawauchi, Hideyuki	458	Krakhovetskiy, Nikolay	608
Keller, Andreas	454	Kranjec, Chris	683
Keren, Shay	320	Kręcicki, Tomasz	293
Kérimian, Mélodie	263	Kryvopustov, S.	413
Keskin, Özlem	342	Kryvopustova, M.	413
Khafagy, Ahmed	40	Krzeski, Antoni	231, 447, 708
Khalil, H	833	Kuchai, Romana	794
Khalil, Hisham	566, 243	Kudo, Reiko	272
Khan, Afroze	681	Kudryashov, Stepan	297
Khan, Afroze	678	Kugler, Anton	201
Khan, Asif	214	Kuhl, Hans-Christian	580
Khan, Maha	775	Kuhn, Isla	762
Khan, Maha M.	762	Kuijlen, Jos M.	177
Khanna, Aman	310, 440, 641	Kulendra, Kevin	87
Khodaei, Iman	462	Kulig, Marek	708
Khong, Grace	61, 470, 854	Kumai, Masami	300
Khwaja, Sadie	565	Kumai, Masami	73
Kiær, Eva Kirkegaard	801	Kumar, B N	306
Kidoguchi, Masanori	144	Kumar, Nirmal	751
Kikuoka, Hirotaka	111	Kumlien Georen, Susanna	227
Kilty, Shaun	113, 176	Kumlin, Maria	264
Kim, Arie	329	Kunz, Seraina	334, 596, 599, 606
Kim, Byung Guk	527	Kurihara, Sho	210
Kim, Hwee-Jin	160	Kuwata, Fumihiko	252
Kim, Hyo Yeol	526	Kuźmińska, Magdalena	628
Kim, Jean	324	Kuzyuk, Mykhailo	129
Kim, Jeong-Kyu	521	Kwame, Ivor	794
Kim, Jin Kook	377	Kwon, Sam Hyun	56
Kim, Ji-sun	527	Kwon, SamHyun	55
Kim, Jong Seung	56	Kyrodimos, Efthimios	829
Kim, JongSeung	55		



# L

La Melia, Claudio	807	Leshno, Moshe	450
Lacroix, Jean-Silvain	422	Leszczynska, Malgorzata	620
LADIAS,	184, 183	Letichevsky, Vadim	296
ALEXANDROS			
Lahav, Yonatan	175	Leung, Terence	141, 268
Lakhani, Raj	718, 786, 744	Levy, Einat	296, 551
Lalicevic, Sinisa	748	Levy, João	477, 747, 766
Lambert, Aileen	399	Levy, João	665, 668
Lambertoni, Alessia	715	Li, Guo	299
Lambertoni, Alessia	770	Li, Huabing	843
Lameiras, Ana Rita	452, 94, 115	Li, Huijun	843
Lança, Beatriz	714	Li, Jian	19
Lancini, Davide	706	Li, Lan	843
Landis, Basile	285, 422	Li, Na	843
Landsberg, Roe	195, 295	Li, Yong	843
Lang, Stephan	522, 168	Li, Yunchuan	166
Langdon, Cristobal	463	Lie, Erik S.	209
Langdon Montero, Cristóbal	586	Lijdens, Yesica	138
Langner, Soenke	430	Liliana, NITU	627
Lanzillotta, Marco	479	Lilja, Markus	704
Lapenna, Ruggero	585	Lilja-Fischer, Jacob Kinggaard	95
Larsen, Knud	570	Lim, Li Yun	341
Larsson, Maria	165	Lim, Sang Chul	510
Larsson, Olivia	227	Lima, Antonio	392
Lasso, Andrea	113	Lin, Bing-Yi	301
Latorre, Manuela	539	Lin, Chengyu	219
Latysheva, Elena	24, 65	Lin, Chih Feng	90
Latzonis, Ioannis	543	Lin, Chih-Feng	301
Laulajainen-hongisto, A	262	Lin, Fang-ying	420
Laulajainen-Hongisto, Anu	704	Lin, Peng	843
Laundy, Matthew	744	Lin, Sandra	247
Laurell, Göran	38	Lin, Yi Tsen	90
Lavigne, Philippe	152	Lin, Yi-Tsen	393
Layous, Eli	296	Lin, Yi-Tsen	301
Lazarova, Lepa	61	Lindemann, Joerg	538
Lazarovich, Tzila	28	Lindemann, Jörg	118
Lazecka, Katarzyna	275, 276, 277, 259, 273	Lindow, Mark	310
Lazecka, Katarzyna	560	Lingam, Ravi	637, 643
Le Taillandier de Gabory, Ludovic	263	Linton, Stefan	783
Lecanu, Aurelie	366	Little, Paul	82
Lecanu, Jean-baptiste	100, 366	Little, Sarah	625, 786, 657

Lechner, Matt	683	Little, Sarah	744
Lee, Chuan Yao	257	Liu, Feng	843
Lee, Dennis LY	423	LIU, ZHIQIANG	161
Lee, Dong Hoon	510	LIU, ZHIXIAN	161
Lee, Eun Jung	388, 795, 532	Llorente, Jose L.	683
Lee, Eun Jung	376	Lloyd Jones , Tom	475
Lee, Eun Kyu	526	Lobo, Christopher	684
Lee, Heung-Man	159, 160	Lodder, Wouter	2
Lee, Hyun-Sil	324	London, Nyall	247
Lee, Jae-Hoon	42	Longari, Fabrizio	585
Lee, Jivianne	329	Lopa, Ramon Antonio	386
Lee, Jivianne	305	López-Chacon, Mauricio	586
Lee, Kristina	684	López-Chacón, Edgar Mauricio	663
Lee, Sang-Nam	130	LOUIS, Bruno	471, 473
Lee, Seung Hoon	271	Lourenço, Artur	655
Lee, Stella	247	Lourijnsen, Evelijn	767, 778, 759
Lee, Sung-Hyeon	524	Lucas, Jane	411, 749
Lee, Sung-Hyeon	523	Lucidi , Daniela	465
Lee, Ta Jen	257	Luckman, Judith	295
LEE, OHHYEONG	509	Luis, Leonel	477, 655, 747, 755, 766, 642
Lefebvre, Philippe	225, 226	Luís, Leonel	714, 644, 647, 654, 659, 740, 741, 742
Leibovitch, Igal	320	Luís, Leonel	484, 665, 668, 771
Leite, Marcelo	553	Lund, Valerie	683
Leith, Nicholas	517	Lundberg, Marie	286
Leonardo, Abilio	677	Lundkvist, Karin	721
Leone, Federico	618	Lupescu, Iulia	571
Leong, Samuel	2, 61, 854, 1, 299	Luukkainen, A	262
Leppä, Sirpa	146	Lygeros, Spyridon	550
<b>M</b>			
Ma, Youxiang	662	Messmer, Catalina	569
Mackers, Paula	593	Metcalfé, Christopher	87
Macri, Giovanni	438, 439	Mettias, Bassem	757
Maculan, Pietro	171	Meyer, Tim	683
Madalan, Elena	531	Mezősi, Emese	604
Madani, Gitta	71	Mfuna Endam, Leandra	267, 327, 176
Madrenas , Joaquin	176	Mfuna-Endam, Leandra	113
Maeda, Yohei	233, 254, 278, 289, 290, 375	Michel, Olaf	3
Maillé, Émilie	179	Mickielewicz, Aleksandra	276, 277, 560, 273, 558, 563
Maillé, Émilie	180	Midilli, Rasit	474
Mäkinen, Laura	634	Midwinter, Katie	757

Makino, Takuma	246	Mihnea, CONDEESCU	627
Mäkitie, Antti A	146	Milanese, Laura	525
Malard, Olivier	196	Milara Payá, Javier	253
Maldaner, N	380	Milioni, Athanassia	468
Maleš, Josip	348	Milovanovic, Jovica	222
Malm, Ian	324	Minami, Takafumi	291
Malyavina, Ulyana	24, 65	Miranda, Daniel	392
Manciula, Dorin	230	Mistry, Nina	712, 764, 773
Manciula, Lavinia- Gianina	230	Mistry, Sandeep	241, 242
Manea, Claudiu	345, 347, 359	Mitran, Denisa	688, 719
Maniakas, Anastasios	267	MITRAN, Denisa	627
Mannent, Leda	648, 214	Mitsuyoshi, Ryoto	540
Mannisto, Susanna	146	Miura, Makoto	64
Mañós, Manel	269	Miwa, Takaki	73, 300
Maragoudakis, Pavlos	806	Miyabe, Yui	255
Maragoudakis, Pavlos	805	Miyaguchi, Mamoru	289
Marais, Joe	643	Miyake, Yuko	379
Marais, Joseph	760	Miyashita, Keisuke	515
Marangoudakis, Pavlos	543	Miyazaki, Takuya	81
Margalani, Osama	213	Mizuguchi, Hiroyuki	373, 223
MARGLANI, OSAMAM	673	Mizuta, Hironobu	81
Mariani, Ervina	142	Moen , Kent G.	419
Markou, Konstantinos	36	Moerseto, Mulyaningrum	734
Markowski, Jarosław	5	Mohd Zulkiflee, Abu Bakar	816
Marn Joon, Park	304	MOKARBESH, HADI	673
Marom, Tal	20	Møller, Christine	801
Maroudias, Nikos	829	Molteni, Giordano	594
Marques, Marta Canas	714	Momirovic, Aleksandar	548
Marques, Tiago	647	Monaghan, Harry	310
Marques dos Santos, José	686, 776, 790, 697	Monteiro, Daniel	784
Marques Pinto, Luis	733	Montserrat-Gili, Juan R.	549
Marshak, Tal	296, 551	Moore, John	247
Marson, Fernando Augusto Lima	502, 503, 504	Morand, Gregoire	34
Martínez Font, Agustín	136	Morawska-Kochman, Monika	293, 398
Martinez-Devesa, Pablo	464	MOREAU, Sylvain	361
Martini, Alessandro	170, 171	MOREAU, SYLVAIN	354
Martins, Paulo	740, 741, 742	Moreira, Carla	483, 486
Martins Jr, Ronaldo B	337	Moreira, Filipa	392
Masalha, Muhamed	295	Morera Serna, Eduardo	149, 150

Masegur-Solench, Humbert	549	Mori, Eri	210, 540, 588
Matsubara, Atsushi	128, 272	Morikura, Ichiro	89
Matsumoto, Koji	111	Morikura, Ichiro	88
Matsunaga, Mami	252	Morinière, Sylvain	196
Matsune, Shoji	326, 64	Morris, Steve	629, 750
Matsushiro, Naoki	290	Mortuaire, Geoffrey	35, 196
Matsuura, Kentaro	12	Mouchon, Emmanuelle	355, 358, 360
Matsuyama, Yuko	246	Moura, Ivo	483, 486, 705
Mattavelli, Davide	702, 706, 707	Mouraux, André	455, 612
Matthaiopoulou, Theofani	80	Moya-Plana, Antoine	35
Mattheis, Stefan	522, 753, 168	Mueller, Christian A.	397
Mazilu, Gabriel	237	Muhandiram, Eindrini	331
Mazzatenta, Diego	433, 525	Mulazimoglu, Selcuk	639
McClelland, Lisha	487	Mulla, Omar	429
McDermott, AnnLouise	472	Mullings, Warren	728
McGarry, Gerald	104, 441	Mullol, Joaquim	463, 578, 663, 67, 68
McGarry, Gerald	737, 44	Mun, Sue Jean	385
McGarry, Gerry	414	Munteanu, Gloria	444, 688
McLeod, Robert	792	Munteanu, Gloria	719
Meco, Cem	639, 653, 636	MUNTEANU, GLORIA	671
Mehta, Nishchay	141	MUNTEANU, Gloria	627
Meier, Eva	798	Munzel, Ullrich	580
Melachrinou, Maria	550	Murai, Aya	302
Melendez Garcia, Jose Manuel	150	Murariu, Octavia	312, 313
Melia, Louise	737	Murashima, Adriana A B	337
Melinte, Gabriela-Violeta	459	Murgatroyd, Stephanie	566
Meloni, Marisa	568, 595, 614, 630	Murray, Ruth	578
Meltzer, Eli O.	580	Mus, Lisabeth	626
Mendonça, Thais	211	MUSLEH, ABDULLA	673
Nociti de		Muzaffar, Jameel	87
Mentzel, Heribert	569	Myller, J	262
Merlo, Enrico G.	594		
Mesalles R, Marta	178		

## m

muntarbhorn, kanit 199

## N

Na, Hyung Gyun 217

Nagamine, Masayoshi 47

Nicolaescu, Alexandru 317, 444, 688

NICOLAESCU, Alexandru 627

Naidu, Tesuven	603	NICOLAESCU', ALEXANDRU	671
Nair, Salil	107, 127	Nicolai, Piero	683, 702, 706, 707
Nakagawa, Takayuki	250, 252	Nicolau Fernandes, António	644
Nakaji, Shigezuki	128, 272	Niemczyk, Kazimierz	628
Nakamaru, Yuji	19, 11	Nilssen, Erik	475
Nakamura, Akihiko	64	Ninomiya, Hideaki	300
Nakamura, Yukari	300, 391	Ninomiya, Takahiro	623
Nakatani, Ayaka	290	Nip, Lawrence	268
Nakayama, Tsuguhisa	23	Nirmal Kumar, B	562
Nally, Michael	652	Nishizaki, Kazunori	110
Nam, Kwang Il	256	Nishizaki, Kazunori	72, 302, 74, 246
Naoi, Yuto	246	Nitu, Liliana	688, 719
Nardello, Ennio	170, 171	NITU, LILIANA	671
Navaratnam, Annakan	637, 643	Nix, Paul	242
Nawir, Rismayanti	260	Nix, Paul	241
Naxakis, Stephanos	550	Noda, Takuya	300, 390
Nayak, Jayakar	23	Noel, Christopher	518
Nayan, Smriti	267	Noguchi, Emiko	144
Neagos, Adriana	661, 676	Nogués Sabaté, Anna	463
Neagos, Cristian	661, 676	Nomura, Ayami	128
Mircea			
Nepp, Nelli	604	Noon, Edward	562, 565, 306
Neves, Marta	624	Nordgård, Ståle	419
Newby, Rachel	281	Numminen, J	262
Nguyen, Duc Tung	580	Numminen, Jura	704
Nicacio, Jardel	501	Nylander, Karin	38
<b>O</b>			
Obata, Sho	278, 290	Omura, Kazuhiro	344, 515
Ogino-nishimura, Eriko	105	Onerci Celebi, Ozlem	844
O'Hara, James	587	Ong, Qi Jia	369
Ojeda, Miguel Angel	54	Oppermann, Udo	683
Ojeda Rodríguez, Miguel Ángel	53	Oproiu, Ana Maria	266
Okabe, Yuki	379	Oremule, Babatunde	723
Okano, Hirotaka James	210	Oreški, Ivan	322
Okano, Mitsuhiro	72, 74, 110	Orgain, Carolyn	323, 513
Okazaki, Ken	145, 552	Orishchak, Ostap	129
Okhovat, Saleh	679, 674	Orita, Yori-hisa	110, 246
Okonkwo, Arthur	108	Orsel, Stephane	35
Okonkwo, Okechukwo	783	Osborne, Sarah	786
Okubo, Kimihiro	326	Osei-Kuffour, Denise	768
Okutani, Fumino	379	Otani, Shiori	289

Olafsson, Thorarinn	672	Otori, Nobuyoshi	210, 344, 515, 540, 588
Oliveira, Vitor	655, 747, 755, 766, 642	Ottaviano, Giancarlo	170, 171
Oliveira, Vítor	740, 741, 742	Oviedo Santos, Ángeles	31
Oliveira, Vitor	771	Oviedo Santos, Ángeles	32
Oliveira, Vítor	665, 668	Oviedo Santos, Ángeles Mercedes	53, 59
Oliveira e Carmo, Diogo	481, 700, 733	Ovnat-Tamir, Sharon	20
Olofsson, Katarina	38	Oz, Itay	351
Olzowy, Bernhard	133	Ozdemir, Mehmet Hakan	29
Omichi, Ryotaro	110	Ozturan, Orhan	29, 30
Omori, Koichi	250, 252		

## Ö

Önal, Kazım	701	Özcan, Kursat Murat	342
-------------	-----	---------------------	-----

## P

Paço, João	700, 733	Petrou, Ioanna	735
Page, Dean	799	Phillips, Katie M.	445, 519
Paggiaro, Pierluigi	539	Phillips, Nicholas	241, 242
Palade, Dragos	237	Phillips, Rupert	652
Palma, Pietro	462	Philpott, Carl	82, 102, 265, 282, 629, 762, 139
Paludetti, Gaetano	409	Philpott, Carl	750
Paludetti, Gaetano	465	Picado, Cesar	578, 663
Paluzzi, Alessandro	87	Picado, César	67, 68
Panagiotaki, Irini	468	Piccioni, Lucia Oriella	729
Panchmatia, Rikesh	728	Pietrobon, G	777
Pandey, Kieran	215	Pilavakis, Yannis	681
Pangalu, A	380	Pilch, Jan	5
Panotopoulou, Efstathia	829	Pilkington, N	775
Pantazopoulos, Theodoros	543	Pillay, Nischalan	683
Papadakis, Ioannis	80	Pimentel, João	94, 758
Papadakis, Vassilis	536	PINIARA, ANASTASIA	829
PAPADAKIS, CHARITON	184, 183	Pinna, Fábio	101
Papadimitriou, Nikolaos	543	Pinto, Rohan	650
Papadimitriou, Nikos	805, 806	Pinyopornpanish, Poj	613
Papadopoulou, Dionyssia	280	Pipolo, Giorgia Carlotta	685
PAPON, Jean-Francois	471, 473	Piski, Zalán	604

Paraschiv, Bianca	489	Plaza, Vicente	67, 68
Pardo Muñoz, Laura	549	Plaza Serón, María del Carmen	589
Parekh, Kishan	826	Pohl, Wolfgang	579, 582, 584
Park, Dong-joon	309	Poirrier, Anne-Lise	225, 226
Park, Joo-Hoo	159, 160	Polainas, Sofia	505
Park, Woo Sung	381	Poletti, Sophia C.	165
Parreño, Matías	138, 136	Polev, Georgiy	460, 476, 457
Pascu, Paula	444, 719	Polymerou, Ioannis	833
PASCU, PAULA	671	Pop, Sever	617
Pashkova, Aleksandra	24	Popescu, Bogdan	444, 688, 719
Pasquini, Ernesto	432, 433, 438, 439, 525, 437, 446	Popescu, Cristian	688
Patel, Sachin Tushar	215	POPESCU, BOGDAN	671
Pathmanaban, Omar	789	POPESCU , Bogdan	627
Patrao, Francisco	776, 790	Popovych, Vasyl	416
Patrão, Francisco	686, 697	Portillo, Patricia	136
Patron, Vincent	361	Potter, Kathleen	598
PATRON, VINCENT	354	Powell, Steven	108
Paula , PASCU	627	Pratas, Ana Catarina	139
Paun, Oana	688	Prates, Mirela	553, 554
Paun, Oana Alexandra	719	Prepageran, Narayanan	341, 816
PAUN, OANA	671	Price, David	580, 751
PAUN , Oana	627	Prihartono, Joedo	734
Pazdro-Zastawny, Katarzyna	293	Prill, Matthias	541
Pedro, Paula	507	Prina, Douglas	101
Pender, SL	333	Probst, Elisabeth	201
Pender, Sylvia	188	Proctor, Ian	720
Pender, Sylvia LF	431	Proença, Vitor	507
Pendolino, Alfonso Luca	170, 171	Profazio, Vincenzo	438
Penezić, Ana	724	Proikas, Kostas	806
Penttila, Matti	315	PROIMOS, EFKLIDIS	184, 183
Pereira, Gabriel	697	Prokopakis, Emmanuel	401, 461, 544
Pereira, Paulo Rocha	714	Prokopakis, Emmanuel	536, 458, 468
Pereira, Silvia	699, 758	Pujol-Olmo, Albert	549
Perez, Natalia	589	Pujols, Laura	578, 663
Perez-Gonzalez, Maria	578	Pulickal, Geoiphy	637
Peric, Aleksandar	57, 66	Punagi, Abdul Qadar	142
Perkasa, Fadjar	261	Pusey, Charles	794
Peronni, Kamilla	337	Putala, M	350
Peter, Krunoslav	548	Pylyp'yuk, Myroslava	129
Petersen, Kristian Bruun	95		

## Q

QIU, SHUQI	161
Qu, Infei	89
Quadrio, Maurizio	685

## R

Rabie, Amr	40
Rabinovics, Naomi	20
Rachmanidou, Anastasia	726, 319
Radler, Andrea	732
Radtsig, Elena	234
Ragagopal, Regini	464
Rahardjo, Sutji Pratiwi	260
Rajangam, Akshaya	842
Rakocevic, Zoran	134
Raluca, Grigore	627
Ramakrishnan, Yujay	757
Ramezanpour, Mahnaz	19
Rampinelli, Vittorio	702, 706, 707, 858
Randhawa, Premjit	338, 456
Randhawa, Premjit	675
Raposo, Diogo	483
Rato, Catarina	624, 632
Raue, Claudia	591
Rautiainen, Markus	704
Regli, L	380
Regli, Luca	798
Rego Silva, Deodato	733
Reis, Mariah	412
Reiser, Vadim	351
Reitsma, Sietze	704
REN, Jianjun	10
Renkonen, R	262
Renner, Bertold	397
Rennie, Catherine	310, 338, 399, 440, 491, 542, 99, 369, 641
Rennie, Catherine	603, 607
Renteria Flores, Axel Eluid	267
Resler, Katarzyna	293, 398
Reville, Nicolas	263
Režný, Zdeněk	112
Rha, Ki Sang	232
Rha, Ki-sang	383
Ribeiro, Cristovão	769

Quenon, Lisa	455
Qureishi, Ali	464

Rizou, Aikaterini	735
Roberts, David	826
Roberts, Graham	411
Roca-Ferrer, Jordi	578
Rodrigo, Gustavo	67, 68
Rodrigues, Desiderio	472
Rodrigues, Filipe	776, 790, 697
Rodrigues, Filipe	686
Rodrigues, Kleber	101
Rodrigues, Pedro	642
Rodriguez, Kathleen	374
ROGER, Vivien	354
Rogister, Florence	225, 226
Rogojan, Liliana	617
Roh, Hwan-Jung	385
Rokade, Ashok	694
Roldan Hirai, Élcio	501
Romanello, Matteo	409
Rombaux, Philippe	455, 612, 800
Romero Ros, Xavier	664
Rondon, Carmen	589, 621
Ronen, Ohad	296
Rongen, Jan	189
Roongpuvapaht, Boonsam	613
Roque Farinha, Rosa	654, 659
Roque-Farinha, Rosa	93
Rosa, Helena	505, 507
Rosenberg, Tine	335
Rösner, Jana	389
Ross, Elizabeth	37
Roth, Yehuda	13
Roth, Yehudah	33
Rouhani, Maral	363
Rousseau, Simon	179, 180, 176
Rovers, Maroeska	189, 190
Rovó, László	732
Rozenkrantz, Liron	33



Riboldi, Anna	432
Ricci, Angela Luisa	585
Ricci, Giampietro	585
Richards, Polly	495
Riechelmann, Herbert	191, 251, 683, 332, 622
Riedl, David	332, 622
Riedl, David	251
Riga, Maria	550
Rigante, Mario	409
Rimmer, Janet	303
Rimmer, Joanne	537, 799
Rita Santos, Ana	644

Rubek, Niclas	801
Rueter, Gina	597
Ruffin, Manon	179
Ruffin, Manon	180
Rumeau, Cécile	196

Rusetska, Nataliia	447
Rusetsky, Yuri	77, 24, 65, 76
Russo, Francesco	777
Russo, Massimiliano	171
Ryott, Michael	264
Ryu, Gwanghui	526

## S

SAAID, AMINA	568, 595, 614, 630
Sacks, Raymond	323, 514, 517
Saeed, Haroon	96
Safadi, Ahmad	351
Saibene, Alberto Maria	685
Sainio, Sara	286
Saito, Hidekazu	255
Saito, Shota	540
Saito, Tsuyoshi	567
Sajin, Maria	266
Sakagami, Masafumi	145, 552
Sakamoto, Hirokazu	803

Sakamoto, Tatsunori	252
Sakano, Eulalia	502, 503, 504
Sakano, Eulália	412
Sakashita, Masafumi	623
Salam, Mahmoud	218, 535
Salamat, Ali A	431
Saleh, Hesham	310, 399, 440, 542, 99, 369, 603, 607, 610, 641

Salib, Rami	280, 281, 411, 689, 749, 678, 681
-------------	--------------------------------------

Salib, Rami	188
Salib, Rami J	431
Salib, RJ	333
Salonna, Giampiero	409
Salvador , Pedro	791
Salvati , Antonio	409
Sami, Amtul	203
Samoy, Katrien	728
Sampaio, Marcelo	412

Shi, Jianbo	512
Shi, Li	843
Shiga, Hideaki	73, 300
Shih, Liang Chun	23
Shikina, Takashi	692, 290

Shimizu, Shino	111
Shimizu, Takeshi	111
Shimizu , Yasuhiko	88
Shimmura, Hajime	588
Shin, Jae-min	159, 160
Shin, Seung-heon	521
Shoffel-Havakuk, Hagit	175
Shu, Chih-Hung	343
Shubin, Dmitriy	476, 457
Shushan, Sagit	33
Siarnik, P	350
Siedlecki, Janusz A.	447
Sierdziński, Janusz	231
Sigalou, Efi	806

Sigalou, Efi	805
--------------	-----

Sillanpää, Saara	704
Silva, Ana Teresa	452, 115
Silva, Cesar	655, 642
Silva, César	755, 766, 665, 668
Silva, César	771
Silva, Deodato	452, 94, 115
Silva, Diana	392
Silva, Lílian E C M	337
Silva, Nasjla	501

Sampaio, Marcelo Hamilton	502, 503, 504	Silva Jr, Wilson A	337
Sanders, Oliver	499	Silveira, Mariana L C	337
Sandhu, Guri	794	Silventoinen , Kaija	146
Sandison, Ann	71	Silver, Benjamin	675
Sands, Paula	411	Simione, Silvia	462
Sanghera, Paul	87	Simon, François	366
Sansoni, Eugene Ritter	513, 514	Simonetti, Gabriela	178, 325
Santamaria, Paloma	54	Singh, Narinder	490, 492, 494
Santamaría Blanco, Paloma	53	Siva Junior, Wilson	556
Santamaría Gadea, Alfonso	586	Sjöstedt, Sannia Mia	336
Santana Rodríguez, Alfredo	31	Skandsen , Toril	419
Santoro, Francesco	594	Skarzynski, Henryk	276, 277, 560, 259, 273, 558, 563
Santos, Ana Rita	647, 654, 659, 742	Skarzynski, Piotr	276, 277, 560, 259, 273
Santos, Mariline	481, 784, 493	Skoupa, Jana	197
Santos, Ricardo	752	Slinger, Chris	414
Santos , Ana Rita	665	Slinger, Christopher	104
Sanuki, Tetsuji	250	Slovick, Anna	542
Sarafoleanu, Codrut	362, 489, 359, 459	Smith, Mary	762, 775
Sarafoleanu, Codrut	345, 347	Smith, Matthew E	762, 775
Sargur, Ravishankar	751	Snidvongs, Kornkiat	92, 122
Sarid, Miri	739	Snyderman, Carl	152
Sarnowska, Elżbieta	447	Soares, Vera	686, 776, 790, 697
Sasaki, Takahiro	158	Sobel, Noam	13, 33
Sasaki , Takanobu	291	Soklič Košak, Tanja	330
Sata, Naoko	400	Sollini, Giacomo	525, 437, 446
Sato, Shin-ichi	81	SOLMAZ, DÍLEK	656
Sato, Yasuharu	110	Sommer, Fabian	118, 538
Sava, Lavinia	583, 581	Song, Jin	523, 524
Savlevich, Elena	294	Song, Si-Youn	217
Scadding, Glenis	340, 751	SONG, In Sik	271
Scadding, Guy	340	Soudry, Ethan	195, 449, 450
Scarano, Mariella	539	Soudry, Ethan	645
Scarpa, Bruno	170	Sousa, Heredio	705
Schalek, Petr	17, 713	Sousa, Herédio	483, 486
Schartinger, Volker	683	Sousa, Rita	782, 699, 746, 752, 758
Schechter, Eyal	763, 774	Sousa, Sofia	776, 790
Schelini, Juliana Carolina	501	Soyka, MB	380
Schilder, Anne	82, 141, 282, 629	Soyka, Michael	34, 201, 334, 590, 798, 200, 202
Schilder, Anne	750	Soyka, Michael B.	596, 599
Schlegel, Christoph	202	Soyka, Michael B.	606

Schlüter, Anke	522, 753	Spadijer-Mirkovic, Cveta	57
Schlüter , Anke	168	Speleman, Kato	461
Schneider, Daniel	364	Speleman, Kato	458
Scholfield, Daniel	71, 99	Speleman, Kato	626
Schreiber, Alberto	702, 706, 707	Speth, Marlene	445
Schriever , Valentin	424	Spiranskaya, Olga	77, 24, 65, 76
Schueller, Ulrich	683	Spits, Hergen	664
Schwartz, Joseph	176	Srisunthornphanich, Chanyanuch	92
Schwarz, Yehuda	20	Staatjes, V	380
Sciarretta, Vittorio	439, 437	Stähr, Kerstin	522, 753
Seccia, Veronica	539	Stähr, Kestin	168
Sedaghat, Ahmad R.	445, 519	Stancheva, Olga	147, 169
Sedillot, Eve	327	Stanciu, Alex George	661
Segboer, Christine	405	Stavrakas, M	833
Seikaly, Hadi	518	Stavrakas, Marios	566, 243, 245, 371
Sekine, Kuwon	326	Steelant, Brecht	401
Sekine, Rumi	344, 540, 588	Steele, Chris	683
Sela, Eyal	551	Stefan, Anda	661, 676
Sella, Guilherme	211	Steineger, Johan	403
Constante Preis		Stern, Daniel	645
Sella, Juliana Augusta	211	Stewart, Alexandra	598
Semchyshyn, Ihor	346	Stjarne, Par	579, 582, 584
Senturk, Erol	30	Strek, Pawel	259
Seo, Min Young	520	Student, Volodymyr	162
Seong, Jong Yuap	256	Sugimoto, Kayo	379
Seresirikachorn, Kachorn	92	Sugiyama, Eriko	379
Sergeeva, Nataliya	77, 76	Suh, Jeffrey	305, 329
Serra, Carlo	798	Sujana, Sophian	261
Serrano, Elie	355, 358, 360	Sultonov, Doston	631
Serrano, Thiago	502	Sun, Yueqi	512
Serrano, Thiago Luís	503, 504	Sunkaraneni, Sankalp	598
Infanger		Surda, Pavol	220, 350, 363
Serras, Joana	782	Surda, Pavol	826, 842
Setou, Mitsutoshi	623	Suroyo, Indrati	734
Seys, Sven	401	Suwanparin, Nichana	92
Shamil, Eamon	220, 363	Suzuki, Masanobu	19, 11
Sharma, Rishi	102, 414, 44, 70, 104, 441, 730	Suzuki, Mikio	216, 274
Shcherbynska, K.	413	Suzuki, Yasuhiro	530
Shebeko, Sergii	394, 466	Svaza, Juris	448
Shemesh , Shay	20	Svedberg, Marie	264
Shen, Keng Chung	90	Swift, Andrew	470
Shen, Keng-Chung	393	Szakács, László	732
Shetty,	127		
Subhaschandra			
Shetty Kadri, Dillan Kumar	684		

## Ś

Ślaska-Kaspera, Aleksandra 5

## T

Ta, Ngan Hong	265, 70	Tolley, Neil	603
Tabaran, Flaviu	230	Toma, Abbad	625, 657
Tabaskert, Ayla	399	Toma , Abbad	744
Tachibana, Tomoyasu	246	Tomanovic, Nada	222
Tadic, Ljilja	622	Tomaszewska, Małgorzata	447
Taglietti, Valentina	706	Tomazic, Peter Valentin	395, 396, 397
Taha, Ahmed	41	Tomé, Diogo	484
Takabayashi, Kosuke	47	Tomé, Diogo	714
Takabayashi, Tetsuji	623	Tønnesen, Philip	801
Takagi, Dai	11	Toppila-salmi, Sanna	704
Takahara, Junko	302	Toppila-Salmi, S	262
Takahata, Junko	272	Toro, Mariana	412
Takaiwa , Fumio	89	Toro, Mariana Dalbo Contrera	502, 503, 504
Takayuki Uehara,	274	Torres, Maria Jose	589
Takayuki Uehara		Torres, Maria Jose	621
Takeda, Kazuya	254, 278, 289, 290, 375	Torres Aguiar, María Jesús	32
Takeda, Noriaki	373, 223	Toya, Yutaka	105
Tamaki, Hisanobu	81	Toyama, Masakuni	216
Tamashiro, Edwin	211, 553, 554, 556	Toyama, Masatomo	274
Tamashiro, Edwin	337	Trần , Phan Chung Thủy	817
Tan, Irene	517	Tran Le, Thuy	508
Tan, Martin	141, 268	Tran Minh, Trang	508
Tanaka, Hirotaka	540	Tricarico, Laura	409
Tanaka, Shuho	250	Tricarico, Laura	465
Tanaka, Yasuhiro	344, 515	Trimarchi, Matteo	479
Tanase, Ionut	345	Trivic, Aleksandar	222
Tang, Eric CH	423	Trivic, Krejovic	222
Tang , Ing Ping	341	Tsagkatakis, Grigorios	536
Tangbumrungtham, Navarat	613		
Tanjararak, Kangsadarn	613	Tsai, Yih-Jeng	45
Tanji, Masahiro	252	TSAKIRAKI, ELENA	184
Tanzeela, H	262	Tsimplaki, Elpida	829
Tao, Zezhang	843	Tsinaslanidou, Zinovia	735
Tasca, Ignazio	807	Tstuda, Takeshi	290
Tatwani, Tariq	797	Tsuda, Takeshi	254, 278, 289, 375
Tavares, Rui	686, 776, 790	Tsuji, Fumio	291

Tei, Masayoshi	210, 540, 588	Tsukadea, Osamu	64
Teixeira, Henrique	507	Tsunoda, Atsunobu	400
Tengroth, Lotta	227	Tsutsumi, Takeshi	530
Terzic, Andrej	285	Tsuyama, Sho	567
Tewfik, Marc	155	Tsuzuki, Kenzo	145, 552
Themelis, Sotirios	829	Tsvirinko , Iryna	427
Thomas, Lucie	471	Tugrul, Selahattin	30
Thomas, Mike	82, 282, 629	Tulli, Michele	479
Thomas, Mike	750	Turner, Justin	192
Thotambailu, Amulya	6	Turri-Zanoni, Mario	618, 683, 706, 715
Tian, Hao	662	Turri-Zanoni, Mario	785, 777
Tillema, Alice	189	Turri-Zanoni, Mario	770
Timm, Sinje	430	Tusaliu, Mihail	583, 581
Ting, Fiona	826	Tyagi, Atul	241
Tinoco, Catarina	700, 733	Tyagi, Atul	242
Toh, Miri	567	Tzelnick, Sharon	449, 450
Tojima, Ichiro	111	Tzelnick, Sharon	175
Tokunaga, Takahiro	623		

## t

ten Dam, Ellen	177	ter Haar, Elke	190
----------------	-----	----------------	-----

## U

Ubayasiri, Kishan	762	Ungureanu, Ramona	531
Ucer, Cemal	625	Unlu, Agahan	653
Udall, Gavin	96	Uno, Atsuhiko	233
UDAYABHANU, H.N	435	Urbancic, Jure	186, 330, 682
Uddman, Rolf	227	Urbančič, Jure	453
Ueda, Denis	101	Urquiola, Federico	138, 136
Uehara, Takayuki	216	Urs, Rodica	680, 698, 731
Ugrinovic, Aleksandar	222	Uzokov, Azizbek	140
Unadkat, Samit	310, 440, 491, 495, 641		

## V

Vagić, Davor	724	Vermeulen, Karin M.	177
Vähämurto, Pauli	146	Viana, Miguel	632, 677
Valenta, Rudolf	690	Vicheva, Dilyana	49, 50, 51
Valenzise, Valerio	594	Vicini, Claudio	124
Valera, Fabiana	179, 180, 337, 553, 554, 556	Vik, Anne	419
Valera, Fabiana Cardoso Pereira	211	Villacorta, Pio Renato	386
Valera Cardoso, Fabian	176	Vinciguerra, Alessandro	479
Valero, Antonio	578	Vintila, Roxana	571
Valido Quintana, Mercedes	31, 32, 59	Virk, Jagdeep	675

Valls Mateus, Meritxell	586	Virk, Jagdeep	338
Van Gerven, Laura	463	Virkkula, Paula	704
Van Zele, Thibaut	173, 195, 461, 626, 458	Viswanathan, Harish	421, 478
Van-Gerven, Laura	586	Vital, Domenic	34
Varadarajan, Vinay	243	Vlaminck, Stephan	461, 626, 458
Varadharajan, Kiran	545, 610	Vlantis, Alexander C	423
Vardouniotis, Alexios	80	Vodička, Jan	112
Vargas, Alfredo	151	Voegels, Richard	101
Vasilenko, Irina	462	Vogel, Nicolas	334
Vasilokostantaki, Chrysoula	80	Vogt, Jeanne	361
Veer, Vikrant	497, 498, 499	Vogt, Klaus	541
Veer, Vikrant	496	Voilas, Georgios	80
Velegarakis, Georgios	544	Vojvodic, Danilo	57
Velegarakis, Georgios	468	Vokhidov, Ulugbek	631
Velegarakis, Stylianos	536	Volosovets, Anton	415
Veloso-Teles, Rafaela	93	Volosovets, Oleksandr	413
Vendrell Marques, Bosco	601	Volosovets, T.	413
Vennik, Jane	82, 282	Völzke, Henry	430
Vento, Seija	704	Von Wihl, Sonia	167
Vento, Seija I	146	Voon, Pei Jye	341
Vereshchagina, Olga	147, 533	Vorozhtsov, Igor	476, 480, 457
Verge, Jesús	589	Vorozhtsov, Igor	460
Vergeer, Aaron	127	Vosshall, Leslie	454
Vergez, Sebastien	35, 355	Vreugde, Sarah	19
Vergez, Sébastien	360	Vrinceanu, Daniela	266, 318
Verillaud, Benjamin	35	Vukomanovic-Djurdjevic, Biserka	57, 66
Verlinde-Schellekens, Suzanne A.M.W.	249	Vuzitas, Alexis	347, 359
<b>V</b>			
van der Laan, Bernard F.A.M.	177	van Heerbeek, Niels	189, 190
van Drunen, Cornelis	664	von Buchwald, Christian	75
van Egmond, Machteld	189, 190	von Buchwald, Constantin	93, 801
van Hage, Marianne	690	von Kirschbaum, Constantin	569
<b>W</b>			
Wada, Kenichi	91	Westman, Marit	187, 690
Wada, Kota	12	Whitcroft, Katherine	141, 407, 683
Wahba, Basim	716	Whitcroft, Katherine L	406, 591, 597, 424, 611
Wakayama, Nozomu	326	Whitehead, David	772, 787

Walker, Abi	265	Whitely, William	220
Walker, Abigail	350, 352, 657	Whittaker, Joshua	757
Walker, Hamish	587	Whittet, Heikki	384
Walker, Woolf	411, 749	Wickman, Magnus	690
Walls, Andrew	188	Wilcsek, Geoff	517
Wan, Simon	683	Williams, A	775
Wang, Eric	152	Williams, Luke	683
Wang, Jing	131	Williams, Richard J	762, 775
Wang, Marilene	305, 329	Williamson, Andrew	44
Wang, Mingjie	166	Williamson, Elizabeth	629, 750
Wang, Tengchin	219	Wilson, Janet	587
WANG, ZAIXING	161	Wimalasooriya, Shakila	331
Wang , Yanjun	576	Wimmer, Wilhelm	364
Waniewska-Łęczycka, Martyna	231	Winqvist, Ola	721
Wardani, Retno	734	Witkowska, Edyta	276, 277, 560, 259
Warman, Meir	175	Witsell, David	670
Warner, Elinor	709	Wolf, Axel	395, 396, 397
Waser, Yves	599	Wollmann, Guido	683
Washiyama, Kohshin	73	Wong, Amy	537
Wasicka, Karolina	620	Wong, Eddy WY	423
Wattananatranon, Duangkamon	613	Wong, Eugene	39, 513, 514, 516, 517
Watts, Emma	764, 773	Wong, Michele	454
Wawszczyk, Sandra	259	Wong, Wai Keat	107
Wawszczyk, Sandra	273	Wood, Jane	139
Webb, Christopher	1	Wormald, Peter-John	19
Weda, Tamina	774	Wreesmann, Volkert	475
Weiss, Tali	13, 33	Wright, Kristen	340
Wells, Graham	683	Wright, Rosanna	650
Wen, Yihui	512	Wu, Ching Lung	257
Wengier, Anat	320	Wu, Jeffanie	192
Westhofen, Martin	781	Wu, Xia	576
Westin, Ulla	721	WU, YONGJING	161

## X

Xanthou, Ioanna	735	Xu, Yang	10
Xia, Jiao	662	Xu, Yuan	227
Xu, Jun	383	Xu, Zheng-min	308
Xu, Rui	843		

## Y

Yacoub, Abraam	364	Yeh, Te Huei	90
Yahav, Dafna	645	Yeh, Te-Huei	301
Yamada, Kentaro	300	Yeh, Te-Huei	393
Yamada, Takechiyo	255	Yenigun, Alper	29
Yamada , Takaya	89	Yıldırım, Güven	342
Yamaguchi, Satoshi	326	Yin, Tary	127

Yamamoto, Yoshifumi	233
Yamashita, Masaru	252
Yamashita, Yukashi	216, 274
Yang, Beibei	843
Yang, Gui	161
Yang, Hyung Chae	510, 256
Yang, Hyun-Woo	159, 160
Yang, Qingtai	512
Yang, Yucheng	843
Yaniv, Dan	645
Yao, Alexander	96
Yarbrough, Wendell G.	683
Yaremchuk, Svitlana	417
Ye, Mi-Kyung	521
Ye, Shengnan	843

Yong, Li	824
Yong Ju, Jang	304
Yoo, Byung Joon	381
Yoon, Young Hoon	232
Yoon, Young Hoon	383
Yorulmaz, Irfan	639
Yoshida, Atsuhiko	81
Yoshino, Ayaho	121
Yoshioka, Yuma	326
Yoshizawa, Akira	81
Younes Badwy, Abdelrahman	367
Young, Karen	683
Yu, Hak Sun	385
Yu, Kong Leong	341
YUN, Hee-Chul	271

## Z

Zabolotna, Diana	426, 427
Zabolotnyi, Dmytro	426, 427
Zagor, Mariola	231, 447
Zagor-Popko, Mariola	249
Zaharia, Petronela	237
Zaharoff, Nur Ayne	683
Zaimoglu, Murat	653
Zakiah, Azmi Mirah	260
Zappoli Thyriion, Francesco	437
Zappoli-Thyriion, Francesco	432, 433, 438, 439
Zaripova, Lola	284
Zatoński, Tomasz	398
Zeid, Nabil	716
ZENG, XIANHAI	161
Zerah-Lancner, Françoise	473
Zhang, Gehua	843
Zhang, Hua	843
Zhang, Luo	841
Zhang, Ruxiang	662
Zhang, Yamei	843
Zhang, Yuanpei	641
Zhao,	843
Zhao, Yuyuan	299

ZHAO, HAILIANG	161
Zhiqi, Ma	824
Zhong , Gang	576
Zhou, Bing	166
Zhu, Dongdong	843
Zhukov, Oleg	608
Zhulai, Tetiana	466
Zielinski, Maxime	473
Zielinski, Maxime	100
Zinreich, James	648
ZISOGLU, MARIA	184, 183
Zlatanov, Hristo	123
Zlobina , Natalia	234
Zocchi, Jacopo	715, 770, 785, 777
Zoli, Matteo	433, 525
Zozulya, Andriy	415
Zozulya, Ivan	415
Zub, Krzysztof	398
Zub, Krzysztof	293
Zupanets, Igor	394
Zupanets, Kateryna	394
Zymberg, Samuel	501



# **Oral Abstracts**

## WHAT ARE THE CLINICALLY IMPORTANT OUTCOME MEASURES IN THE SURGICAL MANAGEMENT OF NASAL OBSTRUCTION?

Dr. Wouter Lodder<sup>1</sup>, Mr. Samuel Leong<sup>2</sup>

<sup>1</sup>Medisch Centrum Leeuwarden, Leeuwarden, Netherlands, <sup>2</sup>Aintree University Hospital NHS Foundation Trust, Liverpool, United Kingdom

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

**Aims:** to assess the correlation between the Nasal Obstruction Symptom Evaluation (NOSE) scale and peak nasal inspiratory flow (PNIF) measurement, and to determine which outcome variable correlates with patient satisfaction and thereby, successful surgical outcome.

**Participants:** Patients having surgery (septoplasty, turbinoplasty) for nasal obstruction

**Main outcome measures:** NOSE, PNIF, 5-point Likert scale (weighted from “very satisfied” to “not at all satisfied”) and a 10 cm visual analogue scale (0 = not at all satisfied, 10 = very satisfied).

**Results:** Forty-five (15 female) had complete datasets available for analysis. The mean pre-operative NOSE score was 78.4 (standard deviation, SD 14.8) and improved significantly to 23.0 (SD 19.1) post-operatively. A similar trend was observed where the mean pre-operative PNIF improved significantly by 40% from 91.8L/min (SD 28.2) to 139.9 (SD 27.9) following surgery. The mean improvement in NOSE score of the overall study cohort was 55.4 (SD 22.3) while the mean improvement in PNIF was 48.0 (SD 31.1). Although no correlation was observed between pre- and post-operative NOSE and PNIF, a significant ( $p=0.01$ ) but weak positive correlation ( $r=0.39$ ) was observed between the magnitude of change in NOSE and PNIF. The mean change in NOSE score of patients who were “very satisfied” with their nasal operation was 64.0 (SD 18.5), significantly higher compared to 39.2 (SD 17.9) in patients who were “satisfied”.

**Conclusions:** Patients who rate being either “satisfied” or “very satisfied” demonstrated significant improvement in NOSE and PNIF following their nasal surgery; the magnitude being twice the calculated minimal clinically important difference.

## EFFECTS OF BIFIDOBACTERIUM BREVE FEEDING STRATEGY AND DELIVERY MODES ON EXPERIMENTAL ALLERGIC RHINITIS MICE

Mr. Yang Xu<sup>1</sup>, Ms. Jianjun REN<sup>1</sup>

<sup>1</sup>West China Hospital, Chengdu, China

Rhinitis 1, Gielgud - Second Floor, April 24, 2018, 12:05 - 13:15

Background: Different delivery modes may affect the susceptibility to allergic diseases. It is still unknown whether early intervention with probiotics would counteract this effect. Objectives: The effect of different delivery modes on immune status and nasal symptoms was investigated on established allergic rhinitis (AR) mouse model. In addition, the immunoregulatory effects and mechanisms of different feeding manners with *Bifidobacterium breve* (*B. breve*) were examined. Methods: Live lyophilized *B. breve* was orally administered to BALB/c mice born via vaginal delivery (VD) or cesarean delivery (CD) for 8 consecutive weeks, after which they were sensitized by ovalbumin (OVA) to establish experimental AR. Nasal symptoms, serum immunoglobulins, cytokines, splenic percentages of CD4<sup>+</sup>CD25<sup>+</sup>Foxp3<sup>+</sup> regulatory T (Treg) cells and nasal eosinophil infiltration were evaluated. Results: Compared with VD mice, mice delivered via CD demonstrated more serious nasal symptoms, higher concentrations of OVA-specific immunoglobulin (Ig) E, more nasal eosinophils and lower percentages of splenic CD4<sup>+</sup>CD25<sup>+</sup>Foxp3<sup>+</sup>Treg cells after establishing experimental AR. These parameters were reversed by administering *B. breves* shortly after birth. However, the effect of *B. breve* did not differ between different delivery modes. Conclusion: CD aggravates the nasal symptoms of AR mice compared to VD. This is the first report that oral administration of *B. breve* shortly after birth can significantly alleviate the symptoms of AR mice born via both deliveries, probably via activation of the regulatory capacity of CD4<sup>+</sup> CD25<sup>+</sup>Foxp3<sup>+</sup>Treg cells.

## FROM NASAL TO NEURAL: THE EFFECT OF XYLOMETAZOLINE ON THE CENTRAL NERVOUS SYSTEM

Dr. Smadar Cohen Atsmoni<sup>1</sup>, Dr. Tali Weiss<sup>2</sup>, Prof. Noam Sobel<sup>2</sup>, Prof. Yehuda Roth<sup>1</sup>

<sup>1</sup>The Edith Wolfson Medical Center, Holon, Israel, <sup>2</sup>Department of Neurobiology, Weizmann Institute of Science, Rehovot, Israel

Acute Rhinosinusitis 1, Burton & Redgrave - Second Floor, April 23, 2018, 12:05 - 13:15

Xylometazoline is popular nasal decongestant with the properties of an alpha adrenergic receptor agonist. When applied intranasally, a fraction of the drug is considered to be absorbed into the systemic circulation. Neural activity secondary to xylometazoline treatment was previously observed. This study aims to assess whether topical xylometazoline in therapeutic doses alters behavior and neural activity.

**Methods:** 10 healthy volunteers participated in 4 scans (in 2 different sessions) of functional magnetic resonance imaging (fMRI). Scans were performed before and after applying either 0.1% xylometazoline preparation or normal saline. The experiment included four sessions in each scan: resting scan followed by 3 block-design tasks: auditory, finger tapping and visual 2-back working memory. In another time, 41 healthy volunteers participated in 2 sets of cognitive tasks. Once after applying 0.1% xylometazoline and the other after normal saline. The study included 6 tasks: two vigilance tasks, stop signal, verbal working memory, visuospatial short term memory and verbal 2-back working memory tasks.

**Results:** There was an increase in functional connectivity between the right and left dorsolateral prefrontal cortex 15 min after xylometazoline delivery during resting state. During finger tapping, 30 min after xylometazoline delivery, a significant decrease in BOLD response in the right inferior frontal gyrus was witnessed. In the cognitive tasks, the verbal working memory task reaction time was shorter 15 min after xylometazoline delivery.

**Conclusion:** Treatment with xylometazoline in therapeutic doses influences neural activity and cognitive performances in a limited way. Increased doses might elicit a more pronounced effect.

## SIRT-1 MODIFIES MMP9 IN PRIMARY NASAL EPITHELIAL CELLS UNDER INFLAMMATORY CONDITION.

Dr Masanobu Suzuki<sup>1</sup>, Dr Mahnaz Ramezani<sup>2</sup>, Dr Clare Cooksley<sup>2</sup>, Dr Jian Li<sup>2</sup>, Dr Yuji Nakamaru<sup>1</sup>, Prof Akihiro Homma<sup>1</sup>, Prof Peter-John Wormald<sup>2</sup>, Dr Sarah Vreugde<sup>2</sup>

<sup>1</sup>Faculty Of Medicine And Graduate School Of Medicine, Hokkaido University, Sapporo, Japan, <sup>2</sup>Department of Surgery–Otorhinolaryngology Head and Neck Surgery, the Queen Elizabeth Hospital, and the University of Adelaide, Adelaide, Australia

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

### Aim

MMP9 is considered to be involved in the etiopathogenesis of chronic rhinosinusitis with nasal polyps (CRSwNP) by cleaving collagen IV, causing hyperpermeability of the basement membranes within the sinus mucosa. MMP9 expression can be affected by sirtuin-1 (SIRT-1), an enzyme that deacetylates and thereby deactivates specific proteins.

We examined whether MMP9 expression in Human Nasal Epithelial Cells (HNECs) and sinus mucosa is affected by SIRT-1.

### Methods

MMP9 expression was evaluated in sinonasal tissue of non-CRS controls, CRS without nasal polyps (CRSsNP) and CRS with nasal polyps (CRSwNP) in relation to the expression of SIRT-1 using a tissue microarray (TMA) and immunofluorescence analysis. HNECs were incubated with SIRT-1 activators or inhibitors in the presence and absence of Poly(I:C), followed by qPCR, ELISA, immunofluorescence and zymography to examine MMP9 expression and activity.

### Results

A total of 35 tissue cores were examined in the TMA, showing an inverse correlation of SIRT-1 and MMP9 expression in CRS tissues ( $R=-0.31$   $p=0.0012$ , Pearson correlation) but not in healthy control tissues. In the absence of a pro-inflammatory stimulus, SIRT-1 activation or inhibition of HNECs did not affect MMP9 expression. However, SIRT-1 inhibition significantly augmented Poly(I:C)-induced MMP9 expression and reversibly, SIRT-1 activation inhibited Poly(I:C)-induced MMP9 expression.

### Conclusion

SIRT-1 modifies MMP9 expression only in inflammatory conditions. SIRT-1 could be a possible therapeutic target for nasal polyp, without any effects on homeostasis in the case of the non-inflammatory condition.

21

WITHDRAWN

## CONGENITAL STERNBERG'S CANAL IS CLINICALLY OVERESTIMATED DUE TO AN ANATOMICAL MISCALCULATION

Dr. Balegh Hamdy<sup>1</sup>, Dr Mostafa Ismail<sup>1</sup>

<sup>1</sup>*Minia University Hospital, Minia, Egypt*

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

**Aim:** The congenital Sternberg's canal is a rare clinical finding although it has been overestimated, in most clinical studies, as a main origin of spontaneous cerebrospinal fluid (CSF) leak coming from the lateral recess of sphenoid sinus (LRS). More recently, some reports have been published suggesting an acquired etiology for spontaneous LRS leaks. We present a study to utilize a unify algorithm for describing the origin of spontaneous lateral recess CSF leaks.

**Methods:** In current study we did mini reviews for anatomical and clinical articles describing the lateral craniopharyngeal canal and spontaneous lateral recess CSF leak and made a comparison between it and our own series of LRS leak. Is this clinical overestimation of the congenital Sternberg's canal due to an anatomical miscalculation of the exact location of this canal in the lateral recess of sphenoid sinus?

**Results:** Anatomical studies originally located the lateral craniopharyngeal canal medial to the superior orbital fissure and the sphenoidal end of the foramen rotundum. Current review represented a controversy in the clinical articles regarding the location of the Sternberg's canal.

**Conclusion:** The study presented here is notable for the perceived rarity of the theoretical position of Sternberg's canal that should be positioned medial to the sphenoidal end of the foramen rotundum as originally described. Thus, any skull base defect in the lateral recess of sphenoid sinus located lateral to the sphenoidal end of the foramen rotundum should be considered a consequence of acquired cause.

## REVERSAL OF OLFACTORY DYSFUNCTION IN ALLERGIC RHINITIS ASSOCIATED WITH OMP SUPPRESSION BY INTRANASAL BUDESONIDE TREATMENT

Prof. Young Hyo Kim<sup>1</sup>, Prof. Tsuguhisa Nakayama<sup>2</sup>, Ah-Yeoun Jung<sup>1</sup>, Dawn Bravo<sup>2</sup>, Dr. Liang Chun Shih<sup>2</sup>, Professor Jayakar Nayak<sup>2</sup>

<sup>1</sup>*Inha University College Of Medicine, Incheon, South Korea*, <sup>2</sup>*Stanford University School of Medicine, Stanford, United States of America*

Allergic Rhinitis 3, Victoria - Second Floor, April 25, 2018, 10:45 - 11:55

**Aims:** We evaluated the severity of olfactory disturbance (OD) after experimentally inducing allergic rhinitis (AR) and local allergic rhinitis (LAR) in mice. We also investigated the effects of intranasal steroid on nasal allergic inflammation, and its possible mechanism.

**Methods:** Thirty BALB/c mice were allocated to five groups (n=6 each). Control group received intraperitoneal (i.p.) sensitization and intranasal (i.n.) challenge with saline only. AR group got i.p. and i.n. ovalbumin (OVA) for the induction of AR. LAR group received 15 times of i.n. 1% OVA challenge to induce local nasal allergic inflammation. OD group (total anosmia) got single i.p. methimazole (75 mg/kg). In intranasal budesonide group, along with induction of AR, we administered i.n. budesonide (12.8 µg/time) 30 minutes after OVA i.n. challenge.

**Results:** In olfactory function test, AR group (81.3±19.8 seconds) and LAR group (66.2±12.7 seconds) spent significantly more time finding pellets, compared to control group (35.6±12.2 seconds, p<0.01). But it was significantly better than OD group (710.4±259.6 seconds, p<0.01) After treatment, intranasal budesonide group showed significantly improved results (35.8±11.9 seconds) compared to AR and LAR groups (p<0.01). AR and LAR groups showed significant damage of olfactory epithelium and suppression of Olfactory Marker Protein (OMP) expression compared to control group (although not so severe as group D). In intranasal budesonide group, olfactory lesion and OMP expression were significantly improved.

**Conclusions:** OD was due to damage in olfactory epithelium and suppression of OMP in nasal allergic inflammation, and it could be reversed by intranasal steroid.



## UVULOPALATOPHARYNGOPLASTY REDUCES THE INCIDENCE OF CARDIOVASCULAR COMPLICATIONS CAUSED BY OBSTRUCTIVE SLEEP APNEA: RESULTS FROM THE NATIONAL INSURANCE SERVICE SURVEY 2007-2014

Konkuk University School of Medicine Seok-Chan Hong<sup>1</sup>, Konkuk University School of Medicine Bo-yoon Choi<sup>1</sup>, Konkuk University School of Medicine Jae Hoon Cho<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology-Head and Neck Surgery, Konkuk University School of Medicine, South Korea*

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

### ABSTRACT

**Aims:** Untreated obstructive sleep apnea (OSA) is a risk factor for cardiovascular diseases including congestive heart failure (CHF) and atrial fibrillation (AF). Continuous positive airway pressure (CPAP) is an effective treatment for OSA. However, compliance with CPAP can be challenging for some patients. The objective of this study is to investigate whether uvulopalatopharyngoplasty (UPPP) reduces the risk of cardiovascular complications in the patients with OSA.

**Methods:** Data from the National Insurance Service, a national health care database in South Korea was analyzed. We identified all patients with a new diagnosis of OSA from 2007 to 2014. Propensity score matching by age and sex was used to identify a control group five times larger than OSA group for comparison. Patient demographics and comorbidities, including gender, age, hypertension, and OSA were collected for the study. The OSA group was further divided into patients who had an UPPP and patients without UPPP. The primary end points were the newly diagnosed CHF and AF.

**Results:** From among 192,316 patients with a new diagnosis of OSA, 22,213 had a UPPP. For the control group, 961,590 people were selected. Patients with OSA had an increased risk of CHF and AF, compared to control group. UPPP reduced the incidence of CHF and AF significantly. Younger age, female, hypertension were also found to be risk factors for cardiac complications for patients with OSA.

**Conclusions:** OSA increases the risk of CHF and AF. UPPP in the patients with OSA can reduce the risk of cardiac complications significantly.

## GENDER DIFFERENCES IN THE BACTERIOLOGY OF RHINOSINUSITIS

Dr. Yitzhak Izak Golan<sup>1,3</sup>, Professor Haim Gavriel<sup>1,3</sup>, Dr. Tzila Lazarovich<sup>2,3</sup>, Professor Efraim Eviatar<sup>1,3</sup>

<sup>1</sup>Department of Otolaryngology Head and Neck Surgery, Assaf Harofeh Medical Center, Sarafand 70300, Israel,

<sup>2</sup>Department of Infectious Diseases, Assaf Harofeh Medical Center, Sarafand 70300, Israel, <sup>3</sup>Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

CRS Pathophysiology 1, Gielgud - Second Floor, April 23, 2018, 12:05 - 13:15

Evaluating gender differences in pathogens involving sinonasal tract disease in patients undergoing nasal surgery for chronic and recurrent rhinosinusitis (C/R RS). Retrospective analysis of 164 positive sinonasal swab cultures taken during endoscopic sinonasal surgery between the years 2006 and 2013. Study population included 79 (48.8%) female patients and 84 (51.2%) males with a mean age of 47.3 (13–88) years. Positive Staphylococcal growth was found in 38 (23.2%) patients, positive anaerobic growth in 25 (15.2%) patients and 67 (40.9%) patients had polymicrobial growth. Staphylococcal growth in the male population was significantly higher compared to the female population ( $p = 0.04$ ). Odds ratio for a polymicrobial infection in males over 60 years old compared to females was 2.17 (CI 0.63–8.08, 95%). Anaerobes were found to be more frequent in males (17.9%) than in females (12.5%). Species of Streptococci showed no difference between gender and age groups. The results obtained suggest a difference between the causing pathogens in C/R RS between females and males. In the male population, staphylococcal species were found to be significantly more common with a greater tendency to polymicrobial pathogens and higher rates of anaerobes. These results might suggest different management protocols perioperatively in males and females.

## SNIFF RESPONSE AND IDENTIFICATION OF ODORS AS OBJECTIVE MEASURES OF OLFACTORY PERFORMANCE IN CHILDREN

Dr Dafna Gershnel Milk<sup>1</sup>, Dr Tali Weiss<sup>2</sup>, Dr Liron Rozenkrantz<sup>2</sup>, Prof Yehudah Roth<sup>1</sup>, Prof Noam Sobel<sup>2</sup>, Dr Sagit Shushan<sup>1,2</sup>

<sup>1</sup>Edith Wolfson Medical Center, Holon, Israel, <sup>2</sup>The Weizmann Olfaction Research Group, Department of Neurobiology, Weizmann Institute of Science, Rehovot, Israel

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

### Introduction

Evaluation of olfactory performance in young children is challenging and complex. The sniff response, an odorant-specific change in nasal airflow in which pleasant odors drive stronger sniffs and unpleasant odors drive weaker sniffs, offers a nonverbal, objective technique to evaluate olfactory abilities. However, little is known about its applicability in young children. Refined odor identification test in the same age group is not commonly used. We used those two measurements to evaluate olfactory performance in children.

### Methods

A test made of two tasks was developed: 1) Pleasantness rating of 14 stimuli (pleasant/ unpleasant odors/odorless air). During the task, the child's sniff response was recorded via nasal cannula and a sniff recorder. 2) Odor identification of 11 odorants on 4-multiple choice questions presented visually (pictures).

### Results

124 children participated in the study. On the sniff response task, most children generated sniff response according to odor valence. Children older than 4.5 y/o showed typical adult like response ( $p < 0.05$ ), whereas children younger than 4.5y/o took a similar sniff to pleasant and unpleasant odor ( $p = 0.34$ ). On the odor identification task, 10/ 11 odors were correctly identified by more than 60% of the children. Correlation was found between the identification score and child's age ( $p < 0.05$ ).

### Conclusions

Our study indicates the existence of sniff response in children and implies its appearance at about 4.5y/o, along with odor identification skills. We present an objective, office based examination to evaluate olfactory performance in young children. The examination is simple, entertaining, doesn't require verbal skills, and is language independent.

## OUTCOME BY TREATMENT MODALITY IN SINONASAL UNDIFFERENTIATED CARCINOMA(SNUC): A CASE-SERIES, SYSTEMATIC REVIEW AND META-ANALYSIS

**Dr. med. Gregoire Morand<sup>1</sup>**, MSc Nanina Anderegg, Dr. med Domenic Vital, Dr. med Kristian Ikenberg, PD Dr. med. Gerhard Huber, PD Dr. med Michael Soyka, Prof. Dr. med. Matthias Egger, Prof. Dr. med. David Holzmann

<sup>1</sup>University Hospital Zurich, Zurich, Switzerland

Sinonasal Malignancy 2, Burton & Redgrave - Second Floor, April 25, 2018, 10:45 - 11:55

**Objective:** Sinonasal undifferentiated carcinoma(SNUC) is an aggressive malignancy first described by Frierson et al. in 1986. As the tumor is very rare, current treatment recommendations are based on institutional case reports. We thus felt the need to perform a comprehensive systematic review and meta-analysis to investigate how treatment modalities are associated with survival.

**Design:** Case-series, systematic review and meta-analysis

**Methods:** We searched the OvidMedline, OvidEmbase, Web of Science, Biosis, Scopus and the Cochrane Library database libraries. We extracted aggregate and individual patient data for statistical analysis. To study the association between treatment modalities and survival, we used random-effects meta-regression for the aggregate and cox mixed-effects models.

**Results:** 379 citations were found; 29 case series could be included in the final analysis, including a total number of 390 single patients (34.6% female). Median age at diagnosis was 52 years. 80.9% of patients presented with a T4 tumor and 16.0% with nodal metastasis at diagnosis. In individual patient data (IPD) meta-analysis, single modality (surgery alone or radiation alone) treatment was associated with reduced survival compared to double modality (surgery & radiation or chemoradiation) treatment (adjusted Hazard Ratio [aHR] 2.97, 95% Confidence Interval [1.41–6.27]) and compared to triple modality (surgery & radiation & chemotherapy) treatment (aHR 2.80 95%-CI 1.29–6.05 for triple vs. single modality). Triple modality treatment was not superior to double modality treatment. (aHR 1.06, 95%-CI 0.59–1.92).

**Conclusion:** Double and triple modality treatment are associated with improved survival over single modality but there is no evidence that triple modality is superior to double modality treatment

## CORRELATION BETWEEN RADIOLOGIC, CLINICAL AND PATHOLOGIC ASSESSMENT OF MALIGNANT OLFACTORY CLEFT TUMOURS: CORFO STUDY

**MD Sylvestre Fierens<sup>1</sup>**, MD, PhD Sebastien Vergez<sup>2</sup>, MD Antoine Moya-Plana<sup>3</sup>, MD Stephane Orsel<sup>4</sup>, MD Benjamin Verillaud<sup>5</sup>, MD Geoffrey Mortuaire<sup>6</sup>, MD, PhD Ludovic de Gabory<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology – Head and Neck Surgery, University Hospital Of Bordeaux, Bordeaux, France,

<sup>2</sup>Department of Otorhinolaryngology – Head and Neck Surgery, University Hospital of Toulouse, Toulouse, France,

<sup>3</sup>Department of Otorhinolaryngology – Head and Neck Surgery, Gustave Roussy's Cancer Institute, Villejuif, France,

<sup>4</sup>Department of Otorhinolaryngology – Head and Neck Surgery, University Hospital of Limoges, Limoges, France,

<sup>5</sup>Department of Otorhinolaryngology – Head and Neck Surgery, Lariboisière University Hospital, Paris, France,

<sup>6</sup>Department of Otorhinolaryngology – Head and Neck Surgery, University Hospital of Lille, Lille, France

Sinonasal Malignancy 1, Albert - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** Malignant tumors of the olfactory cleft (OC) are rare. Their prognosis depends on their local extension and resectability. Pre-therapeutic local extension seems to be over-evaluated by radiologists, thus leading to major avoidable iatrogenic morbidities, mainly intracranial. The goal of this study was to evaluate the radiologic, clinical and pathologic correlation of the local extension of malignant OC tumors.

**Methods:** An observational, prospective, multicenter, multidisciplinary study was conducted from July 2015 to July 2016 on intestinal type sinonasal adenocarcinoma and olfactory neuroblastoma of the OC. Pre-therapeutic (cT) and pathologic classifications (pT) were analyzed and compared. A qualitative analysis of 27 local anatomical structures and a quantitative analysis of anatomical diagram filled in by clinicians were conducted independently by a specialized radiologist (R) using preoperative imaging, a senior surgeon (S) who performed the endoscopic procedure and a senior pathologist (P) who analyzed the tumor. An equivalent of  $p < 0.05$  was considered significant and Cohen's Kappa coefficient ( $\kappa$ ) was calculated for each anatomical structure.

**Results:** Nineteen patients in 6 different centers were included in the analysis. The cT stages were significantly higher than the pT stages of the Union Internationale Contre le Cancer (UICC) classification ( $p = 0.005$ ). The global R-P correlation was poor ( $\kappa = 0.35$  [0.25-0.46]), while the global S-P correlation was good ( $\kappa = 0.61$  [0.50-0.71]). The R significantly over-evaluated the local extension compared to the S ( $p < 0.0045$ ) and the P ( $p < 0.0008$ ).

**Conclusions:** Conclusion: The R over-evaluated OC local extension both qualitatively and quantitatively. The procedure for interpreting CT and MRI should be re-assessed.

## THE ROLE OF VITAMIN D3 IN CRS AND CYSTIC FIBROSIS PATIENTS

**Mr Iordanis Konstantinidis<sup>1</sup>**, Mrs Maria Fotoulaki<sup>2</sup>, Mr Ioannis Iakovou<sup>3</sup>, Mr Konstantinos Markou<sup>1</sup>

<sup>1</sup>2nd Academic ORL Department, Aristotle University Of Thessaloniki, Thessaloniki, Greece, <sup>2</sup>4th Academic Pediatric Department, Aristotle University Of Thessaloniki, Thessaloniki, Greece, <sup>3</sup>3rd 2nd Academic Nuclear Medicine Department, Aristotle University Of Thessaloniki, Thessaloniki, Greece

CRS Diagnosis and Investigation 2, Victoria - Second Floor, April 24, 2018, 12:05 - 13:15

**Aim:** This study investigates if vitamin D3 (VD3) deficiency is associated with NP presence in cystic fibrosis (CF) and chronic rhinosinusitis (CRS) patients.

**Methods:** In total 152 adults were included in 5 groups: CF with NP (CFwNP: 27), CF without NP (CFsNP: 31), Chronic rhinosinusitis with NP (CRSwNP: 32), Chronic rhinosinusitis without NP (CRSsNP: 30) and controls (32). Serum levels of VD3 <20ng/ml considered as deficiency, 21-29 ng/ml as insufficiency and >30 ng/ml as sufficiency. Endoscopic and imaging staging according the Lund–Kennedy (LK) and Lund-Mackay scoring systems (LM) were performed respectively. Genotype of CF patients and nasal microbial colonization of CF and CRS patients were also recorded.

**Results:** CFwNP patients had the lower percentage of sufficiency in VD3 and the higher in insufficiency among all groups. LM imaging scores were inversely correlated with VD3 levels in both arms of the study (CF and CRS). Moreover LK endoscopic scores had similar correlation in CF groups, however this was not the case with the CRS groups. The genotype of CF patients was not correlated with VD3 serum levels. Positive microbial colonization was associated with lower VD3 serum levels in both CF and CRS patients.

**Conclusion:** Vitamin D3 deficiency seems to be related with nasal polyps' presence in CRS and CF patients. The lower the level of serum VD3 the more severe mucosal disease was reported in imaging studies and more frequent microbial colonization was found in both CF and CRS patients.

## CLINICAL COMMISSIONING GROUP CRITERIA FOR RHINOPLASTY AND SEPTORHINOPLASTY IN ENGLAND - A SURVEY OF CURRENT GUIDANCE

Miss Elizabeth Ross<sup>2</sup>, Mr Shahram Anari<sup>1</sup>

<sup>1</sup>Heart of England NHS Foundation Trust, Birmingham, United Kingdom, <sup>2</sup>University Hospitals Birmingham NHS Foundation Trust, Birmingham, United Kingdom

Rhinoplasty 1, Victoria - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims:** Procedures of limited clinical value require pre-authorisation in the National Health Service, of which rhinoplasty and septorhinoplasty are two such operations. This study surveys Clinical Commissioning Groups (CCGs) within England to document the variable criteria required to be eligible for rhinoplasty and septorhinoplasty.

**Methods:** In February 2016 a letter was sent to 209 CCGs requesting their rhinoplasty and septorhinoplasty commissioning criteria.

**Results:** A total of 200 CCGs responded. Although 89.5% will allow septorhinoplasty in the presence of nasal obstruction, further criteria such as documented health problems resulting from nasal blockage, severe functional impairment or a specific percentage of blockage must be shown for the septorhinoplasty to be authorized by the majority of the CCGs.

**Conclusions:** There is great variation within England as to the commissioning criteria for septorhinoplasty and rhinoplasty from individual CCGs. Some criteria seem not to be clinically relevant and difficult to demonstrate. We recommend guidelines to be reviewed and harmonised nationally in future revisions.

## ABSENCE OF HIGH-RISK HPV IN P16 POSITIVE INVERTED SINONASAL PAPILOMA

**Anna Holm**<sup>1</sup>, Annika Allard<sup>2</sup>, Irene Eriksson<sup>2</sup>, Göran Laurell<sup>3</sup>, Karin Nylander<sup>4</sup>, Katarina Olofsson<sup>1</sup>

<sup>1</sup>Department of Clinical Sciences, Division of Otorhinolaryngology, Umeå University, Umeå, Sweden, <sup>2</sup>Department of Clinical Microbiology, Division of Clinical Virology, Umeå University, Umeå, Sweden, <sup>3</sup>Department of Surgical Sciences, Division of Otorhinolaryngology, Uppsala University, Uppsala, Sweden, <sup>4</sup>Department of Medical Bioscience, Division of Pathology, Umeå University, Umeå, Sweden

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

**Objectives** Sinonasal inverted papilloma (SIP) is a relatively rare disease, and its etiology is not understood. It is characterized by locally aggressive growth and a strong tendency to recur despite its benign histology. **Aims** The aim of this study was to identify the presence of human papilloma virus (HPV) and its surrogate marker p16 in SIP samples from a regional cohort.

**Material and Methods** Subjects were identified from our regional center cohort of 88 SIP patients treated between 1984-2014. From these subjects, 54 were included in this study. Of these, 53 biopsies were analyzed with PCR, and 54 samples were immunohistochemically stained for p16. Genotype screening for 18 high risk and 6 low risk HPV types was performed using the PapilloCheck® HPV-screening test.

**Results** HPV analysis was successful for 38 of 53 samples. Of the 38 successfully analyzed samples, only 2 samples were positive for HPV 11. Notably, p16 was present in the epithelia in all samples, and in the papilloma lesions in 37 samples.

**Conclusion** Since only 2 of 38 SIPs were positive for HPV (type 11), and at the same time p16 was positive in epithelia in all samples and in 37 of 38 papilloma lesions of the samples, it is concluded that p16 cannot be used as a surrogate marker for high-risk HPV-infection in SIP. We are currently planning a prospective, multicenter study in order to increase the studypower and in order to be able to better evaluate the clinical implications of HPV-and p16 in SIP.



## PATIENT-REPORTED OLFACTION IMPROVES FOLLOWING OUTSIDE-IN LOTHROP/DRAF 3 FRONTAL SINUS SURGERY IN MANAGING CHRONIC RHINOSINUSITIS

**Dr Eugene Wong<sup>1</sup>**, Dr Timothy Do<sup>1</sup>, Professor Richard Harvey<sup>1</sup>, A/Prof Larry Kalish<sup>1</sup>

<sup>1</sup>Concord Repatriation General Hospital, Concord, Australia

CRS Surgery 5, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims:** The modified endoscopic Lothrop procedure (MELP) is an established surgical procedure with an important role in the surgical management of recalcitrant chronic rhinosinusitis (CRS). In 2012, the outside-in approach to MELP was described. Smell improvement after sinus surgery is challenging and to date there is limited evidence suggesting that traditional MELP improves patient-reported olfactory dysfunction from CRS.

**Methods:** A consecutive series of patients who underwent outside-in MELP for inflammatory airway disease (CRS with or without polyps) between March 2011 to May 2016 by a single, tertiary rhinologist were retrieved. Patients were excluded if MELP was performed for sinonasal tumours or as an access operation in non-inflammatory conditions. Retrospective review was performed on prospectively collected data, including patient demographics, visual analogue scale for smell, overall SNOT-22, global nasal function score and a clinician graded clinical outcome score.

**Results:** 104 patients (41.1% female) with a mean age of 54.3 years +/- 12.7 underwent an outside-in MELP. The mean follow-up time was 34.2 months +/- 15.6. 61.5% of patients had CRS with nasal polyps while 30.8% had CRS without polyps. 85.7% of patients had eosinophilic disease. The mean improvement in 6-point Likert smell score was 2.05 (P<0.0001; 95%CI 1.49-2.61.) The Mean SNOT-22 improvement was 1.55 (P<0.0001), global function score improvement 7.41(P<0.0001.)

**Conclusion:** The outside-in MELP appears to provide long-term, sustained, improvement in several self-reported outcomes including smell. The outside-in MELP is a safe procedure allowing maximal access for ongoing topical medical management.

## THE EFFICACY OF EXTENDED DRAFF IIB PROCEDURE BY PARTIAL SEPTECTOMY: LONG TERM FOLLOW UP

Professor (MD) Efraim Eviatar<sup>1</sup>, Doctor (MD) Ahmed Taha<sup>1</sup>, Professor (MD) Haim Gavriel<sup>1</sup>

<sup>1</sup>*Asaf Harofeh Medical Center, , Israel*

CRS Surgery 5, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

DraffIb procedure is mostly used in a very narrow frontal recess and in a revision frontal sinus surgery. In most cases, the contralateral sinus is not involved. In order to avoid DraffIII procedure's reported disadvantages we have commenced the use of the extended DraffIb procedures in our center. Patients treated with extended DraffIb procedure at our center between the years 1997 and 2012 were retrospectively evaluated. This procedure includes further widening of the frontal ostium and recess by excising the adjacent most superior nasal septum. Included in our study were patients who have failed previous DraffIb procedure or had a small and narrow frontal sinus. Collected data included demographics, prior sinus pathology, previous surgical treatment, surgical complications and further treatment if required. All were evaluated by the SNOT-22 questioner pre and post-operatively and all were endoscopically evaluated during the follow up period. 15 patients and 18 frontal sinuses were included in our study, eight males and seven females with a mean age of 50.3 years. The mean pre-operative SNOT-22 fell from 46 to 24 and all patients improved clinically. No surgical complications were reported except for one case of postoperative maxillary sinusitis. Only one patient required further surgical intervention. In most cases the patients had a patent frontal sinus ostium after a follow up of 3-8 years. Extended DraffIb procedure is less traumatic, safe and effective in the treatment of persistent frontal sinus disease, without surgically involving the healthy contralateral frontal sinus, and may obviate the need for DraffIII procedure.

## MUPIROCIN IN THE TREATMENT OF STAPHYLOCOCCAL INFECTIONS IN CHRONIC RHINOSINUSITIS: A META-ANALYSIS

Dr JongSeung Kim<sup>1</sup>, Prof SamHyun Kwon<sup>1</sup>

<sup>1</sup>Chonbuk National University Hospital, Jeonju, South Korea

CRS Medical Management 1, Gielgud - Second Floor, April 23, 2018, 10:45 - 11:55

### Aims

Saline irrigation of the nasal cavity is a classic and effective treatment for acute or chronic rhinosinusitis. Topical antibiotics such as mupirocin have been widely used for recalcitrant chronic rhinosinusitis. Therefore, the purpose of this study was to evaluate the effect of saline irrigation using mupirocin.

### Methods

A systematic literature review and meta-analysis of mupirocin saline irrigation were performed using EMBASE, MEDLINE, and Cochrane library through December 2015. Data were analyzed with R 3.2.2 software. A random effects model was used because of the diversity of included studies. Sensitivity analysis of particular tested groups and single proportion tests were also performed. The main outcome measure was residual staphylococcal infection, as confirmed by culture or PCR.

### Results

Two RCTs, two prospective studies and two retrospective studies were included. A random effects model meta-analysis of the pooled data identified a relative risk of residual infection of 0.13 (95% CI: 0.06±0.26,  $p < 0.05$ ) with low heterogeneity ( $I^2 = 0\%$ ). The proportion of residual staphylococcal infections after 1 month was 0.08 (95% CI: 0.04±0.16). However, this proportion increased to 0.53 at 6 months (95% CI: 0.27±0.78).

### Conclusions

The short-term use of mupirocin has a strongly reductive effect on staphylococcal infection in chronic rhinosinusitis. Although there is currently a lack of clear evidence, future studies with well-designed inclusion criteria and randomized controlled trials are needed to examine mupirocin's long-term effect on chronic rhinosinusitis.

## IS NONABSORBABLE NASAL PACKING AFTER SEPTOPLASTY ESSENTIAL? A META-ANALYSIS

Prof Sam Hyun Kwon<sup>1</sup>, Dr Jong Seung Kim<sup>1</sup>

<sup>1</sup>Chonbuk National University Hospital, Jeonju, South Korea

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

**Aims:** Septoplasty is one of the most frequently performed rhinologic surgeries. Complications include nasal bleeding,

pain, headache, septal hematoma, synechia, infection, residual septal deviation, and septal perforation. In this study, we

aimed to compare complication rates among patients according to packing method.

**Methods:** We performed a literature search using PubMed, Embase, and the Cochrane Library through August 2016.

Our systematic review followed Preferred Reporting Items for Systematic Reviews and Meta-analyses guidelines. Random

effect models were used to calculate risk differences and risk ratio with 95% confidence intervals (CIs).

Cases referred to the

nonpacking group included patients treated with transseptal sutures or septal splints. Cases referred to as the packing group

included patients treated with nonabsorbable packing such as Merocel or gauze.

**Results:** Our search included 20 randomized controlled trials (RCTs) with a total of 1,321 subjects in the nonpacking

group and 1,247 subjects in the packing group. There were no significant differences between packing methods regarding

bleeding, hematoma, perforation, infection, and residual septal deviation. The risk differences of postoperative pain, headache,

and postoperative synechia were 20.50 [95% CI: 20.93 to 20.07, P 5 .02], 20.42 [95% CI: 20.66 to 20.19, P 5 .0004], and

20.03 [95% CI: 20.06 to 20.01, P 5 .01], respectively.

**Conclusions:** Nonabsorbable nasal packing is no more effective than treatments without packing after septoplasty. Septal

splints and transseptal sutures reduce postoperative pain, headache, and synechia.

## CLARA CELL PROTEIN 16 AND EOSINOPHIL CATIONIC PROTEIN - PARAMETERS FOR ASSESSMENT OF THE RECOVERY FUNCTION OF NASAL MUCOSA DURING CORTICOSTEROID TREATMENT

**Dr. Aleksandar Peric<sup>1</sup>**, Dr. Cveta Spadijer-Mirkovic<sup>1</sup>, Dr. Biserka Vukomanovic-Djurdjevic<sup>2</sup>, Prof. Danilo Vojvodic<sup>3</sup>

<sup>1</sup>Department of Otorhinolaryngology, Military Medical Academy School of Medicine, Belgrade, Serbia, <sup>2</sup>Institute for Pathology, Military Medical Academy School of Medicine, Belgrade, Serbia, <sup>3</sup>Institute for Medical Research, Division of Clinical & Experimental Immunology, Military Medical Academy School of Medicine, Belgrade, Serbia

Allergic Rhinitis 4, Albert - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims.** Clara cell protein 16 (CC16) is an antiinflammatory protein mainly expressed in the epithelium of the upper and lower airways. Eosinophil cationic protein (ECP) is a marker of eosinophil activity in chronic nasal inflammation. The aim of this study was to evaluate nasal mucosal production of CC16 and ECP in patients with perennial allergic rhinitis (PAR), nonallergic and allergic patients with chronic rhinosinusitis with polyps (CRSwNP), before and after nasal corticosteroid administration.

**Methods.** Twenty patients with PAR, 20 nonallergic and 20 allergic CRSwNP patients and 20 healthy controls were included. Mucosal cytology samples were taken from all participants for quantification of eosinophils. CC16 and ECP levels were measured in the nasal secretion samples. The patients were treated with fluticasone furoate nasal spray for 14 days. Nasal symptom assessment, cytological examination and measurement of CC16 and ECP in nasal fluid were performed before and after corticosteroid treatment.

**Results.** Mean CC16 concentrations in nasal secretions were significantly lower in patients with PAR ( $p < 0.05$ ) and allergic CRSwNP patients ( $p < 0.01$ ) compared to controls. Mean ECP levels were significantly higher in patients with PAR, nonallergic and allergic CRSwNP patients compared to control group ( $p < 0.001$ ,  $p < 0.01$ ,  $p < 0.001$ , respectively). After nasal corticosteroid therapy, we found significantly higher CC16 ( $p < 0.001$ ) and significantly lower ECP ( $p < 0.001$ ) in nasal secretions in all three groups of patients.

**Conclusion.** CC16 and ECP measured in nasal secretions could be reliable markers for assessment of the recovery function of nasal mucosa during corticosteroid treatment.

## INTRODUCING THE NEW COBLATION TURBINATOR TURBINATE REDUCTION WAND: OUR INITIAL EXPERIENCE OF TWENTY-TWO PATIENTS REQUIRING SURGERY FOR NASAL OBSTRUCTION

**Ms Grace Khong<sup>1</sup>**, Ms Lepa Lazarova<sup>1</sup>, Dr Amanda Bartolo<sup>1</sup>, Mr Samuel Leong<sup>1</sup>

<sup>1</sup>*Aintree University Hospital, Liverpool, Uk, Liverpool, United Kingdom*

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

**Introduction:** Surgeries for inferior turbinate hypertrophy range from full or partial turbinectomy to newer technologies i.e. microdebrider assisted turbinoplasty and Coblation Inferior Turbinate Reduction (CITR). The Coblation™ Turbinator™ turbinate reduction wand was designed specifically for turbinoplasty and differs significantly from the Coblation™ Reflex series.

**Aim:** To evaluate the clinical outcomes of the Coblation™ Turbinator™ turbinate reduction wand in a cohort of patients requiring septoturbinoplasty for nasal obstruction.

**Methods:** We present a study of 22 patients who underwent turbinoplasty using the Coblation™ Turbinator™ wand and comparing it to a similar-sized cohort who had microdebrider turbinoplasty. The primary outcome measures were pre and post-operative change in Nasal Obstruction Symptoms Evaluation (NOSE) score and peak nasal inspiratory flow (PNIF) measurement. Secondary outcome measures were day case rate, readmission to hospital within seven days of discharge and post operative bleeding. Statistical analysis was performed using the SigmaPlot software package version 12. Student's t test was used to compare the NOSE and PNIF scores. When normality test (Shapiro-Wilk) failed, the Mann-Whitney U test was utilised instead.

**Results:** There was improvement in mean score of both primary clinical outcome measures for the Coblation™ Turbinator™ and this was comparable to the microdebrider. As for the secondary outcomes, there were no complications in the Turbinator™ cohort.

**Conclusion:** This is the first report of clinical outcomes using the Coblation™ Turbinator™ for septoturbinoplasty and it shows significant improvement comparable to the microdebrider. Further long-term studies are required to assess the reproducibility of the data reported here.

## JUVENILE ANGIOFIBROMA: THE CASE FOR MID-FACIAL DEGLOVING WITHOUT EMBOLIZATION

Mr Daniel Scholfield<sup>1</sup>, Mr Colin Butler<sup>1</sup>, Dr Gitta Madani<sup>2</sup>, Dr Ann Sandison<sup>3</sup>, Mr Peter Clarke<sup>1</sup>

<sup>1</sup>ENT Department, Charing Cross Hospital, Imperial Healthcare NHS Trust, London, United Kingdom, <sup>2</sup>Radiology Department, Charing Cross Hospital, Imperial Healthcare NHS Trust, London, United Kingdom, <sup>3</sup>Histopathology Department, Charing Cross Hospital, Imperial Healthcare NHS Trust, London, United Kingdom

Skull Base 1, Rutherford - Fourth Floor, April 24, 2018, 10:45 - 11:55

### Aim

There has been a recent trend towards pre-operative embolisation and endoscopic resection in the management of Juvenile Angiofibromas (JA). The purpose of our case series is to demonstrate the essential role of the mid-facial degloving (MFD) approach without embolisation in their management.

### Methods

A retrospective case-note review of all JA patients at a supra-regional skull base centre between 2006 and 2017 was undertaken.

### Results

All 19 patients were managed by MFD, with a median age of 18 years. 13 were Andrews-Fisch Stage 2 and 6 were Stage 3a with infratemporal fossa involvement. The maxillary artery was the dominant blood supply in all cases and pre-operative embolisation was utilised once. Two JAs had additional supply from the internal carotid artery. The mean surgical time was 110 minutes, mean estimated blood loss 562mls and mean length of stay 4.7 days. 16% (3/19) of patients had residual disease that was subsequently monitored by MRI - none progressed and one regressed in size. No patients had recurrence. Complications included one episode of epistaxis requiring admission, one requiring return to theatre, two neuropraxias and one nasal collapse.

### Conclusion

Blood loss from MFD without embolisation is comparable to endoscopic resection with embolisation, as MFD allows for early control of the maxillary artery. This approach has a low complication rate and avoids the complications that accompany embolisation. It therefore remains a valuable tool in approaching large JAs or when endoscopic access is challenging, such as in involvement of the infratemporal fossa or cavernous sinus.

## USEFULNESS OF SALIVA TO PREDICT CLINICAL REMISSION AFTER SUBLINGUAL IMMUNOTHERAPY IN SEASONAL ALLERGIC RHINITIS.

**Prof Mitsuhiro Okano<sup>1,3</sup>**, Dr Kengo Kanai<sup>2</sup>, Dr Takahisa Koyama<sup>2</sup>, Dr Takaya Higaki<sup>2</sup>, Prof Kazunori Nishizaki<sup>2</sup>  
<sup>1</sup>International University Of Health And Welfare School of Medicine, Tokyo, Japan, <sup>2</sup>Kagawa Prefectural Central Hospital, Takamatsu, Japan, <sup>3</sup>Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan

Allergic Rhinitis 4, Albert - Second Floor, April 26, 2018, 12:05 - 13:15

**Background:** The development of methods to predict the clinical effectiveness of sublingual immunotherapy (SLIT) for allergic diseases is a crucial matter. We sought to determine whether whole saliva, which is the first body component that contacts allergen extracts during SLIT, is associated with the clinical effectiveness of SLIT in Japanese cedar pollinosis.

**Methods:** Blood monocytes or monocytic THP-1 cells were cultured in the presence or absence of either whole saliva or pure saliva with or without treatments including filtration and blockade of TLR2 and/or TLR4 signaling. IL-10 levels in the supernatants were then measured. Whole saliva-induced IL-10 production by THP-1 cells was compared between asymptomatic and disease-onset patients during peak pollen dispersal after SLIT.

**Results:** Both monocytes and THP-1 cells produced substantial amounts of IL-10 in response to whole saliva. IL-10 production was significantly reduced in response to pure saliva and 0.2 µm-filtered saliva (P=0.039). Simultaneous treatment with polymyxin B and TL2.1, a neutralizing antibody against TLR2, also reduced IL-10 production. IL-10 levels produced by THP-1 cells in response to whole saliva collected prior to SLIT were significantly higher in asymptomatic patients determined by symptom-medication scores than disease-onset patients following SLIT (P=0.018). Such differences were not seen in saliva collected 3 months after the initiation of SLIT or saliva collected during peak pollen dispersal.

**Conclusions:** Our results provide a basis for why the sublingual route is effective and preferable in allergen immunotherapy. Saliva-induced IL-10 levels produced by THP-1 cells may be a predictive marker for clinical remission after SLIT.



## CAN SECRETORY IMMUNOGLOBULIN A IN SALIVA PREDICT A CHANGE IN LUNG INFECTION STATUS IN PATIENTS WITH CYSTIC FIBROSIS?

MD, PhD Mikkel Christian Alanin<sup>1</sup>, MD, PhD Kasper Aanaes<sup>1</sup>, Claus Ekstrom<sup>2</sup>, Christian von Buchwald<sup>1</sup>, Niels Høiby<sup>3</sup>

<sup>1</sup>Rigshospitalet, Department of Otorhinolaryngology - Head and Neck Surgery, Copenhagen, Denmark, <sup>2</sup>Section of Biostatistics, University of Copenhagen, Copenhagen, Denmark, <sup>3</sup>Department of Clinical Microbiology, Rigshospitalet, Copenhagen, Denmark

Rhinology Potpourri 1, Victoria - Second Floor, April 25, 2018, 12:05 - 13:15

### Aims

Chronic lung infection with *P. aeruginosa* is the main cause of mortality in patients with cystic fibrosis (CF). Sinus colonization with *P. aeruginosa* often precedes intermittent lung colonization and chronic infection. When *P. aeruginosa* colonizes the sinuses, elevated Immunoglobulin A (IgA) levels specific against *P. aeruginosa* can be detected in saliva. We hypothesized that increasing levels of IgA in saliva can be detected before *P. aeruginosa* lung colonization.

### Methods

Forty-nine CF patients free from lung colonization with *P. aeruginosa* or other Gram-negative bacteria (GNB) were included in this prospective study. Saliva samples were collected and examined for IgA antibodies against *P. aeruginosa* with at least 6 months interval.

### Results

A total of 110 measurements of IgA in saliva were included. During a median of 8.5 months follow-up 25 patients changed their lung infection status. We were able to construct a statistical model that for a given value of IgA in saliva could predict the probability of a change in lung infection status within the next 8.5 months (median):  $p = 1 / (1 + \exp(-(-0.9582 + 1.6518 * \text{IgA})))$ ,  $p=0.056$  one-tailed.

### Conclusion

The saliva IgA model may predict a worsening in lung infection status presumably acting as a surrogate marker of *P. aeruginosa* bacterial sinusitis. The model may identify patients at risk of subsequent lung colonization and thus be a helpful clinical tool. However, the model did not reach significance probably because of lack of power

## SUTURELESS RHINOPLASTY

Professor Yuri Rusetsky<sup>1</sup>, Nataliya Sergeeva<sup>2</sup>, Olga Spiranskaya<sup>1</sup>

<sup>1</sup>*National Scientific And Practical Center Of Children's Health", Moscow, Russian Federation,* <sup>2</sup>*I.M. Sechenov First Moscow State Medical University, , Russian Federation*

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

Cartilage transplants are used in rhinoplasty for various purposes. Grafts are commonly fixated with sutures. Much effort is required to fixate a graft, this complicating and increasing the duration of the procedure. Transplant instability and displacement might take place postoperatively, resulting in worsening of outcomes. The biological adhesive «Sulfacrylate» is used for holding together various human tissues and hemostasis. This adhesive is bactericidal against etiologic agents of surgical site infections. We assessed efficiency and safety of «Sulfacrylate» adhesive application in rhinoplasty.

Materials and methods. Revision rhinoplasty with the use of «Sulfacrylate» adhesive was carried out in 27 patients: nasal dorsum correction with a camouflaged cartilage transplant – in 10 patients, tip graft placement – in 12 patients, columellar graft placement – in 5 patients. «Sulfacrylate» adhesive was used for transplant fixation in all patients involved into the study.

Results. All patients demonstrated good cosmetic and functional results. No transplant displacement, focal inflammatory response or systemic side effects were documented. The results remained the same during a 6-month follow-up.

Conclusion. The first experience of autotransplant fixation with the use of «Sulfacrylate» adhesive in rhinoplasty has demonstrated its efficiency, safety and reliability. «Sulfacrylate» facilitates easy and precise transplant fixation without excessive tissue damage due to suture placement. The adhesive is more cost-effective and efficient than alternative materials; besides, it shows anti-inflammatory activity. Also such technique decreases the duration of an intervention, untying surgeon's hands during the operation. Long-term results need to be assessed to make a final judgment about the method.

## EVALUATION OF AIRFLOW PATTERNS OF NASAL CAVITIES - A STUDY OF COMPUTATIONAL MODELING

Professor Masahiro Iida<sup>1</sup>

<sup>1</sup>*Tokai University, Isehara, Japan*

Rhinology Potpourri 2, Victoria - Second Floor, April 26, 2018, 10:45 - 11:55

The nasal cavity is comprised of complex structures. Its features make it difficult to elucidate relationship between structure and function in nasal cavity. Unfortunately, the only objective method currently available to evaluate nasal airflow is rhinomanometry. This study establishes a novel easy method to assess nasal airflow using computer simulation. The aim of the present study is to discuss the airflow patterns in nasal cavity and to establish a novel easy method to assess nasal airflow using computer simulation. Methods: This study is to carry out numerical simulations of airflows within the nasal cavity using three-dimensionally reconstructed images of the nasal cavity of patients obtained from CT. As results: 1) the airflow tends to pass along the middle meatus instead of the middle and superior regions, 2) the middle turbinate plays to determine the airflow distribution in the three meatus, 3) the nasal valve plays a role in the occurrence of recirculation in the olfactory region and also to reduce reversed flow in the inferior meatus during inspiration. Conclusion: The computation was considered a reliable and useful method to simulate airflow in the nasal cavity and to investigate the relationship of anatomical and functional connectivity in nasal cavity.

## MANAGEMENT STRATEGIES FOR CHRONIC RHINOSINUSITIS: A QUALITATIVE STUDY OF GP AND ENT SPECIALIST VIEWS OF CURRENT PRACTICE.

**Dr Jane Vennik**<sup>1</sup>, Dr Caroline Eyles, Professor Mike Thomas, Professor Claire Hopkins, Professor Paul Little, Dr Helen Blackshaw, Professor Anne Schilder, Professor Carl Philpott

<sup>1</sup>*University Of Southampton, Southampton, United Kingdom*

MACRO Programme, Abbey - Fourth Floor, April 26, 2018, 10:45 - 11:55

**Aims:** To evaluate GP and ENT specialist views of current treatment strategies for CRS and care pathways through primary and secondary care.

**Methods:** Semi-structured qualitative telephone interviews were conducted with a purposive sample of 12 GPs and 9 ENT surgeons in the UK. Recordings were transcribed verbatim, managed using NVIVO 11 software and analysed using inductive thematic analysis.

**Results:** GPs describe themselves as confident in recognising CRS, however, specialists report common misdiagnoses when patients are referred to ENT clinics. Uncertainties can arise in general practice due to limited ENT training and lack of available diagnostic tests. Medical treatments in primary care are affected by local prescribing restrictions, and poor adherence can lead to inadequate symptom control. Symptom severity, poor response to medical treatment, and patient pressure drives referral, although there is lack of clarity about optimal timing. ENT referral letters are a valuable information source for GPs, and ENT training courses are useful but infrequent. Treatment decisions in secondary care are based on disease severity, polyp status, prior medical treatment, and patient choice. Surgery is an important treatment option for patients with severe symptoms or with nasal polyps, although timing of surgery remains uncertain and its benefits need balancing against potential risks.

**Conclusions:** Uncertainties about diagnosis, best treatment and referral criteria may affect early CRS patient management and access to evidence-based care. Better communication between general practice and ENT specialists, including a more defined treatment pathway, will ensure best practice and result in better outcomes for patients.

## TODDLERS SUB PERIOSTEAL ORBITAL ABSCESS, A SPECIAL SUBGROUP.

Dr. Basel Jabarin<sup>1</sup>, Prof Ephraim Eviatar<sup>1</sup>, Prof Haim Gavriel<sup>1</sup>

<sup>1</sup>Tel Aviv University, Tel Aviv, Israel

Acute Rhinosinusitis 1, Burton & Redgrave - Second Floor, April 23, 2018, 12:05 - 13:15

### Introduction

our objective was to investigate special parameters in children younger than two years, with periorbital cellulitis secondary to rhinosinusitis.

### Methods

A retrospective cohort study of all patients admitted to our tertiary care emergency department between 2005 and 2014 was conducted. Included were healthy patients with acute periorbital cellulitis secondary to rhinosinusitis.

### Result

Of the 123 identified patients with periorbital cellulitis, 52 (42%) were children younger than two years, of them 30 boys and 22 girls, with mean age of 1.4 years.

Toddlers were presented with aggressive way, higher fever rates, higher leukocyte counts and higher lymphocytosis, although they had a better outcome and the final diagnosis were mild and easier disease than older patients.

Despite the similarity in symptoms and signs between both age groups, ophthalmoplegia, which presents more aggressive stage, were less common in children younger than two years, additionally these children didn't develop any late ophthalmoplegia which is an important indicator for good respond to treatments. Only 5 toddlers (9.6%) have had surgical evacuation of the abscess, 31.2% of Chandlers 3 in this group compared to 19 older patients (27.1%) who underwent surgical treatment, 53.1% of Chandlers 3 in this group.

### Conclusion

Toddlers and older patients with SPOA have similar symptoms and signs, with more rates of fever and higher leukocyte count with lymphocytosis presented in the toddlers group. Toddlers have better outcome demonstrated in lower rates of delayed ophthalmoplegia, lower rates of CT scan, lower rates of SPOA and full recovery with fewer surgical intervention.

## CHORDOMAS AND CHONDROSARCOMAS OF THE SKULL-BASE: TREATMENT AND OUTCOME ANALYSIS IN A CONSECUTIVE CASE SERIES OF 23 PATIENTS

**Mr Christopher Metcalfe**<sup>1</sup>, Mr Jameel Muzaffar<sup>1</sup>, Mr Kevin Kulendra<sup>1</sup>, Dr Paul Sanghera<sup>1</sup>, Mr Alessandro Paluzzi<sup>1</sup>, Mr Shahzada Ahmed<sup>1</sup>

<sup>1</sup>*Regional Skull-Base Unit, Queen Elizabeth Hospital, Birmingham, United Kingdom*

Skull Base 1, Rutherford - Fourth Floor, April 24, 2018, 10:45 - 11:55

### Introduction

Chordomas and chondrosarcomas are rare tumours arising in the skull-base. They are commonly treated surgically, though complete excision is rare. Therefore, adjuvant radiotherapy, including proton-beam therapy (PBT), is often used. We present the largest UK series of patients with skull-base chordomas and chondrosarcomas, reviewing treatment options and outcomes.

### Methods

Retrospective data analysis from the electronic skull-base multidisciplinary team database and the digital patient records at a UK tertiary referral centre.

### Results

23 consecutive patients were identified (11 chordomas, 12 chondrosarcomas, mean age 49, range 21-81 years). 19 had PBT post operatively, 2 had conventional TomoTherapy, 2 had no further treatment. All chordomas were resected via a transnasal endoscopic approach. Of the 19 patients undergoing resection with PBT, 15 were disease free at latest follow up, 4 patients had local recurrence and 2 died (mean follow up 4.4 years, range 1-8 years). 3 of the local recurrences were in chordoma patients.

### Conclusion

Skull-base chordomas and chondrosarcomas can be challenging to resect and most cases require adjuvant therapy to achieve disease control. In cases where complete resection is not possible, it is critical to undertake sufficient resection to permit high dose radiation.

## MUCOSAL ROUTE OF IMMUNOTHERAPY WITH TRANSGENIC RICE SEEDS EXPRESSING WHOLE T CELL EPITOPES OF CRYJ1 AND CRYJ2 -AN EXPERIMENTAL STUDY IN MURINE CEDAR POLLINOSIS MODEL-

MD,PhD Hideyuki Kawauchi<sup>1</sup>, MD Infei Qu<sup>1</sup>, MD, PhD Noriaki Aoi<sup>1</sup>, Md,PhD Ichiro Morikura<sup>1</sup>, MD,PhD takafumi Fuchiwaki<sup>1</sup>, Veterinarian, PhD Takaya Yamada<sup>2</sup>, PhD Fumio Takaiwa<sup>3</sup>

<sup>1</sup>*Shimane University, Faculty Of Medicine , Izumo City , Japan,* <sup>2</sup>*Department of Experimental Animals, Center for Integrated Research in Science, Shimane University, Izumo city , Japan ,* <sup>3</sup>*Transgenic Crop Research and Development Center, National Institute of Agrobiological Sciences, Tsukuba city , Japan*

Allergic Rhinitis 3, Victoria - Second Floor, April 25, 2018, 10:45 - 11:55

We have been investigating the effective mechanism of mucosal route of immunization in murine allergic rhinitis models to attenuate nasal symptoms and downregulate Th2 responses. In this study, we have examined the effect of sublingual administration or natural feeding with protein bodies of transgenic rice seeds expressing hypoallergenic whole T cell epitopes of Cryj1 and Cryj2 (PB-Tg rice), in murine model of cedar pollinosis at induction phase and at effector phase as well. As regard results of induction phase of mucosal route of immunization with Tg-rice, The numbers of sneezing after final intranasal challenge in sublingually treated mice with PB-Tg rice powder were significantly decreased in comparison with no sublingual treatment group of mice. Histopathological findings correspondingly demonstrated that the number of eosinophils infiltrating into nasal mucosa decreased and the damage of epithelial cells was less found in sublingually treated mice. In analyses of cervical lymph node cells, IL-13 and IL-5 production seemed to decrease in sublingually treated mice. But, on the contrary , IFN-gamma increased in those mice. Furthermore, the numbers of sneezing after final intranasal challenge in mice naturally fed with PB Tg-rice powder were significantly decreased in a dose dependent manner, with less doses, in comparison with those of whole Tg-rice powder. The effect of mucosal immunization with Tg-rice at effector phase is now investigated and will be introduced at the upcoming meeting. These data indicate that mucosal route of immunotherapy with this Tg-rice is a promising treatment strategy for attenuating nasal symptoms of cedar pollinosis.

## APPLICATION OF THE ENDOSCOPIC PRELACRIMAL RECESS APPROACH TO THE MAXILLARY SINUS IN UNILATERAL MAXILLARY DISEASES

Dr. Keng Chung Shen<sup>1</sup>, Dr. Yi Tsen Lin<sup>1,2</sup>, Dr. Chih Feng Lin<sup>1</sup>, Dr. Te Huei Yeh<sup>1,3</sup>

<sup>1</sup>Department of Otolaryngology, National Taiwan University Hospital, Taipei, Taiwan, <sup>2</sup>Graduate School of Clinical Medicine, National Taiwan University College of Medicine, Taipei, Taiwan, <sup>3</sup>College of Medicine, National Taiwan University, Taipei, Taiwan

CRS Surgery 4, Burton & Redgrave - Second Floor, April 25, 2018, 12:05 - 13:15

### Aims :

The endoscopic endonasal prelacrimal recess approach to the maxillary sinus provides wide access to the walls and recesses of the maxillary sinus, and its use has been reported in many maxillary sinus and skull base diseases. The objective of this study was to determine the indication and feasibility of endoscopic sinus surgery using the prelacrimal recess approach in unilateral maxillary sinus diseases.

### Methods :

We reviewed 192 cases of unilateral maxillary sinus diseases; over 2 years, 15 cases underwent endoscopic surgery via the prelacrimal recess approach. Data regarding pre-operative computed tomography scans, operative findings, post-operative pathological diagnoses, post-operative complications, and disease recurrences were obtained from medical records.

### Results :

Patients who underwent surgery via the prelacrimal recess approach did so mostly because tumors were present in the maxillary sinuses (12/15; 80%), while most of the patients in this study underwent surgery because of chronic inflammation (122/177; 68.9%) and fungal infections (40/177; 22.6%). Among 15 patients undergoing surgery via the prelacrimal recess approach, 9 were cases of inverted papilloma. The mean follow-up period was 16.5 months (range, 6-28 months). No post-operative complications occurred after the prelacrimal recess approach. One out of the 15 cases undergoing the prelacrimal recess approach had tumor recurrence.

### Conclusion :

Most chronic inflammation and fungal infections of the unilateral maxillary sinuses can be managed through a middle meatal antrostomy. The endoscopic prelacrimal recess approach is a reliable and effective method used to approach maxillary sinus diseases.



## PROGNOSTIC FACTORS OF MACROLIDE THERAPY IN TREATING CHRONIC RHINOSINUSITIS: SYSTEMATIC REVIEW AND META-ANALYSIS

Dr. Kachorn Seresirikachorn<sup>1</sup>, Dr. Kornkiat Snidvongs<sup>1</sup>, Nichana Suwanparin<sup>1</sup>, Chanyanuch Srisunthornphanich<sup>1</sup>

<sup>1</sup>*Chulalongkorn University, Bangkok, Thailand*

CRS Pathophysiology 3, Victoria - Second Floor, April 26, 2018, 12:05 - 13:15

### Background

Anti-inflammatory drugs including long-term of low-dose macrolide (LDM) become the main treatment in chronic rhinosinusitis (CRS). While CRS represents various inflammatory patterns, LDM is not efficacious to all CRS subtypes.

### Aims

To assess the effects of LDM in treating CRS and to assess heterogeneity.

### Methods

Randomized controlled trials studying the effects of LDM in treating CRS were included. Data were pooled for meta-analysis. The outcomes were Sino-nasal outcome test (SNOT), symptoms, and endoscopy. Subgroup analyses by surgical status, type and dosage of LDM were assessed.

### Results

Nine studies (534 patients) met the inclusion criteria. There was no difference in SNOT improvement between LDM and placebo (standardized mean difference (SMD) -0.20; 95% CI -0.78 to 0.38,  $p = 0.49$ ). Symptoms and endoscopy were similar. When subgroup analysis was performed, the effects favored low-dose (half) (SMD -0.64; 95% CI -1.01 to -0.27,  $p = 0.0008$ ) in SNOT improvement when compared to very low-dose (less than half) of LDM (SMD 0.23; 95% CI -0.14 to 0.60,  $p = 0.23$ ),  $p=0.001$ . The effects were similar between post-surgery and without surgery patients. There was no difference between 14-membered and 15-membered lactone ring of macrolides.

### Conclusions

There was heterogeneity among studies assessing the effectiveness of LDM in treating CRS. While the effects of LDM were similar to placebo, subgroup analyses showed that the effects favored LDM when half-dose of LDM were given, but not very low-dose of LDM. Type of LDM and surgical status did not affect the effectiveness.

## HIGHER PREVALENCE OF NASAL POLYPS AMONG TEXTILE WORKERS: AN ENDOSCOPIC BASED AND CONTROLLED STUDY

**MD Rafaela Veloso-Teles<sup>1,2</sup>**, M.D., Ph.D. Rui Cerejeira<sup>1,2</sup>, M.D., Ph.D. Rosa Roque-Farinha<sup>2,3</sup>, M.D., D.M.Sci. Christian von Buchwald<sup>4</sup>

<sup>1</sup>Department of Otorhinolaryngology, Cova da Beira Hospital Centre, Covilhã, Portugal, <sup>2</sup>Faculty of Health Sciences, University of Beira Interior, Covilhã, Portugal, <sup>3</sup>Department of Otorhinolaryngology, Lisboa Norte Hospital Centre, Lisbon, Portugal, <sup>4</sup>Department of Otorhinolaryngology, Head and Neck Surgery and Audiology, Rigshospitalet-Copenhagen University Hospital, Copenhagen, Denmark

CRS Pathophysiology 3, Victoria - Second Floor, April 26, 2018, 12:05 - 13:15

**Background:** There is a deficit of reliable epidemiologic studies exploring the prevalence of Chronic Rhinosinusitis with Nasal Polyps (CRSwNP). Recent data suggests that occupational dust exposure may be involved in its pathophysiology.

**Objectives:** To compare the prevalence of nasal polyps (NP) in a group of workers with occupational dust exposure (textile workers) and in a control group (retail store workers).

**Methods:** Cross-sectional study with a random sample of textile and retail store employees. Clinical data was gathered through a systematic interview, which included RhinoQOL and CAT™ questionnaires. A systematic endoscopic nasal examination was performed using a 0° rigid endoscope. Lund-Kennedy endoscopic score was determined for each participant. Statistical analysis was performed with SPSS.

**Results:** 316 participants were included in the study, i.e. 215 textile workers and 101 retail store workers. NP were found in 19 subjects (8.8%) among textile workers and none in the control group ( $p=0.001$ ). The prevalence of NP increased by age strata ( $p=0.03$ ) and by years of dust exposition ( $p=0.017$ ). Polypoid degeneration of the middle turbinate was more prevalent in the exposed group ( $p=0.001$ ) with Lund-Kennedy scoring also higher ( $p<0.001$ ). RhinoQOL and CAT™ questionnaires had both significantly higher scores among textile employees. Previous medical diagnosis of atopic diseases or chronic lower airway diseases did not differ between exposed and control groups or even between subjects with and without NP.

**Conclusions:** These results point to an important correlation between occupational dust exposure and CRSwNP occurrence.

## SINONASAL CARCINOMA IN DENMARK 2008 – 2015 – A POPULATION-BASED COHORT STUDY

**MD Mads Vrelits Filtenborg<sup>1</sup>**, MD Jacob Kinggaard Lilja-Fischer<sup>2</sup>, MD Kristian Bruun Petersen<sup>1</sup>

<sup>1</sup>*Department of Otolaryngology – Head and Neck Surgery, Aarhus University Hospital, Aarhus, Denmark,* <sup>2</sup>*Department of Experimental Clinical Oncology, Aarhus University Hospital, Aarhus, Denmark*

Sinonasal Malignancy 1, Albert - Second Floor, April 23, 2018, 10:45 - 11:55

### Aims

To evaluate the effect of the DAHANCA nationwide guidelines for treatment of sinonasal carcinomas in Denmark since the implementation in 2008.

### Methods

All patients identified with sinonasal carcinoma in Denmark from 2008 until 2015 were included. Data were collected prospectively in the DAHANCA database and cross matched with the Danish Cancer Registry.

### Results

320 patients were identified. The median age was 65 years; 63% were male. The tumors were located in the nasal cavity in 61% of the patients. The remains originated from the maxillary (31%), the ethmoid (5%), the sphenoid (2%) or the frontal sinuses (1%). Treatment with curative intent was performed in 262 patients (82%), of which treatment failure occurred in 105 patients (40%). Most failures occurred at T-site (82%). T-site and stage were significant independent prognostic factors.

The 5-year overall and event-free survival (EFS) was 45% and 36%, respectively.

In a multivariate Cox proportional hazard model analysis, a combined treatment approach including surgery and chemo radiotherapy (C-RT) showed a significantly improved EFS (HR, 0.52 (CI: 0.3–0.9)) and a reduced locoregional failure (LRF) (HR, 0.51 (CI: 0.3–0.9)), when compared to surgery or RT as monotherapy.

### Conclusions

In conclusion, we found that failures primarily appeared at T-site (79%). T-site and stage proved to be independent prognostic factors and a combined treatment approach improved EFS and reduced LRF. There is surprisingly no improvement in overall survival compared to the period 1995–2004 even though guidelines and cancer-specific programmes have been introduced.

## CORRELATION BETWEEN OBJECTIVE AND SUBJECTIVE OUTCOME IN SEPTOPLASTY: A PROSPECTIVE STUDY

Dr Emilie Bois<sup>1</sup>, Drt Romain Glatre<sup>1</sup>, Dr Maxime Zielinski<sup>1</sup>, Dr Jean-baptiste Lecanu<sup>1</sup>

<sup>1</sup>*Institut Arthur Vernes, Paris, France*

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

The aim of our study was to compare subjective and objective outcome after nasal septum surgery.

### Methods

#### Design, setting and participant

This was a prospective monocentric study, carried out on 50 patients who underwent septoplasty or rhinoseptoplasty due to nasal septum deviation from January to July 2017.

#### Main outcome and measure

A subjective assessment of nasal obstruction was evaluated before and 3 months after surgery with a visual analogic scale (VAS) and 2 specific self-questionnaires: Nasal Obstruction Symptom Evaluation (NOSE), Rhino sinusitis Quality of Life Survey (RhinoQOL). Objective outcome assessment was evaluated with 4-phases anterior rhinomanometry (RhinoLab®). Correlation between pre and postoperative subjective and measured Logarithmic Vertex resistance (LVR) value were calculated according to Pearson.

### Results

Significant subjective improvement was found with NOSE ( $p < 10^{-5}$ ), RhinoQOL ( $p = 0,02$ ) and VAS ( $p = 0,01$ ), but no similar significant objective improvement was measured (Mean preop LVL: 1,32; Mean post op LVL: 1,08;  $P = 0,2$ ). We do not found correlation between any Subjective measurement and LVL changes after surgery.

### Conclusion

Septoplasty achieve high rate of patient satisfaction, but, probably due to subjective feeling of nasal breathing, we do not demonstrate clear correlation in measurement between improvement in symptoms and in resistance after surgery.

## OLFACTORY CHANGES DURING PREGNANCY AND THEIR RELATIONSHIP WITH RHINITIS

Dr. Marco Fornazieri<sup>1</sup>, Dr. Douglas Prina<sup>1</sup>, Dr. João Favoreto<sup>1</sup>, Dr. Kleber Rodrigues<sup>1</sup>, Dr. Denis Ueda<sup>1</sup>, Dr. Fábio Pinna<sup>2</sup>, Prof. Richard Doty<sup>3</sup>, Prof. Leslie Cameron<sup>4</sup>, Prof. Richard Voegels<sup>2</sup>

<sup>1</sup>Londrina State University, Londrina, Brazil, <sup>2</sup>University of São Paulo, São Paulo, Brazil, <sup>3</sup>University of Pennsylvania, Philadelphia, United States, <sup>4</sup>Carthage College, Kenosha, United States

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

**Introduction:** Studies of the effect of pregnancy on olfactory function are contradictory – some report reduced function, others hypersensitivity and still others no change at all. One potential cause of reduced function is the elevated presence of rhinitis during pregnancy.

**Objectives:** To quantify olfactory function in women during gestational and puerperal periods and to compare to that of non-pregnant women. To assess the potential influence of rhinitis on olfactory function during these periods.

**Methods:** We evaluated the presence of rhinitis and olfaction in 206 women - 47 in the first trimester of pregnancy, 33 in the second, 44 in the third, 32 in the postpartum period, and 50 non-pregnant controls. Olfactory assessment was performed using the University of Pennsylvania Smell Identification Test (UPSIT) and participants' ratings of the pleasantness and intensity of four common odors.

**Results:** Although total UPSIT scores did not differ among the study groups, for some individual odors performance was lower in the pregnant and postpartum women than in the controls. Pregnant women, especially in the first trimester, tended to consider smells less pleasant, but varied in their intensity ratings. Rhinitis was adversely associated with the olfactory test scores of the pregnant and postpartum women.

**Conclusion:** In general, overall odor identification test scores did not differ significantly among pregnant, postpartum, and non-pregnant women. However, non-pregnant control participants were better able to identify some odors. Presence of rhinitis may be one of the factors responsible for the decreased capacity to identify odorants during pregnancy and the puerperium period.

## ANTIMICROBIAL PROFILING AND RESISTANCE IN CHRONIC RHINOSINUSITIS PATIENTS IN A DEDICATED RHINOLOGY CLINIC

Mr Richard Jackson<sup>1</sup>, Mr Rishi Sharma<sup>2</sup>, Professor Carl Philpott<sup>1</sup>

<sup>1</sup>James Paget University Hospital, Great Yarmouth, United Kingdom, <sup>2</sup>Glasgow Royal Infirmary, Glasgow, Scotland

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

### Aim

To examine the yield and resistance profile of pathogens in Chronic rhinosinusitis (CRS) patients receiving culture directed antibiotic management.

### Methods

A retrospective chart review was performed on 200 consecutive CRS patients that had endoscopic guided mucopus/mucin samples taken within a specialist rhinology clinic. In cases of bilateral purulence multiple samples were obtained. Samples were collected using mucus traps and cultured on chocolate/blood agar. Pathogen growth and their resistance profiles was reviewed. In cases of antibiotic resistance primary care was contacted to review community antibiotic prescriptions.

### Results

Overall 227 culture results were taken from 200 CRS patients. Mean age was 56.8 years while on average patients were cultured 1.07 times (range 1-3). Bacterial yield included *S.aureus* (30%), *S.Pneumoniae* (6.5%), *Pseudomonas* (6%), *Haemophilus Influenza* (6%) and coliforms (4%). Methicillin resistant *S.aureus* (MRSA) was seen in 3% of samples. Of those samples yielding *S.aureus*, 78 patients (31%) had resistance to Clarithromycin of which 12 (15%) patients had previously received 12 weeks of Clarithromycin in accordance with EPOS recommendations for CRSsNPs; 7 patients had received Clarithromycin prescriptions in primary care.

### Conclusion

Our results demonstrate a notable increase in *S.aureus* resistance to Clarithromycin, possibly due to a combination of primary care prescribing and the use of longer-term secondary care treatment. Knowledge of resistance profiles amongst common pathogens helps to inform empirical antibiotic choice while improved antibiotic stewardship reduces the spread of resistance and improves the efficacy of treatment. Increasing use of macrolide antibiotics and resistance in *S.aureus* warrants further attention including relevant clinical trials.

## WHAT IS THE TIMELINE OF OLFACTORY RECOVERY AFTER SURGERY IN CHRONIC RHINOSINUSITIS ?

M.D., PhD. Boris Haxel<sup>1</sup>

<sup>1</sup>AMEOS Klinikum Haldensleben, Haldensleben, Germany

CRS Outcomes 1, Victoria - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** Olfactory dysfunction is a major factor in chronic rhinosinusitis and in the EPOS guidelines. Different studies have evaluated the effect of endonasal sinus surgery (ESS) on olfaction with various validated smell tests. Here, a recovery of olfaction is seen especially in patients with chronic rhinosinusitis with polyps (CRSwNP) and patients suffering from anosmia prior surgery. Most studies report on the six months post-operative results. Little is known about the chronological sequence of the discovery of olfaction.

**Methods:** In a prospective study on 41 patients suffering from chronic rhinosinusitis with and without nasal polyps (CRSsNP) olfaction was determined with the Sniffin' Sticks Identification Test before and two weeks and six months after endonasal sinus surgery.

**Results:** The group of mixed patients (CRSwNP and CRSsNP) reached a mean Identification Score of 8.63 before surgery and the Score increased significantly to 10.24 after two weeks and to 10.68 after six months. CRSwNP-patients revealed a slower increase in the Identification Test after two weeks (+1.30 compared to +2.00 in the CRSsNP group). After six months, the increase was similar (+2.17 compared to +1.89).

**Conclusions:** This study indicates an improvement of olfaction after sinus surgery for CRS already after two weeks. Patients with CRSwNP show a slower increase compared to CRSsNP-patients but a similar improvement is seen after six months.

## A REVIEW OF ORBITAL CELLULITIS GUIDANCE IN THE UNITED KINGDOM (UK)

Mr Stephen Ball<sup>1</sup>, Mr Arthur Okonkwo<sup>2</sup>, Mr Steven Powell<sup>2</sup>, Mr Sean Carrie<sup>2</sup>

<sup>1</sup>Newcastle Hospitals & Newcastle University, Newcastle upon Tyne, United Kingdom, <sup>2</sup>Newcastle upon Tyne Hospitals, Newcastle upon Tyne, United Kingdom

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

### Introduction

Orbital cellulitis is a sight threatening condition. The management of this condition transgresses a number of disciplines including ENT, ophthalmology and paediatrics. Therefore, well developed guidelines have the potential to maximise favourable patient outcomes.

### Aims

This study analyses orbital cellulitis guidelines used by otolaryngologists across the UK.

### Methods

51 acute admitting otolaryngology units across the UK were contacted via telephone for their orbital cellulitis guidance. These were then analysed & compared to published evidence.

### Results

Twenty-three (45.1%) units confirmed having 24 guidelines for the treatment of orbital cellulitis. Eighteen (75%) protocols found were obtained from 17 trusts; 3 microbiology guidelines were obtained. Twenty-one documents covering antibiotics were obtained, 11 (52.4%) routinely cover anaerobes during first line antibiotics. The results were analysed and used to develop an updated multi-specialty guideline that is currently being used in Newcastle upon Tyne.

### Conclusion

Less than half of units contacted have formal guidance for a sight threatening emergency. Only 52.4% advise first line anaerobe cover, despite its existence in 25% of surgical cultures. 22.2% of protocols specified contrast CT orbit and paranasal sinuses, the preferred first-line imaging investigation.

We highlight a lack of formal guidelines; and within existing guidelines areas for improvement in anaerobe cover and imaging. The evidence base for effective orbital cellulitis management exists, we have now updated our patient pathway accordingly with input from colleagues in ophthalmology, paediatrics, microbiology and infectious diseases. The patient outcomes from this are scheduled for audit.



## XYLOMETAZOLINE AS PREDICTOR FOR NOSE SURGERY IN SNORING, A PILOT STUDY

Dhr Nick De Boer<sup>1</sup>, Dr Dick Kooper<sup>1</sup>

<sup>1</sup>*Reinier De Graaf Gasthuis, Delft, Netherlands*

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

**AIMS:** To retrospectively evaluate xylometazoline as a predictor for outcome in nose surgery, including radio frequent thermo therapy of concha inferior, FESS and SSC, in patients presenting with snoring or sleep-disordered breathing. Through vasoconstriction xylometazoline is thought to simulate the effect of nose surgery for improving the nasal air flow and thus serve as predictor for outcome of nose surgery in snoring patients.

**METHODS:** We selected all patients between 2012 and 2017 who underwent nose surgery for snoring and had xylometazoline ante nocte for one week. We evaluated the effect of xylometazoline ante nocte for one week prior to nose surgery and compared it with outcome of snoring after surgery through VAS scoring and the Snore Outcome Survey (SOS).

**RESULTS:** We included 16 patients. 44% improved with xylometazoline prior to surgery and experienced less snoring after nose surgery. 12% didn't improve with xylometazoline prior and didn't benefit from surgery and 44% did improve with xylometazoline prior and didn't benefit from nose surgery.

**CONCLUSION:** Xylometazoline can't predict outcome of nose surgery. A prospective follow-up study is required for a better evaluation of the predictive value of xylometazoline and significant results.

## THE ROLE OF GROUP 2 INNATE LYMPHOID CELLS (ILC2S) IN THE PATHOGENESIS OF ALLERGIC RHINITIS

M.D. Ichiro Tojima<sup>1</sup>, M.D. Koji Matsumoto<sup>1</sup>, M.D. Hiroataka Kikuoka<sup>1</sup>, M.D. Shino Shimizu<sup>1</sup>, M.D. Hideaki Kouzaki<sup>1</sup>, M.D. Takeshi Shimizu<sup>1</sup>

<sup>1</sup>*Shiga University Of Medical Science, Otsu, Japan*

Allergic Rhinitis 4, Albert - Second Floor, April 26, 2018, 12:05 - 13:15

**Background:** Group 2 innate lymphoid cells (ILC2s) represent a critical innate cellular source of type 2 cytokines and may play important roles in allergic diseases. However, their functions in allergic rhinitis (AR) are poorly understood.

**Aims:** To examine the role of ILC2s in the pathogenesis of AR, the prevalence of ILC2s in inferior nasal turbinate (INT) of AR patients were measured.

**Methods:** Fluorescence activated cell sorting was used to determine ILC2s in INT and in peripheral blood. Sorted ILC2s were stimulated with several cytokines and lipid mediators associated with AR. Nasal lavage fluids (NLF) were collected after nasal provocation test from patients with perennial AR.

**Results:** ILC2s were found in INT of AR patients. After nasal provocation test, concentrations of cysteinyl leukotrienes (cysLTs; LTC<sub>4</sub>, LTD<sub>4</sub>, LTE<sub>4</sub>) and prostaglandin D<sub>2</sub> (PGD<sub>2</sub>) were increased in NLF of AR patients. CysLTs or PGD<sub>2</sub> stimulated the release of IL-5 and IL-13 from ILC2s, and which was greater than those stimulated by IL-33. CysLTs-induced and PGD<sub>2</sub>-induced IL-5 releases from ILC2s were suppressed by montelukast and ramatroban, respectively.

**Conclusions:** After the allergen challenge in AR patients, ILC2s play important roles in acute allergic inflammation by releasing IL-5 and IL-13 in response to CysLTs and PGD<sub>2</sub>.

## CASE- CONTROL STUDY OF ENDOSCOPIC POLYPECTOMY IN CLINIC (EPIC) VERSUS ENDOSCOPIC SINUS SURGERY FOR CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

Dr. Shaun Kilty<sup>1,3</sup>, Ms. Andrea Lasso<sup>1</sup>, Ms. Leandra Mfuna-Endam<sup>2</sup>, Dr. Martin Desrosiers<sup>2</sup>

<sup>1</sup>The Ottawa Hospital Research Institute (OHRI), Ottawa, Canada, <sup>2</sup>Department of Otolaryngology, Hôtel-Dieu Hospital, Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM), Montreal, Canada, <sup>3</sup>Department of Otolaryngology- Head and Neck Surgery, The University of Ottawa, Ottawa, Canada

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

**Introduction:** Endoscopic Polypectomy In Clinic (EPIC) is a recently described deescalated form of endoscopic sinus surgery (ESS) performed in the outpatient clinic for patients with chronic rhinosinusitis with polyps (CRSwNP). The quality of life benefit of EPIC in comparison to ESS is not known. The purpose of this study was to determine if the disease specific quality of life measured with the SNOT-22 attained with EPIC is similar to that attained with ESS for patients with CRSwNP.

**Methods:** A multi-institutional observational case-control study was performed to evaluate quality of life improvement in patients treated with ESS and EPIC for CRSwNP with a 3 month follow-up. Predicted probability of undergoing EPIC was calculated by fitting a logistic regression model using the clinically relevant variables age, nasal obstruction and facial pain scores from the baseline Sinonasal Outcome Test-22 (SNOT-22) score. EPIC patients were matched to ESS patients in a 1:1 fashion with nearest neighbor matching. Paired t-test for continuous variables and McNemar's test for binary variables with a 2-tailed probability of less than 0.05 denoted a statistically significant difference.

**Results:** 24 pairs were analyzed after matching. There was no statistical difference in the post-treatment SNOT-22 scores ( $p=0.09$ ) or the proportion of patients achieving a minimal clinically important difference (MCID) ( $p=0.21$ ) between EPIC and ESS groups.

**Conclusions:** In appropriate CRSwNP patients the EPIC procedure may provide disease specific quality of life improvement similar to that seen with patients who undergo traditional ESS.

## COMPLICATIONS OF SHORT-COURSE ORAL CORTICOSTEROIDS FOR EOSINOPHILIC CHRONIC RHINOSINUSITIS DURING LONG-TERM FOLLOW-UP

**Professor And Chairman Katsuhisa Ikeda<sup>1</sup>**, Dr Remi Hibiya<sup>1</sup>, Associate Professor Shin Ito<sup>1</sup>

<sup>1</sup>*Juntendo University Faculty Of Medicine, Tokyo, Japan*

CRS Medical Management 1, Gielgud - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** The literature made a strong recommendation for the use of oral corticosteroids in the management of patients with eosinophilic chronic rhinosinusitis (CRS) with nasal polyps. Although the potential complications associated with the long-term use of oral corticosteroid for the treatment of CRS are suggested, none of the studies has been reported.

**Methods:** Forty three patients (17 females and 26 males, ranging in age from 22 to 73 years, mean age of 51 years) after surgery enrolled. Short-course oral prednisolone (0.5 mg/kg of body weight) was prescribed for 1 week when there was anosmia and the presence of eosinophilic mucin and/or nasal polyps. Follow-up period ranged from 12 to 108 months (average: 62 months) postoperatively.

**Results:** Cumulative prednisolone dose ranged from 2.52 g to 22.68 g (mean: 12.80 g). HbA1c showed normal ranges in all the patients except one patient. Five patients had serum cortisol below the cutoff value. However, re-examination of serum cortisol and ACTH stimulation test resulted in normal valued in all the five patients, who initially showed abnormal values of serum cortisol. Thus, adrenal insufficiency in all the patients was negligible. Five (3 female and 2 male) out of the 14 patients (5 female and 9 male) participated in BMD measurement were significantly reduced, suggesting the presence of osteoporosis. Cumulative prednisolone dose tends to be related to the reduction of BMD, but not significant.

**Conclusions:** In patients taking long-term short-course use of oral corticosteroids for refractory nasal polyps of eosinophilic CRS had the risk of osteoporosis.

## VALUE OF TURBINOPLASTY IN RHINOSURGERY - A PROSPECTIVE CONTROLLED RANDOMIZED STUDY

**PD Dr. Fabian Sommer<sup>1</sup>**, Prof. Dr. Thomas Hoffmann<sup>1</sup>, Anna-Sophia Grossi<sup>1</sup>, Kerstin Hauck<sup>1</sup>, Prof. Dr. Jörg Lindemann<sup>1</sup>

<sup>1</sup>University Hospital Ulm, Ulm, Germany

Septal Surgery 4, Gielgud - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:**

Turbinoplasty is a common procedure in patients with nasal obstruction and hypertrophy of the nasal turbinates. A general recommendation regarding the necessity of turbinoplasty in rhinosurgery is still missing. For the first time, the value of turbinoplasty in septo- and septorhinoplasty regarding patient satisfaction as well as objective data in rhinomanometry and acoustic rhinometry was analyzed in a prospective controlled randomized trial.

**Methods:**

45 patients with nasal obstruction due to septal deviation and / or a crooked nose were included in the study. Depending on the results of randomization an anterior turbinoplasty was performed during septo- or septorhinoplasty. Pre- and postoperative rhinomanometry and acoustic rhinometry were performed. NOSE© and SNOT 20 questionnaires were completed by the patients before and after surgery.

**Results:**

80% of the patients were satisfied with the postoperative improvement of nasal breathing. There was a significant improvement in the NOSE© and SNOT 20 questionnaires with no relevant difference between the two groups. Acoustic rhinometry and rhinomanometry indicated increased values in MCA1 and 2, Vol 1 and Vol 2 as well as higher nasal flows with no statistically significant difference between the two study groups.

**Conclusions:**

Patient satisfaction after functional septo- and septorhinoplasty is high and does not seem to be effected by turbinate surgery. There was no significant difference in the postoperative result regarding objective measurements with and without turbinoplasty. Extensive resections of the turbinates have a negative impact on nasal physiology. Therefore, turbinoplasty should not be performed as a standard procedure in functional nasal surgery.

## TRANSORAL ENDOSCOPIC COBLATION TONGUE BASE RESECTION NOT REDUCTION, THE ROBOT SIMULATOR

Dr Ahmed Bahgat<sup>1</sup>, Prof. Claudio Vicini<sup>2</sup>

<sup>1</sup>Alexandria University, Alexandria, Egypt, <sup>2</sup>University of Ferrara, Forli, Italy

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

Tongue base hypertrophy is an obstructive condition in many, if not most of, cases of obstructive sleep apnea–hypopnea syndrome (OSAHS).

Base of tongue (BOT) is difficult to manage surgically, and its surgery remains a great challenge for both surgeon and patient.

Although minimally invasive techniques are not sufficient to satisfactorily manage these kinds of patients, Transoral robotic surgery (TORS), as described by Prof. Claudio Vicini, has proved to provide excellent and safe access to BOT and supraglottis while enabling the surgeon to maintain haemostasis.

In previous study, TORS was found to achieve the best outcomes if compared versus other options for management of BOT hypertrophy in OSAHS patients. The second best option found, if the robot is not available, as regards effectiveness and being minimally invasive, was the CELL technique (Coblation endoscopic lingual lightening) as described by Prof. Eric Kezirian. However, CELL technique aimed at ablating the lingual tonsils and obstructing tongue base by using Coblation technology without measuring the volume of resected tissues and it took longer operative time with longer exposure to anaesthesia in those critical cases.

In this study, Coblation was used to resect, not ablate, tongue base with the same technique as described in TORS and it was found to be feasible and effective and well tolerated by patients undergoing multilevel surgery for severe OSAHS.

BALLOON SINUPLASTY IN THE TREATMENT OF CHRONIC RHINOSINUSITIS:  
APOLLO BANGALORE EXPERIENCE

Dr Sumit Kumar Gaur<sup>1</sup>

<sup>1</sup>*Apollo Hospitals, Bangalore, India*

CRS Surgery 1, Gielgud - Second Floor, April 23, 2018, 14:45 - 16:15

**Objective:**

To study the efficacy of Balloon Sinuplasty (BSP) in management of Chronic Rhinosinusitis (CRS) based on SNOT 22 (Sino Nasal Outcome Test) analysis.

**Methods:**

In our prospective study a total of 194 individuals underwent BSP at our institution between 2010 and 2016. These patients were evaluated symptomatically throughout the study period, using a standardized questionnaire the SNOT-22 scoring system<sup>1</sup>. The evaluations were at 1 week, 1 month, 6 months, 1 year and 2 years post surgery compared with their preoperative scores. For all patients, mean symptom scores were established at each of their visits, based on the rating of their symptomatology on a 6 point scale, as postulated by Piccirillo et al. in the SNOT-22 protocol. Means of their worst or top 5 symptoms were also calculated and followed post-surgery.

**Results:**

The SNOT-22 mean symptom score recorded a dramatic 82% improvement in all the patients who underwent balloon dilatation of their sinuses, within the first postoperative week and progressed to 91% symptom relief, by the end of 6 months follow up. The overall symptomatic improvement in their top 5 symptoms was even better and was recorded at 94.2% at the end of 6 months.

**Conclusion:**

Most of the patients in our study group provided an overall positive feedback, describing their balloon sinuplasty surgery as a gratifying experience, providing marked relief from their symptoms with minimal discomfort. The improvement in symptoms achieved at 6 months was sustained in the long term follow up.

## ASTHMA AND ALLERGIC DISEASES PREVALENCE AMONG INHABITANTS OF IVANO-FRANKIVSK, UKRAINE

**Dr. Roman Fishchuk<sup>1</sup>**, Dr. Ostap Orishchak<sup>2</sup>, Dr. Mykhailo Kuzyuk<sup>2</sup>, Dr. Myroslava Pylyp'yuk<sup>3</sup>

<sup>1</sup>Ivano-Frankivsk Central City Clinical Hospital, Ivano-Frankivsk, Ukraine, <sup>2</sup>Ivano-Frankivsk national medical university, Ivano-Frankivsk, Ukraine, <sup>3</sup>West Medical medical centre, Ivano-Frankivsk, Ukraine

Allergic Rhinitis 1, Victoria - Second Floor, April 23, 2018, 12:05 - 13:15

**Aim.** The purpose of the study was to evaluate the proportion of people with allergic diseases and/or asthma living in Ivano-Frankivsk, Ukraine.

**Methods.** During the fall of 2016 5000 letters with the survey, invitation to participate and volunteer information from the GA2LEN network were sent to random addresses in Ivano-Frankivsk. Ukrainian versions underwent the process of validation before been sent out. The local committee of Ivano-Frankivsk National Medical University approved the study. Statistical data analysis was carried out using standard software package.

**Results.** 199 surveys were received and processed from our respondents. The survey was filled out by 150 people, the average age of respondents was 52 years; 38% were men and 62% were women, 49 people returned empty surveys. Allergic symptoms from the respiratory system was observed in 55,3% of the inhabitants of Ivano-Frankivsk who participated in the survey; 10% have an established diagnosis of asthma; 22,6% suffer from allergic rhinitis, and 15,3% of the respondents were diagnosed with chronic sinusitis. Also 47% reported about eczema or any other skin allergy.

**Conclusions.** More than half of the respondents in Ivano-Frankivsk report allergic manifestations from the respiratory system, which corresponds to the literature in Europe. Asthma has been diagnosed in 10% of respondents. The low level of response to a survey (4%) suggests the need to improve the mechanism for obtaining information from the population.

**Acknowledgements.** We thank European Rhinologic Society and GA2LEN network for support in conduction of the study.



## EFFECT OF PEPSINA ON HEAT SHOCK PROTEIN (HSP)70 RESPONSE IN PATIENTS WITH CHRONIC RHINOSINUSITIS

MS Jing Wang<sup>1</sup>

<sup>1</sup>*West China Hospital, West China Medical School, Sichuan University, Chengdu, China*

CRS Pathophysiology 3, Victoria - Second Floor, April 26, 2018, 12:05 - 13:15

The objectives of this study are to investigate the relation between laryngopharyngeal reflux and chronic rhinosinusitis ( CRS ) and to explore the effect of pepsinA on the level of Heat Shock Protein (HSP)70. Nasal tissue specimens, nasal secretions and blood plasma obtained from 23 CRS patients with nasal polyps(CRSwNP) , 26 CRS patients without nasal polyps(CRSsNP) and 9 normal controls were studied, using Enzyme-Linked Immunosorbent Assay(ELISA) to measure pepsin levels in nasal secretions and blood plasma, Western analysis to measure Hsp70 and pepsinA levels in Nasal tissue specimens and Quantitative Real-time Polymerase Chain Reaction(Q-PCR) to detect the expression of pepsinogenA, HSPA5 and PTGS2 in Nasal tissue specimens. The expression of PepsinA in nasal secretions was significantly higher in patients with CRS than in normal controls( $p < 0.05$ ). HSP70 expression level was significantly increased in pepsinA-positive turbinate mucosa, compared with controls ( $P < 0.001$ ) and pepsinA-negative turbinate mucosa in CRSwNP and CRSsNP patients ( $P < .001$ ). Similarly, the HSP70 expression level was significantly increased in pepsinA-positive polyp tissues, compared with the controls ( $p = .021$ ) and pepsinA-negative polyp tissues in CRSwNP patients ( $p = .016$ ). There was no significant HSP70 expression difference between pepsinA-negative turbinate mucosa or polyp tissues and controls. Furthermore, no association was found between the presence of pepsinA and HSPA5 in Nasal tissue specimens. The results suggest that the LPR may play a role in the development of CRS through the reflux of pepsinA. Increased expression of HSP70 may be associated with the pathogenic mechanism of pepsinA.

## THE ROLE OF COMPUTED TOMOGRAPHY AND TEXTURE IMAGE ANALYSIS IN DIAGNOSIS OF NON-INVASIVE FUNGAL RHINOSINUSITIS

**Md, Phd Aleksandra Barac<sup>1</sup>**, Aleksa Janovic<sup>2</sup>, Djurdja Bracanovic<sup>2</sup>, Svetlana Antic<sup>2</sup>, Zoran Rakocevic<sup>2</sup>

<sup>1</sup>*Clinical Center Of Serbia, Belgrade, Serbia*, <sup>2</sup>*Center for Radiological Diagnostics, School of Dentistry, University of Belgrade, Serbia, Belgrade, Serbia*

Imaging and Investigations 1, Albert - Second Floor, April 23, 2018, 12:05 - 13:15

**Aims:** The aim of the study was to analyse CT features of fungal rhinosinusitis (FRS) and to explore the usefulness of the texture image analysis in its diagnosis.

**Methods:** The CT images of the maxillary sinuses of 37 adult patients diagnosed with chronic rhinosinusitis were analyzed for homogeneity, high-attenuation areas, mean and the maximum density of the soft tissue mass, bony wall thickness and density. Texture image analysis (TIA) included measurement of uniformity, contrast, homogeneity, and entropy. The sinuses were classified into fungus positive (F+) or negative (F-) group based on the mycological culture results. Obtained parameters were compared between groups using appropriate statistical tests.

**Results:** Out of 67 maxillary sinuses with soft tissue mass, fungi were isolated from 24 (35.8%). The soft tissue mass in the F+ sinuses was significantly more non-homogeneous. High-attenuation areas were more prevalent in the F+ group. Soft tissue densities were higher in the F+ group. The sinus wall showed a tendency toward decreased thickness and significantly higher density in the F+ group. Among TIA parameters only homogeneity was significantly lower in the F+ group.

**Conclusions:** Presence of fungi should be suspected when the sinus is filled with non-homogenous soft tissue content of a high CT density not necessarily presented as clearly visible hyperattenuation material. Cases with FRS in our series showed tendency toward the bony wall thinning and higher X-ray attenuation. TIA may serve as tool for quantitative assessment of subjective CT features such as homogeneity of the soft tissue mass for investigation purposes.

## USE OF THERMO-CONTROLLED RADIOFREQUENCY IN THE EPISTAXIS MANAGEMENT IN HEREDITARY HAEMORRHAGIC TELANGIECTASIA

**MD. Ana Laura Cajelli<sup>1</sup>**, MD Florencia Fernández<sup>1</sup>, MD. Eduardo Figueroa<sup>1</sup>, MD. Matías Parreño<sup>1</sup>, MD. Yesica Lijdens<sup>1</sup>, MD Federico Urquiola<sup>1</sup>

<sup>1</sup>*Hospital Italiano De Buenos Aires, Ciudad de Buenos Aires, Argentina*

Epistaxis 1, Burton & Redgrave - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** To assess the effectiveness of bipolar thermo-controlled radiofrequency (Coblator®) in the epistaxis management in Hereditary hemorrhagic telangiectasia (HHT) patients.

**Methods:** The charts of all patients with Hereditary hemorrhagic telangiectasia treated with thermo-controlled bipolar radiofrequency (Coblator®) for recurrent epistaxis between January 2014 and March 2017 at Hospital Italiano de Buenos Aires were reviewed.

**Results:** A total of 9 procedures were performed in 8 patients with recurrent epistaxis. Seven patients required unilateral intervention and one required bilateral treatment with a 3 month interval. Complete coagulation of telangiectasias was achieved in all patients without intraoperative transfusion or irreabsorbable nasal packing requirement. Two patients had full epistaxis control (mild intermittent bleed) and remain without bleeding to date (33.5 months). Six patients achieved temporary control with an average rebleeding time of 8.6 months (5 to 15 months). Of this group 3 patients were treated with tranexamic acid, 1 with raloxifene and propranolol and one required nasal radiofrequency and nasal occlusion due to massive bleeding. None of the patients suffered immediate or long-term complications. The average postoperative follow-up of was 18 months.

**Conclusions:** Epistaxis management in HHT patients relies on medical and surgical treatment. The application thermo-controlled bipolar radiofrequency (Coblator®) is a safe and effective surgical alternative for epistaxis control in patients with HHT when medical therapy fails.

## CAN NASAL AIRFLOW AND MINIMAL CROSS-SECTIONAL AREA PREDICT NASAL PATHOLOGY USING OHM'S AND POISEUILLE'S LAWS?

**Mr Martin Tan<sup>1,3</sup>**, Ms Katherine Whitcroft<sup>2,3</sup>, Mr Nishchay Mehta<sup>2,3</sup>, Prof Anne Schilder<sup>2,3</sup>, Dr Terence Leung<sup>1</sup>, Mr Peter Andrews<sup>2,3</sup>

<sup>1</sup>Department of Medical Physics and Biomedical Engineering, University College London, London, United Kingdom,

<sup>2</sup>University College London Ear Institute, London, United Kingdom, <sup>3</sup>Department of Rhinology and Facial Plastic Surgery, Royal National Throat Nose and Ear Hospital, London, United Kingdom

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

To determine whether a significant correlation exists between peak nasal inspiratory flow (PNIF) and nasal minimal cross-sectional area (MCA) using Ohm's and Poiseuille's Laws and whether this model can predict nasal pathology.

### Methods

At the Royal National Throat Nose and Ear Hospital, London, patients attending the rhinology clinic with nasal obstruction (either structural or mucosal) were recruited and compared with healthy controls. A prospective controlled study involving unilateral PNIF rates, MCA using acoustic rhinometry, olfactory function, allergy status and sinonasal MRI scans was performed.

### Results

52 participants including 34 controls and 18 patients, ranging from 23 to 68 years of age were recruited. The relationship between the 1/Resistance Ratio and the Airflow Rate Ratio demonstrated a linear graph of direct proportionality with a high correlation coefficient of 0.75 with high statistical significance (p-value << 0.01). This relationship supports the hypothesis that Ohm's and Poiseuille's Laws can be used to model nasal airflow and values sitting outside this linear graph signify abnormal function. Olfactory dysfunction appears to be a sensitive discriminator in this model.

### Conclusion

A linear relationship between the 1/Resistance Ratio and Airflow Rate Ratio using preliminary empirical PNIF and AR data was demonstrated. This supports the use of Ohm's and Poiseuille's Laws to model normal and abnormal nasal airflow.

## THE ROLE OF CURCUMIN IN NASAL MUCOSA

Doctor Abdul Qadar Punagi<sup>1</sup>, Doctor Ervina Mariani<sup>1</sup>

<sup>1</sup>*Medical Faculty of Hasanuddin University Makassar, Makassar, Indonesia*

Rhinology Potpourri 2, Victoria - Second Floor, April 26, 2018, 10:45 - 11:55

The level of cigarette consumption in Indonesia is very high and causes the magnitude of the danger that may result in respiratory and cancer risk.

**Aims :** to determine the effectiveness of curcumin in improving nasal mucosa of Wistar mice as a result of exposure to cigarette smoke. **Materials and methods:** The study was conducted from March to August 2015. The study was conducted in animal experiments laboratory and research unit of the Medical Faculty of Hasanuddin University. The study sample of 15 Wistar mice were divided into three groups: the provision of cigarette smoke, the group with the provision of smoke and curcumin 200mg, the group with the provision of smoke and curcumin 400mg. **Results:** Results of the study group I showed that the changes in the nasal mucosa of Wistar mice in the form of inflammation, erosion, epithelial disarrangement and epithelial metaplasia. Group II and group III showed a significant difference in the degree of inflammation in group (p <0.01). There are significant differences in the incidence of erosion and epithelial disarrangement according to group (p <0.05). Disarrangement of epithelial incidence was significantly higher in the control group compared to the group of curcumin. There are significant differences in the incidence of epithelial metaplasia according to group (p <0.05).

**Conclusion:** The exposure to cigarette smoke causes changes in the nasal mucosa of Wistar mice, administration of curcumin as protection can reduce inflammation, epithelial erosion, epithelial disarrangement and epithelial metaplasia. **Keywords:** Cigarette smoke, Curcumin, Nasal mucosa

## DNA METHYLATION OF PROXIMAL PLAT PROMOTER IN CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

DNA methylation of proximal PLAT promoter in chronic rhinosinusitis with nasal polyps Masanori Kidoguchi<sup>1,2</sup>

DNA methylation of proximal PLAT promoter in chronic rhinosinusitis with nasal polyps Shigeharu Fujieda<sup>2</sup>,

DNA methylation of proximal PLAT promoter in chronic rhinosinusitis with nasal polyps Emiko Noguchi<sup>1</sup>

<sup>1</sup>University of Tsukuba, Tsukuba-shi, Japan, <sup>2</sup>University of Fukui, Fukui-shi, Japan

CRS Pathophysiology 1, Gielgud - Second Floor, April 23, 2018, 12:05 - 13:15

**Aims:** Nasal polyps (NP) are characterized by pseudocysts derived from stromal tissue edema, and cause persistent infections in patients with chronic rhinosinusitis (CRS). Low level of tissue-type plasminogen activator (t-PA; gene name PLAT) is considered as a cause of stromal tissue edema by insufficiency plasmin activation, but it has not been clarified the mechanism regulating the PLAT gene expression. We investigated the methylation levels in the proximal PLAT promoter and their effects on the gene expression in NP tissue, and examine the epigenetic mechanism regulating the gene expression in NP.

**Methods:** We analyzed the methylated level of proximal PLAT gene promoter by bisulfite pyrosequencing in paired samples of NP and inferior turbinate tissue (IT) obtained from 20 patients with CRSwNP. The PLAT expression levels were measured by real-time PCR in the same 20-paired samples.

**Results:** The DNA methylation levels at one CpG site were significantly higher in NP compared with IT ( $P < 0.01$ ). The PLAT expression was significantly lower in NP compared with IT ( $P < 0.001$ ). The methylation changes, especially at one site, showed significantly negative correlation with the gene expression changes between NP and IT ( $r = -0.65$ ,  $P < 0.01$ ).

**Conclusion:** Hypermethylation of PLAT promoter may down-regulate the gene expression in NP, leading to excessive fibrin deposition by aberrant coagulation cascade. DNA methylation of proximal PLAT promoter may contribute to NP growth and have a potential as new therapeutic targets.

## CHANGES IN SYMPTOMS AND QOL AFTER ENDOSCOPIC SINUS SURGERY IN PATIENTS WITH CHRONIC RHINOSINUSITIS

Dr. Kenzo Tsuzuki<sup>1</sup>, Dr. Kengo Hashimoto<sup>1</sup>, Dr. Ken Okazaki<sup>1</sup>, Dr. Masafumi Sakagami<sup>1</sup>

<sup>1</sup>*Hyogo College of Medicine, Nishinomiya, Japan*

CRS Outcomes 2, Burton & Redgrave - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims:** To investigate whether the symptoms and quality of life (QOL) improve in patients with chronic rhinosinusitis (CRS) after endoscopic sinus surgery (ESS).

**Methods:** From June 2015 to November 2017, 73 patients with CRS (46 men, 27 women; median age 52.0 years) who underwent ESS and who both pre- and postoperative results of questionnaires could be obtained were enrolled. Median duration of postoperative follow-up was 11.0 months. Patients were classified into eosinophilic CRS (E CRS, n=37) and non-E CRS (n=36) groups, based on the Japanese Epidemiological Survey of Refractory Eosinophilic Chronic Rhinosinusitis Study. Nasal symptoms questionnaire (NSQ), consisting of 10 items (eight nasal symptoms and two QOL-related items) scored by four levels (0-3 points) for each, and visual analogue scale (VAS) were used for evaluation of the patients' postoperative satisfaction. In addition, preoperative CT score by Lund and Mackay and postoperative endoscopic score (E score) that we previously proposed were analyzed.

**Results:** Median values of VAS, nasal symptoms and OQL-related items of NSQ significantly improved after ESS in both groups (n=73, p<0.001). The VAS and NSQ scores showed significant correlations in the pre- and postoperative stages (p<0.001). The postoperative OQL-related items of NSQ in E CRS were significantly worse than those in non-E CRS (p=0.0133). Preoperative CT score and postoperative E score in E CRS were significantly higher than those in non-E CRS (p<0.01).

**Conclusion:** It is suggested that postoperative patients with CRS could be satisfied with ESS. The next step is to examine the factors that inhibit the postoperative improvement of the symptoms and QOL.

## DEFINITIVE RHINOPLASTY IN PATIENTS WITH UNILATERAL CLEFT LIP AND PALATE

Dr Cesar David Garcia Garza<sup>1</sup>, Dr Mari Carmen Bosch Lozano<sup>2</sup>, Dr Eduardo Morera Serna<sup>1</sup>

<sup>1</sup>Otolaryngology - Hospital Universitario Son Espases, Palma De Mallorca, Spain, <sup>2</sup>Maxillofacial Surgery - Hospital Universitario Son Espases, Palma De Mallorca, Spain

Rhinoplasty 1, Victoria - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims:** Nasal deformity in cleft lip and palate patients is an aesthetic and functional problem. A primary rhinoplasty is performed when the cleft lip is closed in the newborn. A definitive rhinoplasty is performed after completion of nasal growth and after finishing any required orthognathic/orthodontic procedures. We present 6 cases of unilateral cleft nasal deformity who underwent definitive rhinoplasty in our institution.

**Methods:** Six male patients were assessed. Four of them had a left-sided cleft; two of them had a right-sided cleft. Their age ranged from 18 to 41 years. All of them had previously undergone primary rhinoplasty.

An open rhinoplasty approach was made in all cases. Five of the six patients required additional rib and/or conchal cartilage harvesting. Different techniques were used as needed for reconstruction of the nose. Inferior turbinoplasty was performed in all patients in the non-cleft side. Unilateral middle turbinate reduction was performed in three patients.

**Results:** Enhanced nasal symmetry and nasal breathing were achieved in all patients.

**Conclusion:** Rhinoplasty in cleft lip patients is a challenging task. An open approach allows an adequate exposure for reconstruction. The use of cartilage grafts is recommended to increase structural support and to achieve long-lasting results. Addressing septal deformity, turbinate hypertrophy and internal valve collapse is vital in order to improve nasal breathing. A thoughtful preoperative plan is essential for the best results, both in form and function of the nose.



## VALIDATION OF TRAINING LEVELS IN ENDOSCOPIC ENDONASAL SURGERY OF THE SKULL BASE

Dr. Philippe Lavigne<sup>1</sup>, Dr. Daniel Faden<sup>1</sup>, Dr. Eric Wang<sup>1</sup>, Dr. Paul Gardner<sup>2</sup>, Dr. Juan Fernandez-Miranda<sup>2</sup>, Dr. Carl Snyderman<sup>1</sup>

<sup>1</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, Pittsburgh, United States, <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine, Pittsburgh, United States

Skull Base 2, Albert - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** A 5-level training program was first proposed 10 years ago for skull base surgeons learning endoscopic endonasal surgery (EES) of the skull base. Levels were based on the complexity of anatomy, proximity and risk of injury to major neurovascular structures and technical difficulty.

**Methods:** A 3-phase validation concept is proposed: 1 - Face validity (the classification is related to clinically significant elements); 2 - Construct validity (the classification predicts the outcome); and 3 - Interrater reliability (the classification applies to other surgical teams). Primary outcome measures included: major and minor complications, estimated blood loss (EBL), duration of surgery (DOS) and length of hospitalization (LOH). Two surgical teams at the same institution were compared.

**Results:** Two hundred and ten consecutive cases were analyzed. The distribution of cases for each category was: level II-56, level III-69, level IV-77, level V-7. Level I was omitted since it does not include skull base surgery. Statistically significant differences were found between Levels III and IV for the rates of minor and major complications (including cerebrospinal fluid leaks), EBL, and DOS. When comparing Levels IV and V, there was a statistical difference in the rate of major complications. Face validity was assessed by citation analysis of the original article, which has been cited 134 times since its publication. As for interrater reliability, there was no difference between the two teams of surgeons for minor and major complication rates.

**Conclusion:** This study provides a 3-phase validation of training levels for EES.

## IS SINUS SURGERY SAFE IN PATIENTS ON ANTI-TH2 BIOLOGICAL AGENTS?

Dr Abdullah Bahakim<sup>1,3</sup>, Dr Marc Tewfik<sup>2</sup>, Dr Martin Desrosiers<sup>1</sup>

<sup>1</sup>Centre Hospitalier de l'Université de Montréal (CHUM), Montreal, Canada, <sup>2</sup>McGill University, Montreal, Canada, <sup>3</sup>King Abdulaziz University, Jeddah, Saudi Arabia

CRS Surgery 1, Gielgud - Second Floor, April 23, 2018, 14:45 - 16:15

**INTRODUCTION:** Biological agents targeting the Th2 inflammatory pathway represent a potentially revolutionary change in therapy for nasal polyposis. However, anti-Th1/Th17 biologics can complicate endoscopic sinus surgery (ESS) by increasing susceptibility to infection and reducing healing, thus concerns exist about effects of anti-Th2 biologics at time of ESS.

**PURPOSE:** We wish to identify whether potential security concerns exist with anti-Th2 biologics in CRS by assessing whether complications occur following ESS performed in asthmatic patients treated with mepoluzimab (Nucala™) at the time of surgery.

**METHOD:** Retrospective study at two academic centers. Patients having undergone ESS with concomitant mepoluzimab therapy were reviewed to identify fo unusual flora was detected perioperatively, adverse events during the postoperative period, or deleterious effects on postoperative healing. Additionally, serum and tissue eosinophilia were assessed to verify whether these were suppressed.

**RESULTS:** 5 patients [2 M, 3 F, age 47y (30-60y), 100% nasal polyposis 100% revision surgery, 100% asthmatic] underwent surgery while being continuously treated with mepoluzimab for an average of 6 months of treatment preoperatively. Perioperative findings were as expected. No unusual organisms were recovered perioperatively. There were no adverse events during the early post-operative period. Pathology reported low eosinophilia but did report elevated plasmocytes in one patient.

**CONCLUSION:** This limited early experience suggests that anti-Th2 biological agents may be administered safely during the perioperative and postoperative period. Apparent improved control of tissue eosinophilia in treated patients suggests that disease modulation is occurring, however, whether this impact long-term resolution of disease remains an intriguing question.

## MEASUREMENT OF DEFORMATION RATE IN NASAL SEPTUM DEVIATION BY THREE-DIMENSIONAL COMPUTER TOMOGRAPHY RECONSTRUCTION AND ITS APPLICATION IN NASALSEPTOPLASTY ENDOSCOPIC SURGERY

**Doctor Gui Yang<sup>1</sup>**, Doctor SHUQI QIU, Doctor HAILIANG ZHAO, Doctor ZHIXIAN LIU, Doctor ZAIXING WANG, Doctor YONGJING WU, Doctor XIANHAI ZENG, Doctor ZHIQIANG LIU

<sup>1</sup>Longgang ENT Hospital, Shenzhen, Shenzhen, China

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

Nasal septum deviation (NSD) typically occurs following otorhinolaryngologic surgery. However, there is a lack of biomechanical parameters able to accurately evaluate the severity of NSD. The present study aimed to determine whether the deformation rate (DR) is associated with visual analogue scale (VAS) and nasal airway resistance (NAR), and to evaluate the application of DR measurements in nasal septoplasty endoscopic surgery. In the present clinical trial, a total of 30 patients with NSD were enrolled, and DRs were calculated prior to surgery by three dimensional computer tomography (3D-CT) reconstruction techniques combined with mechanical analysis. The distribution of stress lines at the nasal septum deviation site was evaluated prior to operation. Following nasal septoplasty endoscopic surgery, pre and post operation scores for VAS and NAR were compared. The results demonstrated that DR was significantly correlated with preoperational NAR ( $r=0.534$ ) and VAS scores ( $r=0.397$ ). According to preoperative CT measurements of NSD, DR and biomechanical properties, selective excision was performed to remove core areas of stress. It was observed that postoperative DR, NAR and VAS scores were significantly lower (all  $P<0.01$ ) than those measured preoperation. Furthermore, over a follow-up period of 3 months, 23 cases (76.7%) were cured and 7 cases (23.3%) exhibited improvements. These results indicate that preoperative measurement of septum DR by 3D-CT reconstruction techniques may be important in determining the specific surgical approach of nasal septoplasty required.

## IMPORTANCE OF CONE-BEAM COMPUTED TOMOGRAPHY IN DIAGNOSTICS AND SELECTION OF TREATMENT MANAGEMENT OF PARANASAL SINUSES FUNGAL BALL

**MD Maryana Cherkes<sup>1</sup>**, MD Khrystyna Ivasivka<sup>2</sup>, MD Volodymyr Student<sup>1</sup>

<sup>1</sup>Lviv National Medical University, Lviv, Ukraine, <sup>2</sup>Hospital named after Metropolitan A. Sheptytsky, Lviv, Ukraine

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

**Aim:**To study the most important criteria for differential diagnosis of paranasal sinuses fungal ball.

**Methods:**were examined 31 patient,who underwent rhinoscopy,endoscopic examination of the nose and the nasal cavity,bacterial inoculation from the nose to the flora and sensitivity to antibiotics and Cone-beam Computed Tomography(CBCT) of the nose and paranasal sinuses.

**Results:**Analyzing patients' complaints,rhinoscopic,endoscopic picture of the nose and sinuses,signs of acute or chronic rhinosinusitis were observed in all patients.All patients were referred to CT-scans.In 11 patients CT-scans showed nonuniform thickening of the mucous membrane to subtotal and total filling of the cavity,there were X-ray contrast fragments of different sizes and forms,most often not fixed to the bone parts of the walls of the sinus cavity.X-ray contrast fragments represent a transapical revealed endodontic material through perforation of the cortical plate of the sinus fundus.Hyperdense insertions of various sizes that can be locally located or diffusely spread throughout the area of the soft tissue component are observed in the structure of the soft tissue component of the peripheral X-ray contrast material.The process is mostly one-sided.Aspergillus fumigatus et niger was detected in bacteriological cultures of these patients.In 20 CT-scans patients the picture is bilateral or one-sided,thickening of the sinus mucosa of different thickness and filling of the sinus with the contents of different volumes.In the bacteriological culture of these patients,pathogenic bacterial microflora.

**Conclusions:**Having conducted a differential diagnosis of rhinosinusitis it should be noted that CBCT is an extremely important method for diagnostic of paranasal sinuses fungal ball for further selection of correct treatment management.

## ELECTROOLFACTOGRAM RESPONSES BEFORE AND AFTER AVERSIVE OLFACTORY CONDITIONING IN HUMANS

**Dr Sophia C. Poletti**<sup>1</sup>, PhD Annachiara Cavazzana<sup>1,3</sup>, PhD Cagdas Guducu<sup>1,2</sup>, Prof Maria Larsson<sup>3</sup>, Prof Thomas Hummel<sup>1</sup>

<sup>1</sup>TU Dresden, Dresden, Germany, <sup>2</sup>Dokuz Eylul University, Izmir, Turkey, <sup>3</sup>Stockholm University, Stockholm, Sweden

Smell and Taste 2, Burton & Redgrave - Second Floor, April 26, 2018, 10:45 - 11:55

**Aim:** The aim of the present study was to investigate whether repetitive aversive odor conditioning induces changes at the level of the peripheral olfactory system in humans.

**Methods:** A total of 51 volunteers participated. A pair of indistinguishable odor enantiomers [(+)-rose oxide and (-)-rose oxide] were used as stimuli. During the pre-conditioning, participants' ability to discriminate between the two odors was assessed using a three-alternative, forced-choice discrimination test. In addition, electro-olfactograms (EOG) from the olfactory epithelium were recorded. Participants underwent three conditioning sessions on consecutive days. The experimental group received an electrical stimulus to the forearm only following (+)-rose oxide presentation, whereas its enantiomer sibling was never paired with the aversive stimulus; the control group did not receive any electrical stimulation. During the post-conditioning session, their ability to discriminate the two enantiomers was assessed again using the discrimination test and EOG recordings were obtained similarly to the pre-conditioning session.

**Results:** Results show significant differences in the peripheral electrophysiological responses between the conditioned and the unconditioned stimulus, demonstrating contextually-induced changes at the level of the first neuron in the olfactory system.

**Conclusions:** For the first time in humans, we were able to demonstrate peripheral plasticity in the human olfactory system in response to repetitive olfactory conditioning. Hence, the olfactory epithelium seems to be equipped with experience-dependent olfactory capabilities.

166

WITHDRAWN

## NASAL CYCLE EVALUATION USING UNILATERAL PEAK NASAL INSPIRATORY FLOW AND RHINOMANOMETRY

MD Alfonso Luca Pendolino<sup>1</sup>, MD Ennio Nardello<sup>1</sup>, Prof, Ph.D Bruno Scarpa<sup>2</sup>, Prof, MD Alessandro Martini<sup>1</sup>, Ph.D, MD Giancarlo Ottaviano<sup>1</sup>

<sup>1</sup>*Department of Neurosciences, Otolaryngology Section, University of Padova, Padova, Italy,* <sup>2</sup>*Department of Statistical Sciences, University of Padova, Padova, Italy*

Fundamentals Of CRS, Westminster Suite - Fourth Floor, April 26, 2018, 10:45 - 11:55

**Aims:** Human unilateral nasal airflow shows spontaneous changes over a period of hours due to the alternating congestion and decongestion of the venous sinuses within the nasal turbinates and nasal septum. The aim of the present study was to compare peak nasal inspiratory flow (PNIF) and unilateral PNIF with nasal resistances measured by means of anterior active rhinomanometry (AAR) in the evaluation of the nasal cycle.

**Methods:** PNIF, unilateral PNIF and AAR measurements were randomly performed in 20 rhinologic normal. Nasal measurements were done four times in a single day. The correlation between PNIF, unilateral PNIF and nasal resistances was studied. The pattern of nasal airflow for each subject was also analyzed.

**Results:** A significant negative correlation between PNIF-IPNIF-rPNIF and respectively AAR-IAAR-rAAR was found. Only one subject did not show nasal cycle, while all the rest were equally distributed between a reciprocal pattern of the nasal cycle, or an in-phase changes of the nasal cycle, both at PNIF and AAR.

**Conclusions:** Nasal cycle can be easily assessed by means of PNIF. In fact, AAR and PNIF showed to be correlated in the measurement of nasal cycle, although PNIF offered a lower variability. In the present study, an equal distribution of reciprocal and in-phase pattern of the nasal cycle was observed.

## PEAK NASAL INSPIRATORY FLOW AND VISUAL ANALOGUE SCALE IN A LARGE RHINOLOGIC POPULATION

MD Alfonso Luca Pendolino<sup>1</sup>, MD Ennio Nardello<sup>1</sup>, Dott. Massimiliano Russo<sup>2</sup>, MD Pietro Maculan<sup>1</sup>, Prof, MD Alessandro Martini<sup>1</sup>, Ph.D, MD Giancarlo Ottaviano<sup>1</sup>

<sup>1</sup>Department of Neurosciences, Otolaryngology Section, University of Padova, Padova, Italy, <sup>2</sup>Department of Statistical Sciences, University of Padova, Padova, Italy

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

**Aims:** Nasal obstruction is the most common complaint symptom reported by patients affected by nasal diseases. It can be evaluated objectively, i.e. by means of peak nasal inspiratory flow (PNIF) measures and/or subjectively by means of validated questionnaires. However, it has been reported that there is a lack of reliable correlation between subjective and objective measurements of nasal obstruction. The aim of the present study was to evaluate the correlation between PNIF measurements and the subjective sensation of nasal obstruction measured by means of a visual analogue scale (VAS) in a large population of consecutive rhinologic patients.

**Methods:** A population of 689 consecutive subjects was enrolled. VAS and PNIF were performed to assess nasal obstruction. Nasal septal deviation was classified according to Mladina classification and its severity was assessed using three levels of gravity.

**Results** PNIF and VAS demonstrated a negative correlation. Dividing the population in those mainly affected by chronic rhinosinusitis and those mainly affected by nasal septal deviation, a negative correlation between PNIF and VAS was confirmed in both groups. PNIF and VAS were also evaluated according to the presence of polyps and the type and grade of septal deviation.

**Conclusions:** VAS and PNIF were demonstrated to be correlated in a large population of rhinologic patients. In future, it would be interesting to study VAS and PNIF in a large series of rhinologic patients undergoing nasal surgery.



## ENDOSCOPIC SINUS SURGERY FOR TYPE-2 CRSwNP: A RETROSPECTIVE STUDY USING AN ENDOTYPE-BASED SURGICAL APPROACH

Dr. Saeed Alsharif<sup>1</sup>, Dr. Karin Jonstam<sup>2</sup>, Dr. Thibaut Van Zele<sup>1</sup>, Mrs. Gabriele Holtappels<sup>1</sup>, Dr. Claus Bachert<sup>1</sup>  
<sup>1</sup>Upper Airway Research Laboratory, Department of Otorhinolaryngology, Ghent University, Gent, Belgium, <sup>2</sup>Division of  
ENT Diseases, Department of Clinical Sciences, Intervention and Technology, Karolinska Institute, Stockholm, Sweden

CRS Surgery 1, Gielgud - Second Floor, April 23, 2018, 14:45 - 16:15

**Aim** To prove the efficacy of a new surgical technique in dealing with CRSwNP focusing on the inflammatory endotyping and its reflection on the surgical outcome. We have reviewed CRSwNP patients who underwent endoscopic sinus surgery at Ghent University Hospital with either a classical approach, or with the complete removal of all affected mucosa to allow for regeneration of new healthy mucosal tissue, a technique we named "reboot approach".

**Methods** Retrospective case-control study of 50 CRSwNP consecutive patients who underwent endoscopic sinus surgery between 2015-2017, either as classical endoscopic sinus surgery (ESS), as a more extensive approach removing the mucosa of the ethmoidal, sphenoidal and maxillary sinuses (partial reboot), or as a maximal approach including Draf III operation and removal of all sinus mucosa including the frontal sinuses (full reboot). The comparison was done in the view of polyp recurrence over the follow-up period.

**Results** All patients demonstrated a type-2 inflammation of the mucosal tissue harvested at the day of surgery. In patients undergoing the classical approach (n=20), 9 patients relapsed within 2 years, in the partial reboot group 3 patients out of 18 had polyp recurrence, and in the full reboot group only one patient out of 12 had polyp recurrence; the relapse rates were significantly different between the non-reboot (45%) and the reboot groups (13%).

**Conclusion** We here show for the first time that the reboot approach has advantages over the current approaches in type-2 inflammation, reducing recurrence of nasal polyps. Further prospective and long-term studies are warranted.

## EARLY AND LATE RECURRENT EPISTAXIS ADMISSIONS: PATTERNS OF INCIDENCE AND RISK FACTORS

Dr Oded Cohen<sup>1</sup>, Dr Hagit Shoffel-Havakuk<sup>1</sup>, Dr Meir Warman<sup>1</sup>, Dr Sharon Tzelnick<sup>1</sup>, Prof Doron Halperin<sup>1</sup>, Dr Yonatan Lahav<sup>1</sup>

<sup>1</sup>Kaplan Medical Center, Rehovot, Israel

**Aims:** Epistaxis is a common complaint, yet few studies have focused on recurrent epistaxis incidence and risk factors. Our objective was to determine patterns of incidence and risk factors for recurrent epistaxis admissions (REA).

**Methods:** A Single academic center Case series with chart review. Medical records of patients admitted for epistaxis between 1999 and 2015 were reviewed. Follow up period was defined as 3 years following initial admission. REAs were categorized into early - 30 days following initial admission; and late - 31 days to 3 years following initial admission. Logistic regression was used in order to identify potential predictors of REAs.

**Results:** A total of 653 patients were included. Eighty-six patients (14%) had recurrent admission, 48 (7.5%) early REAs and 38 late REAs (6.5%). Nonlinear incidence curve was demonstrated for both early and late REAs. When applying logistic regression, prior nasal surgery and anemia were independent risk factors for early REAs. Based on multivariate analysis, thrombocytopenia was significantly associated with late REAs.

**Conclusion:** Early and late REAs demonstrate different risk predictors. Knowledge of such risk factors may help in risk stratification for this selected group of patients. All patients at risk should be advised on possible preventive measures. Patients at risk for early REA may benefit from a more proactive approach.

## DEVELOPMENT AND EVALUATION OF THE PSYCHOMETRIC PROPERTIES OF THE ENDOSCOPIC ENDONASAL SINUS AND SKULL BASE SURGERY QUESTIONNAIRE (EES-Q).

**MD Ellen ten Dam<sup>1,2</sup>**, MD PhD Astrid G.W. Korsten-Meijer<sup>1</sup>, MD PhD Eelco W. Hoving<sup>3</sup>, MD PhD Jos M. Kuijlen<sup>4</sup>, MD PhD Bernard F.A.M. van der Laan<sup>1</sup>, PhD Karin M. Vermeulen<sup>5</sup>, MD PhD Robert A. Feijen<sup>1</sup>, PhD Paul F.M. Krabbe<sup>5</sup>

<sup>1</sup>University of Groningen, University Medical Center Groningen, Department of Otorhinolaryngology-Head and Neck Surgery, Groningen, The Netherlands, <sup>2</sup>Graduate School of Medical Sciences (Groningen University, Institute for Drug Exploration), Groningen, The Netherlands, <sup>3</sup>Department of Neurosurgery, UMCUtrecht and Princess Maxima Center for Pediatric Oncology, Utrecht, The Netherlands, <sup>4</sup>University of Groningen, University Medical Center Groningen, Department of Neurosurgery, Groningen, The Netherlands, <sup>5</sup>University of Groningen, University Medical Center Groningen, Department of Epidemiology, Groningen, The Netherlands

CRS 1, Albert - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims.** To develop a health-related quality-of life (HRQoL) tool to assess nasal morbidity after endoscopic endonasal surgery (EES): the Endoscopic Endonasal Sinus and Skull Base Surgery Questionnaire (EES-Q). Psychometric properties of the EES-Q were measured.

**Methods.** The EES-Q was administered to 300 patients prior to EES and postoperatively (2 weeks, 3 months, 1 year). Principal HRQoL domains were distinguished and 72 items were formulated. Internal consistency was assessed using Cronbach's  $\alpha$ . Test-retest reliability was determined 3 months postoperatively and 2 weeks later by computing intraclass correlation coefficients. Construct validity was examined by calculating Spearman's correlation coefficient between the EES-Q and the 22-Item Sino-Nasal Outcome Test (SNOT-22), EQ-5D-3L, and postoperative health status. Responsiveness was assessed using Cohen's  $d$  effect sizes.

**Results.** The final EES-Q represented a physical, psychological, and social domain with 30 items. The EES-Q exhibited high internal consistency ( $>0.80$ ) and good test-retest reliability (ICC  $>0.90$ ). Construct validity was corroborated by significant positive and negative correlations between the EES-Q and the SNOT-22 and postoperative health status ( $p < 0.01$ ). The correlation between the social EES-Q domain and the ability to move and perform usual activities (EQ-5D-3L) was significant positive ( $p < 0.01$ ). The EES-Q was responsive to clinical change (effect size, 0.6).

**Conclusion.** The EES-Q is a reliable and reasonably responsive disease-specific HRQoL instrument. The evidence supports the expected construct validity of the EES-Q. That 'bothersomeness in social functioning' had an impact on postoperative health status rating reflects the importance of multidimensional assessment of HRQoL after endoscopic sinus or endoscopic skull base surgery.

## EPITHELIAL REPAIR IS IMPAIRED IN CRSwNP AND IS MORE SENSITIVE TO S. AUREUS EXOPRODUCT-INDUCED DYSFUNCTIONAL REPAIR

**Professor Fabiana Valera**<sup>1</sup>, Manon Ruffin, Damien Adam, Émilie Maillé, Badr Ibrahim, Julie Berube, Simon Rousseau, Emmanuelle Brochiero, Martin Desrosiers

<sup>1</sup>Medical School Of Ribeirão Preto - University Of São Paulo, Ribeirão Preto, Brazil, <sup>2</sup>Centre de Recherche du Centre Hospitalier de l'Université de Montréal, Montréal, Canada, <sup>3</sup>Meakins-Christie Laboratories, Department of Medicine, McGill University, Montréal, Canada

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

**Introduction:** Compromised epithelial barrier function is believed to contribute to chronic rhinosinusitis with nasal polyp (CRSwNP) pathophysiology. We wished to determine whether dysfunctional epithelial regeneration following injury was present in CRS and whether this was influenced by *Staphylococcus aureus* (SA).

**Methods:** Primary nasal epithelial cells (pNECs) were collected during surgery, and raised as primary epithelial cell cultures. At confluency, cultures were injured, and exposed to: i) a basal condition; ii) SA exoproducts (0.5%); and heat-inactivated SA exoproducts (0.5%). Images were obtained immediately and 6 hours after injury, and the repair rate was assessed to each injury performed. Repair rates were compared among groups using ANOVA with Bonferroni post-tests.

**Results:** Under basal conditions, cultures from CRSwNP pNECs were 31% slower in repair rates than controls ( $p < 0.05$ ). SA exoproducts significantly decreased epithelial repair in both controls (40%;  $p < 0.05$ ) and CRSwNP pNECs (62%;  $p < 0.001$ ), but had a greater effect in CRSwNP. Heat-inactivated SA exoproducts were also assessed in CRSwNP pNECs, but did not impact repair.

**Conclusion:** In summary, CRSwNP epithelial cells present a delayed epithelial repair when compared with control cells. SA exoproducts impair wound healing in both control and CRSwNP epithelial cells, however CRSwNP cells are more sensitive to this deleterious effect. Absence of effect of heat-inactivated SA exoproducts suggests that the deleterious effect of SA exoproducts on epithelial repair is mediated by heat-sensitive proteins, such as proteases.

## S. AUREUS IMPAIRS LAMELLIPODIA AND CYTOSKELETAL ORGANIZATION IN NASAL EPITHELIAL CELLS

**Professor Fabiana Valera**<sup>1,2</sup>, Manon Ruffin<sup>2</sup>, Damien Adam<sup>2</sup>, Émilie Maillé<sup>2</sup>, Badr Ibrahim<sup>2</sup>, Julie Berube<sup>3</sup>, Simon Rousseau<sup>3</sup>, Emmanuelle Brochiero<sup>2</sup>, Martin Desrosiers<sup>2</sup>

<sup>1</sup>Medical School Of Ribeirão Preto - University Of São Paulo, Ribeirão Preto, Brazil, <sup>2</sup>Centre de Recherche du Centre Hospitalier de l'Université de Montréal (CRCHUM), Montréal, Canada, <sup>3</sup>Meakins-Christie Laboratories, Department of Medicine, McGill University, Montréal, Canada

CRS Pathophysiology 3, Victoria - Second Floor, April 26, 2018, 12:05 - 13:15

**Introduction:** We have demonstrated that Staphylococcus Aureus exoproducts (SAE) exacerbate pre-existing deficiencies in epithelial repair in primary nasal epithelial cell cultures (pNEC) from patients with chronic rhinosinusitis with nasal poly (CRSwNP), however, the mechanisms of this dysfunction are not well understood. As lamellipodial dynamics and cytoskeleton organization are central to epithelial repair, we wished to assess whether: i) these functions were impaired in CRSwNP ii) were affected by exposure to SAE.

**Methods:** Primary nasal epithelial cells (pNECs) were collected during surgery and raised as primary epithelial cell cultures. At confluency, cultures were injured, and exposed to: i) basal conditions and ii) SAE 0.5%. Dynamics of lamellipodial protrusion cycle were analyzed by kymography during 4 hours of repair, and cytoskeleton organization was assessed by immunofluorescence (IF) for  $\alpha$ - tubulin, F-actin and DAPI.

**Results:** Under baseline conditions, pNECs from CRSwNP presented slower protrusion length than controls (CRSwNP:  $6.23 \pm 0.99 \mu\text{m}$ , CTL:  $10.5 \pm 1.36 \mu\text{m}$ ;  $p < 0.05$ ) and velocity (CRSwNP:  $0.78 \pm 0.11 \mu\text{m}/\text{min}$ , CTL:  $1.62 \pm 0.24 \mu\text{m}/\text{min}$ ;  $p < 0.05$ ). SA exoproducts decreased protrusion length and velocity in both groups ( $p < 0.05$  for all), however the deleterious effect was more severe and prolonged in CRSwNP. IF showed that i) leading cells at the wound edge were already altered in CRSwNP samples ii) SAE considerably changed cell polarization and reorganization in both groups, with cells assuming a more dysfunctional rounded shape.

**Conclusions:** Lamellipodial dynamics and cytoskeleton organization is altered in CRSwNP cells under baseline condition. SA exoproduct-induced dysfunction occurs in both groups, but it is observed in a greater degree in CRSwNP than control cells.

## THE EFFECT OF FUNCTIONAL ENDOSCOPIC SINUS SURGERY ON PATIENTS WITH HYPOSMIA AND CRS WITH NASAL POLYPS.

MD MARIA ZISOGLOU<sup>1</sup>, Mr. EFKLIDIS PROIMOS<sup>1</sup>, Mrs THEOGNOSIA CHIMONA<sup>1</sup>, MD ALEXANDROS LADIAS<sup>1</sup>, MD ELENA TSAKIRAKI<sup>1</sup>, Mr. CHIEF Dept. CHARITON PAPADAKIS<sup>1</sup>

<sup>1</sup>*Chania General Hospital, CHANIA CRETE, GREECE*

CRS Surgery 4, Burton & Redgrave - Second Floor, April 25, 2018, 12:05 - 13:15

**Aim:** To study the effect of functional endoscopic sinus surgery (FESS) on patients with chronic rhinosinusitis (CRS) and nasal polyps (NP) with hyposmia as most bothersome symptom. We present the preliminary results.

**Design:** The study was designed to evaluate prospectively whether FESS can influence long-term hyposmia in patients with CRS with nasal polyps.

**Materials and methods:** Forty eight patients from ENT clinic of Chania General Hospital were preliminarily included. All selected patients underwent medical treatment for CRS and NP for 12 weeks, and in case of no hyposmia symptom improvement they proceeded to surgical treatment.

Patients showed statistically significant improvement of the subjective measurements for hyposmia, from baseline to six and twelve months follow up.

Patients were assessed with subjective and objective evaluation methods at specific time intervals in a twelve months period of time.

**Conclusion:** Data analysis of our study supports the hypothesis that FESS could have beneficial longer term effect than maximum medical treatment on hyposmia improving objective and subjective measurements.

## SERUM PERIOSTIN, IGE AND SE-IGE CAN BE USED AS BIOMARKERS TO IDENTIFY MODERATE TO SEVERE CHRONIC RHINOSINUSITIS WITH NASAL POLYÅS

**MD Karin Jonstam<sup>1,2</sup>**, MD, PhD Marit Westman<sup>1,2,3</sup>, Gabriële Holtappels<sup>4</sup>, MD, PhD Claus Bachert<sup>1,2,4</sup>

<sup>1</sup>Department of Ear, Nose and Throat Diseases, Karolinska University Hospital, Stockholm, Sweden, <sup>2</sup>Department of Clinical Science, Intervention and Technology, Division of Ear, Nose and Throat Diseases, Karolinska Institutet, Stockholm, Sweden, Stockholm, Sweden, <sup>3</sup>Department of Medicine Solna, Karolinska Institutet, Stockholm, Sweden, <sup>4</sup>Upper Airways Research Laboratory, Ghent University, , Ghent, Belgium

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

**Background:** Severe CRSwNP is a type-2 inflammation with elevated levels of IL-5 and Staphylococcus aureus enterotoxin (SE)-IgE in tissue. These patients experience a rapid relapse of disease after surgery and have a high prevalence of co-morbid asthma. Serum periostin has been implied as a biomarker of type-2 disease in asthmatics.

**Aim:** The aim of this study was to identify serum biomarkers to identify patients with a type-2 endotype in CRSwNP.

**Method:** 108 patients with CRSwNP participating in a pan-european cohort were included. Serum samples were analysed for periostin, IL-5, IgE and SE-IgE, and tissue samples were analysed for IL-5, IgE and SE-IgE. ROC-curves were used to identify cut-off values for serum periostin, IgE and SE-IgE to identify IL-5 and SE-IgE in tissue. Sensitivity and specificity for these markers were calculated.

**Result:** 92 patients were IL-5 positive and 22 patients were SE-IgE positive in tissue. Analyses revealed that high serum periostin (above 48.5ng/ml) predicted presence of IL-5 in polyp tissue with a sensitivity of 93.5% and a specificity of 62.5% ( $p < 0.0001$ ). Among the patients with high serum periostin, serum IgE (above 96kU/L) and SE-IgE (above 0.28kUA/L) predicted SE-IgE presence in tissue with a sensitivity of 77.3% and a specificity of 87.1% ( $p < 0.0001$ ). Clinical features, such as asthma comorbidity or nasal polyp score did not predict the presence of SE-IgE with equivalent sensitivity and specificity.

**Conclusion:** Serum periostin, IgE and SE-IgE can be used to identify SE-IgE and IL-5 expression in nasal polyp tissue and hence identify a severe form of CRSwNP.

## ALLERGIC SENSITISATION OF MAST CELLS PROMOTES THE SURVIVAL OF S. AUREUS - IMPLICATIONS FOR CHRONIC RHINOSINUSITIS.

Mr Tim Biggs<sup>1,2</sup>, Dr Rana Abadalkareem<sup>2</sup>, Mr Stephen Hayes<sup>1,2</sup>, Mr Philip Harries<sup>1</sup>, Dr Sylvia Pender<sup>2</sup>, Dr Andrew Walls<sup>2</sup>, Mr Rami Salib<sup>1,2</sup>

<sup>1</sup>University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom, <sup>2</sup>University of Southampton, Southampton, United Kingdom

CRS Pathophysiology 3, Victoria - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims:** S. aureus has been localised within mast cells in nasal polyps and its presence is associated with poorer medical and surgical treatment outcomes. This study aims to assess the effect of allergic sensitisation on the activation of S. aureus infected mast cells.

**Methods:** A LAD2 mast cell line was cultured in four separate groups; with or without human Myeloma IgE sensitisation, and/or co-infection with CRS specific S. aureus isolates. Following culture, cells were stimulated with goat anti-human IgE to activate IgE signalling pathways. Beta-hexosaminidase and cytokine release (TNF $\alpha$ ) were measured using Luminex assays, and gene expression (IL-5 and TNF $\alpha$ ) by real-time polymerase chain reaction.

**Results:** Exposure of LAD2 mast cells to S. aureus resulted in degranulation, cytokine release and upregulated pro-inflammatory gene expression. These effects were significantly reduced by allergic sensitisation.

**Conclusions:** By limiting mast cell activation, and the subsequent influx of inflammatory cells, S. aureus may constitute a mechanism by which it evades the immune system, thus promoting its own survival. This effect is likely to be more prevalent in patients with allergic sensitisation, reflected in a more severe clinical picture and poorer response to treatment.



## POTENTIAL (COST-)EFFECTIVENESS OF SEPTOPLASTY FOR NASAL OBSTRUCTION DUE TO A DEVIATED NASAL SEPTUM IN ADULTS: A SYSTEMATIC REVIEW AND MODELING STUDY

**MSc Machteld van Egmond<sup>1</sup>**, MD, PhD Jan Rongen<sup>1</sup>, BSc Carien Hedeman<sup>1</sup>, Alice Tillema<sup>2</sup>, PhD Maroeska Rovers<sup>1</sup>, MD, PhD Niels van Heerbeek<sup>1</sup>

<sup>1</sup>Radboud University Medical Center, Nijmegen, Netherlands, <sup>2</sup>Radboud University Nijmegen, Nijmegen, Netherlands

Septal Surgery 4, Gielgud - Second Floor, April 26, 2018, 10:45 - 11:55

### Aims:

As the benefits of septoplasty are questioned and the status of current evidence for its effectiveness is unclear, we aimed to assess the potential cost-effectiveness of septoplasty compared to non-surgical management for nasal obstruction due to a deviated nasal septum in adults, based on a systematic review of existing literature and a decision analytical model.

### Methods:

Eligible for inclusion in our systematic review were randomised controlled trials and non-randomised designs comparing both treatment strategies. We planned to assess risk of bias with Cochrane's risk of bias tool, and to calculate standardised mean differences and risk differences with their corresponding 95% confidence intervals. Using input from literature and expert opinion, a decision analytical model was developed for the clinical pathway of septoplasty compared to non-surgical management for nasal obstruction due to a deviated nasal septum. A probabilistic sensitivity analysis was performed to examine the influence of existing uncertainty on the cost-effectiveness.

### Results:

Our systematic review yielded no studies comparing septoplasty to non-surgical management. While evidence on the benefits of septoplasty was found to be lacking, the potential cost-effectiveness of septoplasty appeared to be highly sensitive to changes in quality of life gained by adults undergoing septal surgery for nasal obstruction due to a deviated nasal septum.

### Conclusion:

Despite the routine application of septoplasty in clinical practice, the current body of evidence does not support firm conclusions on its effectiveness. Cost-effectiveness of septoplasty seems to depend largely on the potential gain in quality of life.

## CLINIMETRIC PROPERTIES OF THE GLASGOW HEALTH STATUS INVENTORY, GLASGOW BENEFIT INVENTORY, PEAK NASAL INSPIRATORY FLOW, AND 4-PHASE RHINOMANOMETRY IN ADULTS WITH NASAL OBSTRUCTION

**MSc Machteld van Egmond<sup>1</sup>**, MD, PhD Niels van Heerbeek<sup>1</sup>, BSc Elke ter Haar<sup>1</sup>, PhD Maroeska Rovers<sup>1</sup>

<sup>1</sup>*Radboud University Medical Center, Nijmegen, Netherlands*

Septal Surgery 4, Gielgud - Second Floor, April 26, 2018, 10:45 - 11:55

### Aims:

As the validity, reliability, and responsiveness of many measurement instruments frequently used in rhinology is unknown, we aimed to determine the clinimetric properties of well-known subjective and objective outcomes, i.e., the Glasgow Health Status Inventory, Glasgow Benefit Inventory, Peak Nasal Inspiratory Flow, and 4-Phase Rhinomanometry, in adults with nasal obstruction.

### Methods:

Construct validity and responsiveness were assessed in 111 patients. Inter-rater and intra-rater reliability were analysed in 30 patients.

Content validity was evaluated by interviewing patients and ENT-surgeons; construct validity by comparing hypothesised associations to calculated correlations between the outcomes; inter-rater reliability by having two researchers perform objective measurements in the same patients; intra-rater reliability by having one rater administer all instruments twice within a two-week interval; and responsiveness by comparing patients' scores at baseline and three months after septoplasty or non-surgical management.

### Results:

All instruments demonstrated adequate content validity, inter-, and intra-rater reliability. Analyses of construct validity yielded low Pearson's correlations between the subjective and objective outcomes. Comparing septoplasty to non-surgical management, only the Glasgow Health Status Inventory scores were significantly different between the two treatment groups (mean difference 10.4, 95% CI 6.9 - 13.9).

### Conclusion:

All measurement instruments scored appropriately on content validity and reliability, but only the subjective GHSI scored well on responsiveness.

## IMMUNOHISTOCHEMICAL QUANTIFICATION OF DIFFERENT CELL POPULATIONS IN CHRONIC RHINOSINUSITIS

Phd Aristeidis Giotakis<sup>1</sup>, Dr. Daniel Dejaco<sup>1</sup>, Dr. Ljilja Bektic-Tadic<sup>1</sup>, Univ.-Prof. Dr. Herbert Riechelmann<sup>1</sup>  
<sup>1</sup>*Medical University Of Innsbruck, Innsbruck, Austria*

CRS Pathophysiology 1, Gielgud - Second Floor, April 23, 2018, 12:05 - 13:15

**Aims:** To quantify different cell populations in immunoassays of patients with chronic rhinosinusitis with different phenotypes and endotypes as well as in immunoassays of healthy patients.

**Methods:** Immunoassays of patients with chronic rhinosinusitis with and without polyps as well as immunoassays of healthy patients were investigated. Material was collected intraoperatively during endoscopic sinus surgery or inferior turbinate surgery after patients' consent. In total, material of more than 50 patients was assessed. The material was immunohistochemically stained with different biomarkers including Cytokeratin, Vimentin, S100A4, CD45, CD11a. The immunoassays were scanned using the programme TissueFaxs. The quantification analysis was performed using the programme HistoQuest.

**Results:** Analysis and quantification of epithelial and mesenchymal cells as well as leukocytes was performed. The distribution of different cell population in different CRS endotypes and clusters was recorded.

**Conclusion:** The classification of chronic rhinosinusitis in clinical phenotypes has a well-documented diagnostic, therapeutic and prognostic significance. However, this classification does not completely describe the cellular and molecular pathophysiologic mechanisms of chronic rhinosinusitis. The necessity to describe the heterogeneity of chronic rhinosinusitis has led to the investigation of the term endotype and the underlying pathophysiologic mechanisms. The potential identification of CRS-Endotypes with different biomarkers could lead to a better treatment with better results.

## PREOPERATIVE QUALITY-OF-LIFE MEASURES PREDICT POSTOPERATIVE PAIN AFTER ENDOSCOPIC SINUS SURGERY

Prof. Rakesh Chandra<sup>1</sup>, Jeffanie Wu<sup>1</sup>, Dr. Justin Turner<sup>1</sup>, Cindy Dorminy Dorminy<sup>1</sup>, Dr. Naweed Chowdhury<sup>1</sup>  
<sup>1</sup>Vanderbilt University, Nashville, United States

CRS Outcomes 1, Victoria - Second Floor, April 23, 2018, 10:45 - 11:55

### Aims:

Recent increases in opioid-related mortality have prompted a critical evaluation of postoperative pain management across all specialties. However, successfully limiting narcotic over-prescription requires perioperative identification of patients who are at risk for high postoperative pain. Unfortunately, quality data to guide practice patterns are lacking. We therefore prospectively investigated several possible predictive factors of postoperative pain after endoscopic sinus surgery (ESS).

### Methods:

77 consecutive patients undergoing ESS were enrolled. Baseline 22-item SinoNasal Outcomes Test (SNOT-22) and Short-Form 8 (SF-8) scores were obtained. Pain scores were collected on postoperative days 0-3 (POD0-3) using a numeric rating scale. Spearman correlations were used to investigate relationships between postoperative pain, patient factors, and SNOT-22/SF-8 domain scores. Multivariate logistic regression was used to control for potential confounders.

### Results:

Day-of-surgery pain scores significantly correlated ( $p < 0.05$ ) with total preoperative SNOT-22 ( $R_s = 0.26$ ), extra-nasal rhinologic domain ( $R = 0.26$ ), and ear/facial domain scores ( $R_s = 0.25$ ). Similar significant relationships were seen between day-of-surgery pain scores and the SF-8 health ( $R_s = 0.29$ ) and work ( $R_s = 0.32$ ) domains, but SF-8 pain scores were initially non-significant ( $p = 0.095$ ). As time passed, however, the preoperative SF-8 pain score became strongly correlated with pain rating on POD3 ( $R_s = 0.42$ ,  $p < 0.001$ ). Multivariate linear regression modelling identified SF-8 health, role-physical, and pain scores in addition to smoking status as significant independent predictors of POD3 pain (adjusted  $R^2 = 0.375$ ).

### Conclusions:

Baseline patient-reported quality-of-life measures correlate with perioperative pain after ESS. Multicenter studies are necessary to validate these findings and investigate additional factors associated with postoperative pain following ESS.

## AMAZING CASES OF EXTENSIVE FUNGAL RHINOSINUSITIS IN SUDAN :BELIEVE IT OR NOT !!!

Dr Sharfi Ahmed<sup>1</sup>

<sup>1</sup>*Africa Ent Hospital Sudan, Khartoum, Sudan*

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

Aim: to diagnose and manage fungal Rhinosinusitis in Sudan.

This is a review of 176 cases of extensive Sinonasal Fungi (IFS) (2008-2017) with 11 amazing unbelievable cases presented with Sinonasal polyposis and neuro-orbital complication.

Study was done in ENT hospitals in Khartoum Sudan.

Result

All patients (176) they presented as a unilateral disease in (70%), Patients are diagnosed by endoscopic examination, CT-Scan and MRI.

MRI was done for all patients (176) and in 3 views.

Conclusion:

AFS, IFS are common rhino-sinuses disease in Sudan with different unbelievable presentations.

key words: Nose , Paranasal sinuses Fungi and neuro-orbital extension.

## NASAL EOSINOPHILIA: ADJUNCT TO PREDICT RESPONSE AFTER NASAL PROVOCATION TEST IN PATIENTS WITH NONALLERGIC RHINITIS

Prof. Tae Young Jang<sup>1</sup>, Prof. Young Hyo Kim<sup>1</sup>

<sup>1</sup>*Inha University College Of Medicine, Incheon, South Korea*

Rhinitis 1, Gielgud - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** We aimed to evaluate the relationship between nasal eosinophilia and nasal hyper-responsiveness to allergen extract.

**Methods:** In 194 patients with rhinitis symptoms (76 males and 118 females, 11 to 69 years old), we performed allergy tests (skin prick test, SPT or multiple allergeo-sorbent tests, MAST) and nasal cytology. According to the results, they were classified into 4 groups: Group A (AR with eosinophilia, n=26), Group B (AR without eosinophilia, n=77), Group C (NARES, n=20) and Group D (NAR without eosinophilia, n=71). We performed nasal provocation test (NPT) using house dust mite allergen extract and assessed the changes in symptoms and decrease in acoustic parameters such as total nasal volume (TNV) and minimal cross-sectional area (MCA).

**Results:** Patients in group C were more likely to have severe rhinorrhea and sneezing than those in group D ( $p<0.01$ ). After NPT, Group C patients had greater aggravation of nasal obstruction than Group D patients (Group C:  $2.6\pm 0.7$  versus Group D:  $0.7\pm 0.1$ ,  $p<0.01$ ). Group C also showed markedly greater MCA changes as compared to those shown by group D, 15 and 30 minutes after the antigen challenge ( $p<0.05$ ). There was considerable correlation between the number of eosinophils and increase in nasal obstruction ( $R^2=0.10$ ,  $p=0.0008$ ), and changes in the MCA, 15 and 30 minutes after NPT ( $R^2=0.13$ ,  $p<0.0001$ ; and  $R^2=0.14$ ,  $p=0.0001$ , respectively).

**Conclusions:** In patients with NAR, nasal eosinophilia can be used as an adjunct to predict the provocative response after NPT. Further research should be performed to elucidate the mechanisms that underlie this phenomenon.

## SAFETY AND EFFECTIVENESS EVALUATION OF A MINIATURE DRIVABLE ENDOSCOPE DURING SINUS SURGERY AND IN POST-OPERATIVE SURVEILLANCE

**Prof. Dr Thibaut Van Zele<sup>1</sup>**, Prof. Dr. Philippe Gevaert<sup>1</sup>, Dr Roee Landsberg<sup>2</sup>, Dr. Ethan Soudry<sup>3</sup>

<sup>1</sup>*Ghent University Hospital, Gent, Belgium*, <sup>2</sup>*Assuta Medical Center, Tel Aviv, Israel*, <sup>3</sup>*Rabin Medical Center, Petah Tikva, Israel*

Technological Advances 1, Rutherford - Fourth Floor, April 23, 2018, 12:05 - 13:15

**Objective:** The purpose of this study was to evaluate Sinusway™ Endoscope a novel single-use drivable endoscope, in access, visualization and irrigation of the paranasal sinus anatomy in patients with rhinosinusitis, during sinus surgery and post-operative inspection.

**Methods:** Seventeen adults, indicated for primary FESS, were enrolled in this prospective study. Safety was assessed by rate of device related adverse events. Performance was assessed by the ability to visualize the paranasal sinus anatomy compared to a standard endoscope. User assessed device usability through a user questionnaire.

**Results:** Sinusway endoscope was evaluated in 17 patients during FESS under general anesthesia, and in three patients for post-operative inspection under topical anesthesia. Frontal sinus lateral recess and anterior table were observed in 100% of the cases (0% and 31% success rates with a standard endoscope). Maxillary sinus floor, lateral recess and anterior wall access rates were more than 50% better with Sinusway. Users graded Sinusway with scores of 3.82, 4.10 and 3 for maxillary, frontal and sphenoid sinuses access, respectively, and 4.14 for lavage, and 3.31 for image quality (1-bad, 5-good). Patients graded Sinusway with 1.6 for tolerability and pain (1-tolerable/not painful, 10-Not tolerable/painful).

**Conclusion:** Sinusway drivable endoscope was found to be safe and effective in endoscopy intra- and post-operatively. The maneuverability and ease of use of the device are a first step in the development of a system that allows minimally invasive access, visualization, and treatment of the sinuses via the natural orifices.

## A MULTICENTER, RANDOMIZED, CONTROLLED TRIAL COMPARING RESPIMER® MINERAL-RICH SOLUTION VS NORMAL SALINE AFTER SINUS SURGERY

**Professor Ludovic De Gabory**<sup>1</sup>, Doctor Virginie Escabasse<sup>2</sup>, Doctor Philippe Boudard<sup>3</sup>, Doctor Cécile Rumeau<sup>4</sup>, Doctor Guillaume de Bonnecaze<sup>5</sup>, Doctor Geoffrey Mortuaire<sup>6</sup>, Professor Sylvain Morinière<sup>7</sup>, Professor Christian Debry<sup>8</sup>, Professor Olivier Malard<sup>9</sup>

<sup>1</sup>University Hospital, Bordeaux, France, <sup>2</sup>University Hospital of Paris, Créteil, France, <sup>3</sup>Private clinic Saint Augustin, Bordeaux, France, <sup>4</sup>University Hospital, Nancy, France, <sup>5</sup>University hospital, Toulouse, France, <sup>6</sup>University hospital, Lille, France, <sup>7</sup>University hospital, Tours, France, <sup>8</sup>University hospital, Strasbourg, France, <sup>9</sup>University hospital, Nantes, France

CRS Surgery 1, Gielgud - Second Floor, April 23, 2018, 14:45 - 16:15

**Objectives:** Nasal irrigation after endoscopic sinus surgery is essential but to date there is no consensus on the recommended solution. The purpose of our trial is to provide further evidences on the role of nasal wash composition among patients in post-operative critical situation.

**Methods:** In this multicenter, randomized, controlled study, 189-patients in postoperative period performed 4-daily nasal washes with Respimer® Netiflow® nasal irrigation device using either Respimer® (R-group), a mineral-rich solution, or normal saline (NS-group) during 28 days. Symptoms were assessed with RhinoQoL and NOSE questionnaires, endoscopic features with the Lund-Kennedy Score, and mucociliary clearance with rhinoscintigraphy.

**Results:** Clinically relevant improvements (> 20 points) in RhinoQOL and NOSE scores were measured in both groups without significant intergroup difference. Among subjects with impaired RhinoQOL at pre-inclusion, the change in Impact-RhinoQOL score was significantly superior in R-group vs NS-group at day 21 (p=0.028) and day 28 (p=0.027).

The Lund-Kennedy score continuously improved in both groups with a faster kinetic in R-group. Crusts were significantly fewer and less severe/obstructive in R-group vs NS-group at day 7 (p=0.026) and day 14 (p=0.016). Secretions disappeared significantly quicker and were less thick/purulent in R-group vs NS-group at day 14 (p=0.002) and day 21 (p=0.043). A significantly lower intensity of epistaxis was reported in R-group vs NS-group (p=0.008 at day 21).

Mucociliary clearance was better and significantly improved from day 14 to day 21 in R-group (p=0.003).

**Conclusion:** Our results suggest a better efficacy on nasal mucosa healing of mineral-rich solution for nasal irrigation in post-operative period.



## COMPARISON OF HYPERTONIC SEAWATER WITH ESSENTIAL OILS VS XYLOMETAZOLINE 0.1% IN COMMON COLD.

Professor Ludovic De Gabory<sup>1</sup>, Doctor Jana Skoupa<sup>2</sup>

<sup>1</sup>University Hospital, Bordeaux, France, <sup>2</sup>Czechta Institute, Praha, Czech Republic

Acute Rhinosinusitis 1, Burton & Redgrave - Second Floor, April 23, 2018, 12:05 - 13:15

**Objectives:** Symptomatic treatment of common cold consists in paracetamol, nasal irrigation and vasoconstrictors. A number of contraindications limits the use of local vasoconstrictors. This study aimed at comparing the efficacy of hypertonic seawater with essential oils (Rhinaction®) vs xylometazoline 0.1% nasal spray in common cold.

**Methods:** In this multicenter, randomized, parallel group study, 553 adults with common cold were treated either with Rhinaction® (6times/day) or xylometazoline 0.1% (3times/day) over a maximum 8 days-period. Symptoms severity was monitored with the Wisconsin Upper Respiratory Symptom Survey (WURSS-21). Onset and duration of action, tolerability were also evaluated.

**Results:** No significant difference was found between the WURSS-21 AUC (120.76 vs 106.34, p=0.053) in Rhinaction and xylometazoline groups respectively. Global severity symptoms score similarly decreased from day 1 to last day of sickness (-69.5% vs -65.2%, p=0.02) in line with individual symptoms reduction: nasal congestion (-70.6% vs -69.4%, p=0.38; figure-A) and sleep disturbance score (-75,2% vs -74.2%, p=0.20; figure-B). Relief of nasal obstruction appears in ≤1 minute for 68.7% vs 61.7% of subjects with an onset time of 1.92 vs 1.98 minutes and a lasting effect of 78.15 vs 97.72 minutes. Both treatments were well tolerated.

**Conclusion:** Our results show the efficacy of hypertonic seawater with essential oils vs xylometazoline in the relief of common cold with a fast onset of action, a prolonged effect and a safe profile. It can be considered as a natural alternative to xylometazoline.

## OCCURRENCE OF OCCULT CSF LEAKS DURING STANDARD FESS PROCEDURES

Sarina Bucher, Dr. med. Anton Kugler, Dr. med. Lorenz Epprecht, Prof. Dr. med. David Holzmann, Dr. Elisabeth Probst, **PD Dr. Med. Michael Soyka**<sup>1</sup>

<sup>1</sup>University And University Hospital Zurich, Zurich, Switzerland

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

### Aims

To investigate the frequency of perioperative occult (clinically non-apparent) CSF leaks in endoscopic sinus surgery and to test the accuracy of the beta-2-transferrin test in the blood contaminated setting.

### Methods

A consecutive cohort study was performed on patients undergoing standard ESS procedures. One patient with a known primary spontaneous CSF leak was chosen as the positive control. At the end of each procedure a neuro patty was placed into the middle meatus and removed together with the nasal pack the day after surgery. In positive tested individuals, a follow-up was granted for at least 12 months and a beta-trace was used to rule out a relevant leak.

### Results

The beta-2-TF test was positive in 4 of 57 samples (7%), but required modification of the analytical processes. None of the patients suffered a meningitis. None of the patients was tested positively using the beta-trace test in the long-term follow-up. Own titrations showed low sensitivity of the beta-2-TF test in the blood contaminated condition, while beta-trace testing performed better.

### Conclusions

Occult CSF leaks occur in a relevant proportion of patients undergoing ESS. Positive tests (in clinically asymptomatic patients) in the early postoperative setting should not be overestimated. The beta-2-TF test seems inferior to the beta-trace test when samples are blood contaminated.

## THE PREVELANCE AND IMPACT OF NASAL AND SINUS DISEASE IN THE 5-11 YEAR AGE GROUP PRESENTING TO ENT CLINIC

Mr Sabahat Ahmed<sup>1</sup>, Dr Amtul Sami<sup>2</sup>

<sup>1</sup>GKT School Of Medical Education, King's College London, London, United Kingdom, <sup>2</sup>ENT department at University Hospital Lewisham, Lewisham and Greenwich NHS Trust, London, United Kingdom

Paediatric Rhinology 2, Rutherford - Fourth Floor, April 24, 2018, 12:05 - 13:15

### Aims:

Identify the prevalence of rhinitis amongst the 5-11year population in University Hospital Lewishams' paediatric secondary care referrals. We wanted to explore the impact of symptoms on quality of life, education and any correlation between different symptom subgroups. A secondary aim was to establish the presence of a population to reach unmet needs in paediatric Rhinitis.

### Methods:

We created a tool (Sami's Rhinosinusitis Diagnostic and Impact questionnaire, Sami-RDI, based on a disease-specific, quality of life questionnaire for the 11-16 age group) to assess nasal and sinus disease in the 5-11year age group as there was no standout tool available to meet the above aims. Each consenting case had a clinical assessment, collateral history and completed the Sami-RDI.

### Results:

Fifty-two randomly selected patients were included; 52% (27/52) had Rhinitis, 27% had Rhinosinusitis and 6% had Sinusitis. Thirty-five percent (18/52) had abnormal sleep score. Correlation through Spearman's Rank coefficient showed strongest association between Nasal Subgroup and Total Disease Severity Score (0.87). Sleep and Nasal subgroups also had strong correlation.

Fifteen patients quantified spending on treatment beyond NHS "free" prescriptions; 40% (6/15) spent more than £5 but less than £20 per month, 60% (9/15) spent less than £5 per month. Seventeen patients (of forty responses) had to take time off school: range 1-28 days.

### Conclusion:

Rhinitis remains an underappreciated condition in this cohort, with significant impact on sleep, finance and education. Our study identifies a cohort that can be involved in further studies to address the unmet needs of paediatric rhinitis.

## MANAGEMENT OF SUBPERIOSTEAL ORBITAL ABSCESS SECONDARY TO RHINOSINUSITIS – CUTTING EDGE (PLEASE BE ADVISED THAT THIS IS A COURSE SUBMISSION)

**Professor Haim Gavriel<sup>1,2</sup>**, Professor Ephraim Eviatar<sup>1,2</sup>

<sup>1</sup>Asaf Harofe Medical Center, Ashkelon, Israel, <sup>2</sup>Tel Aviv University, Tel Aviv, Israel

Acute Rhinosinusitis 1, Burton & Redgrave - Second Floor, April 23, 2018, 12:05 - 13:15

### Introduction:

Subperiosteal orbital abscess (SPOA) typically presents as a collection of pus in the space between the periorbit and the lamina papyracea adjacent to the infected paranasal sinuses, is a serious complication of rhinosinusitis, affecting mainly children. The patient with SPOA may rapidly deteriorate to have an elevation of the orbital pressure which might cause visual impairment. Further intracranial extension of the infection was also reported in up to 15%. An evidence based management protocol for patients with SPOA is essential as it constitutes a surgical emergency. Surgical drainage has traditionally been recommended for SPOA, although accumulative data from recent studies is in favor of conservative treatment.

### Course Objectives:

- Updating the microbiology of SPOA.
- SPOA from a pathologic point of view.
- Reviewing the need for using CT scans in the pediatric population.
- Assessing the indications for surgical management.
- Addressing adults with SPOA.
- Facing with different abscess locations

### Brief description - theme and structure:

A frontal lecture that will review the disease and the new data about the pathophysiology and microbiology of SPOA formation, imaging and principals in treatment planning including the use of the endonasal endoscopic approach. The endoscopic approach will be demonstrated.

### Conclusion

Expected gain: better understanding of the disease pathophysiology, avoiding unnecessary CT scans in the pediatric population, choosing conservative treatment when appropriate, treating special group of patients with different SPOA location and technical guidance in draining SPOA endoscopically.

## A RETROSPECTIVE STUDY OF INFECTIONS AND PERFORATIONS AFTER NASAL SEPTOPLASTY

MD Dr. Med. Jan Mikael A. Gerl<sup>1</sup>, Dr. Med. Ph.d. Gregor Bachmann-Harildstad<sup>1</sup>, MD Erik S. Lie<sup>1</sup>

<sup>1</sup>*Akershus University Hospital, Oslo, Norway*

Septal Surgery 1, Rutherford - Fourth Floor, April 23, 2018, 10:45 - 11:55

### Aims:

The purpose of this quality control study was to investigate the rate of infectious complications after septoplasty alone and after septoplasty with rhinoplasty, turbinate surgery and/or paranasal sinus surgery.

### Methods:

A retrospective journal review over a 12 month period was conducted. All patients who underwent septoplasty were included. Variables such as age, sex, smoking, BMI, diabetes, surgeon's experience, operating time, cartilage reimplantation and prophylactic antibiotics were noted. Endpoints were number of infections and number of perforated nasal septa. Every treatment with antibiotics which was not prescribed on the operation day and commenced during the first three weeks after surgery was considered an infection. Infections were graded according to surgical site infections (SSI) criteria.

### Results:

A total of 259 patients were operated. In two cases (0.8%) a septal perforation occurred. In 29 cases (11%) patients were treated with antibiotics postoperatively. Of these 29 patients 17 (6.5%) had a SSI grade I with local swelling and rubor, 2 (1%) had a SSI grade II being an abscess or a hematoma. Seven (41%) of the grade I infections were located directly at the hemitransfixion or suture remnants. 10 (4%) patients were treated for infections outside of the surgical field like cystitis, pneumonia and sinusitis. The odds ratio did not show significant correlation between the examined variables and the risk of postoperative complications.

### Conclusions:

There was no significant difference between the examined variables. However, we discovered postoperative infections located at the incision in 2.7%, possibly related to suture material.

## VISUALIZING THE OLFACTORY NERVE WITH ULTRA-HIGH FIELD MRI TRACTOGRAPHY

Dr Masayoshi Tei<sup>1,2</sup>, Dr Sho Kurihara<sup>2,3</sup>, Dr Eri Mori<sup>2</sup>, Dr Junnichi Hata<sup>4,5</sup>, Prof Hiroataka James Okano<sup>3</sup>, Prof Nobuyoshi Otori<sup>2</sup>, Prof Hiromi Kojima<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology, Subaru Health Insurance Society Ota Memorial Hospital, Ota, Japan, <sup>2</sup>Department of Otorhinolaryngology, The Jikei University School of Medicine, Minato-ku, Japan, <sup>3</sup>Division of Regenerative Medicine, The Jikei University School of Medicine, Minato-ku, Japan, <sup>4</sup>Department of Physiology, Keio University School of Medicine, Shinjuku-ku, Japan, <sup>5</sup>Laboratory for Marmoset Neural Architecture, Brain Science Institute RIKEN, Wako, Japan

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

### [Aims]

Olfactory nerves in the nasal cavity are distributed around the olfactory cleft. Research on the distribution of the olfactory nerve has mostly been facilitated using histological sections (Escada, 2013), which make it difficult to evaluate the olfactory nerve sequentially while maintaining its structure. We made an attempt to visualize the olfactory nerve with a combination of ultra-high field MRI and diffusion neural fiber tracking, otherwise known as tractography.

### [Methods]

Two Nasal cavity specimens (with olfactory bulb attached) from human body donation (80-year-old male and 60-year-old female) were immersed in Fluorine solution and scanned using a diffusion based protocol with 9.4T MRI device. This diffusion based protocol quantifies the strength and direction of anisotropic diffusion of water molecules, which has a coherency along nerve fibers, thus nerve fibers could be identified by analyzing the continuity of adjacent voxels through a technique called tractography. Specimens were histologically examined for olfactory nerves after MRI scanning.

### [Results]

Fibers drawn by tractography were identified in the entire medial upper turbinate, the front end of medial middle turbinate, and the corresponding upper portion of nasal septum. These fibers projected towards the olfactory bulb, and were confirmed as nerve fibers in the lamina propria by histological immunostaining. Distribution of olfactory nerves in the nasal cavity seemed to be wider than described in previous reports.

### [Conclusion]

We successfully visualized the olfactory nerve while preserving the anatomical structure of the nasal cavity. We will continue to study individual variations and search for a standard scanning protocol.

## THE IMPORTANCE OF ATOPY, ASTHMA, AERD AND EOSINOPHILIA TO CHRONIC RHINOSINUSITIS RECURRENCE

Dr Guilherme Constante Preis Sella<sup>1</sup>, Dra Juliana Augusta Sella<sup>1</sup>, Dr Thais Nociti de Mendonça<sup>1</sup>, Profa Luisa Karla Arruda<sup>1</sup>, **Prof Edwin Tamashiro<sup>1</sup>**, Profa. Wilma Anselmo-Lima<sup>1</sup>, Prof Fabiana Cardoso Pereira Valera<sup>1</sup>  
<sup>1</sup>USP - Universidade De São Paulo, Ribeirão Preto / Pr, Brazil

CRS Outcomes 1, Victoria - Second Floor, April 23, 2018, 10:45 - 11:55

**Introduction:** The prognostic factors associated with the recurrence of Chronic Rhinosinusitis (CRS), either with nasal polyps (CRSwNP) or not (CRSsNP), is still poorly discussed in the literature. **Objective:** To evaluate patients that underwent Endoscopic Sinus Surgery (ESS) due to CRS in our service between 1996 and 2006, and to correlate the long-term recurrence to clinical factors. **Methods:** We collected data of 201 patients that were followed during an average period of 12 years. The follow-up period after surgery was analyzed, and the indication of a new surgical procedure was considered as a poor prognostic factor. Comparison between clinical factors was performed by Kaplan-Meier curve, with Log-rank post-test. **Results and discussion:** CRSwNP patients were 3 times more likely to need a revisional surgery than CRSsNP during the follow-up period. Among the patients with CRSsNP, only asthma was a significant prognostic factor, leading to a chance 11 times higher of recurrence than in non-asthmatic patients. Among patients with CRSwNP, the recurrence was associated to higher tomographic extension of the disease prior to surgery. Other factors that influenced the recurrence of CRSwNP were: asthma (OR: 18); atopy for fungi (OR: 5); peripheral eosinophilia (considered as  $>500/\mu\text{L}$ ; OR: 5.6); and ASA intolerance (AERD; OR: 2.5). **Conclusions:** The presence of polyps was related to poor prognosis per se. Only asthma was associated to higher predisposition of recurrence in patients with CRSsNP. Among the patients with CRSwNP, asthma, peripheral eosinophilia, atopy for fungi, and AERD significantly increased the likelihood of further surgical intervention.

## BILATERAL SIMULTANEOUS ENDOSCOPIC DACRYOCYSTORHINOSTOMY: OUTCOME AND IMPACT ON PATIENTS' QUALITY OF LIFE.

MD, PhD: Department of Otorhinolaryngology, Faculty of Medicine, Zagazig University, Egypt; and ENT, Head and Neck and Skull Base Surgery Center, King Abdullah Medical City (KAMC-HC), KSA Islam Herzallah<sup>1,2</sup>, MD, FRCSC: Department of Ophthalmology & Otolaryngology Umm Al-Qura University, Saudi Arabia & ENT Department, KAMC-HC, KSA. Osama Margalani<sup>3</sup>, MD, FRCSC Ameen Alherabi<sup>3</sup>, MD, Umm Al-Qura University, Saudi Arabia Nuha Faraj<sup>5</sup>, **MD: ENT, Head and Neck and Skull Base Center, Al noor hospital, KSA. Deemah Bukhari<sup>4</sup>**

<sup>1</sup>Department of Otorhinolaryngology, Faculty of Medicine, Zagazig University, , Egypt, <sup>2</sup>ENT, Head and Neck and Skull Base Surgery Center, King Abdullah Medical City (KAMC-HC), KSA, , <sup>3</sup>Department of Ophthalmology & Otolaryngology, Umm Al-Qura University, , <sup>4</sup>ENT, Head and Neck and Skull Base Center, KAMC-HC, KSA. , , <sup>5</sup>Umm Al-Qura University, ,

Lacrimal Surgery 1, Gielgud - Second Floor, April 24, 2018, 14:45 - 16:15

### ABSTRACT

**Objective:** Bilateral simultaneous endoscopic dacryocystorhinostomy (Endo-DCR) has received little attention in literature. Our objective was to evaluate the outcome of simultaneous bilateral Endo-DCR and its impact on patients' quality of life.

**Study Design:** Retrospective case analysis.

**Setting:** Tertiary/ Quaternary Care Hospital.

**Subjects and Methods:** We have conducted a retrospective analysis of cases who underwent bilateral simultaneous Endo-DCR between January 2014 and June 2016. Data reviewed included clinical presentation, operative details, success rate, pre and post-operative evaluation of patients' symptoms using the Nasolacrimal Duct Obstruction Symptom Score Questionnaire, patients' satisfaction, and improvement in quality of life assessed by Glasgow Benefit Inventory questionnaire (GBI).

**Results:** Out of 124 cases performed, 13 cases were bilateral (26 sides). Postoperative success was documented in 24 out of the 26 sides (92.3%), with a mean follow up duration of 18.9 months (range, 6 – 36 months). The two failed sides were reported in the same case. Preoperative symptom scoring ranged between 12-80 (mean  $\pm$  SD, 38.23  $\pm$  15.7). Postoperative symptom scoring was significantly lower (mean  $\pm$  SD, 5.4  $\pm$  12.9). A notable improvement in patients' quality of life was also reported with a mean GBI score of 81.38 ( $\pm$  12.37).

**Conclusion:** Our results support that a simultaneous bilateral Endo-DCR is an advantageous procedure that offers a high success rate, saves the patient from the stress of a second surgery, provides the patient with resolution of the symptoms bilaterally, and confers immediate improvement of patients' quality of life.



## THE USE OF POSTOPERATIVE OPIOID ANALGESIA IN RHINOLOGY SURGERY

Mr Sagar Dodhia<sup>1</sup>, Mr Sachin Tushar Patel<sup>1</sup>, Mr Kieran Pandey<sup>1</sup>, Mr Gurpreet Singh Beghal<sup>1</sup>, Claire Hopkins<sup>2</sup>

<sup>1</sup>King's College London, London, United Kingdom, <sup>2</sup>Guy's & St Thomas' NHS Foundation Trust, London, United Kingdom

CRS Surgery 4, Burton & Redgrave - Second Floor, April 25, 2018, 12:05 - 13:15

**Aims:** Opioid analgesics are often prescribed following rhinology surgery. However, the over prescription of opioid medication can have far reaching consequences. The purpose of this study is to evaluate whether the quantity of opioid analgesia prescribed is justified.

**Methods:** Patients were contacted via telephone questionnaire a median 7-days postoperatively and were asked about their pain management. Parameters recorded included: current pain (using a 10-point Likert scale); type of operation; the opioid analgesia prescribed; the quantity of opioid tablets taken and other methods of pain relief used. Pain and opioid data are presented as median (IQR) and patient age is presented as mean (SD).

**Results:** A total of 41 patients had rhinology surgery over 4 weeks at an ear, nose and throat center. 35 patients were successfully contacted (23 males, 12 females, age 38.4 +/- 11.3 years). The median pain at one week postoperatively was 1.0 (0-3). Of these 35 patients, 16 were prescribed opioids, whilst 19 were not. Patients prescribed opioids took a median of 8 (0.8-10.5) tablets out of the 28 tablets prescribed.

**Conclusion:** Opioid analgesia is often prescribed following rhinology surgery. Our study shows that the quantity of postoperative opioid analgesia prescribed does not compare with the amount consumed by patients to relieve pain, resulting in a surplus of opioid medication which has the potential to be abused. Additionally, these results highlight an improper use of resources, which may have particular significance in an increasingly financially constrained NHS.

## HUMAN PAPILLOMAVIRUS INFECTION AND IMMUNOHISTOCHEMICAL EXPRESSION OF CELL CYCLE PROTEINS IN INVERTED PAPILOMA

MD, PhD Mikio Suzuki<sup>1</sup>, MD Yukashi Yamashita<sup>1</sup>, MD, PhD Takayuki Uehara<sup>1</sup>, MD Masakuni Toyama<sup>1</sup>

<sup>1</sup>*Univerisy of The Ryukyus, Nakagami-gun, Japan*

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

**Aims:** We aimed to clarify the possible role of human papillomavirus (HPV) infection in the malignant transformation of inverted papilloma (IP).

**Methods:** Subjects comprised 32 patients with chronic rhinosinusitis (CRS), 17 with IP, 5 with IP and squamous cell carcinoma (IP+SCC), and 16 with primary sinonasal SCC. HPV status cell cycle protein expression were investigated by PCR and immunohistochemistry.

**Results:** HPV DNA was detected in 6.3% of cases with CRS, 29.4% with IP, 40% with IP+SCC, and 25% with SCC. IP cases had significantly higher HPV presence than CRS cases ( $p=0.04$ ). High-risk HPV-16 was the most frequently encountered subtype (10/13, 76.9%). Patients in the SCC and IP+SCC groups had significantly higher viral loads than those in the IP and CRS groups ( $p<0.01$ ). Positivity to pRb was found in 78.1% of CRS, 35.3% of IP, and 68.8% of SCC cases. The presence of HPV DNA negatively correlated with pRb expression in SCC ( $p = 0.029$ ) and IP ( $P = 0.049$ ) groups. Although 62.5% of SCC cases exhibited p53 positivity, only 5.9% of IP, and no CRS cases were positive. Regardless of HPV status, p16INK4a positivity was frequently detected in IP cases (82.4%), less in SCC (12.5%) cases, and was not detected in the CRS group.

**Conclusions:** Higher viral loads and integration observed in the IP+SCC and SCC groups, and an inverse correlation between HPV presence and positive pRb indicated that persistent infection and integration play a part in tumorigenesis and malignant transformation in certain IP cases.

## CLUSTERIN INDUCES MUC5AC EXPRESSION VIA ACTIVATION OF NF- $\kappa$ B IN HUMAN AIRWAY EPITHELIAL CELLS

**Professor Yong-dae Kim<sup>1,2</sup>**, Professor Hyung Gyun Na<sup>1</sup>, Professor Yoon Seok Choi<sup>1</sup>, Professor Chang Hoon Bae<sup>1</sup>, Professor Si-Youn Song<sup>1</sup>

<sup>1</sup>College Of Medicine, Yeungnam University, Daegu, South Korea, <sup>2</sup>Regional Center for Respiratory Diseases, Yeungnam University Medical Center, Daegu, South Korea

Allergic Rhinitis 2, Burton & Redgrave - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Clusterin (CLU) is known as apolipoprotein J, and has three isoforms with different biological functions. CLU is associated with various diseases such as Alzheimer's disease, atherosclerosis, and some malignancies. Recent studies report an association of CLU with inflammation and immune response in inflammatory airway diseases. However, the effect of CLU on mucin secretion of airway epithelial cells have not yet been understood. Therefore, the effect and brief signaling pathway of CLU on MUC5AC (as a major secreted mucin) expression were investigated in human airway epithelial cells.

**Methods:** In the tissues of nasal polyp and normal inferior turbinate, the present of MUC5AC and CLU was investigated using immunohistochemical stain and Western blot analysis. In mucin-producing human NCI-H292 airway epithelial cells and primary cultures of normal nasal epithelial cells, the effect and NF $\kappa$ B signaling pathway of CLU on MUC5AC expression were investigated using immunohistochemical stain, RT-PCR, real-time PCR, enzyme immunoassay, and Western blot analysis.

**Results:** In the nasal polyps, MUC5AC and CLU were abundantly present in the epithelium on immunohistochemical stain, and nuclear CLU (nCLU) was strongly detected on Western blot analysis. In human NCI-H292 airway epithelial cells or the primary cultures of normal nasal epithelial cells, recombinant nCLU increased MUC5AC expression, and significantly activated phosphorylation of NF $\kappa$ B. And BAY 11-7085 (a specific NF $\kappa$ B inhibitor) and knockdown of NF $\kappa$ B by NF $\kappa$ B siRNA significantly attenuated recombinant nCLU-induced MUC5AC expression.

**Conclusion:** These results suggest that nCLU induces MUC5AC expression via the activation of NF $\kappa$ B signaling pathway in human airway epithelial cells.

## CHRONIC RHINOSINUSITIS (CRS) AND EUSTACHIAN TUBE DYSFUNCTION (ETD): PRE AND POST-OPERATIVE RESULTS FOLLOWING FUNCTIONAL ENDOSCOPIC SINUS SURGERY (FESS)

Mr Philippe Bowles<sup>1</sup>, Mr Mahmoud Salam<sup>2</sup>

<sup>1</sup>Brighton & Sussex University Hospitals NHS Trust, Brighton, United Kingdom, <sup>2</sup>Ipswich Hospital NHS Trust, Ipswich, United Kingdom

CRS Surgery 1, Gielgud - Second Floor, April 23, 2018, 14:45 - 16:15

**Aims:** To assess, i) the incidence of concurrent ETD in patients with CRS refractory to medical therapy ii) the effect of FESS on ETD.

**Methods:** Prospective study of 57 patients undergoing FESS for CRS refractory to full medical therapy. Outcome measures were SNOT-22 and ETDQ-7 PROM questionnaires, tympanometry and ability to perform an effective Valsalva manoeuvre. Outcomes were recorded pre-operatively and at 3 and 9 months post treatment.

**Results:** 84% of patients (n=48) recorded positive ETDQ-7 scores (>13.5) pre-operatively; mean 20.63 (SD  $\pm$ 10.34). ETDQ-7 scores were 11.24 (SD  $\pm$ 5.70) at 3 months ( $P < 0.0001$ ) and 10.64 (SD  $\pm$ 6.15) at 9 months ( $P < 0.0001$ ) following FESS (Gaussian distribution, parametric analyses). Patients able to perform an effective Valsalva increased from 35% pre-operatively to 78% at 3 months and 90% at 9 months post treatment. Type A tympanograms increased from 71.9% (n=114 ears) pre-operatively, to 76.3% (n=92) at 3 months and 95.5% (n=44) at 9 months. Mean ETDQ-7 scores were higher in the CRSwNP group (n=23); 24.34 (SD  $\pm$ 9.2) compared to the CRSsNP group (n=34); 18.11 (SD  $\pm$ 10.3), but this was not statistically significant ( $p = 0.6101$ ). Post-operative SNOT-22 scores were significantly lower at 3 and 9-month follow up ( $p < 0.0001$ ). There was a positive correlation between pre-operative ETDQ-7 and SNOT 22 scores (Pearson product-moment correlation co-efficient,  $r = 0.5683$ ,  $n = 57$ ,  $p < 0.0001$ ).

**Conclusions:** The results suggest a high incidence of concurrent ETD symptoms in CRS patients, which improve when CRS is treated with FESS. This highlights the importance of treating concurrent CRS prior to surgical intervention intended specifically for ETD.

## THE EFFECT OF PREOPERATIVE LOCAL ANAESTHETIC NERVE BLOCK IN PATIENTS UNDERGOING ENDONASAL SURGERY

Dr Elizabeth Casselden<sup>1</sup>, Mr Eamon Shamil<sup>1</sup>, Dr William Whitely<sup>1</sup>, Professor Claire Hopkins<sup>1</sup>, Mr Pavol Surda<sup>1</sup>  
<sup>1</sup>*Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom*

Septal Surgery 1, Rutherford - Fourth Floor, April 23, 2018, 10:45 - 11:55

### Aim:

No study to date describes the effect of combination transoral sphenopalatine ganglion (SPG) and anterior ethmoidal nerve (AEN) block on post-operative pain in patients undergoing endonasal surgery. This preliminary study aims to address this. We made a comparison to see if the introduction of technique led to the improvement of care.

### Methods:

Patients were identified and split into intervention and control groups, with the control group receiving a standard general anaesthetic, without application of local anaesthetic. The nasal cavity was irrigated with Moffet's solution in all patients. Transoral SPG and endonasal AEN blocks were performed in the intervention group. Patients rated their pain post operatively at 1, 2 and 3 hours using a visual analogue scale, and the difference between the intervention and control group was measured.

### Results:

30 of 48 patients underwent pre-operative SPG and AEN local anaesthetic blockade. Compared to control, patients who underwent nerve blockade experienced a reduction in pain in the first three hours post-operatively. The greatest difference of 1.94 points ( $p < 0.001$ ) on the VAS scale was seen at 2 hours. No complications were observed.

### Conclusions:

We demonstrate that application of local anaesthetic in patients undergoing nasal surgery is effective in the reduction of post-operative pain. Improved postoperative pain may enhance recovery and reduce time in hospital, thereby reducing cost and the risk of complications. However, this pilot study has significant limitations, which need to be addressed by means of a larger randomised trial.

## SUBSTANCE P: A NOVEL FIRST-LINE DEFENSE MECHANISM IN THE UPPER AIRWAYS

Dr Olivia Larsson<sup>1</sup>, Dr Lotta Tengroth<sup>1</sup>, Dr Yuan Xu<sup>1</sup>, Dr Rolf Uddman<sup>2</sup>, Dr Susanna Kumlien Georen<sup>1</sup>, Professor Lars-Olaf Cardell<sup>3</sup>

<sup>1</sup>Division of ENT Diseases, CLINTEC, Karolinska Institutet, Stockholm, Sweden, <sup>2</sup>Department of Otorhinolaryngology, Lund University, Skåne University Hospital, Malmö, Sweden, <sup>3</sup>Department of ENT Diseases, Karolinska University Hospital, , Sweden

Fitting Research Into My Training, Westminster Suite - Fourth Floor, April 24, 2018, 10:45 - 11:55

### BACKGROUND:

Neuropeptides, such as substance P (SP), have long been seen as mediators of continuous airway inflammation, in a process known as neurogenic inflammation. However, this has been difficult to demonstrate clinically, suggesting an alternative role for these signaling molecules.

### AIMS:

We sought to assess the role of SP in nasal infection by examining the release of SP in response to viral stimulation and characterizing the effects of SP on innate immunity, the latter reflected in changes in local Toll-like receptor (TLR) expression.

### METHODS:

The distribution of SP and TLRs in the nasal mucosa and local airway neurons was determined with immunohistochemistry. The TLR7 agonists R-837 was used to mimic a viral insult in the upper airways, represented by primary human nasal epithelial cells (HNECs) and murine nasal epithelial cells (MNECs) and isolated murine trigeminal ganglial neurons. SP release from HNECs, MNECs, and neurons was quantified with ELISA. The effects of SP on TLR expression on HNECs were determined by flow cytometry and confocal microscopy.

### RESULTS:

SP was released from the sensory neurons, MNECs, and HNECs within 15 minutes of local TLR7 stimulation. Subsequently, stimulation with SP induced upregulation of TLR expression in HNECs within 30 minutes, through induction of TLR movement within HNECs. Upregulation of TLR expression was not evident when cells were treated with the neurokinin 1 receptor antagonist aprepitant before SP stimulation.

### CONCLUSIONS:

This highlights a novel role for sensory neuropeptides as acute and local mediators of pathogen-driven inflammation, rapidly priming innate immune defenses in the airway.

## Intranasal Contact Points As A Cause Of Facial Pain Or Headache: A Systematic Review

Miss Laura Harrison<sup>1</sup>, Professor Nicholas Jones<sup>2</sup>

<sup>1</sup>Northampton General Hospital, Northampton, United Kingdom, <sup>2</sup>Nottingham University Hospitals, Nottingham, United Kingdom

BRS Badged Session - Best Of British, St James Suite - Fourth Floor, April 26, 2018, 10:45 - 11:55

Sean Carrie has asked me to present this at 'Best-of-British'-forum.

**Aims:**To review the evidence that intranasal mucosal contact points cause facial pain or headache and their removal is therapeutic.

**Methods:**A systematic search of the available literature was performed using MEDLINE, EMBASE, Cochrane library and NHS Evidence from inception to September 2011.

**Results:** In one study, 973 consecutive patients with a provisional diagnosis of rhinosinusitis were divided into groups with (42%) and without facial pain. There was a 4% prevalence of nasal contact in both groups, which was unrelated to the presence of facial pain. In another study of 100 patient's coronal paranasal sinus CT scans, 29% had

headache and 55% had a contact point but their presence was inversely related to the presence of pain. In a further study, ten healthy volunteers had palpation, adrenaline, substanceP and placebo applied to different nasal cavity and none of these stimuli caused facial pain. Nineteen studies were identified where nasal mucosal contact points had been removed surgically for the treatment of facial pain. They were small case series, not randomised and subject to selection bias, had no control group, a limited follow-up and were open to observer bias with level IV evidence.

**Conclusion:** The majority of people with contact points experience no facial pain. The presence of a contact point is not a good predictor of facial pain. The removal of a contact point rarely results in the total elimination of facial pain making the theory that a contact point is responsible unlikely.

## GLYCOSAMINOGLYCANS AND EXOGLYCOSIDASES IN CHRONIC RHINOSINUSITIS

MD Martyna Waniewska-Łęczycka<sup>1</sup>, PhD Sylwia Chojnowska<sup>2</sup>, PhD Janusz Sierdziński<sup>3</sup>, MD PhD Antoni Krzeski<sup>1</sup>, MD PhD Mariola Zagor<sup>1</sup>

<sup>1</sup>Otorhinolaryngology Department, Faculty of Medicine and Dentistry, Medical University of Warsaw, Warsaw, Poland,

<sup>2</sup>Medical Institute, Lomza State University of Applied Sciences, Lomza, Poland, <sup>3</sup>Department of Medical Informatics and Telemedicine, Medical University of Warsaw, Warsaw, Poland

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

**Aims:** Chronic rhinosinusitis (CRS) is a common disorder of unknown etiology and mechanism.

Glycosaminoglycans (GAG) and exoglycosidases may play important role in CRS pathogenesis. This study presents differences in glycosaminoglycans content and exoglycosidases activity in patients with CRS without and with nasal polyps: CRSsNP and CRSwNP, respectively.

**Methods:** The study group included 34 adult patients (10 CRSsNP, 17 CRSwNP, and 7 control). GAG content and exoglycosidases activities were determined in nasal mucosa and serum.

**Results:** In nasal mucosa of CRSwNP group was recorded significantly lower content of GAGs comparing to CRSsNP and significantly lower activity of selected exoglycosidases ( $\alpha$ -fucosidase,  $\alpha$ -mannosidase and  $\beta$ -glucuronidase) comparing to control group.

**Conclusions:** Increased content of nasal tissue GAGs in CRSsNP may contribute to the fibroses process and relate to certain immunological skew in this group. Perhaps intranasal administration of exoglycosidases might be of clinical relevance in the CRSsNP treatment. Decreased activity of selected exoglycosidases in CRSwNP reflects the diminished content of tissue GAGs in this subgroup, thus contribute to edematous change of the tissue. As the case may be GAGs like hyaluronic acid can be useful in local therapy in CRSwNP group.



## THE DIFFERENT CLINICAL PRESENTATIONS OF ALLERGIC FUNGAL SINUSITIS

Dr Ali Almomen<sup>1</sup>

<sup>1</sup>King Fahad Specialist Hospital Dammam, Dammam, Saudi Arabia

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

**Objective:**

TO STUDY THE DIFFERENT CLINICAL PRESENTATIONS OF ALLERGIC FUNGAL SINUSITIS IN A TERTARY REFERRAL HOSPITAL IN SAUDI ARABIA.

**Methodology:**

RETROSPECTIVE STUDY

**Results:**

IN THE ADULT GROUP,THE CLINICAL PRESENTATION RANGES FROM THE UNILATERAL,THE BILATERAL,THE EXTENSIVE BILATERAL WITH INTRACRANIAL AND ORBITAL EXTENSIONS,THE EXTENSIVE WITH COMPLICATED MUOCOCELE,THE ALTERNATING (RIGHT THEN LEFT) , THE ISOLATED SPHENOID PRESENTATION ,THE COMPLICATED PRESENTATION WITH BLINDNESS AND THE MIXED FUNGAL (AFS WITH GRANULOMA) PRESENTATION.

IN THE PEDIATRIC AGE GROUP,THE CLINICAL PRESENTATION RANGES FROM THE UNILATERAL,THE BILATERAL,THE EXTENSIVE WITH INTRACRANIAL AND INTRAORBITAL EXTENSION,THE ALTERNATING AND THE ISOLATED SPHENOID PRESENTATION.

**Conclusion:**

THE CLINICAL PRESENTATIONS OF ALLERGIC FUNGAL SINUSITIS IN OUR COUNTRY RANGES FROM THE UNCOMPLICATED UNILATERAL PRESENTATION TO THE EXTENSIVE COMPLICATED ONE WITH INTRACRANIAL AND ORBITAL EXTENSION TO THE BLINDESS PRESENTATION.

## CO-SENSITIZATION IN ASTERACEAE FAMILY – PILOT STUDY

Dr Nicolae Ovidiu Berghi<sup>1</sup>, Dr Mihai Dumitru<sup>1</sup>

<sup>1</sup>*Carol Davila University of Medicine and Pharmacy, Bucharest, Romania*

Allergic Rhinitis 1, Victoria - Second Floor, April 23, 2018, 12:05 - 13:15

### Aims

We aimed to find the clinical relevance of *Helianthus annuus* pollen in a group of Romanian patients with allergic rhinitis.

### Method

69 patients with allergic rhinitis (AR) and 41 controls were enrolled in the study. They were investigated using the protocol recommended by the EAACI for all European patients suspected for AR that contains 2 members of Asteraceae family: ragweed (*Ambrosia elatior*) and mugwort (*Artemisia vulgaris*). This family contains beside the 2 important allergenic weeds (known to produce double sensitization) another source of allergenic pollen: *Helianthus annuus*. This is a large annual forb of the genus *Helianthus* grown as a crop for edible oil and seeds in many European countries, including Romania (25% of the agricultural surface in 2016, first place in European Union). All the patients included in this study were adults (>18 years) and were investigated by the procedure ok skin prick test.

### Results

37 patients (53.62%) were positive for at least one allergen from Asteraceae. 21 patients were allergic to *Helianthus annuus* (30.43% from all patients and 56.75% from patients with sensitivity to Asteraceae). All patients positive to *Helianthus* were concomitantly sensitive to *Ambrosia* (9) or *Ambrosia* + *Artemisia* (12). 4 patients were both sensitive to *Ambrosia* and *Artemisia*. None of them were monosensitized alone to *Helianthus*.

### Conclusion

Co-sensitization in Asteraceae family represents an important issue. *Helianthus annuus* pollen should be introduced on a regular base in the evaluation of allergic rhinitis in countries with large areas cultivated with *Helianthus annuus*.

## ENDOSCOPIC CSF LEAK REPAIRS IN THE ANTERIOR SKULL BASE – NOT ALL ARE EQUAL

Mr Sandeep Mistry<sup>1</sup>, Mr Atul Tyagi<sup>1</sup>, Mr Nicholas Phillips<sup>1</sup>, Mr Paul Nix<sup>1</sup>

<sup>1</sup>Leeds Teaching Hospitals, Leeds, United Kingdom

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

**Introduction** - Endoscopic approaches to the anterior skull base are gaining increasing popularity within skull base teams in the United Kingdom (UK). With larger numbers of increasingly complex resections being performed, operating surgeons have been required to develop a range of techniques to aid reconstruction of the skull base for Cerebrospinal Fluid (CSF) leak.

**Methods** - Review of clinical records held on an endoscopic skull base database at Leeds General Infirmary, UK (2009-2017). Data pertaining to type of operation, pathology, defect characteristics, type of reconstruction, CSF leak, revision surgery and complications were obtained and discussed. Repair success comparing early (2009-2013) and later years (2014-2017) was calculated using chi-squared analysis.

**Results** - The database contained 387 skull base procedures. This included 137 cases that required a formal repair of the anterior skull base for CSF leak. Age ranged from 2 to 81 years. Pathology included Pituitary Microadenoma (n=4), Pituitary Macroadenoma (n=47), Meningioma (n=11), Clival Cordoma (n=12), Craniopharyngoma (n=23) and Olfactory Neuroblastoma (n=4). The overall primary success rate for CSF leak repair was 92% (n=126), with 8% (n=11) requiring a secondary repair. There was a significant difference favouring the later years for the success in repairing complex defects ( $p=0.028$ ).

**Conclusion** - We describe our experience and approach to repairing anterior skull base CSF leaks with a variety of techniques. We believe that specific consideration must be made regards to the size of defect and location of CSF voids when planning the repair in order to optimise successful outcomes.

## THE IMPACT OF CYSTIC FIBROSIS GENOTYPE ON PULMONARY OUTCOMES FOLLOWING ENDOSCOPIC SINUS SURGERY

Dr. Ashleigh Halderman<sup>1</sup>, Dr. Stella Lee<sup>2</sup>, Dr. Nyall London<sup>3</sup>, Mr. John Moore<sup>2</sup>, Dr. Raksha Jain<sup>1</sup>, Dr. Sandra Lin<sup>3</sup>

<sup>1</sup>University Of Texas Southwestern Medical Center, Dallas, United States, <sup>2</sup>University of Pittsburgh Medical Center, Pittsburgh, United States, <sup>3</sup>Johns Hopkins Hospital, Baltimore, United States

CRS Outcomes 1, Victoria - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** Previous studies investigating the impact of endoscopic sinus surgery (ESS) on pulmonary function tests (PFTs) in cystic fibrosis (CF) patients have generally not separated patients into high-risk or low-risk genotype groups. To investigate this further, a review from three large CF centers was conducted examining the impact of CF genotype (high risk/low risk) on outcomes after ESS.

**Methods:** A chart review of 78 CF patients who underwent ESS between 2006-2016 was conducted and data including genotype, PFTs pre-operatively and post-operatively, number of exacerbations, and days on intravenous (IV) antibiotics pre and post surgery was collected. A matched control group of 26 CF patients who did not have ESS were included. Those undergoing surgery were compared to controls. Further subgroup analyses were performed comparing high-risk surgery patients, low-risk surgery patients, and respective controls.

**Results:** Both FEV1 and ppFEV1 significantly improved at 3 months after surgery ( $p=0.0195$  and  $p=0.0318$  respectively). No differences were seen at any other time point. The high-risk group showed a significant mean improvement in ppFEV1 at 3 and 6 months after surgery compared to high-risk controls ( $p<0.0001$  and  $p=0.0145$ ). The low-risk group did not significantly differ from low-risk controls in FEV1, ppFEV1 or exacerbations/days on IV antibiotics.

**Conclusion:** This larger follow up study further supports that differences can be seen in PFTs following ESS in CF patients with high-risk and low-risk genotypes. High risk groups may have greater benefit in pulmonary function after ESS than low risk groups compared to controls.

## OLFACTION PRESERVATION IN PATIENTS WITH OLFACTORY NEUROBLASTOMA AFTER ENDOSCOPIC ANTERIOR SKULL BASE SURGERY

Dr Takayuki Nakagawa<sup>1</sup>, Dr Satoru Kodama<sup>2</sup>, Dr Masayoshi Kobayashi<sup>3</sup>, Dr Tetsuji Sanuki<sup>4</sup>, Dr Shuho Tanaka<sup>5</sup>, Dr Toyoyuki Hanazawa<sup>6</sup>, Prof Koichi Omori<sup>1</sup>

<sup>1</sup>Kyoto University, Kyoto, Japan, <sup>2</sup>Oita University, Oita, Japan, <sup>3</sup>Mie University, Tsu, Japan, <sup>4</sup>Nagoya City University, Nagoya, Japan, <sup>5</sup>University of Tsukuba, Tsukuba, Japan, <sup>6</sup>Chiba University, Chiba, Japan

Skull Base 2, Albert - Second Floor, April 24, 2018, 12:05 - 13:15

**Aim:** To illustrate the potential of endoscopic approach for olfaction preservation in patients with olfactory neuroblastoma. **Methods:** A retrospective case series of 14 patients with olfactory neuroblastomas treated between 2008 and 2017 using endoscopic endonasal surgery with intentional preservation of olfaction, in which a contralateral olfactory epithelium and olfactory bulb was preserved. Olfaction preservation was assessed by an interview to patients. **Results:** Mean age of patients at presentation was 53.1 years. Three patients were males. Kadish staging at presentation was: A – 4 patients, B – 3 patients and C – 7 patients. Dulguerov stage at presentation was: T1 – 6 patients, T2 – 4 patients and T3 – 4 patients. The period of follow-up ranged from 23 months to 103 months, and the average was 50 months. No recurrence or metastasis was found. Olfaction preservation was achieved in 13/14 patients. No other operative complication was found. **Conclusions:** Olfaction preservation in selected patients with olfactory neuroblastoma is technically feasible. Future studies are required to determine prognosis of patients underwent olfaction preservation surgery via endoscopic endonasal approach.

## TREATMENT OUTCOME IN NON-CONTROLLED CHRONIC RHINOSINUSITIS: A PROSPECTIVE, CONTROLLED OBSERVATIONAL STUDY

**MD Daniel Dejaco<sup>1</sup>**, PhD David Riedl<sup>2</sup>, MD Aristeidis Giotakis<sup>1</sup>, MD Ljilja Bektic-Tadic<sup>1</sup>, MD Herbert Riechelmann<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology – Head and Neck Surgery, Medical University of Innsbruck, Innsbruck, Austria,

<sup>2</sup>Department of Psychiatry, Psychotherapy and Psychosomatics, Medical University of Innsbruck, Innsbruck, Austria

CRS Outcomes 2, Burton & Redgrave - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims:** For patients with non-controlled chronic rhinosinusitis (CRS) various treatment options exist. Available data do not provide a clear picture, if endoscopic sinus surgery (ESS) may be superior in these patients and if different medical treatments are equally effective.

**Methods:** In a prospective observational study, we screened 138 patients. We compared 4 patient selected treatment arms: a) continued nasal steroid spray and irrigation (NSI), b) pulsed nasal steroid inhalation (PNS), c) maximal medical therapy (MMT) and d) ESS. All patients were non-controlled according to EPOS criteria. Sino-Nasal-Outcomes-Test-22 (SNOT-22) scores were obtained pretreatment, at the end of treatment, 2 months posttreatment and 1 year following inclusion. Disease control according to EPOS criteria pretreatment and 1 year following inclusion was compared.

**Results:** Of 130 included patients, 52 selected NSI, 16 PNS, 19 MMT, and 43 ESS. Overall, SNOT-22 scores decreased from  $38 \pm 2$  pretreatment to  $20 \pm 2$  after 1 year ( $p < 0.001$ ). Posttreatment scores were best following ESS ( $19 \pm 2$ ). In the ESS arm, posttreatment scores were significantly better than in each of the 3 medical treatment arms (NS  $26 \pm 2$ ,  $p = 0.004$ ; PS  $27 \pm 3$ ,  $p = 0.026$ ; MMT  $28 \pm 3$ ,  $p = 0.008$ ). No difference between the 3 medical treatment arms was observed (all  $p > 0.2$ ). One year following inclusion, disease control according to EPOS criteria had improved in 26/31 patients following ESS compared to 25/50 patients following continued medical therapy ( $p = 0.002$ ).

**Conclusion:** ESS was superior to the 3 investigated continued medical treatment arms in terms of symptom reduction and disease control. No differences between the 3 medical treatment arms were observed.

## CLINICAL, MORPHOLOGICAL, MOLECULAR AND QUALITY OF LIFE CORRELATIONS IN PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

**MD Aina Brunet-garcia<sup>1,2</sup>**, MD, PhD Javier Milara Payá<sup>3</sup>, MD, PhD Julio Cortijo Gimeno<sup>2</sup>, MD, PhD Miguel Armengot Carceller<sup>2,4</sup>

<sup>1</sup>Hospital General Universitari Castelló, Castelló de la Plana, Spain, <sup>2</sup>Universitat de València, València, Spain, <sup>3</sup>Hospital General Universitari de València, València, Spain, <sup>4</sup>Hospital Universitari i Politècnic la Fe, València, Spain

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

### AIM

To estimate the predictable value of histopathologic parameters (eosinophils) and molecular (MUC1) in chronic rhinosinusitis with nasal polyps (CRSwNP) for response to topic and systemic corticosteroids, endoscopic sinus surgery and the Sino-Nasal Outcome Test (SNOT-22) questionnaire.

### METHODS

This is a retrospective study done to review the medical records of 60 patients treated for CRSwNP. Different factors as age, sex, smoke, clinical and endoscopic disease severity, presence of asthma, medical and surgical treatment, tissue eosinophilia, polyp tissue culture and MUC1 were recorded. Quality of life (QOL) was assessed by the SNOT-22 questionnaire and differences in QOL were compared between all the parameters previously recorded. Statistical analysis was performed by R Core Team (2017).

### RESULTS

60 patients with CRSwNP were enrolled. 71% of cases CRSwNP were associated with asthma and 55.93% with acetylsalicylic acid intolerance (ASA triad). Mean SNOT-22 punctuation was 39.76. Tissue eosinophilia was positively correlated to systemic corticosteroid response ( $p=0.002$  (Estimate = 11.2, CI95% [4.6 – 17.8])) and SNOT-22 punctuation  $p=0.001$  (Estimate = 0.50, CI95% [0.22 – 0.78]). On the contrary, it was negatively correlated to topic corticosteroid response  $p=0.016$  (Estimate = -7.2, IC95% [-13, -1.46]).

Topic corticosteroid response was positively associated with MUC1 polyp tissue expression ( $p=0.009$ ; Odd ratio = 2.28, CI95% [1.25 – 4.45]).

### CONCLUSION

The presence of eosinophilia at the time of diagnosis consistently predicted better improvement in the treatment with systemic corticosteroids and worse QOL measured by the SNOT-22 test. Moreover, MUC1 could be a predictor of topic corticosteroid response in patients with CRSwNP.

## SERUM BIOMARKER FOR LOCAL EOSINOPHIL INFILTRATION IN REFRACTORY RHINOSINUSITIS.

MD Takechiyo Yamada<sup>1</sup>, MD Hidekazu Saito<sup>1</sup>, MD Yui Miyabe<sup>1</sup>

<sup>1</sup>Akita University, Akita, Akita, Japan

CRS Diagnosis and Investigation 3, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

In order to identify serum biomarker for local eosinophil infiltration in refractory rhinosinusitis, we have screened the levels of molecules in the serum of patients and compared the number of infiltrating eosinophils in nasal mucosa. The groups were divided into 41 patients with eosinophilic rhinosinusitis or others (56). The eosinophilic rhinosinusitis was defined when the numbers of infiltrating eosinophils are 70 or more than 70 / HPF in the mucosa. The serum level of eotaxin-3/ CC chemokine ligand 26 (CCL26) was significantly higher in the group of eosinophilic rhinosinusitis than that in non-eosinophilic rhinosinusitis ( $p < 0.005$ ). There is not any significant difference in other 23 molecules including eotaxin-1 or etaxin-2 among two groups in this study. While the the number of infiltrating eosinophils in the mucosa was significantly higher in the group with the higher-level of serum eotaxin-3 than that in the other group ( $p < 0.001$ ), there is not any significant difference in the blood eosinophil numbers among two groups. The serum level of IL-33 ( $p < 0.001$ ) or thymic stromal-derived lymphopoietin (TSLP) ( $p < 0.005$ ) is significantly higher in the group with the higher-level of serum eotaxin-3 than that in the other group respectively. This is the first report that eotaxin-3 might be a serum chemokine biomarker for eosinophilic rhinosinusitis and its mucosal eosinophilia, although eotaxin-1, eotaxin-2, and eotaxin-3 are found in mucosa of chronic rhinosinusitis with nasal polyps. The serum level of eotaxin-3 is also closely related to those of IL-33 and TSLP as danger signals for allergic airway diseases.



## IMPACT OF REMNANT INFERIOR TURBINATE VOLUME IN EMPTY NOSE SYNDROME

Impact of Remnant Inferior Turbinate Volume in Empty Nose Syndrome Chuan Yao Lee<sup>1</sup>, Impact of Remnant Inferior Turbinate Volume in Empty Nose Syndrome Chia Hsiang Fu<sup>1,2</sup>, Impact of Remnant Inferior Turbinate Volume in Empty Nose Syndrome Ching Lung Wu<sup>1</sup>, Impact of Remnant Inferior Turbinate Volume in Empty Nose Syndrome Ta Jen Lee<sup>1</sup>

<sup>1</sup>Department of Otolaryngology, Head and Neck Surgery, Chang Gung Memorial Hospital, Taoyuan City, Taiwan,

<sup>2</sup>Graduate Institute of Clinical Medical Sciences, College of Medicine, Chang Gung University, Taoyuan City, Taiwan

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

**Aims:** Empty nose syndrome (ENS) may develop after an interval from months to years after turbinectomies. A hypothesis was made that a smaller remnant inferior turbinate volume (ITV) was associated with more severe symptoms in ENS, hence remnant ITV may be used as an objective marker for grading its severity. There was only limited literature addressing this association, therefore we aimed to evaluate the relation between remnant ITV and existing measurements for the severity of ENS.

**Methods:** Patients who had ENS symptoms, histories of inferior turbinectomies, and pass of a cotton test were enrolled and completed Sino-Nasal Outcome Test-22 (SNOT-22) and psychological questionnaires via the Beck Depression Inventory-II (BDI-II) and Beck Anxiety Inventory (BAI). Each patient's remnant ITV was obtained via 1 mm-cut computed tomography. The correlation between remnant ITV, subjective measurements and associated factors were evaluated.

**Results:** Thirty patients were enrolled, and only few individual items but not sum of questionnaires scores were found statistically significant. This included higher scores in reduced productivity in SNOT-22 ( $r = .371$ ,  $P = .043$ ) and past failure and guilty feelings in BDI-II ( $P = .028$  and  $.008$ , respectively), were found to be significantly correlated with higher ITV, while a lower nasal airway resistance also significantly correlated with a smaller ITV ( $r = .388$ ;  $P = .034$ ).

**Conclusions:** There were only few individual items in SNOT-22 and BDI-II correlated with inferior turbinate volume in ENS patients. Therefore, remnant ITV seemed to be a poor objective marker in grading the severity of ENS.

ISOTONIC NASAL SALINE IRRIGATION IN PATIENT WITH CHRONIC RHINOSINUSITIS WITHOUT POLYPS IN MAKASSAR REVIEW OF PROFILES INTERLEUKINE 6 ON SERUM

Dr Azmi Mirah Zakiah<sup>1</sup>, Prof Sutji Pratiwi Rahardjo<sup>1</sup>, dr Rismayanti Nawir  
<sup>1</sup>Hasanuddin University, Makassar, Indonesia

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

Introduction : Rhinosinusitis is a disease that is often found in everyday practice.

Aim : to investigate changes of interleukin 6 as an agent of pro-inflammatory and anti-inflammatory in patients with chronic rhinosinusitis without polyps with and without eosinophils.

Method : this study using prospective cohort design, examined 15 patients chronic rhinosinusitis without polyps. The sample was taken 2 times, on the first day dan 30th day after nasal irrigation therapy. The interleukin 6 serum was examined using ELISA methods. The data then analyzed using T paired test. Result : there is changes of Interleukin 6 level on the first day and 30th day after nasal irrigation therapy at chronic rhinosinusitis patients without polyps with eosinophils is lower(40,639 pg/ml : 25,846 pg/ml), where the statistical testing shows meaningful differentiation with value ( $p < 0,05$ ). On chronic rhinosinusitis without polyps without eosinophils is higher(18,311 pg/ml : 20,756 pg/ml), where the statistical testing shows no meaningful differentiation with value ( $p > 0,05$ ).

Keywords : chronic rhinosinusitis without polyps, interleukin 6, eosinophils

## THE ROLE OF INTERLEUKIN 17-A ON CHRONIC RHINOSINUSITIS WITH AND WITHOUT POLYPS PATIENTS

Dr Fadjar Perkasa<sup>1</sup>, Dr Sophian Sujana

<sup>1</sup>Hasanuddin University, Makassar, Indonesia

CRS Diagnosis and Investigation 2, Victoria - Second Floor, April 24, 2018, 12:05 - 13:15

**Introduction :** Rhinosinusitis is an inflammatory disease of the nasal mucosa and paranasal sinuses. Aim : to evaluate the relationship between Interleukin-17A, Lund Mackay's Score and SNOT( Sinonasal Outcome Test) 20 on patients with chronic rhinosinusitis with and without polyps.

**Method :** a cross-sectional design with analytic characters that is done on Wahidin Sudirohusodo Hospital , Hasanuddin University Hospital and Mitra Husada Hospital in Makassar. 30 samples that underwent Fungsional Endoscopic Sinus Surgery (FESS) are taken into samples. Processus uncinates tissues are takes during their surgeries to check the amount of Interleukin-17A.

**Result:** obtained from these samples; Lund Mackay Score (to determine the severity based on Computed Tomography) and SNOT 20 (quality of life) are scripted during this research. The results obtained shows significant differences of Interleukin-17A amount and Lund Mackay's Score between rhinosinusitis with polyps and without polyps ( $p < 0,005$ ). However there are no SNOT 20 score differences between samples with chronic rhinosinusitis with polyps and without polyps. But there is significant differences on Interleukin-17A of Lund Mackay's Score between samples of chronic rhinosinusitis with or without polyps (Correlation Score is 0.95).

**Conclusion :** there is no relation between Interleukin-17A and quality of life of samples with chronic rhinosinusitis with or without polyps.

**Keywords :** Interleukin-17A, Lund Mackay's Score, SNOT 20, Chronic Rhinosinusitis with and without polyps

## ADULTS WITH ALLERGIC RHINITIS AND CO-EXISTING SKIN ALLERGY SYMPTOMS HAVE INCREASED OFF-SEASONAL AIRWAY SYMPTOMS

Dr A Laulajainen-hongisto<sup>1</sup>, H Tanzeela, A Luukkainen, J Numminen, J Kääriäinen, J Myller, L Kalogjera, H Huhtala, M Kankainen, R Renkonen, S Toppila-Salmi

<sup>1</sup>*Helsinki University Hospital, Helsinki, Finland*

Rhinitis 1, Gielgud - Second Floor, April 24, 2018, 12:05 - 13:15

### Aims

Chronic inflammatory upper airway diseases include several partly overlapping phenotypes, such as allergic or non-allergic rhinitis (AR, nAR), and chronic rhinosinusitis with or without nasal polyps (CRSwNP, CRSsNP). Our objective was to analyse, by hierarchical clustering, if these phenotypes can be distinguished based on the presence of nasal polyps, off-seasonal allergic symptoms, and self-reported background characteristics including skin allergy symptoms (SAS).

### Methods

We studied a random sample of 74 CRS patients, and a control group of 80 subjects without CRS with/without AR (tertiary hospitals, 2006-2012). All subjects underwent interview and nasal examination, and filled a questionnaire. Variables regarding demographics, off-seasonal symptoms, and clinical findings were collected. Hierarchical clustering was performed, the obtained clusters were cross-tabulated and analysed.

### Results

We identified four clusters; 1: "Severe symptoms and CRSwNP" (n=29), 2: "Asymptomatic AR and controls" (n=39), 3: "Moderate symptoms and CRSsNP" (n=36), and 4: "Symptomatic and SAS" (n=50). Cluster 1 had most sinonasal symptoms while cluster 3 had a high prevalence of facial pain. The presence of AR did not distinguish CRS groups. Of those with AR, 51 % belonged to cluster 4, where AR with off-seasonal airway symptoms and SAS predominated.

### Conclusions

CRSwNP, CRSsNP phenotypes and asymptomatic controls can be distinguished based on clinical information and off-seasonal symptoms. Subjects with AR and SAS had increased off-seasonal airway symptoms, these patients might benefit from effective rhinitis treatment also off-seasonally.

## FEASIBILITY STUDY OF BILATERAL RADICAL ETHMOIDECTOMY IN AMBULATORY SURGICAL PROCEDURES

Doctor Mélodie Kérimian<sup>1</sup>, Doctor Pierre-Louis Bastier<sup>1</sup>, Doctor Sylvestre Fierens<sup>1</sup>, Doctor Nicolas Reville<sup>1</sup>, PhD Ludovic Le Taillandier de Gabory<sup>1</sup>

<sup>1</sup>*Bordeaux University Hospital, Bordeaux, France*

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

**Objectives:** To assess the feasibility of bilateral radical ethmoidectomy in ambulatory surgical procedure by evaluating its risks and to calculate medico-economic earnings.

**Methods:** This study was performed over 2 years retrospectively and 1 year prospectively. It included all patients undergoing bilateral ethmoidectomy associated or not with sphenoidotomy and septoplasty in a university department. We recorded demographic data, disease etiology, previous surgery, operative details, postoperative data, complications and a satisfaction questionnaire at days 1 and 30. We applied to our population all the criteria of eligibility for an ambulatory surgical procedure and we made a financial analysis on the eligible population, comparing the earnings between an inpatient hospitalization and an outpatient one.

**Results:** We included 165 patients. Surgical indication was a nasal polyposis (87%), chronic sinusitis without nasal polyps (6%) and cystic fibrosis (7%). We performed 75 septoplasties (45.5%). Operating duration depended on septoplasty ( $p=0.005$ ), on surgeon experience ( $p<0.0001$ ) and on revision surgery ( $p=0.041$ ). Blood loss depended on operating duration ( $p<0.0001$ ) and patient's weight ( $p=0.006$ ). Only 37% of the patients would have liked to be discharged on the same day. The reasons were the distance between home and hospital and the bleeding risk. Considering anesthetic contraindications, immediate complications and operating time, 107 patients were eligible for a safe ambulatory procedure. The medico-economic earning would have been about 20 000 euros per year.

**Conclusions:** Bilateral radical ethmoidectomy associated or not with septoplasty can be a safe ambulatory surgical procedure in 65% of its indications with a cost saving of 28.4%.

## NASAL IRRIGATION WITH HOT SALINE PROVIDES BETTER POSTOPERATIVE OUTCOME AFTER FESS COMPARED TO THE TRADITIONAL USE OF NASAL PACKING

**MD, PhD Mattias Jangard<sup>1</sup>**, Phd Marie Svedberg<sup>2</sup>, PhD Hanna Gladh<sup>2</sup>, MSc Susana Araya-Holmqvist<sup>2</sup>, MD, PhD Michael Ryott<sup>1</sup>, PhD Maria Kumlin<sup>2</sup>

<sup>1</sup>*Sophiahemmet Hospital, Department of Otorhinolaryngology, Stockholm, Sweden, Stockholm, Sweden,* <sup>2</sup>*Sophiahemmet University, Department of Health Promoting Sciences, Stockholm, Sweden*

CRS Surgery 5, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims:** Surgery with FESS (Functional Endoscopic Sinus Surgery) often requires extensive nasal packing to control bleeding postoperatively. Nasal packing or tampons (Polyvinyl Alcohol Sponge, PVA) are presently the primary treatment after sinus surgery. However, this treatment is often experienced by patients as very unpleasant and painful.

Previous studies have showed that hot nasal irrigation with saline is effective against nasal bleeding and this method is currently used for nasal hemorrhage. Therefore, our primary hypothesis was that irrigation with hot saline could provide better postoperative outcome after sinus surgery compared with the use of PVAs.

**Methods:** A randomized intra-individual comparative study was conducted. Patients (n=27) postoperatively received PVA in one nostril and 47°C sterile saline in the second nostril immediately after surgery. Visual analog scales (VAS) were used to assess the patients' experiences of pain, bleeding and other types of discomfort. Measurements were performed before, during removal and after removal of PVA.

**Results:** Before the PVA was removed the patients experienced significantly less pain in the nostril rinsed with saline in comparison to PVA treatment. The patients also experienced significant less bleeding and other discomforts after the PVA was removed, in the nostril rinsed with saline in comparison to PVA treatment.

**Conclusion:** The results from this study conclude that rinse with 47°C sterile saline provided better postoperative outcomes after FESS than PVAs. This might lead to less suffering for the patients, improved control of postoperative bleeding, pain and other discomforts as well as a health-economic benefits.

## WHAT ARE THE BEST OUTCOME MEASURES FOR MACRO TRIAL - DEFINING BEST MANAGEMENT FOR ADULTS WITH CHRONIC RHINOSINUSITIS?

Miss Ngan Hong Ta<sup>1,2</sup>, Miss Abi Walker<sup>3</sup>, Professor Carl Philpott<sup>1,2</sup>, Professor Claire Hopkins<sup>3</sup>

<sup>1</sup>Norwich Medical School, Norwich, United Kingdom, <sup>2</sup>James Paget University Hospital, Great Yarmouth, United Kingdom,

<sup>3</sup>Guy's and St Thomas' Hospital, London, United Kingdom

MACRO Programme, Abbey - Fourth Floor, April 26, 2018, 10:45 - 11:55

### AIMS:

Chronic rhinosinusitis (CRS) is a common condition affecting 10% of the population. There is limited evidence for consistent outcome measures for CRS. This study aimed to assess the most appropriate outcome measures to use in the forthcoming MACRO trial and identify any redundant outcome measures in order to minimise patient burden and research waste.

### METHODOLOGY:

70 patients with CRS with and without nasal polyps underwent the following proposed outcome measures for the trial:

- Objective: Peak Nasal Inspiratory Flow (PNIF), Peak Expiratory Flow, Saccharin test
- Subjective: Sniffin' sticks test (TDI score), SF-12, EQ-5D, Asthma Control Test, SNOT-22

Pearson's correlations between these outcome measures were calculated. Interviews explored participants' feedback on the proposed outcome measures and experience of a "trial visit".

### RESULTS:

There was a significant negative correlation between SNOT-22 Blockage and PNIF and positive correlations between SNOT-22 Runny rating, SNOT-22 Total Runny rating and Saccharin test. There was no significant correlation between SNOT-22 Smell rating and TDI scores or between the other outcome measures. The interviews revealed the majority of the proposed outcome measures were acceptable and valued by the participants.

### CONCLUSION:

Sniffin' Sticks test remains a valuable outcome measure as self-rating of olfactory function was poor. Although PNIF correlated with self-rating scores, it remains a simple cheap test to perform and valued by participants. Saccharin test will be removed due to its strong correlation with self-rating scores and its insignificant value to the participants. More work is needed to reach a consensus of outcome measures for future trials.

## STAPHYLOCOCCUS AUREUS POSITIVE CULTURE SWABS: THE UNSUNG HERO PREDICTING ENDOSCOPIC SINUS SURGERY FAILURE AND DISEASE RECURRENCE

Dr. Anastasios Maniakas<sup>1</sup>, Dr. Marc-Henri Asmar<sup>1</sup>, Mr. Axel Eluid Renteria Flores<sup>1</sup>, Dr. Smriti Nayan<sup>2</sup>, Dr. Saud Alromaih<sup>3</sup>, Ms. Leandra Mfuna Endam<sup>1</sup>, **Dr. Martin Desrosiers<sup>1</sup>**

<sup>1</sup>Chum - Université de Montréal, Montreal, Canada, <sup>2</sup>McMaster University, Hamilton, Canada, <sup>3</sup>King Khalid University Hospital, Riyadh, Saudi Arabia

CRS Outcomes 2, Burton & Redgrave - Second Floor, April 24, 2018, 10:45 - 11:55

**Objectives:** Identify whether Staphylococcus aureus on conventional culture is a predictor of success or failure after ESS followed by budesonide nasal irrigations(BUD) in chronic rhinosinusitis(CRS) patients.

**Methodology:** Prospective clinical trial including 116 patients from a tertiary care center at high-risk of disease recurrence following ESS+BUD. Blood samples, microbial swabs, and SNOT-22 were taken on the day of surgery(Visit-1) and four months postoperatively(Visit-2). Outcomes were evaluated using symptom and mucosal status as assessed by the Lund-Kennedy endoscopic score.

**Results:** 75 patients(69.4%) attained SNOT-22 MCID or higher. (Mean=33.4, range 9 to 75). Objective documentation of recurrence of disease, as defined by combined endoscopic/symptomatic criteria, was noted in 58/116 patients(50%). Revision surgery was associated with a significantly higher rate of disease recurrence(60.0% vs. 28.0%;  $p<0.001$ ). *S. aureus* was associated with disease recurrence, preoperatively and at 4 months post-surgery( $p=0.020$ ;  $p<0.001$ ). Significantly higher Lund-Kennedy scores in the recurrence group despite similar symptom intensity emphasizes the importance of considering objective outcomes in addition to patient-reported ones.

**Conclusion:** Patients undergoing revision ESS are at high risk of disease recurrence. Presence of *S. aureus* on culture pre-operatively or at 4 months post-ESS is associated with a negative outcome. *S. aureus* may therefore negatively influence the i)immune system, ii)regeneration and repair of the sinus epithelium, and/or the iii)sinus microbiome. This suggests that *S. aureus* may be a simple and inexpensive biomarker for disease severity and indicates a clear need to better appreciate its mechanistic contribution to disease development and persistence in order to develop targeted therapeutic strategies.



## ASSESSMENT OF NASAL BLOCKAGE IN THE PRIMARY CARE SETTING

Mr Lawrence Nip<sup>1</sup>, **Mr Martin Tan**<sup>1</sup>, Dr Terence Leung<sup>1</sup>, Mr Peter Andrews<sup>2</sup>

<sup>1</sup>University College London, London, United Kingdom, <sup>2</sup>Royal National Throat Nose Ear Hospital, London, United Kingdom

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

**Aims:** At present, the EPOS 2012 report provides a structured approach towards the diagnosis, investigation and management of CRS for both ENT as well as non-ENT clinicians including the primary care provider. The aim of this study is to investigate how UK GP's diagnose, manage and refer patients with suspected CRS and whether this is in accordance with current guidelines.

**Methods:** Voluntary questionnaire given to GP's attending a 2017 BMJ masterclass event.

**Results:** Of the 134 questionnaires distributed, 106 were completed (response rate 79%). The mean completion rate for each question was 95% (SD = 7.1%; range 73.3% - 100%). Whilst 100% of GP's used either history alone or history and examination to diagnose CRS, the vast majority had never heard of the EPOS guidelines (84%). A further 7%, despite having heard of them, never used them. When asked how long they treated for before referring to secondary care, 81% said 6 months or less. Three quarters of GPs would spend up to £100 for a device to help diagnose the cause of nasal blockage.

**Conclusions:** We have found that an overwhelming proportion of GP's are unfamiliar with the EPOS 2012 report. However, GP's seem to know that referring sooner rather than later is of benefit, perhaps due to good local pathways. Yet given the fact that CRS can be effectively managed in the community, there may be some diagnostic or treatment-related difficulties. A nurse-led strategy or a simple diagnostic aid could be the answer.

## SURGICAL OUTCOME OF ENDOSCOPIC DACRYOCYSTORHINOSTOMY

Surgical Outcome Of Endoscopic Dacryocystorhinostomy Masatomo Toyama<sup>1</sup>, Masahiro Hasegawa<sup>2</sup>, Yukashi Yamashita<sup>1</sup>, Takayuki Uehara Takayuki Uehara<sup>1</sup>, Mikio Suzuki<sup>1</sup>

<sup>1</sup>University Of The Ryukyus, Nishihara-cho, Nakagami-gun, Japan, <sup>2</sup>Nanbu Medical Center in Okinawa, ,

Orbit and Lacrimal 2, Albert - Second Floor, April 25, 2018, 12:05 - 13:15

**Aims:** the aim of this paper is to clarify the efficacy of endoscopic dacryocystorhinostomy (DCR).

**Subjects and methods:** participants were 50 patients (6 male and 44 female, 65 sides) who received endoscopic DCR from 2009 to 2016 at our University Hospital. Retrospective chart review of patients was performed to investigate clinical features, surgical procedures, and final outcome of surgery.

**Results:** the age range was between 6 and 84 years (mean 63.9 years). According to obstruction causes, the major was unknown (44 cases), and the rest was 2 congenital stenosis, 3 nasal surgery complication, and 1 anticancer drug adverse reaction. The endoscopic DCR was performed on 65 sides of 50 patients. The overall success rate was 93.8%, and 4 was failed (follow up time was 1-45 months, mean 12.5 months post operations). Of 4 failure cases, two received revision surgery for nasolacrimal duct obstruction and obtained good outcome. The basic procedure of endoscopic CDR in our unit is removal of bone consisting duct and mucosal cover of incision in lacrimal sac. We only used silicon stent to initial cases.

**Conclusion:** endoscopic DCR is very useful procedure for patients with nasolacrimal obstruction.

## RETROSPECTIVE ASSESSMENT OF FACTORS INFLUENCING SINUS REOPERATION IN PATIENTS WITH CRS IN THE MATERIAL OF THE INSTITUTE OF PHYSIOLOGY AND PATHOLOGY OF HEARING

Dr. Katarzyna Lazecka<sup>1</sup>

<sup>1</sup>*Institute Of Physiology And Pathology Of Hearing, Kajetany/ Warsaw, Poland, <sup>2</sup>Institute of Sensory Organs, Kajetany, Poland, <sup>3</sup>The Heart Failure and Cardiac Rehabilitation Department, Medical University of Warsaw, Warsaw, Poland*

CRS Diagnosis and Investigation 2, Victoria - Second Floor, April 24, 2018, 12:05 - 13:15

**Aim:** The CRS is a disease of complex etiology. Surgical treatment with use of endoscopic techniques is a method of choice in the diagnostic and treatment procedure in patients with advanced disease. Sometimes despite properly performed first operation in 3 to 20% of patients we observe recurrence of the disease and necessity to reoperate the sinuses. Authors decided to analyze medical histories of the reoperated patients to recognize and assess the factors that influence the recurrence of the disease.

**Methods:** Study included 560 patients reoperated in the Institute of Physiology and Pathology of Hearing in 2012-2014 because of the recurrence of CRS symptoms. In 94% of cases the disease included polyp formation. The retrospective analysis included age of patients, gender, time period from the first operation, information on completeness of the first operation, other accompanying diseases – allergy, bronchial asthma, reflux, obesity, Hashimoto, rheumatoid arthritis, cystic fibrosis, nicotine addiction. CT results were analyzed to assess the condition of paranasal sinuses. All patients were subjected to endoscopic assessment one year after surgery.

**Results:** The analysis allowed to assess possible factors increasing risk of operations, that should be considered during qualification and conduction of the first surgical treatment.

## COMPLICATIONS IN SEPTOPLASTY AND SEPTOPLASTY WITH TURBINATE SURGERY BASED ON A LARGE GROUP OF 5639 PATIENTS

Dr. Justyna Dabrowska-bien<sup>1</sup>, Dr. Katarzyna Lazecka<sup>1</sup>, Dr. Iwonna Gwizdalska<sup>1</sup>, Dr. Edyta Witkowska<sup>1</sup>, Dr. Aleksandra Mickielewicz<sup>1</sup>, Ass. Prof. Piotr Skarzynski<sup>1,2,3</sup>, Prof. Henryk Skarzynski<sup>1</sup>

<sup>1</sup>*Institute of Physiology and Pathology of Hearing, Kajetany/ Warsaw, Poland*, <sup>2</sup>*Institute of Sensory Organs, Kajetany, Poland*, <sup>3</sup>*The Heart Failure and Cardiac Rehabilitation Department, Medical University of Warsaw, Warsaw, Poland*

Septal Surgery 1, Rutherford - Fourth Floor, April 23, 2018, 10:45 - 11:55

**Aim:** Septoplasty is a common surgical procedure used for correction of the nasal obstruction caused by a deviated septum. It is often accompanied by inferior turbinate reduction, called turbinoplasty.

Complications that may arise from this procedure include excessive bleeding, septal perforation, wound infection, septal abscess, saddle nose deformity, nasal tip asymmetry or depression, sensory changes such as hyposmia, or even ocular or intracranial complications. The aim of the study was to identify complications in septoplasty and analyze incidence depending on the surgical technique, based on material from 2009 till 2017.

**Methods:** Material consisted of 5639 medical records from patients aged 16-69, operated in the tertiary referral center. Patients were divided into 2 groups (2784 exclusively with septoplasty and 2855 with combined septoplasty and turbinoplasty). Z-test for the equality of two proportions was made to investigate the assumption that the proportions from two populations are equal, based on two samples, one from each population.

**Results:** Complications were listed according to international standards. Among the whole study group, different types of complications were noted in 193 patients (3,42%). The most frequent complication was excessive bleeding. Significant differences were observed between the two investigated groups. In patients with combined septoplasty and turbinoplasty septal hematoma, hyposmia, prolonged healing due to infection, adhesions and temporary reduced visual acuity were significantly more often encountered ( $p < 0.01$ ).

**Conclusion:** Meticulous attention to detail in identifying the appropriate anatomy and maintaining good visualization is the key to a safe and effective septoplasty, enabling for very low complications rate.

## THE POLISH VERSION OF THE NASAL OBSTRUCTION SYMPTOM EVALUATION (NOSE) SCALE. CROSS-CULTURAL ADAPTATION IN A CLINICAL POPULATION

Dr. Justyna Dabrowska-bien<sup>1</sup>, Dr. Iwonna Gwizdalska<sup>1</sup>, Dr. Katarzyna Lazecka<sup>1</sup>, Dr. Edyta Witkowska<sup>1</sup>, Dr. Aleksandra Mickielewicz<sup>1</sup>, Ass. Prof. Piotr Skarzynski<sup>1,2,3</sup>, Prof. Henryk Skarzynski<sup>1</sup>

<sup>1</sup>*Institute of Physiology and Pathology of Hearing, Kajetany/ Warsaw, Poland*, <sup>2</sup>*Institute of Sensory Organs, Kajetany, Poland*, <sup>3</sup>*The Heart Failure and Cardiac Rehabilitation Department, Medical University of Warsaw, Warsaw, Poland*

CRS Outcomes 2, Burton & Redgrave - Second Floor, April 24, 2018, 10:45 - 11:55

**Aim:** The Nasal Obstruction Symptom Evaluation (NOSE) Scale is a brief, self-administered questionnaire widely used for assessing quality of life related to nasal obstruction and is utilized in outcome studies. This study aimed to establish psychometric properties of the Polish version of this tool and test it among patients with nasal obstruction.

**Methods:** The controlled validation study was conducted in a tertiary referral center. The Polish version of the NOSE Scale was developed according to the guidelines for cross-cultural adaptation. Psychometric properties (internal consistency, reproducibility, validity, responsiveness and interpretability) were assessed in 51 consecutive patients and 51 controls matched according to gender and age.

**Results:** Internal consistency and reproducibility of The Polish version of the NOSE Scale were good. Construct validity was confirmed by inter-item and item-total correlations. The tool demonstrated adequate criterion validity (assessed by correlation with Visual Analogue Scale) and excellent discriminant validity (between patients and controls), as well as high responsiveness and adequate interpretability.

**Conclusions:** The Polish version of the NOSE Scale is a brief and robust tool very useful in clinical practice. We recommend its use in Polish speaking patients with nasal obstruction.

## A PILOT STUDY DEMONSTRATING THAT NASAL INSPIRATORY PEAK FLOW RATES & SNOT-23 SCORES SIGNIFICANTLY IMPROVE AFTER FUNCTIONAL SEPTORHINOPLASTY

Mr Mark Ferguson<sup>1</sup>, Mr Peter Andrews<sup>1</sup>

<sup>1</sup>*The Royal National Throat Nose and Ear Hospital, London, United Kingdom*

Rhinoplasty 1, Victoria - Second Floor, April 24, 2018, 10:45 - 11:55

### Aims

Functional septorhinoplasty (SRP) for the treatment of nasal obstruction is often under scrutiny. Many outcome measures both subjective and objective have been developed to attempt to demonstrate surgical efficacy. No one outcome measure, or set of measures, has been adopted by a majority of surgeons. In this pilot study we investigate whether the validated 23-item Sino-Nasal Outcome Test (SNOT-23) score and Nasal Inspiratory Peak Flow (NIPF) rates improve after surgery.

### Methods

Prospective study of patients with nasal obstruction recruited from a tertiary clinic. All patients had external SRP with bilateral spreader grafts and collumellar strut. SNOT-23 scores and NIPF rates were recorded before and after surgery.

### Results

37 patients, mean age was 43.5 (range 25-67), predominance of men to women was 3:1. The difference between mean pre-operative NIPF of 87.5L/min (range 43 to 133L/min) and post-operative of 134.3L/min (range 53 to 250L/min) was significant ( $P<0.01$ ). Mean pre-operative SNOT-23 was 53.5 (range 15 to 88) and post-operatively was 27.8 (range 8 to 64), this difference was significant ( $P<0.05$ ). There was no correlation between NIPF and SNOT-23 scores. Mean follow up was 5 months (range 1 to 13).

### Conclusions

This is the first study to show reduction in SNOT-23 scores after functional SRP. We demonstrated that surgery increases NIPF rates by more than the accepted Minimal Clinically Important Difference of 20L/min. Additionally, improvement in NIPF was greater than previously reported possibly due to reconstruction of the nasal valve. These measures provide further evidence of the efficacy of this scrutinised surgery.

## IN VITRO EVALUATION OF THE NEW GENERATION ANTIMICROBIAL REACTIVE OXYGEN AS A NOVEL BIOFILM-TARGETED THERAPY IN CHRONIC RHINOSINUSITIS

Ms Dionyssia Papadopoulou<sup>1,2</sup>, Dr Matthew Dryden<sup>2</sup>, Mr Philip Harries<sup>1</sup>, Dr Raymond Allan<sup>2</sup>, Associate Professor Rami Salib<sup>1,2</sup>

<sup>1</sup>University Hospital Southampton, Southampton, United Kingdom, <sup>2</sup>University of Southampton, Southampton, United Kingdom

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

Bacterial biofilms are mediators of the inflammatory reaction in chronic rhinosinusitis (CRS). *Staphylococcus aureus* (*S. aureus*) is the main bacterial species in CRS biofilms, and is associated with worse symptomatology and postoperative outcomes. Conventional antimicrobial therapy is rarely effective in this setting and may lead to antibiotic resistance. As such, the development of novel biofilm-targeted and antibiotic-sparing therapies is both highly desirable and urgently required. Reactive Oxygen® (RO), an innovative new generation antimicrobial exerting its action through the controlled release of low levels of reactive oxygen species, represents a potentially new strategy for treating these infections. This in vitro study aimed to evaluate the antimicrobial efficacy of RO on CRS-related *S. aureus* mucosal strains.

### Methods

In vitro testing of RO was performed on planktonic and established biofilms of methicillin-resistant (MRSA, n=7) and methicillin-sensitive (MSSA, n=5) CRS-related *S. aureus* isolates. Biofilm viability was assessed by colony forming unit enumeration, and biomass by absorbance measurements. Data were validated using confocal laser scanning microscopy, and comparative analyses performed using an enzymatically inactive control.

### Results

Optimal efficacy was observed following 24 hour treatment with 71 g/L RO, with MRSA and MSSA biofilm viability significantly reduced by 2-log and 1-log respectively.

### Conclusions

These preliminary data demonstrate that RO is a highly efficacious antimicrobial agent for the treatment of CRS-associated *S. aureus* biofilms. This data will be used to support a future proof of principle clinical trial, with the aim of developing RO as a novel adjunctive biofilm-targeted topical treatment in resistant CRS.

## SURGIHONEYRO - A NOVEL BIOENGINEERED HONEY FOR TREATING NON-TYPEABLE HAEMOPHILUS INFLUENZAE BIOFILM INFECTIONS

Ms Rachel Newby<sup>2</sup>, Dr Matthew Dryden<sup>2,3</sup>, Dr Raymond Allan<sup>2</sup>, Associate Professor Rami Salib<sup>1</sup>

<sup>1</sup>University Hospital Southampton, Southampton, United Kingdom, <sup>2</sup>University of Southampton, Southampton, United Kingdom, <sup>3</sup>Hampshire Hospitals Foundation NHS Trust, Winchester, United Kingdom

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

### Introduction

The opportunistic pathogen non-typeable Haemophilus influenzae (NTHi) plays an important role in many chronic respiratory infections including chronic rhinosinuitis. Biofilm formation has been implicated in NTHi colonisation, persistence of infection, and recalcitrance towards antimicrobials. There is therefore a pressing need for the development of novel treatment strategies in NTHi biofilm-associated diseases. The aim of this study was to investigate the efficacy of SurgihoneyRO™, a honey-based product that has been bioengineered to enable the slow release of reactive oxygen species to which H. influenzae is susceptible.

### Methods

Established 48 hour in vitro biofilms formed by NTHi strains isolated from nasopharyngeal swabs were treated with SurgihoneyRO™, the non-engineered base honey (Acacia), or Co-amoxiclav for 2 hours. Biofilm viability was assessed by colony forming unit enumeration and validated using confocal microscopy. Planktonic minimum inhibitory concentrations (MICs) were determined through spectrophotometric absorbance measurements, and fluorimetric analyses performed to quantify hydrogen peroxide production.

### Results

SurgihoneyRO™ and the non-engineered base honey elicited a similar dose dependent response against planktonic NTHi, with MICs of 192 g/L and 255 g/L respectively. Neither the base honey or Co-amoxiclav had any effect on biofilm viability whereas SurgihoneyRO™ significantly reduced the viability 4-log when treating with 71-142 g/L ( $P \leq 0.05$ ) and 5-log when treating with 213 g/L ( $P \leq 0.01$ ). SurgihoneyRO™ demonstrated enhanced H<sub>2</sub>O<sub>2</sub> production with 25.7 μM identified as the minimum effective concentration.

### Conclusion

This study demonstrates the recalcitrance of NTHi biofilms towards Co-amoxiclav treatment and the potential of SurgihoneyRO™ as an alternative therapeutic strategy for treating chronic NTHi biofilm-associated respiratory infections.



## CHRONIC RHINOSINUSITIS: A QUALITATIVE STUDY OF PATIENT VIEWS AND EXPERIENCES OF CURRENT MANAGEMENT IN PRIMARY AND SECONDARY CARE.

**Dr Jane Vennik**<sup>1</sup>, Dr Caroline Eyles<sup>1</sup>, Professor Mike Thomas<sup>1</sup>, Professor Claire Hopkins<sup>2</sup>, Professor Anne Schilder<sup>3</sup>, Dr Helen Blackshaw<sup>3</sup>, Professor Carl Philpott<sup>4</sup>

<sup>1</sup>University Of Southampton, Southampton, United Kingdom, <sup>2</sup>Guy's and St Thomas' NHS Foundation Trust, , UK,

<sup>3</sup>eviDENT, University College London, , UK, <sup>4</sup>Norwich Medical School, University of East Anglia, , UK

MACRO Programme, Abbey - Fourth Floor, April 26, 2018, 10:45 - 11:55

**Aims:**To explore patient views and perspectives of current management of chronic rhinosinusitis (CRS) in primary and secondary care.

**Methods:** Semi-structured qualitative telephone interviews were conducted with a purposeful sample of 25 patients with CRS from primary care and ENT outpatient clinics in the UK. Transcribed recordings were managed using NVivo software and analysed using inductive thematic analysis

**Results:** CRS has a significant impact on patients' quality of life, affecting their ability to work effectively, their social interactions and daily living. Patients seek help when symptoms become unmanageable, but can become frustrated with the primary care system with difficulties obtaining an appointment, and lack of continuity of care. Patients perceive that GPs can be dismissive of CRS symptoms and this lack of acknowledgement and communication can result in delays in accessing appropriate treatment and referral. Adherence to intranasal steroids is problematic, and nasal douching can be time-consuming and difficult for patients to use. Secondary care consultations can appear rushed, and patients would like specialists to take a more holistic approach to their management. Surgery is generally considered a temporary solution, appropriate only when medical options have been explored.

**Conclusions:** Patients are often frustrated with management of their CRS, and poor communication can result in delays in receiving appropriate treatment and timely referral. Patients seek better understanding of their condition and need guidance to support treatments decisions in light of uncertainties. Better coordinated care between general practice and specialist settings has the potential to increase patient satisfaction and improve outcomes.

## OLFACTORY FUNCTION AFTER MAXILLO-FACIAL TRAUMA

**Dr Basile Landis**<sup>1</sup>, Prof Thomas Hummel<sup>2</sup>, Dr Andrej Terzic<sup>3</sup>

<sup>1</sup>Otolaryngology Dept; University Hospital Of Geneva, Geneva, Switzerland, <sup>2</sup>Smell and Taste Center, University-ENT Clinic, TU Dresden, Dresden, Germany, <sup>3</sup>Maxillo-Facial Surgery Dept; University Hospital Of Geneva, Geneva, Switzerland

Smell and Taste 2, Burton & Redgrave - Second Floor, April 26, 2018, 10:45 - 11:55

**Aim:** To investigate the incidence of olfactory disorders after maxillofacial trauma and to see if certain types of fractures are more prone to lead to olfactory disorders.

**Methods:** Inclusion of patients with maxillofacial trauma with fractures. Exclusion of patients with head or facial trauma without fractures or skull fractures only without facial fractures.

**Results:** A total of 123 patients were included. The fracture types were: zygomatic bone (n=22), mandible (n=25), isolated nasal bone (n=17), orbit (n=41), Le Fort (n=10), frontal sinus (n=2), centropacial (n=4), maxillary sinus (n=2).

Anosmia was measured in 8 % of the cases, Hyposmia in 39 % and Normosmia in 53 % of the cases. The incidence of olfactory disorders varied significantly according to the type of fracture. Fractures with centropacial involvement, frontal sinus or skull base participation showed a high association with olfactory disorders.

**Conclusion:** The overall percentage of posttraumatic anosmia after maxillofacial fractures was low. A clear association between fracture type and smell anosmia could be seen.

## ANALYSIS OF CHRONIC RHINITIS DIAGNOSIS AND TREATMENT ALGORITHM ACCORDING TO OUTPATIENT SERVICE IN RUSSIAN FEDERATION

**Analysis Of Chronic Rhinitis Diagnosis And Treatment Algorithm According To Outpatient Service In Russian Federation Elena Savlevich<sup>1</sup>**, Analysis Of Chronic Rhinitis Diagnosis And Treatment Algorithm According To Outpatient Service In Russian Federation Vladimir Kozlov<sup>1</sup>

<sup>1</sup>*Central State Medical Academy Of Department For Presidential Affairs Of The Russian Federation, Moscow, Russian Federation*

Allergic Rhinitis 4, Albert - Second Floor, April 26, 2018, 12:05 - 13:15

Rhinitis have heterogeneous etiology and pathogenesis but similar clinical manifestation. It requires careful differential diagnosis and drug therapy.

Objective: analyze diagnosis and treatment algorithm for patients with chronic rhinitis.

Materials and methods: retrospective analysis of medical histories of 779 patients with chronic rhinitis for 1 year. Two patients' groups were formed: Group I: patients with allergic rhinitis (AR) (n=216, mean age 32±6), Group II: patients with non-allergic rhinitis (NAR) (n=563, mean age 46±4).

Results

In AR patients complex examination as per ARIA 2012 recommendations was conducted in 6.5% of cases only; in 52.7% was diagnosed on the basis of the patient's history. Skin tests were performed in 31.3%; rhinocytograms in 10.2%; serum IgE levels were determined in 7.9%. Antihistamines were prescribed in 27.3% of cases; intranasal corticosteroids (INCS) in 77.8%; montelukast in 9.7%, AIT was performed in 1.9%. In 69.3% of NAR cases the diagnosis was based on anamnesis and rhinoscopy. Treatment included INCS in 77.4%, antihistamines in 7.5%, montelukast in 3.7% and surgery in 4.8%. In 12% of cases (n=26) with AR and 17.4% (n=98) with NAR no treatment was prescribed or only irrigation therapy.

Original therapeutic methods such as local antibiotics, homeopathic drugs, immunomodulators were mentioned in both groups.

Conclusions: The diagnosis of chronic rhinitis is mainly based on the anamnesis and rhinoscopy data.

Hypodiagnosis of allergic rhinitis is probable.

INCS prescribed as first line treatment in 77% of patients; in 21.5% INCS prescribed with antihistamines; in 12% INCS with montelukast.

Stepwise drug therapy principle was not followed.

## COULD MRI REPLACE CT SCAN DURING ESS?

Dr. Roee Landsberg, Dr. Muhamed Masalha, Dr. Michal Gindy, Dr. Judith Luckman

<sup>1</sup>Assuta Medical Center, Tel Aviv, , <sup>2</sup>Ben Gurion University, Beer Sheva,

Imaging and Investigations 1, Albert - Second Floor, April 23, 2018, 12:05 - 13:15

### Aimes

Sinus CT is the imaging technique of choice during ESS. The drawbacks of CT are radiation exposure and soft tissue poor demonstration. In contrast, MRI is radiation-free and its soft tissue demonstration is excellent. The main drawback of MRI is suboptimal bone demonstration. Authors' hypothesis is that by adjusting certain MRI parameters a better demonstration of the bone can be achieved; hence the surgeon would be able to rely on MRI during ESS.

### Methods

20 patients who were candidates for ESS were referred to CT and non-contrast, adjusted MRI of the paranasal sinuses. The endoscopic surgeon and the neuroradiologist compared and graded 23 bony structures in each patient's both images, independently; 2-CT superior, 3-same, 4-MRI superior. Statistical analysis included overall and per variable grading distribution for each observer, and overall agreement.

### Results

T1 3d and T2 3D sagittal 0.9mm sections with 3D reconstruction and direct coronal T1 T2 3D Tse Images were obtained. Rhinologist observation: CT superior; 33.2%, same; 51.1%, MRI superior: 15.7%. MRI was found same or superior in 66.8%. Neuroradiologist observation: CT superior: 13.6%, same: 56.8%, MRI superior: 29.6%. MRI was found same or superior in 86.4%. Overall agreement (77%) was moderate (Kappa=0.4).

### Conclusions

The rhinologist prefers CT demonstration of bony structures, while the neuroradiologist prefers MRI. Still, according to both, most bony structures are well demonstrated by MRI. Considering the unequivocal superiority of MRI for soft tissue demonstration, MRI may be considered as the imaging of choice for ESS. Rhinologists' MRI-reading skills are expected to improve following a learning curve.

## INFERIOR TURBINATE REDUCTION: COMPARING POSTOPERATIVE BLEEDING BETWEEN DIFFERENT SURGICAL TECHNIQUES

Dr. Einat Levy<sup>1,2</sup>, Dr. Vadim Letichevsky<sup>1,2</sup>, Dr. Ohad Ronen<sup>1,2</sup>, Dr. Eli Layous<sup>1,2</sup>, Dr. Netanel Eisenbach<sup>1,2</sup>, Dr. Nour Ibrahim<sup>1,2</sup>, Dr. Amiel Dror<sup>1,2</sup>, Dr. Tal Marshak<sup>1,2</sup>

<sup>1</sup>Department of Otolaryngology – Head and Neck Surgery, Galilee Medical Center, Nahariya, Israel, <sup>2</sup>Azrieli Faculty of Medicine, Bar-Ilan University, Safed, Israel

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

### Background

There are many surgical techniques to manage inferior turbinate (IT) hypertrophy. Post-operative bleeding is the most significant and common complication of this surgery. The prevalence reported in the literature differs between studies by a wide range of 1-20%.

### Aims

The objective of our study was to evaluate the rate of postoperative bleeding according to type of surgical technique for IT reduction.

### Methods

Patients who underwent surgical IT intervention from January 2016 to November 2017 and completed at least one-month follow-up, were included. Patients were divided into three groups as follows: partial turbinectomy, medial flap turbinoplasty (MFT) performed by anterior rhinoscopy, and MFT performed by endoscopy. Patient data, including postoperative bleeding, were collected through chart review or by contacting the patient via phone.

### Results

During the study period 999 patients underwent surgery. Seven (0.7%) patients were lost to follow-up and were excluded. 434 (43.75%) patients underwent partial turbinectomy, 409 (41.22%) anterior rhinoscopy MFT and 149 (15%) endoscopic MFT. Of patients included, 41(4.1%) presented to the emergency room (ER) with post-operative bleeding: 20/434 (4.6%) patients from the partial turbinectomy group, 16/409 (3.9%) from the anterior rhinoscopy MFT and 5/149 (3.3%) from the endoscopic MFT ( $p > 0.05$ ). Of these, 14 (34.1%) required intervention: 5/434 (1.15%) from the partial turbinectomy group, 8/409 (2%) from the anterior rhinoscopy MFT and 1/149 (0.7%) from the endoscopic MFT, ( $p > 0.05$ ).

### Conclusions:

The results demonstrate overall low post-operative bleeding rate with no significant difference among the three surgical techniques described above.

## THE ALL-NEW RHINOLOGY SIMULATOR: A VALIDATION STUDY

Dr. Stepan Kudryashov<sup>1</sup>, Dr. Vladimir Kozlov<sup>1</sup>

<sup>1</sup>*Central state medical academy of Department of Presidential affairs, Moscow, Russian Federation*

Technological Advances 1, Rutherford - Fourth Floor, April 23, 2018, 12:05 - 13:15

**Background.** The best way to master endoscopic sinus surgery (ESS) skills is the training on simulators, yet the cost of many ones limits its incorporation into the residency program. Our aim was to develop a low-cost simple rhinology simulator to get basic technical skills in ESS, as well as to carry out efficiency monitoring of all usage.

**Methods.** The all-new ESS simulator consists of adaptable table stand and replaceable nasal model. There are set of 3D-printed nasal models. Each of them is the elliptic tube of a specific size. Learners perform different tasks depending on the tube structure. A wide variety of surgical instruments and endoscopes can be used. 25 otolaryngologists with no prior ESS experience were recruited into the study. After a brief tutorial participants exercised 1 hour a day over 5 days. Pre-training performance and post-training performance were videotaped. Task-performance time and the number of technical accuracy mistakes were assessed immediately before and after the training session. To assess how subjects accepted and used new technology participants completed the technology acceptance model questionnaire right after the practice. Moreover, at least six months after the practice long-term training results questionnaire was obtained to assess the impact of the training with the simulator in the participant's medical practice.

**Results.** Performance metrics were statistically significant reduced after the practice ( $p < 0,05$ ). The questionnaires showed a positive attitude to the training in participants.

**Conclusion.** ESS simulator provides an effective means of teaching basic skills of using surgical instruments and endoscopes for novice surgeons.

## PROTEOMIC PROFILING OF PEDIATRIC ANTROCHOANAL POLYPS

Dr. sc. Andro Košec<sup>1</sup>, Prof. dr. sc. Tomislav Baudoin<sup>1</sup>

<sup>1</sup>University Hospital Center Sestre Milosrdnice, Zagreb, Croatia

CRS Pathophysiology 1, Gielgud - Second Floor, April 23, 2018, 12:05 - 13:15

### Aims

Antrochoanal polyps are solitary, unilateral masses originating from the maxillary sinus, extending to the choana and prone to recurrence after surgical treatment. In comparison to other types of polyps, they occur more frequently in the pediatric population. Their apparent correlation with patient age implies an etiopathogenetic link which we do not sufficiently understand at present. The aim of the study is to create a proteomic profile of pediatric antrochoanal tissue and correlate the expression of individual proteins with histopathologic traits of the disease, patient demographics and disease recurrence.

### Methods

This is a retrospective longitudinal cohort study of 40 tissue samples obtained from patients under 18 years of age, treated by functional endoscopic sinus surgery (FESS). Of those, 30 samples are antrochoanal polyps and 10 are nasal polyps in patients that did not show signs of antrochoanal polyps prior to surgery. This multidisciplinary study was performed on formalin-fixed, paraffin-embedded tissue using a liquid chromatograph Easy-nLC (Proxeona) and a mass spectrometer LTQ Orbitrap Discovery (Thermo). Statistic analysis of protein expression was performed by IPython interactive Python shell, NumPy and Matplotlib databases.

### Results

Histopathologic (histomorphometry – macrophage, eosinophil, neutrophil and mast cell presence) characteristics of antrochoanal polyps were compared to the control group samples and significant differences were identified in cellular infiltration patterns. Proteomic profiling showed significant differences in protein expression that could translate into clinically separate patient subgroups.

### Conclusion

Proteomic profiling identified possible key differences in the etiopathogenesis of antrochoanal polyps and may be a source of novel, clinically applicable data.

## INTRANASAL MEDICATION MAY IMPROVE OLFACTORY FUNCTION

Dr. Kazunori Nishizaki<sup>1</sup>, Dr. Aya Murai<sup>1</sup>, Junko Takahara<sup>1</sup>

<sup>1</sup>*Okayama University, Okayama, Japan*

Smell and Taste 2, Burton & Redgrave - Second Floor, April 26, 2018, 10:45 - 11:55

### Introduction

Clinical trials with oxytocin nasal dripping have been reported to improve autism. The purpose of this study is to investigate if the administration of intranasal medication (prolactin or growth differentiation factor 11 (GDF11) ) influences the olfactory bulb.

### Material & Method

All experimental procedures were performed after the approval of the Okayama University Animal Experimental Committee. After 4 consecutive day intranasal dripping of prolactin or GDF11 into C57BL/6 mice (each group n=5) their heads were removed. Sections of the olfactory bulb were immuno-stained with DCX (a marker of neural precursor cells). The numbers of DCX immuno-positive cells and whole cells were counted using ImageJ (NIH) and the rates of positive cells/ whole cells were calculated. For statistical analysis Welch's t-test and one-way ANOVA with post hoc Scheffe test were used (significant differences,  $P < 0.05$ ).

### Results

In all groups strong positivity with DCX was found. The rate of cells/ whole cells of each olfactory bulb was in the range of 0.056-0.247 (average 0.188) in prolactin group, while that in its control (PBS) group was 0.098-0.134 (average 0.114). The average rates of GDF11 and its control (hydrogen chloride) groups were 0.130 (range: 0.116-0.177) and 0.089 (range 0.059-0.117), respectively. Welch's-t test showed a significant difference ( $P=0.04$ ) between the GDF11 and control groups. One-way ANOVA showed a significant difference between the prolactin and the hydrogen chloride groups.

### Conclusion

These results show that intranasal prolactin or GDF11 might increase the number of immature neurons in the olfactory bulb and might improve olfactory function.



## IDENTIFICATION OF POTENTIAL DIAGNOSTIC MARKERS FOR REFLUX-ASSOCIATED NON-ALLERGIC RHINITIS

**Mr Mark Azer<sup>1</sup>**, Dr Aneeza Wan Hamizan<sup>1,2</sup>, Dr Raquel Alvarado<sup>1</sup>, Dr Peter Earls<sup>3</sup>, Associate Professor Larry Kalish<sup>4,5</sup>, Associate Professor Janet Rimmer<sup>6,7,8</sup>, Dr Jesse Alexander Ende<sup>1</sup>, Professor Richard John Harvey<sup>1,9</sup>  
<sup>1</sup>*St Vincent's Centre For Applied Medical Research, University of New South Wales, Sydney, Australia*, <sup>2</sup>*Department of Otolaryngology Head and Neck Surgery, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia*, <sup>3</sup>*Department of Anatomical Pathology, St Vincent's Hospital, Sydney, Australia*, <sup>4</sup>*ENT Department, Concord General Hospital, Sydney, Australia*, <sup>5</sup>*Faculty of Medicine, University of Sydney, Sydney, Australia*, <sup>6</sup>*Woolcock Institute, University of Sydney, Sydney, Australia*, <sup>7</sup>*Department of Thoracic Medicine, St Vincent's Hospital, Sydney, Australia*, <sup>8</sup>*Faculty of Medicine, Notre Dame University, Sydney, Australia*, <sup>9</sup>*Faculty of Medicine and Health Sciences, Macquarie University, Sydney, Australia*

Rhinitis 1, Gielgud - Second Floor, April 24, 2018, 12:05 - 13:15

### Aims

Extra-oesophageal reflux into the nose has been implicated as a cause of non-allergic rhinitis. Both extra-oesophageal reflux and non-allergic rhinitis are common diseases that lack a diagnostic gold standard method of investigation. The diagnostic potential of reflux-related histopathological changes in the nasal mucosa of allergic and non-allergic rhinitis patients was assessed.

### Methods

Inferior turbinate tail (ITT) samples were collected from consecutive patients undergoing turbinate reduction, with well-described allergy profiles. Patients' reflux profiles were defined by the Reflux Symptom Index questionnaire (RSI). ITT samples were stained for the presence of potential markers of reflux (*Helicobacter pylori*, carbonic anhydrase III [a protective factor against reflux-mediated mucosal damage]), markers of allergy (IgE, eosinophil counts), and general inflammatory markers (basement membrane thickening, fibrosis, squamous metaplasia, and IL-8 [assessed by flow cytometry in homogenised ITT samples]). Statistical analysis was completed using Pearson's chi-square, Kendall's Tau-b, and Student's t-tests.

### Results

150 patients (41.9 ± 14.6 years, 39% female) were assessed. Carbonic anhydrase III staining was weaker in patients with non-allergic rhinitis compared to allergic rhinitis (weak staining, 78% v 53%,  $p < 0.01$ ), but was similar between reflux (RSI > 13) and non-reflux patients (weak staining, 59% v 60%,  $p = 0.87$ ). All other tested markers for reflux, allergy, and inflammation were not significantly different in patients grouped by allergy or reflux status.

### Conclusion

Weak staining of carbonic anhydrase III may be a marker of non-allergic rhinitis, and could potentially be used as a biomarker to identify patients affected by reflux-associated rhinitis.

## EVALUATION OF NASAL SALINE IRRIGATION PRACTICES FOLLOWING ENDOSCOPIC SINUS SURGERY AND ITS EFFECTS ON SHORT-TERM OUTCOMES

Dr. Jeffrey Suh<sup>1</sup>, Dr. Elisabeth Ference<sup>2</sup>, Dr. Jivianne Lee<sup>1</sup>, Dr. Marilene Wang<sup>1</sup>

<sup>1</sup>University Of California, Los Angeles, Los Angeles, United States, <sup>2</sup>University of Southern California, Los Angeles, United States

CRS Outcomes 2, Burton & Redgrave - Second Floor, April 24, 2018, 10:45 - 11:55

**AIMS:** Functional endoscopic sinus surgery (FESS) is an effective treatment for chronic rhinosinusitis. Post-operative management strategies after FESS, such as use of antibiotics and oral steroids, often vary from surgeon to surgeon. Recent data suggests that nasal saline irrigation following FESS is almost universally recommended, however patient adherence has not been formally evaluated. The purpose of this study is to evaluate post-operative nasal irrigation practices and its effects on short-term outcomes in post-FESS patients.

**METHODS:** Eighty-two patients were followed prospectively following FESS for three post-operative visits. Patients were surveyed on their irrigation practices (start date, frequency, and volume per irrigation), and adherence to prescribed antibiotic and steroid regimens. At each visit, SNOT-22 questionnaires and endoscopic examinations were evaluated by the Lund-Kennedy Endoscopy Score (LKES). Factors evaluated include: patient demographics (age, sex, ethnicity), pre-operative Lund-Mackay and SNOT-22 scores, co-morbidities, extent of procedure, and use of nasal packing and/or spacers.

**RESULTS:** Adherence to irrigation instructions was 82.9%. Factors significantly associated with compliance with irrigation instructions included younger age ( $p=0.0022$ ), prior irrigation ( $p<0.0001$ ), revision surgery ( $p=0.0014$ ), and non-native English language speaking ( $p=0.0095$ ). Patients were more likely to irrigate with larger volumes if they were younger ( $p=0.0284$ ), had prior irrigation ( $p<0.0001$ ), or had revision surgery ( $p=0.0056$ ).

**CONCLUSION:** Multiple factors are associated with patient compliance with nasal saline irrigation after FESS. Ethnic and cultural considerations, such as language barriers, should also be considered to improve outcomes. Identification of patients who may be non-compliant could potentially benefit from increased pre-operative counseling to improve adherence rates.

## THE EFFICACY OF INTERVENTION FOR ELEVATED INTRACRANIAL PRESSURE AFTER REPAIR OF SPONTANEOUS CEREBROSPINAL FLUID LEAKS

Prof. Omar El-banhawy<sup>1</sup>

<sup>1</sup>*Menoufia University Hospital, Mansoura, Egypt*

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

Spontaneous cerebrospinal fluid (CSF) leaks are associated with increased intracranial pressure (ICP) and considered a manifestation of idiopathic intracranial hypertension. Acetazolamide and placement of CSF shunt systems are considered valuable interventions for elevated ICP. The objective of this study is to investigate whether interventions for elevated ICP would reduce recurrence rates after primary endoscopic repair.

### METHODS:

This study included fifteen patients with spontaneous CSF rhinorrhea and ICP who were treated by primary endoscopic repair and interventions for elevated ICP. Seven patients demonstrated CSF pressure below 350 mmH<sub>2</sub>O were treated by temporary lumbar drain after surgery for 2 days and acetazolamide therapy for their entire life. Eight patients showed CSF pressure above 350 mmH<sub>2</sub>O and were treated by placement of CSF shunt systems. They were reviewed for a minimum of 2 years after surgery.

### Results:

Successful primary repair without recurrence was achieved in 14 patient (93.3 %) where ICP evaluation and intervention with acetazolamide or CSF shunt systems was performed. One patient had a CSF recurrence after 18 months due to shunt displacement. The litterateurs reported 81.87% in series with no active management of elevated ICP ( $P < .001$ ).

Conclusions: Evaluation and intervention for elevated ICP in spontaneous CSF leaks is associated with significantly improved success rates following primary endoscopic repair

## OUTCOMES OF MEDICAL THERAPY AND BALLON DILATION SINUS SURGERY TREATMENT IN CHILDREN WITH SINUSITIS

Prof.dr. Zheng-min Xu<sup>1</sup>

<sup>1</sup>*Children`s Hospital Of Fudan University, Shanghai, China*

Paediatric Rhinology 3, Albert - Second Floor, April 25, 2018, 10:45 - 11:55

**Abstract Objective:** To compare the outcomes of the medical therapy and BALLON DILATION SINUS SURGERY treatment in children with sinusitis.

**Method :** Data from 108 patients with bilateral sinusitis, aged between 6-10 years who failed to respond to medical therapy for more than three months had complete follow-up documents in study. Compared with the preoperative VAS scores for medical treatments, they were divided into 3 groups based on different pathology. In group I(38 cases) was sinusitis alone with BALLON DILATION SINUS SURGERY , In group II,46 patients had chronic sinusitis with Adenoid hypertrophy using BALLON DILATION SINUS SURGERY and Adenoidectomy, and 24 patients with chronic sinusitis and nasal polyps in group III had performed by BALLON DILATION SINUS SURGERY and removing nasal polyps. Outcomes is evaluated(VAS scores) at least 6 months postoperatively, and analyzed using Fisher exact method.

**Results:** The different pathology and treatment approaches had the different results in group I, II and III. Compared of pre-operative and 6-month postoperative VAS scores, there were the significantly different in group I(7.2 vs 3.0 for VAS scores,  $p<0.001$ ), group II(7.4 vs 1.5 for VAS scores,  $p<0.001$ ), and group III(8.2s 4.5 for VAS scores,  $p<0.05$ ).In group II, the patient symptom had more improvement(VAS=1.5) using BALLON DILATION SINUS SURGERY combined with adenoidectomy.

**Conclusion:** The BALLON DILATION SINUS SURGERY procedure is a safe and effective technique for pediatric CRS resistant to medical therapy. It is recommended for children with chronic sinusitis combined adenoidectomy surgery.

## MODIFIED SPLAY GRAFT FOR NARROW INTERNAL NASAL VALVE: SUBJECTIVE AND OBJECTIVE MEASUREMENTS

M.D. Dong-joon Park<sup>1</sup>

<sup>1</sup>*Yonsei University Wonju College Of Medicine, Wonju, South Korea*

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

The aim of this study was to determine the outcome of modified splay graft

### Methods

Twelve patients who underwent the procedure between July 2016 and July 2017 were included in this study.

We performed minimally invasive surgery that the caudal border of upper lateral cartilage was splayed out by the inserted cartilage between both side of internal nasal valve.

The objective outcome was analyzed by the grading of the Internal Nasal Valve(INV) collapse with nasal endoscopy and cross-sectional area at the INV measured by acoustic rhinometry. The subjective outcome measured Nasal Obstruction Symptom Evaluation(NOSE).

### Results

Postoperative measurements were performed after 4weeks of surgery. Patients had significant improvement for endoscopic grading and NOSE.

Compare to preoperative value, the postoperative results of mean area of I-notch were increased statistically significant.

### Conclusions

The modified splay graft for narrow nasal valve is an effective technique that can be easily applied and show a significant improvement in the postoperative results.

## THE ROLE OF THE VIRTUAL CLINIC IN ENT

Mr Aman Khanna<sup>1</sup>, Ms Catherine Rennie<sup>1</sup>, Mr Samit Unadkat<sup>1</sup>, Dr Lilia Dimitrov<sup>1</sup>, Mr Jonathan Galloway<sup>1</sup>, Mr Mark Lindow<sup>1</sup>, Mr Harry Monaghan<sup>1</sup>, Mr Hesham Saleh<sup>1</sup>

<sup>1</sup>Imperial College Healthcare NHS Trust, London, United Kingdom

Technological Advances 1, Rutherford - Fourth Floor, April 23, 2018, 12:05 - 13:15

### Aims

Many patients attending ENT appointments require investigations with follow-up to inform them of the results and discharged. Others are followed-up to confirm success of treatment, then discharged. We implemented a virtual clinic to inform and manage these patients without requiring physical hospital visits. By formalising a previously ad-hoc process, patients are assured of contact within a reasonable timeframe, and offered further treatment remotely if the presenting condition is persisting.

### Methods

We identified long-wait patients, analysed notes, contacting them via telephone or letter. Outcomes included discharge, further investigations, instigation of new management, and adding to the surgical waiting list.

### Results

Over a six-week period, 153 patients were processed. 38 had already been processed elsewhere. Of the remaining 115, 21(18.3%) required a further outpatient appointment: 59(51.3%) were discharged; 11(9.6%) required further investigations; 2(1.7%) were managed medically; 3(2.6%) were added to the waiting list for surgery. Patients were happy to be telephoned and grateful for the reduced wait for review.

### Conclusion

Virtual clinic improves the patient journey through their ENT treatment and the efficiency of the referral-to-treat pathway; this reduces unnecessary outpatient hospital visits, burden on clinician administrative time, clinic overbooking and departmental costs. Patient satisfaction with the process is high.

Moving forward, we are implementing a pathway whereby patients are made aware of the virtual clinic during initial outpatient appointments and placed into this clinic for follow-up. We are producing posters and patient information leaflets to improve patient awareness. The process, cost savings and clinician and patient satisfaction will be audited.

## ALAR LIFTING TECHNIQUE FOR THE CORRECTION OF TILTED ALAR BASE

MD Shinae Kim<sup>1</sup>, MD. PHD Yong Ju Jang<sup>1</sup>

<sup>1</sup>Asan Medical Center, Seoul, South Korea

Rhinoplasty 1, Victoria - Second Floor, April 24, 2018, 10:45 - 11:55

### Background and objective

Not infrequently, a tilted alar base characterized by discrepant level of the nostril sill and alar insertion on both sides is encountered in rhinoplasty patients. Here we report our surgical technique and surgical outcome of alar lifting procedure for correction of tilted ala.

### Patients and methods

The medical records of 7 patients with nasal base asymmetry who underwent rhinoplasty using alar lifting technique between January 2014 and June 2017 were retrospectively reviewed. The surgical procedure carried out only on the side that had lower alar base. Alar lifting procedure includes elliptical excision of vestibular skin just inside of the nostril sill, extending slightly laterally. Skin and minimal amount of soft tissue is removed together and remaining skin are reapproximated using 5-0 monocryl suture. Surgical outcomes are determined on frontal view of facial photos by comparing pre- and postoperative angle formed by a line which was drawn parallel to lowermost part of both pupils and a line connecting lowermost part of base of ala.

### Results

All seven patients have deviated nose. Alar lifting technique was done on left side on 2 cases and right side on 5 cases. Mean alar base angle was 5.71 preoperatively and 1.29 postoperatively. Mean angle change was 2.14 degrees. 6 (85.7%) out of 7 patients had decreased alar level discrepancy by this technique. There was no patient who had complications by this technique.

### Conclusion

Our alar lifting technique can serve as useful adjunctive technique in rhinoplasty when the patients show tilted ala.

## MAXILLARY SINUS FONTANEL DEFECT (ACCESSORY OSTIUM) REPAIR USING MIDDLE TURBINATE FLAP IN 117 PATIENTS WITH CHRONIC RHINOSINUSITIS

M.D. Ph.D. Matti Penttilä<sup>1</sup>

<sup>1</sup>*Terveystalo Healthcare Inc., Tampere, Finland*

CRS Surgery 4, Burton & Redgrave - Second Floor, April 25, 2018, 12:05 - 13:15

Accessory ostium is a maxillary sinus perforation which increases air flow, causing a fall in high Nitric oxide concentration. The aim of repairing fontanel defects was to reconstruct normal structures in CRS patients.

157 perforations were diagnosed and repaired during 121 of 525 endoscopic sinus operations performed by the author 2011-2017. Flap cut from the undersurface of middle turbinate was used. 102 patients received concurrent BSD but 15 patients had only perforation repair. After failed closure a revision attempt was made in 6 patients. Defects were 3-4mm in size (range 1-7mm). Endoscopic follow-up was made after 1-188 weeks.

Overall, 72% of perforations were closed, 17% open and 11% partially open. In 37 large perforations (5-7mm) the success rate was 73% but in 5 small perforations (1-2mm) it was only 40%. A history of earlier surgery (13 FESS and 6 BSD operations) or whether repair was made without simultaneous BSD did not influence the success rate. In CRSwNP patients, half of the perforations were closed. Half of the revisions succeeded and the use of tissue glue did not improve this result. Postoperative endoscopy could not be done for 10 patients. 87 patients reported postoperative symptom relief, while for 22 patients the symptoms remained. Postoperative febrile sinusitis occurred in 26 patients.

Repair of accessory ostium is in theory a beneficial and technically feasible office procedure with only transient side-effects. However, the use of turbinate flap is difficult in small, large, multiple or iatrogenic defects. Three out of four perforations were closed after repair.



## DACRYOCYSTORHINOSTOMY FOR ACQUIRED NASOLACRIMAL DUCT STENOSIS IN THE ELDERLY

Dr. Anat Wengier<sup>1</sup>, Dr. Ran Ben-Cnaan<sup>2</sup>, Dr. Shay Keren<sup>2</sup>, Dr. Dan M Fliss<sup>1</sup>, Dr. Igal Leibovitch<sup>2</sup>, Dr. Avraham Abergal<sup>1</sup>

<sup>1</sup>Department of Otolaryngology Head and Neck Surgery and Maxillofacial Surgery, Tel-Aviv Sourasky Medical Center, Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel, <sup>2</sup>Oculoplastic and Orbital Institute and Department of Ophthalmology, Tel Aviv Sourasky Medical Center, Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

Orbit and Lacrimal 2, Albert - Second Floor, April 25, 2018, 12:05 - 13:15

**Aims:** Dacryocystorhinostomy has a high success rate in treating nasolacrimal duct obstruction (NLDO) with low complications rate, but surgical outcomes have not been reported previously specifically for an elderly population, in which there may be increased risk for intraoperative and postoperative complications. The purpose of this study is to examine surgical outcomes and complication rates of endoscopic dacryocystorhinostomy in an elderly population.

**Materials and Methods:** Retrospective study. Medical charts of patients 80 years of age or older undergoing endoscopic dacryocystorhinostomy at a tertiary medical center between 2011-2017 were reviewed and compared with a matched control group of younger patients (40-79 years of age) undergoing endoscopic dacryocystorhinostomy by the same surgeons. Primary end points included symptomatic improvement of epiphora or dacryocystitis resolution and anatomic patency at last follow-up. Secondary end point was complication rates.

**Results:** The elderly group and control group comprised 19 and 168 patients respectively. Successful outcome was defined as resolution of symptoms and/or anatomic patency at last follow-up; Success rates were higher in the elderly group compared to the younger cohort (100% vs. 88%). There was no difference between groups with respect to postoperative complications, and no major complications were noted. Hospitalization time was slightly higher in the elderly group (3 vs. 1 days).

**Conclusions:** Elderly patients show better symptom resolution rates than younger patients. Older age was not found a risk factor for higher complication rates. Endoscopic dacryocystorhinostomy is a safe and effective treatment for NLDO in the elderly population as in younger populations, showing excellent results.

## COMBINED ANTERIOR ETHMOIDAL ARTERY FLAP AND COLLAGEN MATRIX AS A ROBUST NASAL SEPTAL PERFORATION REPAIR TECHNIQUE

**Doctor Marina Cavada**<sup>1</sup>, Doctor Carolyn Orgain<sup>2</sup>, Doctor Raquel Alvarado<sup>2</sup>, Professor Raymond Sacks<sup>1,2,3</sup>, Professor Richard Harvey<sup>1,2</sup>

<sup>1</sup>Faculty of Medicine and Health Sciences, Macquarie University, Sydney, Australia, <sup>2</sup>Rhinology and Skull Base Research Group, Applied Medical Research Centre, University of New South Wales, Sydney, Australia, <sup>3</sup>Faculty of Medicine, University of Sydney, Sydney, Australia

Septal Surgery 4, Gielgud - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:** Nasal septal perforation(NSP) repair remains a surgical challenge. Although many techniques are described, complete and robust closure can be difficult depending on perforation size and location. The anterior ethmoidal artery(AEA) flap has been described for septal perforation closure and derives its origins from skull base reconstruction. We describe an AEA flap with collagen matrix for NSP closure.

**Methods:** Consecutive patients who underwent NSP repair with an AEA flap in conjunction with an inlay collagen matrix (DuraMatrix, Stryker, Portage, MI, USA) were recruited. Demographic data, preoperative features of the perforation (size, location and presence of chondritis), and postoperative outcomes were analysed; closure rate, mucosalisation rate (contralateral side at 21 and 90 days), and complications (crusting, bleeding, obstruction, infection, rehospitalisation <30 days) were documented .

**Results:** 14 patients (age 50±15.2years, 35.7% female) were assessed. The perforation size was 1.8±1.0cm (range 0.3–4.0cm) and 1.1±0.6cm (range 0.2-2.0cm) posterior to the columella. Chondritis was present in 92%. The closure rate was 100% at both 21 and 90 days. Mucosalisation rate was 93% at 90days with only one patient requiring a free mucosa graft to an area of persistent crusting(7%). Complications were low with crusting 7%, bleeding 0%, obstruction 7% (requiring corticosteroid flap injection), and 0% infection/ rehospitalisation.

**Conclusions:** AEA flap with an inlay collagen matrix has proved to be an outstanding technique to repair nasal septal perforation. This technique not only improves outcomes, but the robust vascularity and wide angle of rotation enables the closure of perforations both large (<50% total septum) and anterior.

## EFFECT OF VEGF PATHWAY ON NASAL EPITHELIAL SPLUNC1 IN CHRONIC RHINOSINUSITIS WITH NASAL POLYPOSIS

Dr Ian Malm<sup>1</sup>, Dr Hyun-Sil Lee<sup>1</sup>, Dr Jean Kim<sup>1</sup>

<sup>1</sup>*Johns Hopkins University School Of Medicine, Baltimore, United States*

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

**Aims:** SPLUNC1, an important antimicrobial and immunoregulatory molecule expressed predominantly in the submucosal glands of upper airways, is reduced in nasal polyps. We have previously shown that aberrant hyperplastic growth of human primary nasal epithelial cells (PNEC) is mediated by the VEGF pathway in chronic rhinosinusitis with nasal polyposis (CRSwNP). Therefore, we sought to examine whether the expression of SPLUNC1 from PNEC is suppressed in CRSwNP and whether the VEGF pathway is relevant to SPLUNC1 expression.

**Methods:** PNEC and whole human nasal polyps (NP) from CRSwNP patients were grown in air liquid interface culture and exposed to varying conditions. SPLUNC1 mRNA expression was analyzed by real-time PCR, and protein expression was analyzed by Western immunoblot analysis.

**Results:** SPLUNC1 is expressed in PNEC maximally at 3-5 weeks after differentiation in vitro ALI culture, but not expressed under undifferentiated submerged conditions (n=3). Ex vivo tissue culture of NP to inhibitors of the VEGF pathway, anti-NP1 or digoxin, results in induction of SPLUNC1 mRNA expression (n=5) and an increase of SPLUNC1 protein expression by 207% and 220%, respectively (n=8), as measured by Western immunoblot analysis. In addition, treatment with fluticasone resulted in 219% increase in SPLUNC1 expression (n=8).

**Conclusion:** These data suggest that SPLUNC1 is expressed in PNEC in the differentiated nonpolypoid tissue, but is diminished in undifferentiated PNEC observed in nasal polyps. Additionally, control of hyperplastic growth by modulators of the VEGF pathway may result in correction of reduced SPLUNC1 expression observed in PNEC of CRSwNP.

## POSSIBILITY OF LOCAL ALLERGIC RHINITIS BY HOUSE DUST MITES AND/OR JAPANESE CEDAR POLLEN IN JAPAN

**MD & PhD Shoji Matsune<sup>1</sup>**, MD Mariko Ishida<sup>1</sup>, MD & PhD Nozomu Wakayama<sup>1</sup>, MD Yuma Yoshioka<sup>1</sup>, MD & PhD Satoshi Yamaguchi<sup>1</sup>, MD & PhD Kuwon Sekine<sup>1</sup>, MD & vPhD Kimihiro Okubo<sup>2</sup>

<sup>1</sup>*Nippon Medical School, Musashikosugi Hospital, Kawasaki City, JAPAN*, <sup>2</sup>*Nippon Medical School, Bunkyo-ku, Japan*

Allergic Rhinitis 3, Victoria - Second Floor, April 25, 2018, 10:45 - 11:55

(Introduction & Aim) Recently local allergic rhinitis (LAR) has been advocated to be a localized nasal allergic response in the absence of systemic atopy characterized by local production of specific IgE (sIgE) antibodies in nasal mucosa. Few reports have been found about the entity of LAR in Japan. We designed this study in order to investigate the possibility of LAR in Japan. (Methods) During operation, inferior turbinate mucosa was stored in the liquid nitrogen. Obtained mucosa was weighed and mashed in PBS followed by centrifuging and supernatant was stocked at -80°C. House dust mite (HDM) and Japanese cedar pollen (JCP) sIgE in mucosa were quantified by Alastat3g (SIEMENS, range; 0.1 ~ 500 IU/ml) (IU/ml/ mucosa g) and compared with ones in blood serum. Antigen provocation test (APT) and skin test (ST) were tried. (Results) In 50 cases, HDM and JCP sIgE were not detectable in serum in 18 and 16 cases, respectively. ST showed negative by HDM in 16 (98.9%) of 18 cases and by JCP in all 16 cases. HDM sIgE was detectable in 16 in mucosa and APT was positive in 7 (43.8%) of 16 cases. JCP sIgE was detectable in 10 (62.5%) in mucosa and APT showed positive in 5 (35.7%) in 14 cases. (no data in 2 of 16 cases) (Conclusion) LAR by HDM or JCP is considered to be exist among Japanese at least in 30 to 40% cases which don't show detectable sIgE level in serum nor positive ST reaction.

## LACTOCOCCUS LACTIS W136 SINUS PROBIOTIC REDUCES STAPHYLOCOCCUS AUREUS PRESENCE IN CRS PATIENTS

Ms Eve Sedillot<sup>1</sup>, Mr Hugo Cesaratto Desrosiers<sup>1</sup>, Dr Saud Al Romaih<sup>2</sup>, Ms Leandra Mfuna Endam<sup>1</sup>, Dr. Martin Desrosiers<sup>1</sup>

<sup>1</sup>Université de Montréal, Montréal, CANADA, <sup>2</sup>King Khalid University Hospital, King Saud University, Riyadh, Saudi Arabia

CRS Medical Management 1, Gielgud - Second Floor, April 23, 2018, 10:45 - 11:55

**INTRODUCTION:** It is unknown whether intranasal application of a topical probiotic can impact Staphylococcus aureus presence in the sinus cavities of patients previously operated for CRS.

**PURPOSE:** We wished to verify whether topically applied Gram-positive probiotic Lactococcus lactis W136 bacteria influenced Staphylococcus aureus presence in the sinus microbiome.

**METHODS:** 16S microbiome profiling performed during a clinical trial of patients with refractory CRS was used. Patients in which Staphylococcus aureus constituted a significant component (greater than 5% composition of the microbiome) were retained for assessment. Percent composition of the microbiome by S Aureus was compared both pre-and post treatment, and expressed as the difference in percentage composition. As a comparator, total number of OTU's recovered and percentage composition of the microbiome by Pseudomonas Aeruginosa were also assessed.

**RESULTS:** Staphylococcus aureus composed  $\geq 5\%$  of the microbiome in 12 of 24 the assessed patients. Treatment with L lactis W136 was associated with reductions in 9/12 patients. These were maximal when % composition was greatest. Results for OTUs and for P Aeruginosa were less consistent. Total number of OTU's increased and decreased in equal proportions, while levels of P Aeruginosa did not appear impacted by therapy.

**CONCLUSION AND INTERPRETATION:** Topical intranasal probiotic therapy with L lactis W136 is associated with a decrease in S Aureus composition of the microbiome in patients with refractory CRS. This effect appears to be specific to S Aureus, suggesting that the resemblance between the gram-positive cocci in L lactis W 136 and S Aureus may be important.

## EXPRESSION OF IRON-REGULATORY HORMONE HEPCIDIN AND IRON TRANSPORTERS FERROPORTIN AND ZIP8 IN SINUS MUCOSA OF PATIENTS WITH AND WITHOUT CHRONIC RHINOSINUSITIS

Dr. Jivianne Lee<sup>1</sup>, Dr Arie Kim<sup>1</sup>, Dr Jeffrey Suh<sup>1</sup>, Dr Marilene Wang<sup>1</sup>, Dr Tomas Ganz<sup>1</sup>

<sup>1</sup>*University Of California Los Angeles School Of Medicine, Los Angeles, California, United States*

CRS Diagnosis and Investigation 2, Victoria - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Airway epithelia express intrinsic antimicrobials and nutrient-sequestering factors which contribute to the innate host defense of the respiratory tract. Hecpidin is an endogenous peptide hormone that serves as a key regulator of iron metabolism but also exhibits innate antimicrobial activity. The purpose of this study is to determine if hepcidin and molecules involved in iron regulation are expressed within sinus epithelia and to compare levels of expression between patients with and without chronic rhinosinusitis(CRS).

**Methods:** Sinus mucosa was obtained from subjects with (19) and without (14) a history of CRS. Eleven CRS patients had nasal polyposis. RT-PCR following RNA extraction was used to quantify the expression of hepcidin, ferroportin, and ZIP8 mRNAs; with HPRT and the ribosomal protein L32 used as comparator housekeeping genes.

**Results:** Compared to HPRT mRNA, hepcidin mRNA was expressed in healthy mucosa at about an 8-fold lower level ( $\Delta Ct = 3.0 \pm 2.5$ , mean  $\pm$  SD), ferroportin at about 3-fold higher level ( $\Delta Ct = -1.7 \pm 0.6$ ), and ZIP8 at about the same level ( $\Delta Ct = -0.1 \pm 0.9$ ). Only ZIP8 was significantly changed in CRS, with an approximately 2.5-fold mean increase in mRNA ( $\Delta(\Delta Ct) = 1.3 \pm 1.1$ ,  $p = 0.001$ ). There were no significant differences in mRNA expression of any of the iron-related proteins between CRS groups with and without polyps.

**Conclusions:** Hecpidin, ferroportin, and ZIP8 were detected in the sinus epithelia of CRS and healthy patients at moderate levels, but only ZIP8 was increased in CRS patients relative to controls. These findings suggest that ZIP8 may play a role in the innate mucosal defense of the paranasal sinuses.

## FEASIBILITY STUDY OF FULL HOUSE POWERED ENDOSCOPIC SINUS SURGERY FOR NASAL POLYPOSIS IN A TERTIARY CARE HOSPITAL IN SRI LANKA

Dr. Gnanapriya Daminda<sup>1</sup>, Dr. Eindrini Muhandiram<sup>1</sup>, Dr. Manjula Danansuriya<sup>2</sup>, Dr. Kantha Jayasena<sup>1</sup>, Dr. Shakila Wimalasooriya<sup>1</sup>

<sup>1</sup>Teaching Hospital Anuradhapura, Anuradhapura, Sri Lanka, <sup>2</sup>Ministry of Health, Colombo, Sri Lanka

CRS Surgery 1, Gielgud - Second Floor, April 23, 2018, 14:45 - 16:15

**Aims:** Optimal surgical treatment for nasal polyposis or chronic rhino-sinusitis with nasal polyps(CRSwNP) is still debated. Present observational study was done at teaching hospital Anuradhapura(THA), to assess the effectiveness full house endoscopic sinus surgery(FHESS) in treating CRSwNP.

**Methods:** CRSwNP patients presented to the ENT clinic, THA during 2016 were diagnosed with EPOS 2012 criteria and recruited. Patients who failed to respond to maximum steroid therapy were offered surgery. Disease severity was assessed with Sino-Nasal Outcome 22 score(SNOT22) and a system adopted by modified Lund-Kennedy endoscopic scoring system during rigid nasal endoscopy. These were done preoperatively as well as postoperatively at 4 weeks,3 months, 6 months and 1 year.

**Results:** Of the 37 patients underwent FHESS, 18(48.6%) were males, 22(59.5%) had grade 2 and 15(40.5%) had grade 3 polyps. SNOT mean scores(SD) at preoperative, postoperative one month, 3, 6 and 12 months were, 56.7(22.1) ,17.9(11.7), 19.8(12.1), 20.1(13.9) and14.2(12.1) respectively. The respective figures for endoscopic mean scores(SD) were, 32.7(5.6), 12.4(7.8), 12.3(9.9), 14.3(13.3) and 14.6(13.7). Statistically significant improvements were observed with SNOT and endoscopic score( $p<0.005$ ) 4 weeks post-op. Repeated measures of ANOVA with a Greenhouse-Geisser correction showed statistically significant differences between the SNOT mean scores( $F(2.3,35.3)=27.0$ ,  $p<0.005$ ) while repeated measures of ANOVA test showed statistically significantly different endoscopic scores ( $F(4,60)=14.3$ ,  $p<0.005$ ). Post hoc tests with Bonferroni correction revealed a statistically significant reduction in SNOT & endoscopic scores in all postoperative follow up scores compared to preoperative scores.

**Conclusion:** FHESS seems to be effective as significant and sustainable improvements were observed compared to preoperative condition.

## INTRACELLULAR S. AUREUS IN MAST CELLS – A POTENTIAL DRIVER OF NASAL POLYP FORMATION AND GROWTH IN CHRONIC RHINOSINUSITIS

Mr SM Hayes<sup>1</sup>, Mr TC Biggs<sup>1</sup>, Mr PG Harries<sup>1</sup>, Dr SL Pender<sup>2</sup>, Mr RJ Salib<sup>1</sup>

<sup>1</sup>University Hospital Southampton NHS Foundation Trust, , United Kingdom, <sup>2</sup>University of Southampton, , United Kingdom

CRS Pathophysiology 1, Gielgud - Second Floor, April 23, 2018, 12:05 - 13:15

### AIMS

We have previously made the novel observation of intracellular *Staphylococcus aureus* within mast cells in nasal polyps. This process appears to be mediated and promoted by the presence of *Staphylococcus enterotoxin B*. Intracellular replication of *S. aureus* results in mast cell degranulation and eventual cell rupture, leading to bacterial seeding and downstream build-up of extracellular pro-inflammatory cytokines with resulting tissue oedema. This chronic inflammatory process is likely to act as a driver for nasal polyp formation and growth. The aim of this study was to use the generated data thus far to construct and propose an illustrated model of how intracellular *S. aureus* may act as a potential driver for nasal polyp formation and growth in chronic rhinosinusitis.

### METHODS

Techniques utilised within these studies included LIVE/DEAD® BacLight™ viability kit, fluorescent in situ hybridisation, scanning electron microscopy, transmission electron microscopy, confocal laser scanning microscopy, and cell culture.

### RESULTS

The data generated was used to propose an illustrated mechanistic model by which intracellular *S. aureus* may drive nasal polyp formation and growth.

### CONCLUSION

In what is an undoubtedly complex pathophysiological process, this proposed model may help improve our understanding of the key drivers of nasal polyp formation and growth, and as such will enable the development of better targeted therapies for nasal polyps in the future.



## THE INFLUENCE OF GLUCOCORTICOIDS AND H1-ANTIHISTAMINES ON THE PERMEABILITY OF THE EPITHELIAL BARRIER IN PATIENTS WITH CRSWNP

Mr. Nicolas Vogel<sup>1</sup>, Ms. Seraina Kunz<sup>1</sup>, Prof., M.D. Cezmi Akdis<sup>2</sup>, Prof. Dr. David Holzmann<sup>1</sup>, PD Dr. Michael Soyka<sup>1</sup>

<sup>1</sup>University Hospital of Zurich, Zurich, Switzerland, <sup>2</sup>Swiss Institute of Allergy and Asthma Research, Davos, Switzerland

CRS Pathophysiology 3, Victoria - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims:** To measure the influence of widely used corticosteroids and a H1-antihistamine on the transepithelial resistance (TER), a surrogate parameter for the epithelial barrier function, of primary human nasal epithelial cultures from patients with Chronic Rhinosinusitis with nasal Polyps (CRSwNP). Furthermore, we analyzed the effect of preoperative glucocorticoid treatment on the TER in these patients.

**Methods:** 11 biopsy specimens from patients undergoing a sphenoidectomy were collected. The tissue was digested, and the human nasal epithelial cells were harvested and subsequently transformed to air-liquid-interfaces. After differentiation of the cells the influence of Fluticasone propionate (FP), Mometasone furoate (MF) and Azelastine hydrochloride (AZE) on the TER was compared to a control group.

**Results:** FP showed a significant increase of the TER after 48 and 72 hours. MF increased the TER significantly after 48 hours. There was a trend in increasing TER in the AZE group without statistical significance of the results.

**Conclusion:** Topical steroids have proven to be clinically useful in many previous studies. In addition to their anti-inflammatory way of action we provide evidence that widely used topical steroids are capable of restoring the previously shown defective epithelial barrier in CRSwNP.

## BEVACIZUMAB IN THE TREATMENT OF BLEEDING IN PATIENTS WITH HEREDITARY HAEMORRHAGIC TELANGIECTASIA (HHT).

MD Phd Anette Drøhse Kjeldsen<sup>1</sup>, MD Phd Anette Dam Fialla<sup>2</sup>, MSc Tine Rosenberg<sup>1</sup>, MD Phd Jens Kjeldsen<sup>2</sup>  
<sup>1</sup> Department of Otorhinolaryngology, Odense University Hospital, Odense C, Denmark, <sup>2</sup> Department of Medical Gastroenterology, Odense University Hospital, Odense C, Denmark

HHT 1, Epistaxis 2 and GPA 1, Gielgud - Second Floor, April 25, 2018, 10:45 - 11:55

### Aims:

To present the result of Bevacizumab treatment (an angiogenesis inhibitor) in a cohort of HHT patients with severe bleeding from HHT lesions.

### Methods:

Patients with HHT attached to the Danish National HHT-Center with severe epistaxis and/or gastrointestinal bleeding, were offered out-patient treatment with Bevacizumab since 2013. Bevacizumab was administered as an induction treatment regimen 5mg/kg bodyweight every third week for a total of 3 infusions. Data on patients were retrospectively reviewed from patient files and from the National HHT database. Transfusion need and haemoglobin levels prior to treatment and 12 weeks after completion of induction treatment were evaluated.

### Results:

Twelve patients (8 females) with HHT (median age of 67 years) received treatment. Eight patients had primarily epistaxis and four patients primarily gastrointestinal bleeding. In 7 out of 12 a substantial reduction in transfusion need was registered – and most patients had substantial increase in haemoglobin level. One patient with severe manifestations of HHT with large hepatic malformation, ascites and severe right-sided heart failure did not survive for follow-up. The following side-effects were registered: two patients described hair-loss, one patient experienced tiredness after infusion, and one patient stopped treatment due to facial pain.

### Conclusion:

In HHT patients with severe bleeding refractory to other treatment, bevacizumab may offer a systemic treatment option. In up to 60% of patients a significant reduction in blood transfusion and an increase in haemoglobin levels were documented in this retrospective study at a single university centre. Minor side-effects were reported in 4 of 12 twelve patients.

## INCIDENCE AND SURVIVAL IN SINONASAL CARCINOMA: A DANISH POPULATION-BASED, NATIONWIDE STUDY FROM 1980 TO 2014

Md Sannia Mia Sjöstedt<sup>1</sup>

<sup>1</sup>*University Hospital Copenhagen, Copenhagen Ø, Denmark*

Sinonasal Malignancy 2, Burton & Redgrave - Second Floor, April 25, 2018, 10:45 - 11:55

**Aims:** a description of changes in incidence and survival in sinonasal carcinomas in Denmark from 1980 to 2014.

**Background:** Sinonasal cancers are rare and comprise < 1% of all malignancies. This study describes incidence and survival in sinonasal carcinomas in Denmark from 1980-2014.

**Methods:** All patients registered in the Danish Cancer Registry in the period were included. Age-adjusted incidence rate, average annual percentage change, and relative survival were calculated. Age-period-cohort models were constructed.

**Results:** 1,720 patients with sinonasal carcinoma (median age 67 years, 63% males) were identified. There was no significant change in age-adjusted incidence; 0.70 in 1980 to 0.43 per 100,000 in 2014 ( $p > 0.05$ ). Relative 5- and 10 year survival were 52% and 40% for men, 58% and 42% for women. An increase in 5 year survival from 1980-2014 from 46 % to 65 % ( $p < 0.05$ ) was found. Nasal carcinomas had a significantly better relative survival compared to sinus carcinoma, as did squamous cell carcinomas when compared to neuroendocrine malignancies.

**Conclusion:** In Denmark from 1980-2014, the overall incidence of sinonasal carcinomas has been stable, with the relative survival increasing significantly.

## THE ROLE OF UNILATERAL NASAL INSPIRATORY PEAK FLOW IN NASAL OBSTRUCTION

Miss Anika Kaura<sup>1,2</sup>, Mr Jagdeep Virk<sup>2</sup>, Mr Jonathan Joseph<sup>2</sup>, Ms Catherine Rennie<sup>3</sup>, Mr Premjit Randhawa<sup>2</sup>, Mr Peter Andrews<sup>2</sup>

<sup>1</sup>Milton Keynes University Hospital, Milton Keynes, United Kingdom, <sup>2</sup>Royal National Throat Nose and Ear Hospital, London, United Kingdom, <sup>3</sup>Charing Cross hospital, London, United Kingdom

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

**Aims:** Nasal Inspiratory Peak Flow (NIPF) poorly correlates with subjective patient reported outcomes (PROMs) following functional septorhinoplasty. The aim of this study is to determine whether unilateral NIPF correlates with symptom specific and quality-of-life PROMs. These include the nasal blockage Visual Analogue Scale (VAS) scores, Nasal Obstruction Symptoms Evaluation (NOSE) score, and the Sinonasal Outcome Test-22 (SNOT-22) questionnaire. With improved correlation, unilateral NIPF may provide a clinically sensitive objective outcome measure.

**Methods:** 70 patients were recruited and a prospective comparative analysis was performed between unilateral and bilateral NIPF measurements, the NOSE score, nasal blockage VAS score and the SNOT-22 pre and post operatively for each patient.

**Results:** This study demonstrates significant postoperative improvements in both subjective outcome measures including the SNOT-22, VAS and NOSE scores, and objective measures including unilateral and bilateral NIPF values. We also show weak correlation between percentage improvement in bilateral NIPF when compared with percentage changes in SNOT-22 and NOSE scores. However, there was no significant correlation between improvements in unilateral NIPF and subjective outcome scores.

**Conclusion:** Whilst unilateral NIPF does not correlate with subjective outcome scores, it is still a useful measure in assessing nasal patency and in patient education. In addition, improvements in bilateral NIPF measurements show some correlation with improvements in NOSE and SNOT-22 scores.

## BITTER TASTE PERCEPTION OF INTRANASAL AZELASTINE IS REDUCED IN CRSSNP COMPARED TO CRSWNP, ALLERGIC AND NON-ALLERGIC RHINITIS.

Dr Glenis Scadding<sup>1</sup>, Ms Kristen Wright<sup>1</sup>, Sister Yvonne Darby<sup>1</sup>, Dr Guy Scadding<sup>2</sup>

<sup>1</sup>RNTNE Hospital, London., London, United Kingdom, <sup>2</sup>Royal Brompton hospital, London, United Kingdom

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

Bitter taste receptors are implicated in host defence in the airways, with some evidence for decreased bitter taste perception in chronic rhinosinusitis without nasal polyposis. Azelastine is an intranasal antihistamine spray with a bitter taste experienced by some, but not all users.

Our aim was to investigate any relationship between bitter taste perception in patients using azelastine and their rhinological diagnosis.

### Methods:

Patients attending the Rhinology clinic and currently or recently using intranasal azelastine were surveyed to determine their perception of a bitter taste. One hundred and one subjects aged 13-81 years, mean 46 ± 15.8, 51 male, were included in the study. Their diagnoses, according to EPOS and ARIA criteria, were also recorded.

### Results:

There was a significant variation between chronic rhinosinusitis with nasal polyps, CRSwNP (75% tasters) and chronic rhinosinusitis without nasal polyps, CRSsNP (27% tasters),  $p < 0.007$ . Allergic and non-allergic rhinitis patients had similar taste perception levels to CRSwNP. Supertasters, those reporting a strong bitter taste, were not seen in the CRSsNP group, but formed between 14 and 21% of the CRSwNP, AR and NAR groups.

### Conclusions:

Bitter taste perception of azelastine is reduced in CRSsNP. This may reflect innate immune incompetence relevant to the pathophysiology of CRSsNP.

## A REVIEW OF ENDOSCOPIC ENDONASAL TRANSPTERYGOID NASOPHARYNGECTOMY IN THE TREATMENT OF LOCALLY RECURRENT NASOPHARYNGEAL CARCINOMA (rNPC)

**Associate Professor Ing Ping Tang<sup>1</sup>**, Dr Li Yun Lim, Dr Pei Jye Voon, Dr Kong Leong Yu, Professor Narayanan Prepageran, Associate Professor Ricardo Carrau

<sup>1</sup>University Malaysia Sarawak, Kuching, Malaysia, <sup>2</sup>Sarawak General Hospital, Kuching, Malaysia, <sup>3</sup>Sarawak General Hospital, Kuching, Malaysia, <sup>4</sup>Sarawak General Hospital, Kuching, Malaysia, <sup>5</sup>University of Malaya, Kuala Lumpur, Malaysia, <sup>6</sup>The Ohio State University, Columbus, USA

Sinonasal Malignancy 2, Burton & Redgrave - Second Floor, April 25, 2018, 10:45 - 11:55

### Introduction:

Endoscopic Endonasal Transpterygoid Nasopharyngectomy (EETN) is one of the accepted treatment modalities for locally recurrent nasopharyngeal carcinoma (rNPC), following chemoradiotherapy. The objective is to study the efficacy of EETN in terms of surgical and oncological outcomes in locally rNPC (T1 to T3).

### Methods:

29 patients with T1 to T3 rNPC who underwent EETN by a single surgeon at Sarawak General Hospital between June 2013 and June 2015 were retrospectively reviewed. En bloc resections and intraoperative frozen sections were performed. One-year disease free survival, one-year overall survival, margin status and complication rates were measured.

### Results:

29 rNPC patients underwent EETN with 20, 6 and 3 cases of rT1N0M0, rT2N0M0 and rT3N0M0 respectively. 86% (25/29) of patients achieved en bloc tumour resection. Negative microscopic margins were obtained in 93% (27/29) of patients. No perioperative mortality or severe complications were observed. None of the patients received postoperative radiotherapy. The patients were followed up for 12 to 32 months (mean, 14 months). 13% (4/29) of patients experienced in situ residual or recurrence at primary site within 14 to 20 months. All of them underwent re-surgery. One out of these four patients passed away due to distant metastasis, complicated with septicemia at 6 months after surgery. One-year local disease-free and overall survival rates were 86% and 96% respectively.

### Conclusion:

EETN for rNPC is safe and has encouraging short-term outcomes in properly selected patients. However, this surgical approach requires specialized equipment and trained surgeons. Long-term follow-up is needed and reproducibility remains undefined.

## RHINITIS AND ITS IMPACT ON QUALITY OF LIFE IN SWIMMERS

Miss Abigail Walker<sup>1</sup>, Dr Pavol Surda<sup>1</sup>, Dr M Putala<sup>2</sup>, Mr P Siarnik<sup>2</sup>, Dr Ana Bernic<sup>1</sup>, Prof Dr Wytse Fokkens<sup>3</sup>  
<sup>1</sup>*Guy's Hospital, London, United Kingdom*, <sup>2</sup>*Comenius University, Bratislava, Slovakia*, <sup>3</sup>*Academic Medical Center, Amsterdam, The Netherlands*

Allergic Rhinitis 4, Albert - Second Floor, April 26, 2018, 12:05 - 13:15

### Introduction

Limited data suggest that swimmers might be affected by rhinitis significantly more often than the general population. This can have impact on quality of life but also on performance. The aim of this study was to determine the prevalence and impact of QOL of rhinitis in swimming compared to nonswimming athletes and controls.

### Materials and methods

This was an observational case-control, questionnaire-based study involving elite (n = 101) and nonelite swimming athletes (n = 107), nonswimming athletes (n = 38) and sex- and age-matched controls (n = 50). The survey instrument consisted of a general and the miniRQLQ. Main question used to assess the prevalence of rhinitis was from the ISAAC study.

### Results

Rhinitis was reported significantly more often by the elite swimmers (45%) than nonelite swimmers (31%), nonswimming athletes (32%) and controls (24%). Allergic rhinitis prevalence was similar in all groups (12%-18%). The prevalence of nonallergic rhinitis (NAR) was significantly higher in elite swimmers (33%) and nonelite swimmers (22%) compared to nonswimming athletes and controls. Overall mean miniRQLQ score and all subdomains except the "eye" domain showed significantly reduced QOL in elite and nonelite swimmers compared to nonswimming athletes and controls. Regular nasal medication was used significantly less by elite swimmers (18%) compared to controls (67%) and nonswimming athletes (42%).

### Conclusion

This study revealed a high prevalence of NAR in swimmers and related impact on QoL. These findings highlight the importance to increase the awareness towards upper airway disorders in the swimming athletes and to ensure adequate management.

## THE ROLE OF ENDOSCOPIC SINUS SURGERY FOR THE TREATMENT OF MAXILLARY ODONTOGENIC CYSTS .

Dr Ahmad Safadi<sup>1</sup>, Dr Shlomi Kleinman<sup>2</sup>, Dr Itay Oz<sup>2</sup>, Dr Dana Gigi<sup>2</sup>, Dr Ilan Koren<sup>1</sup>, Dr Vadim Reiser<sup>2</sup>

<sup>1</sup>Department of Otolaryngology Head and Neck Surgery and Maxillofacial Surgery, Tel-Aviv Sourasky Medical Center, Sackler School of Medicine, Tel-Aviv University., Tel Aviv, Israel, <sup>2</sup>Department of Maxillofacial Surgery, Tel-Aviv Sourasky Medical Center, Sackler School of Medicine, Tel-Aviv University., Tel Aviv, Israel

CRS 1, Albert - Second Floor, April 24, 2018, 10:45 - 11:55

### Aim of study:

To present our experience in treating odontogenic cysts involving the maxillary sinus and propose a surgical protocol according to different clinical situations.

### Introduction

Odontogenic cysts in the posterior maxilla, inflammatory or developmental, may involve, in many cases, the maxillary sinus. The surgical approach may be transoral, transnasal or combined. Each approach differs in its morbidity.

### Methods

A retrospective study included all odontogenic maxillary cysts involving the sinus that were treated in our department between 2011-2017. Clinical and radiological findings, histopathology, surgical approach, complications and follow-up were assessed for all cases.

### Results

A total of 55 cases of odontogenic maxillary sinus cysts were reviewed.

Fifteen were treated by ESS alone, 20 were treated transorally, and 20 were treated by a combined approach (ESS+transoral). Follow-up period varied between six months and six years.

All patients healed uneventfully with no major complications. Two patients who were treated via a transoral approach were diagnosed with an odontogenic keratocyst. A recurrence occurred after two years. They were further treated by ESS. Both are currently under observation.

### Conclusions:

Odontogenic developmental cysts, obstructing the maxillary sinus, whether containing an impacted tooth or not, can be treated by ESS alone (including medial maxillectomy, a wide decompression and extraction of the involved tooth transnasally).

Inflammatory odontogenic cysts must be treated transorally, using the combined approach in cases with obstruction of the osteomeatal complex.



## DISTINCT SUBTYPES OF PAEDIATRIC RHINITIS ARE REVEALED BY LATENT CLASS ANALYSIS OF THE ALSPAC BIRTH COHORT

Miss Abigail Walker<sup>1</sup>, Dr Danielle Belgrave<sup>2</sup>, Professor Adnan Custovic<sup>2</sup>

<sup>1</sup>*Guy's Hospital, London, United Kingdom*, <sup>2</sup>*Imperial College, London, UK*

Allergic Rhinitis 4, Albert - Second Floor, April 26, 2018, 12:05 - 13:15

### Aims

Rhinitis in childhood is a common cause of morbidity, reduced quality of life, school absence, and is associated with more frequent asthma exacerbations. We hypothesise that the current classification of “allergic” and “non-allergic” rhinitis does not adequately explain the complex relationship between rhinitis, sensitisation, and atopic disease in childhood.

### Methods

1184 children were assessed at ages 1, 3, 5, 8, and 11, and 16 years. Bayesian machine learning methods were used to identify distinct latent classes based on individual profiles of nasal symptoms, wheeze, and sensitisation profiles. This approach allowed us to identify groups of children with similar patterns rhinitis over time.

### Results

Four distinct classes of rhinitis were revealed: low probability of rhinitis (57.4% of cohort); early onset of transient rhinitis (3.9%); late onset (31.4%); and persistent rhinitis (7.4%). The persistent rhinitis class were significantly more likely than the other classes to have positive skin prick test and eczema. In addition, this group and the late onset and transient rhinitis group were more likely to suffer from wheeze and asthma than the group with no rhinitis. At age 16, there was stability of the model. The persistent rhinitis and late onset groups demonstrated multiple sensitisations and an association with asthma and elevated FeNO. By contrast, the transient rhinitis group displayed sensitisation to seasonal allergens only and no association with asthma.

### Conclusions

Latent class analysis reveals four distinct subtypes of rhinitis in this birth cohort which may correspond to specific endotypes of this disease in childhood.

## ANATOMICAL COMPARISON BETWEEN THE EXTENDED ENDONASAL APPROACH AND THE MAXILLARY SWING APPROACH FOR THE ACCESS TO THE PARAPHARYNGEAL SPACE

Dr Vivien ROGER<sup>1,2</sup>, Dr Martin HITIER<sup>1,2</sup>, Pr SYLVAIN MOREAU<sup>1,2</sup>, Ass Pr JEEVE KANAGALINGAM<sup>3</sup>, Pr Emmanuel BABIN<sup>1</sup>, **Dr VINCENT PATRON<sup>1</sup>**

<sup>1</sup>*Chu De Caen, Caen, France,* <sup>2</sup>*UNICAEN, Caen, FRANCE,* <sup>3</sup>*LEE KONG CHIAN SCHOOL OF MEDICINE, SINGAPORE, SINGAPORE*

Skull Base 2, Albert - Second Floor, April 24, 2018, 12:05 - 13:15

**Aim:** The nasopharynx and the parapharyngeal areas are deep regions difficult to access for the surgeon. Among the various external access routes described since Fisch procedure in 1983, the maxillary swing (MS) has emerged as the gold standard because of its simplicity. However, the morbidity associated with the MS led to the development of less invasive techniques. The aim of our study was to compare the surgical anatomy of the 2 surgical approaches to nasopharyngeal carcinomas invading the parapharyngeal spaces: the MS and endonasal endoscopic approach (EEA).

**Material and Method:** The MS and EEA were performed on 20 anatomical specimens. The exposure and the limits obtained from the two approaches were evaluated. After dissection an imaging study with CT scan was performed.

**Results:** In our experience, the EEA has allowed increased limits and a wider exposure. This was confirmed by the CT-scan study. Unlike MS, the EEA has allowed a precise visualization of deep structures and a reproducible and careful dissection of parapharyngeal spaces. However, the MS has provided better access to the lower part of the nasopharynx after lateralization of the maxilla with an operative time ~3 times shorter than the EEA.

**Conclusion:** Our results show that the EEA pushes the surgical limits of MS, while being a minimally invasive technique. The EEA provides excellent exposure, a wide dissection range and a precise definition of anatomical structures that place it as an alternative of choice to the MS. This is the first study comparing these two procedures.

## LONG-TERM FOLLOW-UP AFTER ENDOSCOPIC REPAIR OF CSF-LEAK WITH PEDICLED FLAP (TUMOURS EXCLUDED)

**Doctor Guillaume De Bonnecaze<sup>1</sup>**, Doctor Julie Izquierdo<sup>1</sup>, Doctor Emmanuelle Mouchon<sup>1</sup>, Professor Sebastien Vergez<sup>1</sup>, Professor Elie Serrano<sup>1</sup>

<sup>1</sup>ENT and skull base surgery department, Toulouse, France

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

**AIMS :** Endoscopic management of CSF leak provides excellent success rate. The use of local flap progressively emerged in the past decade. The aim of this work was to evaluate the long-term results for endoscopic endonasal repair of CSF rhinorrhea using pedicled nasoseptal flap.

**METHODS :** Patients who underwent endoscopic repair of CSF rhinorrhea between 2004 and 2016 were identified by a review of medical records.

**RESULTS :** Fifteen patients with CSF rhinorrhea were treated endoscopically using a pedicled flap. The local flap was associated with an autologous fat-graft in ten cases and used alone in five cases. The ethmoidal roof was the commonest location of CSF leak (65%). The posterior nasoseptal flap (Haddad flap) was used for 9 reconstructions whereas the anterior nasoseptal flap (Castelnuovo flap) was used in 6 cases. The mean follow-up was 36 months. Only one severe nasal bleeding requiring anterior pack was observed. Over the follow-up we noted one recurrence resolved after revision surgery.

**CONCLUSION:** Pedicled flap is a safe and reliable technique to close the anterior skull base in the context of CSF rhinorrhea.

## LONG-TERM FOLLOW-UP AFTER ENDOSCOPIC RESECTION OF RESPIRATORY EPITHELIAL ADENOMATOID HAMARTOMA.

Doctor Guillaume De Bonnecaze<sup>1</sup>, Doctor Benoit Darbas, Doctor Emmanuelle Mouchon<sup>1</sup>, Professor Elie Serrano<sup>1</sup>

<sup>1</sup>ENT and skull base surgery department, Toulouse, France

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

**AIMS :** Sinonasal respiratory epithelial adenomatoid hamartoma (REAH) is a benign glandular proliferation with ciliated epithelium. Little is known about long-term outcomes and functional prognosis after endoscopic resection of Respiratory epithelial adenomatoid hamartoma. We report the long-term follow-up of 30 patients treated at our tertiary care medical center.

**METHODS :** A retrospective analysis of a database dedicated to patients with REAH treated between 2009 and December 2014 was performed. All patients underwent a physical exam including nasal endoscopy and a CT-scan. Functional outcomes were assessed using the 22-item Sino-Nasal Outcome Test (SNOT-22).

**RESULTS :** There were 6 females and 24 males, with a mean age of 56 years. Most cases of REAH (24/30) were found in association with sinonasal polyposis. All patients underwent endoscopic sinus surgery (ESS). The mean follow-up was 63 months. At the last follow-up the mean SNOT 22 score was 29 (min: 15; max: 77), 8 patients did not show any evidence of recurrence. Majority of recurrences were quite limited, mean Lund-Mackay score was 10 (min: 2; max: 20) and only two patients needed a revision surgery.

**CONCLUSION:** Long-term outcomes after endoscopic resection of REAH appear to be favourable. However the sense of smell was deteriorated in the majority of patients.

## THE SUBPERICHONDRIAL /SUBPERIOSTEAL DISSECTION IN RHINOPLASTY, ADVANTAGES AND DRAWBACKS, PRELIMINARY STUDY ABOUT 60 CASES.

**Dr Vincent Patron<sup>1</sup>**, Dr Jeanne Vogt<sup>1</sup>, Pr Sylvain MOREAU<sup>1,2</sup>, Dr Martin HITIER<sup>1,2</sup>

<sup>1</sup>*Chu De Caen, Caen, France*, <sup>2</sup>*UNICAEN, CAEN, FRANCE*

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

**Aims:** The classical dissection plane in rhinoplasty is in the sub-SMAS plane with traumatic dissection of tissues and as a result significant and prolonged postoperative edema, especially in the external approach. A complete subperichondrial/periosteal route has been recently describe. It seems to allow for simpler postoperative follow-up than external or closed approach. The aim of this study is to report our preliminary experience on 60 cases with this new approach.

**Methods:** The subperiosteal / subperichondrial route in 60 consecutive patients in the context of primary, secondary, external or closed rhinoplasty between 2015 and 2017.

**Results:** As any new technique, a learning curve is necessary to achieve correct results. Moreover an adaptation of the surgical instruments is mandatory. It is a long and precise technique, but the main advantage of this new technique is a dissection close from of the cartilages, bones and ligaments, allowing a better identification and a suitable treatment of these structures. This technique is particularly suitable for secondary rhinoplasties where it allows dissection under fibrosis, as well as "rhinosculpture" or piezosurgery osteotomy techniques because it allows a very large detachment of the teguments for the instruments. It seems to reduce intraoperative and postoperative edema and thus make operative follow-up simpler and more predictable.

**Conclusions:** The subperichondrial/subperiosteal route, although causing significant dissection of the teguments of the nasal pyramid, is a respectful route to the anatomy of the nasal pyramid. It allows less traumatic maneuvers than in the sub-SMAS route despite the large dissection caused.

## ENDOCAVITARY ULTRASONOGRAPHY OF THE RHINOPHARYNX UNDER ENDOSCOPIC CONTROL – A PILOT ANATOMIC STUDY

Dr Mihai Dumitru<sup>1</sup>, Dr Codrut Sarafoleanu<sup>1</sup>, Dr Ion Anghel<sup>1</sup>, Dr Florin Mihail Filipoiu<sup>1</sup>, Dr Adrian Costache<sup>1</sup>

<sup>1</sup>*Carol Davila University of Medicine and Pharmacy, Bucharest, Romania*

Imaging and Investigations 1, Albert - Second Floor, April 23, 2018, 12:05 - 13:15

**Aims:** We propose an endocavitary method for ultrasound imaging at the level of the rhinopharynx under direct endoscopic control.

**Methods:** We use an L-shaped ultrasound transducer previously designed for sonography during abdominal surgery. The transducer should be introduced through oral route in the rhinopharynx under local topical anesthesia. Simultaneously the nasal endoscope permits direct visualization of the ultrasound transducer positioned in the rhinopharynx.

**Results:** In our 5 patients series we visualized the following anatomy landmarks using endocavitary ultrasonography under endoscopic control: posterior wall of the rhinopharynx, pharyngeal tonsil, and lateral walls with ostium of Eustachian tube. Moreover we could analyze the presence of pathology such as: Thornwaldt cyst, adenoids, nasopharyngeal carcinoma, and obstruction of torus tubarius. With Doppler signal we could ascertain the level of angiogenesis and the course of internal carotid artery through the skull base. Furthermore we could measure the thickness of adenoids.

**Conclusions:** Under endoscopic control with local anesthesia we could endocavitary ultrasound the important anatomy landmarks and better identify and analyze nasopharyngeal pathology. We hope to extend our anatomy pilot study to a broader group of patients. This imaging modality could bring further data in pediatric cases, pregnant women that need radiation prevention and could improve biopsy procedures preventing false negative cases with deeper mucosa involvement. Also we need to compare the accuracy of this imaging modality with CT and MRI.

**Keywords:** ultrasonography, rhinopharynx, endocavitary

## ROLE OF LOCAL ANAESTHETIC NERVE BLOCK IN ENDOSCOPIC SINUS SURGERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

Miss Maral Rouhani<sup>1</sup>, Mr Eamon Shamil<sup>2</sup>, Mr Siddharth Basetti<sup>3</sup>, Mr Florian Bast<sup>2</sup>, Prof Claire Hopkins<sup>2</sup>, Mr Pavol Surda<sup>2</sup>

<sup>1</sup>Northwick Park Hospital, Harrow, United Kingdom, <sup>2</sup>Guy's and St Thomas' NHS Foundation Trust, , United Kingdom,

<sup>3</sup>Imperial College School of Medicine, , United Kingdom

CRS Surgery 4, Burton & Redgrave - Second Floor, April 25, 2018, 12:05 - 13:15

**Objective:** The aim of the study was to perform a systematic review of existing evidence on the role of local anaesthetic nerve block (LAB) in patients undergoing endoscopic sinus surgery (ESS).

**Design:** The databases searched were the Cochrane Register of Controlled Trials, MEDLINE and Embase using the Ovid portal (1946-2017).

**Results:** Seven randomised controlled trials were included. Due to considerable heterogeneity of data, only two studies were pooled into meta-analysis which demonstrated a statistically significantly better surgical field quality during ESS in the LAB group compared to the control group (MD -0.86; 95% CI -2.24, 0.51; P = 0.009). No adverse events related to local anaesthetic block toxicity were reported.

**Conclusions:** We conclude that local sphenopalatine ganglion block with epinephrine carries relatively low risk of morbidity, but improves the quality of the surgical field in terms of bleeding

## MINIMAL INVASIVE ENDOSCOPIC MULTIPOINT APPROACH TO THE INFRATEMPORAL FOSSA: A CADAVERIC STUDY

Dr. Lukas Anschuetz<sup>1</sup>, Dr. Abraam Yacoub<sup>1</sup>, Daniel Schneider<sup>2</sup>, Dr. Wilhelm Wimmer<sup>2</sup>, Prof. Marco Caversaccio<sup>1</sup>

<sup>1</sup>*Inselspital, University Hospital Bern, Bern, Switzerland*, <sup>2</sup>*ARTORG Center, University of Bern, Bern, Switzerland*

Skull Base 1, Rutherford - Fourth Floor, April 24, 2018, 10:45 - 11:55

**Aims:** Expanded endoscopic endonasal approaches to the infratemporal fossa (ITF) are increasingly performed due to the improved visualization and the less morbidity in comparison to the classic open approaches. However, only a few studies in the literature investigated the lateral endoscopic access to the ITF. The purpose of our study is to examine the ITF with the minimal invasive endoscopically assisted approach with the trial of its expansion through a double port technique.

**Materials and Methods:** The ITF was examined in 10 sides of five cadaver heads using a lateral endoscopic assisted approach. Moreover, a double portal technique was developed to allow bimanual dissection. Specific long angled skull base instruments were used for the dissection under stereotactic guidance.

**Results:** The endoscopic assisted approach permitted a minimally invasive access to the complete anteroposterior extension of the ITF with sufficient mobility of the surgical instruments. A new anatomical classification for the ITF from a lateral endoscopic perspective was introduced. The addition of the second port gave the opportunity for bimanual dissection.

**Conclusions:** This cadaveric study shows the feasibility of an endoscopically assisted lateral approach to the ITF. Furthermore, the addition of a posterior port expands the approach through increasing the working area and enable a bimanual dissection technique. Either performed alone or in combination with an anterior endoscopic transnasal approach, the hereby proposed technique can offer a minimally invasive access to the ITF. The development of specifically designed instruments would further improve the impact and ease of this promising approach.



## EFFECT OF SUPLATAST ON IL-9 GENE EXPRESSION THROUGH THE SUPPRESSION OF NUCLEAR FACTOR OF ACTIVATED T-CELLS-MEDIATED SIGNALING

**M.D., Ph.D. Yoshiaki Kitamura<sup>1</sup>**, Ph.D. Hiroyuki Mizuguchi<sup>2</sup>, M.D. Sei-ichiro Kamimura<sup>1</sup>, M.D., Ph.D. Hiroyuki Fukui<sup>3</sup>, M.D., Ph.D. Noriaki Takeda<sup>1</sup>

<sup>1</sup>*Department of Otolaryngology, Institute of Biomedical Sciences, Tokushima University Graduate School, Tokushima, Japan,* <sup>2</sup>*Laboratory of Pharmacology, Faculty of Pharmacy, Osaka Ohtani University, Osaka, Japan,* <sup>3</sup>*Department of Molecular Studies for Incurable Diseases, Institute of Biomedical Sciences, Tokushima University Graduate School, Tokushima, Japan*

Allergic Rhinitis 3, Victoria - Second Floor, April 25, 2018, 10:45 - 11:55

### Aims

Suplatast is an immunomodulator that suppresses allergic inflammation. In the present study, we investigated the effect of suplatast on toluene-2,4-diisocyanate (TDI) induced nasal allergic symptoms and upregulation of IL-9 gene expression in TDI-sensitized rats. Then, we investigated the effect of suplatast on ionomycin-induced upregulation of IL-9 gene expression and calcineurin (CN) / nuclear factor of activated T-cells (NFAT) signaling in RBL-2H3 cells.

### Methods

Suplatast (80 mg/kg/day) were administered orally once a day for 2 weeks in TDI-sensitized rats. TDI-induced nasal symptoms were measured by the number of sneezes and the extent of watery rhinorrhea over the 10-min period immediately after TDI provocation. The nasal mucosa was collected 4h after TDI provocation and IL-9 mRNA was determined by real-time quantitative RT-PCR. RBL-2H3 cells were treated with suplatast before 1 $\mu$ M ionomycin stimulation. After 2 h of stimulation, the cells were harvested, and IL-9 mRNA was determined by real-time quantitative RT-PCR.

### Results

Pretreatment with suplatast significantly suppressed TDI-induced nasal symptoms and upregulation of IL-9 gene expression in the nasal mucosa of TDI-sensitized rats.

Suplatast dose-dependently suppressed ionomycin-induced upregulation of IL-9 gene expression in RBL-2H3 cells. The ionomycin-induced IL-9 mRNA upregulation was significantly suppressed by cyclosporin A and inhibitor of NFAT-CN association, suggesting the involvement of CN/NFAT signaling. Immunoblot analysis demonstrated that suplatast inhibited binding of NFAT to DNA.

### Conclusions

These data suggest that suplatast had the suppressive effect on the upregulation of IL-9 gene expression by inhibiting CN/NFAT signaling, suggesting that suplatast could alleviate nasal symptoms in allergic rhinitis.

## PREVALENCE AND RISK FACTORS OF CHRONIC RHINOSINUSITIS IN ELDERLY POPULATION OF KOREANS

Professor Chi Sang Hwang<sup>2</sup>, Professor Eun Jung Lee, Professor KYUNG-SU KIM<sup>1</sup>

<sup>1</sup>Yonsei University College Of Medicine, Seoul, South Korea, <sup>2</sup>Yonsei University Wonju College of Medicine, Wonju, South Korea

CRS Diagnosis and Investigation 2, Victoria - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** We investigated the prevalence and risk factors of CRS in the elderly population of Koreans, and also compared the risk factors of elderly to those of younger adult participants (19-64 years old).

**Methods:** Data from Korean National Health and Nutrition Examination Survey 2008-2012 were analyzed.

**Diagnosis of CRS** was done according to the EPOS 2012 guideline.

**Results:** A total of 25,529 participants were enrolled, and 5,590 (21.9%) of them belonged to the elderly group. Prevalence of CRS was significantly higher in elderly group compared to younger adult group (6.55 vs. 5.69) ( $p=0.016$ ). A predominance of male sex and current smoker was observed in both CRS groups. For the adult group, CRS was more prevalent in rural residence, blue collar occupation, low level education, heavy stress, suicidal ideation, overweight, and alcohol consumption, but not in the elderly group. We observed a significant association between CRS prevalence and comorbidities such as allergic rhinitis, asthma, and atopic dermatitis in both groups. However, in the elderly group, these associations were significantly weaker than in the adult group with regard to allergic rhinitis ( $p$ -interaction = 0.03) and asthma ( $p$ -interaction = 0.002) in patient with CRS.

**Conclusions:** Unlike in younger adults, socio-economic status and mental health were not associated with increased risk of CRS in the elderly group. In addition, allergic rhinitis and asthma, in which Th2-skewed responses with eosinophilia are thought to play a critical role, in aging populations, less frequent association with CRS were found.

## FUNCTIONAL MRI AS AN OBJECTIVE MEASURE OF OLFACTION DEFICIT IN PATIENTS WITH TRAUMATIC ANOSMIA

Professor Jin Kook Kim<sup>1</sup>

<sup>1</sup>*Konkuk University Medical Center, Seoul, South Korea*

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

**Aims:** To examine the utility of olfactory functional magnetic resonance imaging (fMRI) as an objective tool for diagnosing traumatic anosmia.

**Methods:** Sixteen patients (11 men and 5 women; mean age,  $42.2 \pm 10.4$  years) with clinically diagnosed traumatic anosmia and 19 healthy control subjects (11 men and 8 women; mean age,  $29.3 \pm 8.5$  years) underwent fMRI during olfactory stimulation with Citraval (a pleasant odor) or  $\beta$ -mercaptoethanol (BME; an unpleasant odor). All patients were subjected to a clinical olfactory functional assessment and nasal endoscopic exploration. Two-sample t-tests were conducted with age as a covariate to examine group differences in brain activation responses to olfactory stimulation (false discovery rate-corrected  $p < 0.05$ ).

**Results:** Compared to healthy control subjects, patients with traumatic anosmia exhibited reduced activation in the bilateral primary and secondary olfactory cortices as well as the limbic system in response to BME stimulation, whereas reduced activation was only observed in the right prefrontal cortex in response to Citraval stimulation.

**Conclusions:** Brain activation was decreased in the bilateral primary and secondary olfactory cortices as well as limbic system in response to olfactory stimulation in patients with traumatic anosmia compared to healthy control subjects. These preliminary results may shed light on the potential of fMRI on the diagnosis of traumatic anosmia.

RESEARCH FUNDING IN RHINOLOGY - HOW TO OBTAIN IT.

Professor William Coman<sup>1</sup>

<sup>1</sup>*Trustee and Chairman of the Foundation Garnett Passe & Rodney Williams Memorial Foundation, Brisbane, Australia*

Rhinology Potpourri 1, Victoria - Second Floor, April 25, 2018, 12:05 - 13:15

This paper will outline features which impress grant assessors.

This paper will include such subjects as the topic, the methodology, the research history of the applicants, the ability of the applicants to complete the project as described and the impact which the research will have when completed.

This paper will be based on experience obtained with the Garnett Passe Rodney Williams Foundation which since its inception in 1992 has been awarded some 60 million dollars of Grant and research funding.

An outline of where this funding has gone and why it has been directed to these areas will be discussed in the paper.

Professor William B Coman  
Trustee and Chairman of the Foundation  
Garnett Passe & Rodney Williams Memorial Foundation  
Post Office Box 577  
East Melbourne Vic 8002

P: +61 3 9419 0280 F: +61 3 9419 0282

Email: [gprwmf@bigpond.com.au](mailto:gprwmf@bigpond.com.au)  
[drcoman@powerup.com.au](mailto:drcoman@powerup.com.au)

## REPEATED OLFACTORY STIMULATION WITH FOOD ODORS IMPROVES OLFACTORY FUNCTION OF THE ELDERLY ASSESSED BY IDENTIFICATION OF 16 KINDS OF FOOD ODORS

**Doctor Fumino Okutani**<sup>1</sup>, PHN Kayo Sugimoto<sup>1</sup>, Yumi Ando<sup>2</sup>, Yuki Okabe<sup>2</sup>, Eriko Sugiyama<sup>2</sup>, Yuko Miyake<sup>2</sup>  
<sup>1</sup>Kochi Medical School, Nankoku, Japan, <sup>2</sup>Institute of Food Sciences & Technologies, Ajinomoto Co., Inc., Kawasaki, Japan

Smell and Taste 2, Burton & Redgrave - Second Floor, April 26, 2018, 10:45 - 11:55

**Objective:** Age-related olfactory impairment causes the reduction of palatability and appetite in the elderly. It was reported that the reduction in olfactory function is associated with frailty. Therefore it is important for the elderly to improve olfaction. Repeated olfactory stimulation using several odors might be helpful for treatment of post-traumatic or post-infectious olfactory dysfunction. It has not been clarified whether it has an effect on age-related olfactory impairment. In this study, we observed effects of repeated olfactory stimulation using food odors in the healthy elderly.

**Methods:** Forty-nine healthy elderly subjects ( $80.1 \pm 6.8$  years) participated in this study. Following the instruction they smelled 5 kinds of food odors twice a day during 12 weeks. Odors of lemon, caramel, dried bonito flakes, corn soup and grilled fish were subscribed. Olfactory identification test and questionnaires regarding on appetite were performed before and after the training.

**Results :** Assessed by 16 kinds of food odors, participants showed significant improvement in olfaction after repeated olfactory stimulation. They were capable of identifying more odors. Scores of "Open Essence" odor-identification test card kit consists of 12 odors, however, showed no significant improvement. We speculate that adaptation prevents olfactory function during Open Essence after the test with 16 kinds of food odors, or non-food odors included in Open Essence may be difficult to identify. Appetite scores obtained questionnaire survey were correlated with olfaction.

**Conclusion:** It was suggested that repeated olfactory stimulation using food odors prevents the age-related olfactory impairment and activate feeding behavior in the elderly.

## THE CHANGING SELLA: INTERNAL CAROTID ARTERY SHIFT DURING TRANSSPHEOIDAL PITUITARY SURGERY

**Prof. Dr. med. David Holzmann<sup>1</sup>**, Dr. V Staartjes<sup>2</sup>, Dr. N Maldaner<sup>2</sup>, Dr. A Pangalu<sup>3</sup>, Dr. MB Soyka<sup>1</sup>, Prof. Dr. med. L Regli<sup>2</sup>

<sup>1</sup>Dept. ORL / Division Of Rhinology And Skull Base Surgery, University Hospital, Switzerland, <sup>2</sup>Department of Neurosurgery, University Hospital Zurich, Switzerland, <sup>3</sup>Department of Neuroradiology, University Hospital Zurich, Switzerland

Sinonasal Malignancy 1, Albert - Second Floor, April 23, 2018, 10:45 - 11:55

### PURPOSE:

In transsphenoidal surgery (TSS) the injury to the internal carotid artery (ICA) is a life threatening complication. For pituitary surgery the intercarotid distance (ICD) is thus a major parameter, determining the width of the surgical corridor in TSS. We focused to investigate changes in ICD at different levels of the ICA during and after TSS using an intraoperative 3T-MRI (3T-ioMRI).

### METHODS:

Data analysis of pre-, intra- and 3 months postoperative MRI images of 85 TSS patients was performed. ICD was measured at the horizontal (ICDC4h) and vertical (ICDC4v) intracavernous C4 segment as well as at the C6 segment (ICDC6). ICD change at different levels and time points were compared and potential predisposing factors for ICD reduction were analyzed.

### RESULTS:

Intraoperatively, ICD decreased at all three ICA segments by -3% (median decreases: ICDC4h: -0.5 mm, ICDC4v: -0.7 mm ICDC6: -0.4 mm). In the 3 months postoperative MRI, ICD reduced additionally by -4%, -2% and -4% respectively (median decreases ICDC4h: -0.7, ICDC4v: -0.4 mm, ICDC6: -0.5 mm). Postoperative narrowing in ICD was not influenced by further resection after 3T-ioMRI. ICD change correlated between different levels of the ICA indicating a uniform shift perioperatively. Preoperative ICD was significantly associated with intraoperative reduction in ICDC4v and ICDC6.

### CONCLUSIONS:

Our study shows a uniform narrowing in ICD at different levels during and after TSS for pituitary adenoma resection. Since the width of the surgical corridor is defined by the ICD, surgeons should be aware of the ICD change, influencing the ease of surgery.

## RELATIONSHIP OF THE POSTERIOR SEPTAL ANGLE TO THE ANTERIOR NASAL SPINE IN THE CAUCASIAN NASAL SEPTUM

Miss Samantha Goh<sup>1</sup>, Mr Dheeraj Karamchandani<sup>1</sup>, Mr Shahram Anari<sup>1</sup>

<sup>1</sup>Heartlands Hospital, Birmingham, United Kingdom

Septal Surgery 1, Rutherford - Fourth Floor, April 23, 2018, 10:45 - 11:55

### Aims:

Articulation between the caudal end of the septum and the nasal spine is integral for stability in nasal surgery. We noticed that the posterior septal angle often sits proud of the anterior nasal spine. Inaccurate re-attachment of these points or inappropriate cartilage harvest will result in unintended aesthetic changes and instability. Therefore we aim to determine the distance between the most anterior part of the anterior nasal spine and the posterior septal angle.

### Methods:

Images for analysis were identified with a retrospective study of CT-sinus images from February to April 2016. The distance between the posterior septal angle and the most anterior part of the anterior nasal spine was measured digitally on the AFGA IMPAX imaging-system. Two raters obtained measurements independently.

Scans from adult Caucasians were included in the study, those with evidence of previous surgery, large slices (>1.0 mm), or poor quality were excluded.

### Results:

122 scans were reviewed; 100 CT-sinus scans met inclusion criteria (49 male, 51 female, mean age 52.5 years). The mean distance from the anterior nasal spine to the posterior septal angle was 5.13 mm (SD 1.24 mm, range 1.85 - 8.00 mm). Measurements between male and female patients were not significantly different ( $t=-0.450$ ,  $p=.654$ , 95% CI).

### Conclusions:

There is variability in the distance between anterior nasal spine and the posterior septal angle. Surgeons should observe this relationship when planning septal cartilage harvest, caudal septal reattachment and septal repositioning to avoid instability of the caudal septum and unintended aesthetic changes in the profile view.

## RADIOLOGICAL COMPARISON OF INFERIOR TURBINATE HYPERTROPHY BETWEEN ALLERGIC AND NON-ALLERGIC RHINITIS

Md, Phd Eun Jung Lee<sup>1</sup>, Md Hyo Jin Chung<sup>2</sup>

<sup>1</sup>Yonsei University College Of Medicine, Seoul, South Korea, <sup>2</sup>NHIS Ilsan Hospital, Gyeonggi-do, South Korea

Allergic Rhinitis 3, Victoria - Second Floor, April 25, 2018, 10:45 - 11:55

**Background:** Inferior turbinate hypertrophy could be a result of allergic rhinitis (AR), however, evidence regarding whether patients with AR have a more hypertrophied inferior turbinate than do patients with non-AR is lacking. We aimed to evaluate the degree of inferior turbinate hypertrophy according to the presence of AR by using radiological measurements of the inferior turbinate.

**Methods:** For evaluating the inferior turbinate, which contributes to nasal obstruction in patients with AR, we enrolled 90 adult patients with septal deviation and divided them into two groups (AR group: n=49; non-AR group: n=41). Allergic rhinitis was diagnosed according to the presence of an allergic history, positive multiple allergen simultaneous test, and serological total immunoglobulin E level ( $\geq 100$  kU/L). We analyzed the minimal cross-sectional area on acoustic rhinometry for both groups. The bilateral total width as well as medial mucosa and nasal cavity space in the anterior and posterior portions of the inferior turbinate were measured using computed tomography.

**Results:** We could not find any significant differences in the anterior and posterior dimensions of the inferior turbinate, intranasal space, and choanal spaces between the AR and non-AR groups. Instead, the anterior part of the inferior turbinate in both the groups showed significant differences between the deviated and contralateral sides.

**Conclusion:** The degree of inferior turbinate hypertrophy showed no difference between two groups. Therefore, we suggest that surgical treatment for the inferior turbinate hypertrophy should be considered when performing septoplasty in patients with symptoms of nasal obstruction, regardless of the presence of AR.



## PREDICTORS OF THE LONG-TERM OUTCOME OF SURGICALLY TREATED PARANASAL MALIGNANCIES IN A LARGE PATIENT COLLECTIVE

**Professor Dr. med. Christian Betz<sup>1</sup>**, Jana Rösner<sup>2</sup>, Sören Helling<sup>2</sup>, Dr. med. Jan Hagemann<sup>3</sup>

<sup>1</sup>University Hospital Tübingen, Tübingen, Germany, <sup>2</sup>Munich University Hospital, Munich, Germany, <sup>3</sup>Mainz University Hospital, Mainz, Germany

Sinonasal Malignancy 1, Albert - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** Paranasal malignancies are rare conditions and comprise a heterogeneous group of entities. In recent decades, transnasal surgical approaches have advanced to become standard methods next to open, transfacial resections in selected cases. This retrospective analysis aims at finding predictors for long-term outcome with a focus on surgical approach.

**Methods:** Retrospective study of a large patient collective (n=226) that underwent surgical resections of paranasal malignancies within a 20-year time frame at Munich University Hospital. Statistical analysis was performed with SPSS (IBM, version 24).

**Results:** Both overall (OS) and disease specific survival (DSS) showed a statistically significant correlation with tumour size as well as nodal and distant metastization status. Infiltration of extranasal structures (orbit and intracranial space) and the extent thereof could be identified as negative predictors of outcome. The fraction of transnasally resected tumours (n=125 vs. n=101) increased over time and showed an indirect relation to tumour size. Notable bleeding (intra-/postoperatively) occurred less frequently and the hospital stay was shorter for endoscopic interventions. Both OS and DSS were significantly higher for endoscopic cases. When stratified for tumour stage, this finding could only be confirmed for T3 tumours.

**Conclusions:** The presented analysis confirms known predictors for outcome in paranasal malignancies. It also favours transnasal versus open resections in a carefully selected patient population. The better oncological outcome for endoscopically resected T3 tumours was unexpected and warrants further investigation.

## THE ROLE OF HOUSE DUST MITE ALLERGY IN CHRONIC RHINOSINUSITIS IN TAIWAN

Dr. Yi-Tsen Lin<sup>1</sup>, Dr. Keng-Chung Shen<sup>1</sup>, Dr. Te-Huei Yeh<sup>1</sup>

<sup>1</sup>National Taiwan University Hospital, Taipei, Taiwan

CRS Diagnosis and Investigation 2, Victoria - Second Floor, April 24, 2018, 12:05 - 13:15

### Aims

Allergic rhinitis is an important predisposing factor of chronic rhinosinusitis (CRS). The relationship between house dust mite (HDM) allergen and chronic rhinosinusitis in our patient group have not yet been identified.

### Methods

We conducted a retrospective study of 138 CRS patients underwent endoscopic sinus surgery. We collected brief history of rhinosinusitis, blood eosinophil counts, blood specific allergen tests, rhinoscopic examination, CT scan findings, Lund-Mackay CT and SNOT-22 scores. Sinus mucosal biopsies were sampled from the nasal polyps or patients with CRS and grown for air-liquid interface (ALI) culture. ALI cultured nasal epithelial cells were exposed for 24 hour to IL-1 $\alpha$ , IL-4, and IL-13 before stimulated with HDM.

### Results

We found the mean age of received endoscopic sinus surgery was significant younger in allergic group ( $p=0.008$ ). The peripheral eosinophil count in allergic group was significant higher ( $p=0.008$ ). Lund-Mackay score and SNOT-22 scores were not significant different between allergic and nonallergic groups. The ALI cultured epithelial cells were stimulated HDM, and in the exposure of IL-4 or IL-13, the expressions of CCL2, GM-CSF, IL-1 $\alpha$ , IL-25, and IL-33 were up-regulated. The expression of MyD88 was also significantly up-regulated after exposure to IL-4 and IL-13 in the allergic group.

### Conclusions

CRS patients with allergy were younger than nonallergic patients at the time of surgery. This may imply that the role of allergy may accelerate the disease progression of CRS. We also addressed the effect of IL-4 and IL-13 on the nasal epithelial cells in reaction to the stimulation of HDM allergen.

## EXPERIMENTAL STUDY OF THE EFFECT OF SINUPRET® EXTRACT ON THE COURSE OF LEUKOTRIENE-DEPENDENT INFLAMMATION AS A DRUG FOR PATHOGENETIC THERAPY OF RHINOSINUSITIS

Mr Igor Zupanets<sup>1</sup>, Sergii Shebeko, Kateryna Zupanets

<sup>1</sup>National University Of Pharmacy, Kharkiv, Ukraine

CRS Medical Management 1, Gielgud - Second Floor, April 23, 2018, 10:45 - 11:55

Sinupret® is a herbal drug for rhinosinusitis therapy. To date, the mechanisms of its action are not determined definitively. Therefore, it is reasonable to study the anti-inflammatory effect of Sinupret® on the zymosan-induced inflammation model.

**Aim.** To perform the experimental study of the effect of Sinupret® extract on the course of leukotriene-dependent inflammation for substantiation of its use as a drug for pathogenetic therapy of rhinosinusitis.

**Methods.** 60 rats with zymosan-induced paw edema received Sinupret® extract once intragastrically at doses 15 – 500 mg/kg compared to Ibuprofen at 100 mg/kg. Anti-inflammatory activity was evaluated by digital plethysmometer after 0.5, 1, 2, 3 and 6 hours after pathology initiation.

**Results.** Sinupret® extract has statistically significant dose-dependent anti-inflammatory effect with a maximum activity within 1-3 hours of post-administration, and the degree of severity at doses of 150 and 500 mg/kg exceeds the Ibuprofen activity, and at 50 mg/kg is not inferior to comparator. ED50 of Sinupret® extract were 171.2 mg/kg at the 1st hour of observation, and 115.5 mg/kg – at the 2nd hour. It enables to recommend these doses for preclinical studies on models of leukotriene-determined pathology or for clinical practice with humans conversion factors.

**Conclusions.** Sinupret® extract has a pronounced effect on the leukotriene-dependent link of the pathogenesis of rhinosinusitis, and, consequently, a high rate of the pharmacological effects.

## STENTS IN ENDOSCOPIC CHOANAL ATRESIA REPAIR OF NEWBORNS AND CHILDREN: OUR EXPERIENCE AND REVIEW OF LITERATURE.

MD Axel Wolf<sup>1</sup>, MD Peter Valentin Tomazic<sup>1</sup>

<sup>1</sup>Medical University Graz, Graz, Austria

Paediatric Rhinology 3, Albert - Second Floor, April 25, 2018, 10:45 - 11:55

**Aim:** Although commonly used, the use of stents after endonasal, endoscopic choanal atresia (CA) and choanal stenosis (CS) repair is not clearly defined yet. The aim of this study was to evaluate surgical outcomes with and without postoperative stent application after endoscopic CA and CS repair.

**Methods:** The study included all patients under the age of 18 with diagnosed uni- and bilateral CA or CS treated at our department from 2001 to 2012 in a retrospective medical chart review. Furthermore, a literature review of 657 cases with uni- and bilateral CA or CS treated with an endonasal endoscopic approach was performed.

**Results:** In our experience, excellent postoperative results can be achieved with both, stent- (n=11/11, 100%) and non-stent (n=11/11, 100%) techniques. Literature review revealed higher primary patency rates in the non-stent group (n=86/104, 83%) compared to the stent group (n=371/553, 67%, p=0.002).

**Conclusion:** Due to these results and possible stent associated complications choanal stenting should not be considered routinely and should be very carefully indicated for the individual case only.

## SURGICAL APPROACHES FOR PARANASAL SINUS OSTEOMA RESECTION.

MD Axel Wolf<sup>1</sup>, MD Peter Valentin Tomazic<sup>1</sup>

<sup>1</sup>Medical University Graz, Graz, Austria

Rhinology Potpourri 2, Victoria - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:** Osteomas are benign tumours that primarily occur at the skull, in particular the paranasal sinus system. Surgical tumor resection is the 'gold standard' treatment in symptomatic osteomas. The aim of this study was to report our experience of the use of different surgical approaches (endoscopic, open, combined).

**Methods:** This retrospective, single centre study included all patients that underwent surgical resection of paranasal sinus osteomas between 2001 and 2015 at our department.

**Results:** 58 patients (31m, 27f, 42.1±15.3 years) were included in this study. In the majority of cases (n=29, 50%) endoscopic, endonasal approaches were used for tumor resection while open (n=11, 18.9%) or combined (n=18, 31.0%) approaches were used in the rest of the cohort. Open or combined approaches were used in patients suffering from osteomas localized in the maxillary of frontal sinuses only.

**Conclusion:** In our experience, about half of our cases tumour resection was possible using endoscopic, endonasal approaches only. If indicated, external approaches should be combined with endoscopic approaches in order to provide optimal functional outcome regarding the drainage of the paranasal sinus system.

## GUSTATORY FUNCTION IN PATIENTS WITH CHRONIC RHINOSINUSITIS

**MD Axel Wolf<sup>1</sup>**, MD Bertold Renner<sup>2</sup>, MD Peter Valentin Tomazic<sup>1</sup>, MD Christian A. Mueller<sup>3</sup>

<sup>1</sup>Medical University Graz, Graz, Austria, <sup>2</sup>University of Erlangen-Nuernberg, Erlangen, Germany, <sup>3</sup>Medical University Vienna, Vienna, Austria

Smell and Taste 2, Burton & Redgrave - Second Floor, April 26, 2018, 10:45 - 11:55

**Objectives:** Recent research has shown that taste receptors in airway epithelial cells are involved in defending against upper respiratory tract infection. The aim of the present study was to investigate gustatory function in patients with chronic rhinosinusitis (CRS).

**Methods:** Taste function was assessed using the extended 'taste strip' test in 37 patients with CRS (20 males, 17 females; mean age 32.1 years, range 20 to 82 years) and 135 healthy controls (70 males, 65 females; mean age 29.5 years, range 18 to 84 years).

**Results:** The mean ( $\pm$ SD) total extended taste score was 12.8 ( $\pm$ 3.5) in patients and 14.5 ( $\pm$ 3.2) in controls. Analysis of variance indicated an interaction of sinusitis and gender ( $p < 0.05$ ) with significantly lower total scores and significantly poorer results for the bitter taste among male patients compared to controls ( $p < 0.01$ ). In addition, CRS patients exhibited a trend towards decreased sweet taste perception compared to controls, but this did not reach significance ( $p = 0.051$ ).

**Conclusions:** Patients with CRS exhibited decreased gustatory function compared to healthy controls. The effect was most pronounced for bitter taste. Thus, the assessment of gustatory function seems to be useful for detecting potential risk factors for recurrent upper respiratory tract infection.

## REVIEW OF MEDICAL AND SURGICAL INTERVENTION FOR RECURRENT ACUTE RHINOSINUSITIS IN ADULTS

Mrs Aileen Lambert<sup>1</sup>, Dr Ayla Tabakert<sup>1</sup>, Ms Catherine Rennie<sup>1</sup>, Mr Hesham Saleh<sup>1</sup>

<sup>1</sup>Imperial College Healthcare NHS Trust, London, United Kingdom

Acute Rhinosinusitis 1, Burton & Redgrave - Second Floor, April 23, 2018, 12:05 - 13:15

### Aims

Recurrent acute rhinosinusitis (RARS) has been recently recognised as a distinct disease phenotype and involves recurrent episodes (each lasting < 12 weeks) of acute rhinosinusitis with complete resolution of symptoms between episodes.

There is a need to identify optimal therapy for patients with RARS because it differs significantly from isolated acute bacterial rhinosinusitis (ABRS) episodes alone. This systematic review aims to equip clinicians with the best available evidence for RARS treatment.

### Methods

We have undertaken a systematic review of randomised and non-randomised trials, cohort and case-control studies involving adults only with a minimum follow-up of six months. Outcome measures included, but were not limited to, radiological scoring systems and patient-reported health questionnaires.

### Results

Medical interventions reported include oral antibiotics, oral and intranasal steroids, and saline nasal irrigation in both the setting of treatment of active episodes and prevention of recurrence.

Surgical intervention reported for RARS involves endoscopic sinus surgery.

Our review identified that the number of studies meeting our inclusion criteria, and the number of patients contained within those, were both small. Data from comparative or prospective studies were very limited.

### Conclusion

RARS is often treated with more courses of antibiotics than ABRS and has estimated annual costs of US\$1100 per patient, not taking into account reduced productivity from lost work-days.

Optimal treatment protocols for RARS have not yet been established. This focused review of treatment is a useful summary of current available evidence and highlights the need for more dedicated research into this condition.

## ASSESSING CHRONIC RHINOSINUSITIS BURDEN WITH SIMPLE VAS SCORES

**MD Maria Doulaptsi<sup>1,2</sup>**, Asst Prof Emmanuel Prokopakis<sup>2</sup>, Dr. Brecht Steelant<sup>1</sup>, Dr. Sven Seys<sup>1</sup>, Prof. Peter Hellings<sup>1,3</sup>

<sup>1</sup>*Clinical Immunology, Department of Microbiology and Immunology, KU Leuven, Leuven, Belgium*, <sup>2</sup>*Department of Otorhinolaryngology, University of Crete Medical School, Heraklion, Crete, Greece*, <sup>3</sup>*Clinical Department of Otorhinolaryngology, Head and Neck Surgery, University Hospitals Leuven, Leuven, Belgium*

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

**Aims:** To investigate the reliability of VAS scores on assessing Chronic Rhinosinusitis (CRS) specific burden, correlating VAS scores with the SNOT-22 questionnaire.

**Methods:** A postal questionnaire was sent to a randomly selected group of 180 patients diagnosed and treated for CRS, in Clinical Department of Otorhinolaryngology, Head and Neck Surgery, University Hospitals Leuven, Belgium. Subjects were asked to give information about their sino-nasal disease, their medical and surgical history, profession, and score their symptoms using VAS. Additionally, they all completed the SNOT-22 questionnaire.

**Results:** A total of 180 CRS patients (response rate of 62 %) completed the VAS symptom severity score, together with the SNOT-22 questionnaire. Pearson's  $\chi^2$  test was applied for exploring association in bivariate discrete variables. Pearson's rhotest was used to explore the association between two continuous variables. A statistically significant correlation between SNOT-22 and VAS scores ( $p < 0.001$ ) was shown for Total Nasal Symptom Score (TNSS) and individual symptoms. The maximum value of Pearson's rho was  $r = 0.655$ ,  $p < 0.001$  for VAS-TNSS and the minimum value was  $r = 0.301$ ,  $p < 0.001$  for VAS-Loss of smell and SNOT-22 score. Categorization of VAS individual scores into subgroups based on symptoms origin (sino-nasal, ocular, bronchial), did not alter the above association. VAS for sino-nasal symptoms showed stronger correlation with SNOT-22 ( $r = 0.738$ ,  $p < 0.001$ ), followed by bronchial ( $r = 0.683$ ,  $p < 0.001$ ), and ocular symptoms ( $r = 0.559$ ,  $p < 0.001$ ).

**Conclusion:** VAS scores correlate well with the SNOT-22 score in CRS cases. VAS scores can be easily used in clinical practice and e-health tools technology to assess the burden of this disease.



## GRADING SCALE FOR HHT ASSOCIATED EPISTAXIS

Dr. Sinan Dheyauldeen<sup>1</sup>

<sup>1</sup>*Oslo University Hospital-rikshospitalet, Oslo, Norway*

HHT 1, Epistaxis 2 and GPA 1, Gielgud - Second Floor, April 25, 2018, 10:45 - 11:55

### Introduction:

Different institutions are using different grading systems for HHT associated epistaxis. It is important to have a common grading system to compare and evaluate the effectiveness of different treatment options. We introduced the “Intensity, Frequency and blood Transfusion” (IFT) grading system for HHT associated epistaxis in 2008. Hoag et al proposed the “Epistaxis Severity Score” (ESS) grading system for the International HHT foundation I 2010.

### Amis:

The aim of this work was to compare the IFT and ESS systems.

### Methods:

262 IFT and ESS score were reported simultaneously from 74 patients during the period from 2011 to 2017. Pearson’s correlation coefficient was used to compare the IFT and ESS scores and different components of each.

### Results:

The IFT and ESS showed strong correlation ( $r=0,809$ ,  $p$ -value  $0,000$ ). In addition, the (F) value of the IFT system, and the first component of the ESS score, both reflecting the frequency of the epistaxis episodes, were strongly correlated ( $r=0,640$ ,  $P$ -value= $0,000$ ). Furthermore, the (I) value in the IFT score, representing the “intensity” of the epistaxis, and the second component in the ESS score, which represent the duration of the episodes, were also correlated ( $r=0,582$ ,  $p$ -value= $0,000$ ).

### Conclusions:

Both IFT and ESS scores reflect the severity of HHT associated epistaxis equally.

## BEVACIZUMAB IN HEREDITARY HEMORRHAGIC TELANGIECTASIA-ASSOCIATED EPISTAXIS: EFFECTIVENESS OF AN INJECTION PROTOCOL BASED ON THE VASCULAR ANATOMY OF THE NOSE

Doctor Johan Steineger<sup>1</sup>, Doctor Sinan Dheyauldeen<sup>1</sup>

<sup>1</sup>*Oslo University Hospital - Rikshospitalet, Oslo, Norway*

HHT 1, Epistaxis 2 and GPA 1, Gielgud - Second Floor, April 25, 2018, 10:45 - 11:55

**Aims:** The aim of this work is to describe our method and experience in treating HHT associated epistaxis with intranasal injections of bevacizumab.

**Methods:** Patients who were treated for HHT associated epistaxis with intranasal injection of bevacizumab between May 2011 and December 2017 were included. The main indication for this treatment was the lack of clinical benefit of other treatment modalities (laser, argon-plasma diathermy or septal-dermoplasty). A total dose of 200 mg bevacizumab was injected submucosally, 100 mg on each side. The injection sites were the sphenopalatine area, upper part of bony septum, upper part of the later nasal wall, and the anterior part of nasal floor. No cauterizations or laser therapy were done during or after the procedure.

**Results:** Forty-two HHT patients were treated with intranasal bevacizumab injection during the above mentioned period. The total number of treatments was 267. Improvement in the epistaxis severity was reported in the majority of the patients. The duration of effect of the treatment varies among patients (mean=6 ± 3,4 months, Range= 1-24 months). Four patients did not show any beneficial effect of repeated intranasal bevacizumab injections. No local adverse effects were observed, but one patient developed osteonecrosis in both knees.

**Conclusions:** Intranasal bevacizumab injection is an effective treatment for most of the moderate and severe grades of HHT-associated epistaxis. Restricting the injection to 4 sites in each nasal cavity enables the treatment to be performed in local anesthesia with sedation.

## QUALITY OF LIFE IS SIGNIFICANTLY IMPAIRED IN NON-ALLERGIC RHINITIS PATIENTS

Drs. Christine Segboer<sup>1</sup>

<sup>1</sup>*Academic Medical Centre Amsterdam, Amsterdam, Netherlands*

Rhinitis 1, Gielgud - Second Floor, April 24, 2018, 12:05 - 13:15

**Background and aims:** In contrast to the well-known significant impairment of quality of life (QoL) in allergic rhinitis (AR), the degree of impairment in QoL in non-allergic rhinitis (NAR) remained unknown for a long time, due to a lack of a validated questionnaire to assess QoL in the NAR patient group.

In this study a validation for the mini-RQLQ questionnaire in NAR patients was performed, followed by an assessment of QoL in NAR patients compared to AR and healthy controls.

Secondly, use of medication and treatment satisfaction in AR and NAR was assessed.

**Methods:** The study was an observational cohort study in 287 AR and 160 NAR patients.

Patients with symptoms of rhinitis were recruited from a tertiary care outpatient clinic of the Otorhinolaryngology Department. AR was defined as one or more positive results on skin prick testing and clinically relevant symptoms of rhinitis related to their sensitization. NAR was defined as clinically relevant symptoms of rhinitis but without positive results on skin prick testing.

The mini-RQLQ was successfully validated in this study for NAR patients.

**Results:** QoL in NAR patients was equally -and for some aspects even more- impaired compared to AR. More than half of both AR and NAR patients were unsatisfied with treatment.

**Conclusion:** These results demonstrate a significant impairment in both AR and NAR patients in their QoL combined with a low treatment satisfaction, emphasizing the need for adequate treatment, especially in the NAR patient group.

## PATTERNS OF OLFACTORY IMPAIRMENT REFLECT UNDERLYING DISEASE ETIOLOGY

**Miss Katherine L Whitcroft<sup>1</sup>**, Dr Mandy Cuevas<sup>2</sup>, Prof Antje Haehner<sup>2</sup>, Prof Thomas Hummel<sup>2</sup>

<sup>1</sup>*UCL (Ear Institute), London, United Kingdom, <sup>2</sup>TUD, Dresden, Germany*

Smell and Taste 2, Burton & Redgrave - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:** We aimed to determine whether the pattern of olfactory impairment seen in psychophysical testing reflects underlying disease etiology.

**Methods:** We performed a retrospective cohort analysis of 1226 patients. Only hyposmic patients with the following conditions were included: post-infectious hyposmia, posttraumatic hyposmia, hyposmia secondary to sinonasal disease and hyposmia secondary to Parkinson's disease. Patients with anosmia were excluded.

**Results:** Using a repeated measures ANOVA (within subject factor 'test' (threshold, discrimination, identification), between subject factor 'etiology') with post-hoc Bonferroni corrected t-tests, we found a significant interaction between the factors 'test' and 'etiology' ( $F_{6,2444}=8.46$ ,  $p<0.001$ ). This indicates that different causes of hyposmia produce different patterns of olfactory loss with respect to the individual subtests threshold, discrimination and identification. Specifically, patients with Parkinson's disease performed relatively well in odor threshold testing, but poorly in odor identification and discrimination, compared with the other etiology groups. Conversely, patients with sinonasal disease performed well in odor identification and discrimination but poorly in odor threshold testing. Patients with post-infectious and posttraumatic hyposmia performed relatively well in both thresholds and discrimination, but poorly in identification. However, patients with posttraumatic hyposmia had globally reduced scores compared with the other groups.

**Conclusions:** This is the first study to comprehensively show that patterns of olfactory impairment reflect underlying disease etiology. We would suggest that multi-component olfactory testing should be performed, especially where there is diagnostic uncertainty.

## MONITORING OLFACTORY FUNCTION IN CHRONIC RHINOSINUSITIS AND THE EFFECT OF DISEASE DURATION ON OUTCOME

Miss Katherine Whitcroft<sup>1</sup>, Dr Mandy Cuevas<sup>2</sup>, Mr Peter Andrews<sup>3</sup>, Prof Thomas Hummel<sup>2</sup>

<sup>1</sup>*UCL Ear Institute and Technische Universität Dresden, London, United Kingdom*, <sup>2</sup>*Technische Universität Dresden, London, UK*, <sup>3</sup>*Royal National Throat Nose and Ear Hospital, London, UK*

CRS Outcomes 2, Burton & Redgrave - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims:** Our primary aim was to determine which of the “Sniffin’ Sticks” subtest components (threshold, discrimination or identification) best reflect overall change in olfactory function during treatment for chronic rhinosinusitis (CRS). Our secondary aim was to determine whether duration of CRS affects olfactory outcomes after treatment.

**Methods:** A retrospective cohort study was performed. “Sniffin’ Sticks” test scores from patients medically treated for CRS at our centre, from 1999 to 2016 were analyzed. Only patients with two test scores available were included.

**Results:** Results from 408 patients were included (mean age 56 years, M:F=217:191). There was a statistically significant improvement in threshold, discrimination and identification scores as well as composite ‘TDI’ score between the two testing sessions. Controlling for age, there was a significantly greater improvement in composite TDI score in patients with CRS of  $\leq 24$  month’s duration. As expected, we found statistically significant correlations between change in overall composite TDI score and change in threshold, discrimination and identification, between sessions. Of the individual subcomponents, change in discrimination correlated best with change in composite TDI score ( $r=0.82$ ,  $p<0.0001$ ). This relationship was maintained irrespective of duration of CRS.

**Conclusions:** In patients with CRS, odour discrimination appears to best reflect overall changes in olfactory function, as determined using the composite ‘TDI’ score. Furthermore, olfactory outcomes are better when treatment is started sooner.

PROGNOSTIC VALUE OF NASAL CYTOLOGY IN THE OUTCOME OF FUNCTIONAL ENDOSCOPIC SINUS SURGERY (FESS) FOR CHRONIC RHINOSINUSITIS PATIENTS.

**Dr Eugenio De Corso**<sup>1</sup>, Dr Antonio Salvati<sup>1</sup>, Dr Silvia Baroni<sup>2</sup>, Dr Carla De Vita<sup>1</sup>, Dr Matteo Romanello<sup>1</sup>, Dr Laura Tricarico<sup>1</sup>, Dr Giampiero Salonna<sup>1</sup>, Dr Mario Rigante<sup>1</sup>, Prof. Jacopo Galli<sup>1</sup>, Prof. Gaetano Paludetti<sup>1</sup>  
<sup>1</sup>Department of Head and Neck surgery, ENT institute, A. Gemelli Hospital Foundation, Rome, Italy, <sup>2</sup>Department of Diagnostic and Laboratory Medicine, Institute of Biochemistry and Clinical Biochemistry, Catholic University School of Medicine and Surgery, Rome, Italy

CRS Outcomes 1, Victoria - Second Floor, April 23, 2018, 10:45 - 11:55

**Aim:** to verify if high-grade mucosal inflammation may result in poor FESS outcomes with worse prognosis and higher recurrence risk. **Methods:** We enrolled 64 patients that underwent FESS for chronic rhinosinusitis with nasal polyps at A.Gemelli Hospital Foundation-Rome(January2016-July2017). We determined kind and grade of inflammation by nasal cytology performed routinely with nasal endoscopy preoperatively, at 3,6,9 and 12 months after surgery. Patients underwent post-operatively saline and nasal topical corticosteroids(mometasone furoate). Based on the results of nasal cytology, patients were divided into four groups: neutrophilic inflammation(n=10)(A), eosinophilic one(n=22)(B), mixed eosinophil-mastcell(n=10)(C) and mixed eosinophil-neutrophils(n=20)(D). **Results:** we demonstrated by Kaplan-Meyer's function that cumulative probability of remaining 12-months free of inflammation after FESS at 3,6,9,12 months was 0.9-0.8-0.6-0.4. Nasal inflammation control was achieved in 30/64 patients(46.9%) during the 12-months follow-up. In the remaining 53.1%, despite local therapy, inflammation reappeared in an average time of 5.8 months. Based on the Endoscopic-Sinus-Score 20/64 patients(31.2%) had a score of>5 indicative of endoscopic signs of disease re-activation such as secretions, oedema, and micro-polyps. Cumulative probability of remaining 12-months free of inflammation was higher in the A and B subgroups(60%vs58.3%)(p<0.05) than in the C and D(40%vs22.5%)(p <0.05). We observed a pre-operative higher percentage of nasal eosinophilic infiltration in patients without a good control of inflammation(41.25%vs32.85%)(p<0.05) and in patients with re-positive endoscopic inflammatory signs(51%vs40%)(p<0.05) whereas preoperative neutrophilic inflammation was not predictive. **Conclusions:** our data confirmed the prognostic role of nasal cytology in FESS outcomes and in particular that kind and grade of inflammation were important predictors of outcome.

## PHOTOTHERAPY IN ALLERGIC RHINITIS

Doctor Sorin Baschir<sup>1</sup> drd Radmila-Anca Bugari<sup>1</sup>

<sup>1</sup>*Vasile Goldis Western University Arad Romania, Arad, Romania*

Allergic Rhinitis 1, Victoria - Second Floor, April 23, 2018, 12:05 - 13:15

**Study Objectives:** The main objective is to study phototherapy in the treatment of allergic rhinitis compared with placebo therapy. We want to apply an effective therapeutic method, a safe one, without notable side effects, cheaper, which improve the health of our patients, and quality of their life.

**Methods:** It was a multicenter randomized study, investigating the effect of placebo controlled rinofototherapy, for a total of 187 patients who met the criteria for inclusion / exclusion. Rinofototherapy effect was investigated: nasal flow (rinomanometry) and individual scores for subjective and objective symptoms.

**Results:** patients treated with phototherapy = 65, placebo = 32 patients treated. Evolution lot phototherapy: very good - 67% improvement, good improvement - 28%, 5%-unfavorable evolution. Analyzing the placebo treated group: good results-10%, 43% moderate-improvement, evolution-47% unfavorable.

**Conclusions:** phototherapy is an effective therapeutic method to treat patients with allergic rhinitis, is a well tolerated therapy, with minor side effects, easy to implement and monitor.

**Keywords:** rinofototherapy, allergic rhinitis, rinomanometry.

## THE ACCEPTABILITY AND TOLERABILITY OF NASAL DOUCHING IN CHILDREN WITH ALLERGIC RHINITIS: A SYSTEMATIC REVIEW

Mr Nelson Gutierrez-Cardona<sup>2,4</sup>, Dr Morad Faoury<sup>1,3,4</sup>, Miss Paula Sands<sup>2,4</sup>, Professor Graham Roberts<sup>1,2,3,4</sup>, Professor Jane Lucas<sup>1,2,3,4</sup>, Dr Woolf Walker<sup>1,3,4</sup>, Professor Rami Salib<sup>1,2,3,4</sup>, Mrs Andrea Burgess<sup>1,3,5</sup>, Mrs Hasnaa Ismail-Koch<sup>1,2,3,4</sup>

<sup>1</sup>Southampton Children's Hospital, Southampton, United Kingdom, <sup>2</sup>MSc Allergy, Southampton, UK, <sup>3</sup>University Hospital Southampton, , UK, <sup>4</sup>University of Southampton, , UK, <sup>5</sup>Royal Hampshire County Hospital , Winchester, UK

Allergic Rhinitis 1, Victoria - Second Floor, April 23, 2018, 12:05 - 13:15

### AIMS:

Allergic rhinitis (AR) is a significant issue in children. Treatment options include allergen avoidance, pharmacotherapy and immunotherapy. The use of nasal saline douching (NSD) in children has recently gained acceptability. A systematic review was undertaken to assess the data available regarding the acceptability and tolerability of NSD in children with AR.

### METHODS:

A search was conducted using Medline and Embase databases from January 1946 until June 2015 on the use of NSD in children aged 4-12 years with AR. All publications identified that assessed the beneficial effects, acceptability and tolerability were included.

### RESULTS:

40 studies were analyzed. Data varied considerably in terms of saline solutions used, modality of application, participant numbers, study design, follow up and outcomes. Factors that appear to influence the acceptability and tolerability of NSD include parental and health professionals' preconceptions, and characteristics of the solution.

### CONCLUSIONS:

Nasal saline douching appears to be effective, being accepted and tolerated in the majority of children (78-100%). NSD has a significant positive impact on the quality of life in children with allergic rhinitis. When used as an adjunctive treatment having mainly a cleansing property, NSD potentiates the effects and may reduce the dose required of AR medications. Among the principal factors that influence the acceptability and tolerability of NSD are the child's age, delivery system and method, and tonicity. Nasal saline douching provides an accessible, low cost, low morbidity, easy to use treatment in children with allergic rhinitis.



## TISSUE EOSINOPHILIA PARAMETERS IN CHRONIC RHINOSINUSITIS WITH NASAL POLYPS: WHICH ONE IS RELIABLE?

**Mrs Mariah Reis<sup>1</sup>**, Mrs Mariana Toro<sup>1</sup>, PhD Eulália Sakano<sup>1</sup>, PhD Maíra Assumpção<sup>1</sup>, PhD Marcelo Sampaio<sup>1</sup>  
<sup>1</sup>*State University of Campinas-UNICAMP, Campinas, Brazil*

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

**Background:** Chronic rhinosinusitis is classified in chronic rhinosinusitis with (CRSwNP) or without nasal polyps (CRSsNP). In CRSwNP the categorization in eosinophilic (ECRS) or non-eosinophilic (non-ECRS) is also established. Thereby, accurate tissue identification in CRSwNP is an important step for its definition. This study aimed, through a systematic review, to identify and analyze the tissue eosinophilic parameters for ECRS diagnosis used worldwide.

**Methods:** Systemic review of literature according to the PRISMA method was performed to assess the different criteria used worldwide for tissue eosinophilia definition in CRwNP. Main eligibility criteria were: studies in the last 25 years that classified ECRS or non – ECRS according to the tissue eosinophilia presented in their defined method. “Nasal polyps and/or eosinophilia”, “tissue and/or eosinophilia” and “cell or tissue eosinophilia count” were the keywords searched in three databases: Scielo, PUBMED and Embase.

**Results:** From 457 articles identified, thirty were included in this review. In the main studies selected, five defined tissue eosinophilia cutoff as 5 eosinophil count per high power field (HPF), four as 10, one as 20 and another as 70. Two others considered more than 100. Seventeen further studies were included, even if no precise method for eosinophilia definition was evidenced.

**Conclusion:** Definition for ECRS is found in literature as tissue eosinophilia count per HPF with a variation from 5 to more than 100 eosinophils- data that leads us to the inference that a reliable and standardized parameter for eosinophil counting is still necessary for an exact ECRS diagnosis and treatment definition worldwide.

## SINONASAL INVERTING PAPILOMA: THE WEST OF SCOTLAND EXPERIENCE

Mr Chris Slinger<sup>1</sup>, Mr Rishi Sharma<sup>1</sup>, Mr Gerry McGarry<sup>1</sup>

<sup>1</sup>*Glasgow Royal Infirmary, Glasgow, United Kingdom*

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

**Background/Objectives:** Inverting papilloma (IP) is a rare but serious condition affecting the nose and paranasal sinuses.

**Study Design/Methods:** Retrospective chart review of all cases of IP treated in a tertiary referral centre between May 2004-September 2015. Basic demographic data was recorded. Other parameters included mortality, disease free interval, recurrence, tumour stage at presentation, subsites of disease and modality of surgical removal.

**Results:** 62 patients (21 female/40 male) were identified with an average age of 55.1years. 1 death due to malignant transformation to SCC and intracranial invasion. 59 cases treated endoscopically. 2 cases treated with open resection. 2 recurrences requiring revision surgery. All treated cases disease free at time of analysis. Krouse stage at time of referral T1 – 14, T2 – 19, T3 – 17, T4 – 4, unable to assess 7 (initial treatment from elsewhere).

**Conclusions:** Endoscopic resection is the mainstay of treatment and offers good control of disease (3% recurrence rate). Stage of disease should not dissuade from endoscopic control. Site/Stage does not appear to have bearing on recurrence.

## STUDY OF SINUPRET® EXTRACT EFFECTS ON BRONCHIAL PATENCY IN PATIENTS WITH PURULENT RHINOSINUSITIS

Dr. Svitlana Yaremchuk<sup>1</sup>

<sup>1</sup>*Ukrainian Oto-rhino-laryngological Society, Kiev, Ukraine*

Acute Rhinosinusitis 1, Burton & Redgrave - Second Floor, April 23, 2018, 12:05 - 13:15

Goal: Study of bronchial patency changes in patients with purulent and acute purulent rhinosinusitis polyposa.

Materials and methods: Group 1 (n=15) patients with acute purulent rhinosinusitis without polypous.

Group II (n=15) patients with acute purulent rhinosinusitis and polyposis.

Sinupret Extract was prescribed as a monotherapy (1 tablet 3 t.i.d. for 14 days).

Studied: rhinosinusitis symptoms and bronchial patency:

VC; FVC; FEV1, PEF, PIF.

Results and discussion:

Baseline: VC and FVC were normal in both groups. FEV1 was reduced (fig 1, 2) which was indicative of bronchial obstruction. A significant decrease in PEF and

PIF measures proved a presence of bronchial hyperreactivity in patients with rhinosinusitis.

15 days later: There were no complains of discharge, nasal breathing disturbance, and cough in group 1. The mentioned complains were present in 20 %, 33.3 % and 20 % of patients in group II respectively. FEV1 measures were 84±2 % in group 1 and 79±3 % in group II.

A significant increase ( $p \geq 0.05$ ) in PEF and PIF measures is indicative of bronchial patency recovery in patients with purulent rhinosinusitis after the treatment with Sinupret® Extract.

Conclusion: Use of Sinupret® Extract in purulent rhinosinusitis treatment improves not only nasal breathing, but also bronchial patency in this patient population.

## POST TRAUMATIC OLFACTORY DYSFUNCTION.

## HOW FREQUENT IS IT AND WHICH TRAUMA RELATED CHARACTERISTICS CAN PREDICT THE OLFACTORY OUTCOME ?

**M.D. Mette Bratt**<sup>1</sup>, M.D, Ph.D Toril Skandsen<sup>2</sup>, M.D.,Ph.D Thomas Hummel<sup>3</sup>, MD,Ph.D Kent G. Moen<sup>4</sup>, MD,Ph.D Anne Vik<sup>5</sup>, M.D,Ph.D Ståle Nordgård<sup>6</sup>, Dr.Philos Anne-Sofie Helvik<sup>7</sup>

<sup>1</sup>Department of otorhinolaryngology, St Olav's University hospital, Trondheim, Norway, <sup>2</sup>Department of Physical Medicine and Rehabilitation, St Olav's University hospital, Trondheim, Norway, <sup>3</sup>Department of Otorhinolaryngology, Smell and Taste ClinicTU, Dresden, Germany, <sup>4</sup>Department of Medical Imaging, levanger Hospital, Nord-Trøndelag Hospital Trust, Levanger, Norway, <sup>5</sup>Department of Neuromedicine and Movement Science, Norwegian University of Science and Technology, Trondheim, Norway, <sup>6</sup>Department of otorhinolaryngology, St Olav's University hospital, Trondheim, Norway, <sup>7</sup>Department of Public Health and Nursing, Norwegian University of Science and Technology, Trondheim, Norway

Skull Base 2, Albert - Second Floor, April 24, 2018, 12:05 - 13:15

**Aim:** We wanted to assess factors associated with posttraumatic olfactory dysfunction in a follow-up of patients with moderate and severe traumatic brain injury (TBI). **Methods:** In a cross-sectional study of patients consecutively included in the Trondheim TBI database, eligible participants 18-65 years were contacted 9-104 months after the trauma. They were asked olfactory-related questions. Participants reporting possible posttraumatic change of olfaction were invited to further examination using the Sniffin' Sticks panel. **Results:** 182 participants took part in telephone interviews and 25 (14%) were diagnosed with olfactory dysfunction. In total 60% of those with olfactory dysfunction, that is 8% of all participants, had functional anosmia. In age-adjusted logistic regression analyses fall as cause of trauma ( $p=0.04$ ), and skull base fractures ( $p=0.02$ ) and cortical contusions ( $p=0.02$ ) due to trauma, were associated with olfactory dysfunction when they were olfactory tested in the chronic phase. In an analysis of functional anosmia, fall ( $p=0.04$ ) and cortical contusions ( $p=0.03$ ) were associated with the outcome. **Conclusion:** Of the study participants 14% had olfactory dysfunction and 8% of the study participants had functional anosmia. Higher age ( $p<0.001$ ), trauma caused by fall and CT displaying skull base fractures and cortical contusions at the time of trauma were related to olfactory dysfunction in the chronic phase.

## OLFACTORY FUNCTION BEFORE AND AFTER ENDOSCOPIC SINUS SURGERY

Dr. Julien Wen Hsieh<sup>1</sup>, Mrs. Marianne Hugentobler<sup>1</sup>, Prof. Jean-Silvain Lacroix<sup>1</sup>, Dr. Basile Landis<sup>1</sup>

<sup>1</sup>Rhinology-Olfactology Unit, Department of Otorhinolaryngology-Head and Neck Surgery, Smell and Taste Clinic, University of Geneva,, Geneva, Switzerland

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

### AIMS

Smell loss due to chronic rhinosinusitis with (CRS+P) or without polyps (CRS-P) is the most frequent type of smell disorder. This is mostly due to congestion preventing odorants from reaching the olfactory cleft and inflammation damaging the olfactory neuroepithelium. Medical management is the preferred treatment option. However, endoscopic sinus surgery is considered when medication treatments fail. Although CRS+P and CRS-P may behave differently, previous studies evaluated olfactory function before and after surgery but without distinguishing between the two conditions. We therefore decided to evaluate olfactory function in CRS+P and CRS-P before and after surgery independently.

### METHODS

A total of 212 patients suffering from CRS+P (n=92) or CRS-P (n=120) who underwent endoscopic sinus surgery were included. Olfactory thresholds for n-butanol were measured before and 3 months after surgery with the Sniffin' Sticks test battery.

### RESULTS

Mean olfactory threshold was  $7.45 \pm 0.24$  points for CRS-P and  $5.32 \pm 0.36$  points for CRS+P ( $P < 0.001$ ) preoperatively. There was significant improvement in both groups postoperatively ( $8.02 \pm 0.23$ ;  $P = 0.003$  for CRS-P and  $6.64 \pm 0.35$ ;  $P < 0.0001$  for CRS+P). The improvement rate was 58% and 52% in CRS-P and CRS+P patients, respectively.

### CONCLUSIONS

These results suggest that CRS+P has a more detrimental effect on olfactory thresholds than CRS-P. In over 50% of the patients in both groups, surgery does improve olfactory thresholds. However, olfactory threshold remains unchanged or becomes even worsen in more than one third of the patients. This confirms previous work and clinical experience that it is difficult to predict and guarantee olfactory improvement after endoscopic sinus surgery.

## CAN THE MANAGEMENT OF DIVERSE SINONASAL MALIGNANCIES BE UNIFIED?

Dr. Ryan, Hung Wai Cho<sup>1</sup>, Dr. Samuel MW Chow<sup>1</sup>, Dr. Dennis LY Lee<sup>1</sup>, Dr. Eric CH Tang<sup>1</sup>, Dr. Eddy WY Wong<sup>1</sup>, Prof. Alexander C Vlantis<sup>1</sup>

<sup>1</sup>*The Chinese University of Hong Kong, Hong Kong, Hong Kong*

Sinonasal Malignancy 1, Albert - Second Floor, April 23, 2018, 10:45 - 11:55

### Aim:

To assess if a unified approach to the management of a diverse spectrum of histopathology that occurs in the nasal cavity and paranasal sinuses was pragmatic.

### Methods:

The medical records of patients treated for sinonasal malignancies at multiple institutions in Hong Kong between 2000 and 2017 were reviewed for histology, site, treatment, and patient demographics. Survival data was calculated using Kaplan-Meier curves.

### Results:

Ninety two patients who met the search criteria were reviewed. The median age at diagnosis of 50 males and 42 females was 59 years (range 22 to 94 years). There were 18 histological types. The six most common histologies were olfactory neuroblastoma / neuroendocrine carcinoma (n=17), NK/T-cell lymphoma (n=14), squamous cell carcinoma (n=12), poorly differentiated carcinoma (n=11), sinonasal undifferentiated carcinoma or undifferentiated carcinoma (n=10) and malignant melanoma (n=9).

Excluding lymphoma cases, 50/75 (66.7%) of patients underwent primary surgery with 40/50 (80%) of them receiving postoperative radiotherapy.

The 5-year overall survival rate for these patients ranged from 17.3% to 68.1%. Patients with olfactory neuroblastoma had the best survival.

### Conclusion:

Malignant neoplasms of the sinonasal tract encompass a wide variety of histopathologies. Due to the rarity of each tumour subtype and the lack of large cohort studies to suggest standardised treatments, this study assessed whether our current unified management approach of surgery with adjuvant radiotherapy was reasonable. We found this approach to be pragmatic. Collaborative multi-centre prospective studies are needed to understand the natural history of these rare malignancies to help guide future treatment approaches and prognosis predictions.

## AN 18 YEAR ANALYSIS OF 970 ENDOSCOPIC DACROCYSTORRHINOSTOMIES.

Mr Omar Mulla<sup>1</sup>, Mr Paul Harkness<sup>1</sup>

<sup>1</sup>*Rotherham General Hospital, Rotherham, United Kingdom*

Lacrimal Surgery 1, Gielgud - Second Floor, April 24, 2018, 14:45 - 16:15

### Introduction

The original intranasal dacryocystorhinostomy (DCR) approach was described in 1893 by Caldwell and the external approach in 1904 by Toti. The technique has evolved over the past 100 years.

Numerous modifications have been introduced to the endoscopic technique over the past 20 years with the use of powered instruments, laser and the preservation of the mucosal flap

We discuss the results and learning curve of single surgeon over a 17 year period totalling 970 endoscopic dacryocystorhinostomies.

### Methods

Patients were assessed in an epiphora clinic. Those with nasolacrimal obstruction proven on irrigation were offered endonasal endoscopic DCR.

Surgery was performed by a single ENT surgeon with a standardised technique. Patients were seen in clinic at 3 months and then a telephone call at 6 months. Patients graded their success using a visual analogue scale. Those below 70%. A random selection of patients were called to ensure any data assumptions are correct.

### Results

970 endoscopic dacryocystorhinostomies have been performed. Of which 150 were revision procedures and 150 were performed under local anaesthetic. The success rate has improved year on year and within the last calendar year was approximately 92% for primary procedures. A success rate for revision procedures local anaesthetic procedures was 72% and 83% respectively.

9 unexpected tumours were found during surgery.

### Discussion

This is the largest UK single surgeon case series documented and mirrors recent systematic reviews in terms of outcome.

### Conclusions

Endoscopic DCR is a safe and effective procedure for lacrimal obstruction and epiphora.

## PROTOCOLS TO EVALUATE ANATOMIC DIMENSIONS OF SINUSES AND SKULL BASE IN AN EPIDEMIOLOGICAL MRI COHORT

**PD Dr. Achim Beule**<sup>1,2</sup>, Prof. Henry Völzke<sup>2</sup>, Dr. Sinje Timm<sup>2</sup>, Dr. Anne Caspar<sup>2</sup>, Prof. Dr. Werner Hosemann<sup>2</sup>, Prof. Dr. Soenke Langner<sup>3</sup>

<sup>1</sup>University Clinic Münster, Münster, Germany, <sup>2</sup>University Clinic Greifswald, Greifswald, Germany, <sup>3</sup>University Clinic Rostock, , Germany

Imaging and Investigations 1, Albert - Second Floor, April 23, 2018, 12:05 - 13:15

**Introduction:** Epidemiological data for rhinologic medical conditions are rare. In Germany, MRI have been undertaken as part of the study of Health in Pomerania (SHIP), evaluating a representative epidemiological cohort of the German Population in Mecklenburg Western Pomerania. Aim of this study was to measure endonasal and skull base dimensions.

**Methods:** Using the Freeware "Osirix", T1-weighted sequences of MRIs of the midface obtained in SHIP were studied and 43 different parameter including distances, volumes and angles of the skull base were evaluated in a 3D-setting. After development of a standardised protocol using 250 randomly chosen data sets, day-to-day and interobserver reliability was evaluated using Bland-Altman Plots.

**Results:** Dimensions measured included e.g. the distance between the nasal aperture and the carotid artery of the same side (on the right:  $75.6 \pm 5.5$  mm, on the left  $75.7 \pm 6.3$  mm). To the contralateral side the distances was on the right  $77.5 \pm 5.5$ mm (left:  $77.1 \pm 6.3$  mm). The distance between both internal carotid arteries at the level of the vertical segment was  $19,5 \pm 2,8$  mm. Re-Test-Reliability of the parameters above was high, but smaller distances and volumes tended to be of less reliability.

**Discussion:** Distances measured showed a tendency towards an asymmetry favoring the right side. With respect to skull base surgery, new robotic instruments may have a benefit of a position holding joint included at 7,5 cm distance.

**Conclusions:** Epidemiological data obtained from MRI may help to improve instrumentation in skull base surgery.



## SURGIHONEYRO™ - A NOVEL ANTIBIOTIC SPARING THERAPY FOR STAPHYLOCOCCUS AUREUS RELATED BIOFILM INFECTIONS

**Mr Ali A Salamat<sup>1,2</sup>**, Dr Ray N Allan<sup>3,4</sup>, Dr Sylvia LF Pender<sup>1,4</sup>, Mr Rami J Salib<sup>1,4,5</sup>

<sup>1</sup>Academic Unit of Clinical and Experimental Sciences, University of Southampton Faculty of Medicine, Southampton, United Kingdom, <sup>2</sup>Otolaryngology Higher Surgical Training Programme, Wales Deanery, United Kingdom, <sup>3</sup>Biological Sciences and Institute for Life Sciences, University of Southampton, Southampton, United Kingdom, <sup>4</sup>Southampton NIHR Respiratory Biomedical Research Unit, University of Southampton and University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom, <sup>5</sup>Department of Otolaryngology / Head & Neck Surgery, University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom

CRS 1, Albert - Second Floor, April 24, 2018, 10:45 - 11:55

### Introduction

Staphylococcus aureus biofilms are associated with increased tolerance towards antibiotic treatment and have been implicated in the recalcitrance of chronic rhinosinusitis (CRS). EPOS recommends the use of Doxycycline or Clarithromycin in the medical therapy of CRS. Mupirocin, commonly used in MRSA decolonisation, has been suggested as a topical treatment following sinus surgery. SurgihoneyRO™, a honey-based product engineered to release reactive oxygen species, represents a promising alternative treatment. This study aimed to compare the efficacy of SurgihoneyRO™ to conventional CRS therapies in treating in vitro S. aureus biofilms.

### Methods

Established 48 hour in vitro biofilms formed by S. aureus strains isolated from CRS patients undergoing sinus surgery were treated with Doxycycline, Clarithromycin, Mupirocin or SurgihoneyRO™ for 24 hours. Biofilm viability was assessed by colony forming unit enumeration and validated using confocal laser scanning microscopy (CLSM). Biofilm structure and biomass were also assessed by CLSM.

### Results

A dose dependent reduction in biofilm viability was observed following Doxycycline treatment whereas Clarithromycin and Mupirocin failed to exhibit any anti-biofilm activity. SurgihoneyRO™ treatment, however, resulted in a 2-log reduction in biofilm viability. Adjuvant therapy with Doxycycline or Clarithromycin failed to ameliorate the anti-biofilm response.

### Conclusion

Our findings demonstrate that Clarithromycin and Mupirocin are ineffective in the treatment of established in vitro S. aureus biofilms, highlighting the urgent need to develop alternative therapeutic strategies. SurgihoneyRO™ represents a potentially promising antibiotic-sparing product for the management of S. aureus biofilm-mediated CRS and the decolonisation of nasal MRSA carriers.

## THREE DIMENSIONAL ANIMATION OF THE LACRIMAL PATHWAY: AN IMPORTANT GUIDE FOR ENDOSCOPIC DACRYOCYSTORHINOSTOMY

MD Paolo Farneti<sup>1</sup>, **MD Francesco Zappoli-Thyrion<sup>1</sup>**, Anna Riboldi<sup>2</sup>, MD Ernesto Pasquini<sup>3</sup>

<sup>1</sup>Bologna University Medical School – DIMES - Ear, Nose and Throat Unit of Sant'Orsola-Malpighi Hospital, Bologna, Italy, Bologna, Italy, <sup>2</sup>Riboldi Multimedia Studio, Bologna, Bologna, Italy, <sup>3</sup>Ear, Nose and Throat Metropolitan Unit, Surgical Department, AUSL Bologna, Bellaria Hospital, Bologna Italy, Bologna, Italy

Orbit and Lacrimal 2, Albert - Second Floor, April 25, 2018, 12:05 - 13:15

**Aims:** one of the indispensable requisites for approaching endoscopic sinus surgery is to be knowledgeable, not only regarding the normal and topographic anatomy of the nose and paranasal sinuses, but also of a new branch of anatomy, namely endoscopic anatomy. Aim of this project is to help the surgeon to mentally create a 3D image of the paranasal sinuses focusing our attention on the anatomic area of the lacrimal sac and duct. This could help any endoscopic surgeon to perform endoscopic dacryocystorhinostomy with greater confidence and fewer risks.

**Methods:** a detailed 3D reconstruction of the paranasal sinuses with particular attention to the lacrimal pathway, starting from computer tomography scans of a human skull, was realized using a professional 3D graphics software.

**Results:** starting from this model a short animation has been created highlighting the three-dimensional characteristics of this anatomical area with particular attention to the main landmarks for endoscopic surgery.

**Conclusions:** This is the first experience reported regarding this new technique of iconographic didactics applied to endoscopic sinus surgery and focused on the lacrimal pathway. The didactic objectives of this project can be integrated with the possibility of physically reconstructing the structures thus created with notable anatomic accuracy using modern three-dimensional printers or by presenting them under the form of video with framing and rotations in the various spatial. The use of modern technologies for 3D graphic is the new frontier of the anatomical iconography, which exceeds and complements the previous teaching techniques: drawings, pictures, anatomic section of specimens.

## ENDOSCOPIC ENDONASAL REPARATIVE TECHNIQUES OF BASI-CRANIUM DEFECTS: OUR EXPERIENCE AND SERIES

**MD Paolo Farneti**<sup>1</sup>, MD Francesco Zappoli-Thyrion<sup>1</sup>, MD Matteo Zoli<sup>3</sup>, MD Diego Mazzatenta<sup>3</sup>, MD Giorgio Frank<sup>3</sup>, MD Ernesto Pasquini<sup>2</sup>

<sup>1</sup>Bologna University Medical School – DIMES - Ear, Nose and Throat Unit of Sant'Orsola-Malpighi Hospital, Bologna, Italy, <sup>2</sup>Ear, Nose and Throat Metropolitan Unit, Surgical Department, AUSL Bologna, Bellaria Hospital, Bologna, Italy, <sup>3</sup>Center of surgery for pituitary tumors and endoscopic skull base surgery. Department of Neurosurgery - IRCCS Istituto delle Scienze Neurologiche, Bologna, Italy. , Bologna, Italy

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims:** to present our experience in diagnosis and endoscopic surgical repair of basi-cranium defects.

Endoscopic surgery can offer many advantages such as:

- a precise localization of the CSF leak under direct vision;
- the ability to perform an appropriate preparation of the CSF leak site and positioning of the reconstruction flaps;
- a lower morbidity rate especially if compared to other approaches such as the intracranial one.

In particular, considering this last aspect, it has modified the indications to a conservative treatment giving the chance to perform a surgical procedure in cases where, since few years ago, the surgical indication was doubtful.

**Methods:** in the period between June 1998 and February 2017, 185 endoscopic surgical operations for a basi-cranium CSF leak (spontaneous, post-traumatic or iatrogenic) have been performed. The proposed techniques are based on an accurate diagnostic work-up and the use of autologous materials with an algorithm based on the dural defect grade and site.

**Results:** the success rate at the first attempt has been of 97.3% with a mean follow up of 42 months.

**Conclusions:** according to our results, the trans-nasal endoscopic approach can be considered the gold standard among many different intra and extracranial techniques to repair basicranium CSF leaks. The high percentage of success, low morbidity and a very low mortality rate associated to the possibility to access anatomical sites which are normally difficult to be reached, have given to this technique more and more space in the ENT field.

## ALTERNATIVE TECHNIQUES OF MUCOSAL PRESERVATION IN FESS (3 STEP FESS)

Dr H.N UDAYABHANU<sup>1</sup>

<sup>1</sup>*Udaya Ent Clinic,INDIA,Fellow gruppootologico,Italy, Piacenza, Italy*

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

### Introduction

The formation of post-operative adhesions is perhaps the most frequent complication of endoscopic sinus surgery. These incidents may vary from trivial small strands of scar to serious obstructive situations that mandate revision surgery. This is a prospective comparative study of 76 patients with chronic rhino-sinusitis operated in our institution who were randomized into one of the two groups, one group underwent 3 Step FESS and the other conventional FESS with post op follow up for a minimum period of 6 months .

**Aim:**To subjectively and objectively compare the efficacy of 3-STEP FESS and CONVENTIONAL FESS.

**Methodology:**This is a comparative study done at our institution between January 2013 to September 2015 with a follow up period of 3 to 6 months on 76 patients with chronic rhino sinusitis who were randomized into one of the two groups (38 patients in each) one group underwent 3-step FESS and the other conventional FESS.

**Results:**The subjective assessment was ascertained by visual-analog scores and SNOT (SINO NASAL OUT COME TEST-22) questionnaire and objective assessment was done by nasal endoscopy. we found that 3-STEP FESS is more effective physiologic approach in treating chronic sinusitis. The anterior ethmoidal artery is protected by bulla. It prevents synechiae in middle meatus, decreases nasal crusting and more effective in improving the quality of life of patients.

**Conclusions:** 3-STEP FESS is a simplified, effective method of endoscopic sinus surgery in which preservation of the mucosa is the hallmark. The other advantages are avoids complications during FESS, and post operative repeated endoscopic cleaning can be avoided.

## MUCOSAL CAVERNOUS HEMANGIOMA OF THE MAXILLARY SINUS: ABOUT 3 CASES

Professor Philippe Eloy<sup>1</sup>

<sup>1</sup>CHU Ucl Namur, Yvoir, Belgium

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

### Introduction:

Soft-tissue hemangiomas are benign vascular tumors common in the head and neck region and rare in the sinonasal tract. Those originating in the sinus mucosa are extremely rare.

The authors report 3 cases of non osseous (mucosal) cavernous hemangioma (CH) originating in the maxillary sinus and managed successfully endonasally and endoscopically.

### Patients and method:

All the patients were referred to the ENT outpatient department for a persistent unilateral pansinusitis resistant to broad-spectrum antibiotics for one year. All of them complained of unilateral persistent nasal obstruction. One patient presented with nosebleeds. The sinus Ct scan revealed a complete opacification of the maxillary sinus extending into the ethmoid sinus.

MR images depicted an heterogeneous signal in both T1 and T2 sequences.

In one case the tumor was highly vascularized and required a preoperative selective arterial embolization. Complete resection via an endonasal endoscopic medial maxillectomy was performed successfully in all the cases. There was no history of severe intraoperative bleeding.

The pathologist confirmed the diagnosis of CH.

### Conclusion:

CH are rare in the sinonasal tract. However they must be considered in the differential diagnosis of benign and malignant sinonasal tumors in adults. An endonasal endoscopic medial maxillectomy seems to be the best surgical treatment to remove completely the tumor with an optimal control of its extensions and vascular supply. When nosebleeds are present, injection of a contrast agent and a preoperative arterial embolization are recommended.

## ENDOSCOPIC TRANSNASAL DACRYOCYSTORHINOSTOMY

MD Paolo Farneti<sup>1</sup>, MD Francesco Zappoli-Thyrion<sup>1</sup>, MD Giovanni Macrì<sup>1</sup>, MD Vincenzo Profazio<sup>2</sup>, MD Ernesto Pasquini<sup>3</sup>

<sup>1</sup>Bologna University Medical School – DIMES - Ear, Nose and Throat Unit of Sant'Orsola-Malpighi Hospital, Bologna, Italy, Bologna, Italy, <sup>2</sup>U.O. Oftalmologia Sant'Orsola-Malpighi Hospital Bologna, Bologna, Italy, <sup>3</sup>Ear, Nose and Throat Metropolitan Unit, Surgical Department, AUSL Bologna, Bellaria Hospital, Bologna Italy, Bologna, Italy

Orbit and Lacrimal 2, Albert - Second Floor, April 25, 2018, 12:05 - 13:15

**Aims:** The treatment of nasolacrimal duct stenosis can be performed with external and endonasal approaches. We evaluate the long-term results in patients who underwent an endonasal endoscopic approach for primary or revision surgery.

**Methods:** We report our experience of endoscopic transnasal dacryocystorhinostomy (DCR) from February 2000 to May 2015. We use to collaborate with the ophthalmologist during the operation. The ENT surgeon usually performs the intranasal access, removal of lacrimal bone and opening of the nasolacrimal sac. The ophthalmologist localizes the lacrimal punctum helping in the localization of the lacrimal sac and positioning the bicanalicular silicone stent when necessary. The stent is usually removed one month after the surgical operation.

During the selected period we performed 616 endoscopic dacryocystorhinostomy on 461 patients (554 eyes primarily treated).

**Results:** We analysed data from 599 eyes treated excluding 14 patients, which have gone lost to follow up. 470 (84.8%) out of 554 eyes primarily treated have been cured at first operation and 501 (90.4%) after revision surgery. Cases of restenosis have been treated with an endoscopic approach. There was no significant prevalence of side and a female predominance of 65%. A higher risk of restenosis has been found in patients who underwent revision surgery ( $p=0.0105$ ) but not in those cases where a power drill ( $p=0.0814$ ) or no stent ( $p=0.4600$ ) have been used.

**Conclusions:** Endoscopic dacryocystorhinostomy is a safe, easy to perform surgical operation with a good percentage of success compared to other kind of approaches both for primary and revision surgery.

## SILENT SINUS SYNDROME AND MAXILLARY SINUS ATELECTASIS

**Md Paolo Farneti**<sup>1</sup>, MD Francesco Zappoli-Thyrion<sup>1</sup>, MD Francesco Crocetta<sup>1</sup>, MD Giovanni Macri<sup>1</sup>, MD Vittorio Sciarretta<sup>1</sup>, MD Ernesto Pasquini<sup>2</sup>

<sup>1</sup>*U.O. Otorinolaringoiatria Sant'Orsola-Malpighi Hospital Bologna, Bologna, Italy*, <sup>2</sup>*Ear, Nose and Throat Metropolitan Unit, Surgical Department, AUSL Bologna, Bellaria Hospital, Bologna Italy, Bologna, Italy*

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

**Aims:** Silent sinus syndrome (SSS) and chronic maxillary atelectasis (CMA) are unusual conditions with subtle symptoms and a possible progressive evolution. They consist in a maxillary sinus hypoplasia which could lead to a spontaneous enophthalmos and hypoglobus (with or without symptoms of chronic sinusitis).

**Purpose** of this study is to present our experience in diagnosis and treatment of patients affected by a SSS and CMA with particular attention to paediatric patients.

**Methods:** A retrospective review of 23 adults and 8 paediatric patients diagnosed with SSS or CMA surgically treated at our centre from 2001 to 2017 was performed. One case had a contralateral presentation 3 years after the treatment of the first affected side.

**Results:** All patients underwent functional endoscopic sinus surgery with an improvement of signs and symptoms (enophthalmos, hypoglobus and aesthetic deformities) after surgery. Diplopia resolved in all cases when present. None of the patients required an orbital floor reconstruction. In six out of eight of our paediatric cases the main symptom which led to the diagnosis was headache. Headache disappeared in 4 of them and improved in 2.

**Conclusion:** Endoscopic uncinectomy and middle meatal antrostomy should be the treatment of choice for these conditions even in absence of symptoms. An orbital floor reconstruction should be performed as a delayed procedure only in selected cases. Children presenting with persistent headache of unknown origin should undergo a maxillo-facial and brain magnetic resonance focusing the attention on SSS or CMA as a possible cause of the symptomatology.

## PERCEPTION OF ENT TRAINING AT UNDERGRADUATE AND POSTGRADUATE LEVEL AMONGST GENERAL PRACTITIONERS: RESULTS FROM A QUESTIONNAIRE

Dr Lilia Dimitrov<sup>1</sup>, Mr Hesham Saleh<sup>1</sup>, Mr Catherine Rennie<sup>1</sup>, Mr Samit Unadkat<sup>1</sup>, Mr Aman Khanna<sup>1</sup>  
<sup>1</sup>*Imperial Nhs Trust, London, United Kingdom*

Rhinology Potpourri 1, Victoria - Second Floor, April 25, 2018, 12:05 - 13:15

### Background

ENT problems represent a significant proportion of adult and paediatric presentations to general practice. This is not reflected in the undergraduate curriculum where ENT is under-represented. There has been a recent proposal to remove hospital-based ENT training from the undergraduate curriculum at a London medical hospital.

### Aims

To evaluate the level of exposure to ENT amongst general practitioners (GPs) at undergraduate and postgraduate level and their perceived quality of this training. A secondary aim was to examine whether GPs believe formal hospital-based ENT training should remain in the undergraduate curriculum.

### Methods

A questionnaire was administered to GPs attending an ENT training day. GPs were trained either in the UK or abroad.

### Results

29 GPs completed the questionnaire. 100% of GPs believed formal hospital-based ENT training should remain in the undergraduate curriculum. Only 52% of GPs had completed an ENT rotation at medical school. 21% had undertaken an ENT placement during training and 31% had received formal postgraduate teaching in ENT, the majority being delivered by lectures. The majority of GPs were not satisfied with their training in ENT at undergraduate level (69%) and wanted more training at postgraduate level (89%). ENT-related consultations were estimated to account for 44% of all paediatric consultations and 20% of all adult consultations.

### Conclusions

This study has identified that GPs report insufficient exposure to ENT during both postgraduate and undergraduate training. Proposed plans to remove or reduce the amount of formal training in ENT in the undergraduate curriculum are of unanimous concern.



## CHANGES IN CHRONIC RHINOSINUSITIS DIFFERENTIALLY ASSOCIATE WITH IMPROVEMENT IN GENERAL HEALTH-RELATED QUALITY OF LIFE

Miss Marlene Speth<sup>1</sup>, BA, BS Lloyd P. Hoehle<sup>2,3</sup>, MD Katie M. Phillips<sup>2,3</sup>, MD, DMD David S. Caradonna<sup>2,4</sup>, MD Stacey T Gray<sup>2,3</sup>, MD, PhD Ahmad R. Sedaghat<sup>2,3,4,5</sup>

<sup>1</sup>Klinik für Hals-, Nasen-, Ohren- Krankheiten, Hals-und Gesichtschirurgie, Kantonsspital Aarau, , Switzerland,

<sup>2</sup>Department of Otolaryngology, Harvard Medical School, Boston, USA, <sup>3</sup>Department of Otolaryngology, Massachusetts Eye and Ear Infirmary, Boston, USA, <sup>4</sup>Division of Otolaryngology, Beth Israel Deaconess Medical Center, Boston, USA,

<sup>5</sup>Department of Otolaryngology and Communications Enhancement, Boston Children's Hospital, Boston, USA

CRS Outcomes 2, Burton & Redgrave - Second Floor, April 24, 2018, 10:45 - 11:55

**Aims:** We sought to determine if longitudinal changes in the different types of CRS symptomatology lead to corresponding differential changes in general health-related QOL.

**Methods:** Prospective observational study of 135 patients undergoing medical management for CRS. CRS symptom severity was measured using the 22-item Sinonasal Outcome Test (SNOT-22) and the associated nasal, sleep, otologic/facial discomfort and emotional subdomains of the SNOT-22. General health-related QOL was measured using the 5-dimensional EuroQoL questionnaire's visual analog scale (EQ-5D VAS). These data were collected at two time points: at enrollment and at a subsequent follow up visit within the next two to six months. Associations were sought between the changes in CRS symptom severity and change in EQ-5D VAS.

**Results:** The change in SNOT-22 was associated with the change in EQ-5D VAS (adjusted linear regression coefficient [ $\beta$ ]= -0.37, 95%CI: -0.51 to -0.24,  $p < 0.001$ ). The change in EQ-5D VAS was only associated with the changes in the sleep (adjusted  $\beta$ = -0.42, 95%CI: -0.81 to -0.04,  $p = 0.034$ ) and otologic/facial discomfort (adjusted  $\beta$ = -1.00, 95%CI: -1.89 to -0.10,  $p = 0.031$ ) subdomains but not the nasal (adjusted  $\beta$ = -0.12, 95%CI: -0.52 to 0.28,  $p = 0.564$ ) or emotional (adjusted  $\beta$ = -0.17, 95%CI: -1.83 to 1.49,  $p = 0.840$ ) subdomains.

**Conclusions:** Changes in the severity of sleep and otologic/facial discomfort symptoms associate most greatly with the change in general health-related QOL that CRS patients experience during routine medical management. Reduction of these extra-nasal symptoms of CRS may therefore lead to the greatest improvement in QOL.

## THE ROLE OF CHROMATIN REMODELING COMPLEX SWI/SNF IN CHRONIC RHINOSINUSITIS.

**Medical Doctor Katarzyna Kowalik<sup>1</sup>**, Assistant Profesor Mariola Zagor<sup>1</sup>, PhD Elżbieta Sarnowska<sup>2</sup>, PhD Natalia Rusetska<sup>2</sup>, Medical Doctor Małgorzata Tomaszewska<sup>1</sup>, Professor Janusz A. Siedlecki<sup>2</sup>, Professor Antoni Krzeski<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology, Faculty of Medicine and Dentistry, Medical University of Warsaw., Warsaw, Poland,* <sup>2</sup> *Department of Molecular and Translational Oncology, M. Skłodowska-Curie Memorial Cancer Center and Institute of Oncology, Warsaw, Poland*

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims:

One of the reasons of CRS relates to the SWI/SNF complex. SWI/SNF is a chromatin remodelling complex which plays important role in several distinct processes such as transcriptions, DNA repair, steroid hormone signaling, cell differentiation and cell adhesion and interacts with glucocorticoid receptor (GR).

The aim of study is the assessment of the protein expression level of the SWI/SNF complex subunits (BAF155, BRM and BRG1) in the nasal cavity mucosa from patients with CRS.

### Materials and methods

Material from the medial nasal concha tissue will be collected at the Department of the Otorhinolaryngology of the Faculty of Medicine and Dentistry in Warsaw. The study population will consist of 80 patients with CRS (with and without polyps) and 40 patients in control group. The laboratory tests will be performed at Institute of Oncology in Warsaw. Immunohistochemical staining will be performed on the 3,5 µm formalin-fixed, paraffin- embedded tissues using the Envision Detection System (DAKO).

### Results:

Results of the observation have revealed decreased expression of the SWI/SNF complex in the CRS groups in comparison to the control group. A significant decreased expression of the complex was noticed in the CRS with polyps group compared to the control group and the group without polyps.

### Conclusions:

SWI/SNF may be engaged in inflamatory process of the CRS, therefore the role of SWI/SNF in CRS should be analyzed. The thorough knowledge about the CRS pathophysiology is crucial for clinicians to improve the patient treatment and helps to avoid potential complications.

## RHINOSINUSITIS IN SOLID ORGAN TRANSPLANTATION RECIPIENTS: CHARACTERISTICS, COURSE OF DISEASE, MANAGEMENT AND PROGNOSIS

Dr Sharon Tzelnick<sup>1</sup>, Dr Ethan Soudry<sup>1</sup>

<sup>1</sup>Rabin Medical Center, Petach Tikva, Israel

CRS 1, Albert - Second Floor, April 24, 2018, 10:45 - 11:55

**Introduction:** Survival rates of solid organ transplant recipients are steadily increasing. These patients receive chronic immunosuppressive therapy to sustain the transplanted organ. Rhinosinusitis (RS) is one of the most common infections. These patients may be at a higher risk for fulminant disease and severe complications. Surprisingly, this has been scarcely discussed in the literature.

**Objective:** To analyze the characteristics and disease course of RS in solid organ transplant recipients.

**Materials and Methods:** Retrospective study. Medical records of all solid organ transplant recipients with a diagnosis RS treated at our institution between the years 2001-2016 were reviewed.

**Results:** Of 4571 solid organ transplant recipients, in 70 (1.5%) patients a documented diagnosis of RS was identified. 64 patients presented with post-transplantation RS, of them (58.7% had chronic RS with or without nasal polyposis. The remaining 41.3% patients were diagnosed with acute RS. Cultures showed mainly bacterial pathogen growth with a documented invasive fungal sinusitis in only 2 patients. A total of 32 (45%) patients underwent endoscopic sinus surgery, the majority (29) for chronic RS. On subgroup analysis, surgical intervention was more frequent in lung transplantation recipients and cystic fibrosis patients ( $p=0.005$ ,  $p<0.005$  respectively). No specific disease nor surgical complications were found.

**Conclusions:** Interestingly, rhinosinusitis in solid organ transplantation patients was not frequent. Acute fulminant infection or sinusitis complications were much lower than expected. Whether chronic immunosuppression minimizes the likelihood for CRS deserves further investigation. A more surgically aggressive approach in CRS patients may be supported in light of these patients excellent outcomes.

## A SYSTEMATIC REVIEW OF SINONASAL DEBRIDEMENT VERSUS NO DEBRIDEMENT FOR THE POSTOPERATIVE CARE OF PATIENTS UNDERGOING ENDOSCOPIC SINUS SURGERY

**Dr Sharon Tzelnick<sup>1</sup>**, Dr Uri Alkan<sup>1</sup>, Prof Moshe Leshno<sup>2</sup>, Prof Peter Hwang<sup>3</sup>, Dr Ethan Soudry<sup>1</sup>  
<sup>1</sup>Rabin Medical Center, Petach Tikva, Israel, <sup>2</sup>Tel Aviv University's Faculty of Management and Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel, <sup>3</sup>Division of Rhinology, Department of Otolaryngology, Stanford University School of Medicine, Stanford, USA

CRS Surgery 5, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

### Background:

Post-operative debridement of the sinonasal cavities after endoscopic sinus surgery (ESS) has been suggested to be associated with improved healing outcomes.

### Methods:

Systematic review of the literature. Only Randomized controlled trials (RCTs) comparing postoperative nasal debridement versus no debridement with at least three months of follow-up were included.

### Results:

443 studies were independently assessed by two authors. 4 studies were included with a total of 152 participants diagnosed with recurrent acute and chronic rhinosinusitis. All participants underwent at least antrostomy and ethmoidectomy. Nasal douching post-operatively were used in all patients. QOL showed no difference between the groups. Although improved endoscopic scores were noted in the debridement group, there was no statistically significant difference between groups. A sub-analysis for adhesion rates showed a lower adhesion rate for the debridement group with a statistical significant difference (RR 0.44; 95% CI 0.28 to 0.68, P <0.001). Number needed to treat analysis was performed for endoscopic score and adhesion rate and revealed a 3:1 and 5:1 ratio respectively.

### Conclusions:

We could not reach a firm conclusion regarding postoperative sinonasal debridement due to intermediate risk of bias and low quality of evidence. However, a low number needed to treat ratio in preventing post-operative adhesion formation should favor surgeons performing debridement.

**\*\*This abstract is based on a draft and pre-peer review version of a Cochrane Review. Upon completion and approval, the final version is expected to be published in the Cochrane Database of Systematic**

## INFLUENCE OF AEROALLERGEN SENSITIZATION ON SEVERITY OF CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

MD Ana Rita Lameiras<sup>1</sup>, MD Ana Teresa Silva<sup>1</sup>, MD Deodato Silva<sup>1</sup>, MD Pedro Escada<sup>1</sup>

<sup>1</sup>*Egas Moniz Hospital, Lisbon, Portugal*

CRS Diagnosis and Investigation 2, Victoria - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Evaluate if aeroallergen sensitization is associated with an increased compromise of quality of life (QoL) in patients with chronic rhinosinusitis with nasal polyps (CRSwNP).

**Methods:** This is an observational, cross-sectional study, carried out at a tertiary referral center. The QoL of patients with CRSwNP was assessed with the Sino-Nasal Outcome Test-22 (SNOT-22). Aeroallergen sensitization was evaluated in all patients and classified as seasonal, perennial and mixed. Student's t-test for independent variables was used to assess the influence of aeroallergen sensitization in the QoL of patients with CRSwNP. In allergic patients, one-way ANOVA was used to evaluate the role of the different types of aeroallergen sensitization on severity of symptoms.

**Results:** The study sample consisted of 53 patients (27 males and 26 females) with a mean age of 54.0 years (range, 22-81 years). Aeroallergen sensitization was observed in 52.8% (n = 28) of the patients. Twenty-five percent of them had sensitization to seasonal allergens, 29% to perennial allergens and 46% to both (mixed). The mean score on SNOT-22 was 37.5 (range, 2-80). No differences were found in the QoL among patients with and without aeroallergen sensitization (p = .757). Also, the type of aeroallergen sensitization showed no influence on severity of symptoms (p = .867).

**Conclusions:** CRSwNP is a chronic inflammatory disease with great impact on QoL. The relationship between nasal polyposis and allergy remains incompletely defined. Our study failed to show an impact of aeroallergen sensitization on severity of CRSwNP.

## RISK FACTORS FOR EPISTAXIS - A SINGLE TERTIARY INSTITUTION EXPERIENCE

**Grega Kragelj**<sup>1</sup>, Urban Igljč<sup>1</sup>, Milena Krajinović<sup>2</sup>, assistant Jure Urbančič<sup>1</sup>

<sup>1</sup>University Medical Centre Ljubljana, Ljubljana, Slovenia, <sup>2</sup>Hospital "Dr. Franc Derganc" Nova Gorica, Nova Gorica, Slovenia

Epistaxis 3, Albert - Second Floor, April 26, 2018, 10:45 - 11:55

**AIMS:** In this study known risk factors for epistaxis were analysed from data obtained at the Department of Otorhinolaryngology and Cervicofacial Surgery at the University Medical Centre Ljubljana outpatient clinic in 2017.

**METHODS:** In this retrospective study patients' charts, who had been treated at the outpatient clinic, were reviewed. Data on gender, age, significant comorbidities and anticoagulant or antithrombotic drugs usage was obtained.

**RESULTS:** A total of 471 ( 266 male, 56,5% and 205 female, 43,5% respectively) patients' data were reviewed. Other comorbidities were found as follows: hypertension in 148 (31%), cardiological in 81 (17,2%), angiological in 65 (13,8%), haematological in 19 (4%), pulmological in 16 (3,4%), nephrological in 14 (2,9%), oncological in 14 (2,9%), trauma in 6 (1,3%) and following endonasal surgery 10 (2,1%) patients. 212 patients (45%) were taking either anticoagulant (100; 21,2%) or antithrombotic (112; 23,8%) drugs.

**CONCLUSION:** Important risk factors in this outpatient clinic setting were found to be similar to other published studies available - patients with hypertension, followed by cardiological or angiological disorders and / or using anticoagulant or antithrombotic drugs. This study has been used as a pilot study for a larger epistaxis study in 2018.

## SMELL-S AND SMELL-R: OLFACTORY TESTS NOT INFLUENCED BY ODOR-SPECIFIC INSENSITIVITY OR PRIOR OLFACTORY EXPERIENCE

Dr. Julien Wen Hsieh<sup>1,2</sup>, Dr. Andreas Keller<sup>1</sup>, Dr. Michele Wong<sup>1</sup>, Dr. Rong-San Jiang<sup>3</sup>, Professor Leslie Vosshall<sup>1,4,5</sup>

<sup>1</sup>Laboratory of Neurogenetics and Behavior, The Rockefeller University, New York, USA, <sup>2</sup>Rhinology–Olfactology Unit, Service of Otorhinolaryngology Head and Neck Surgery, Department of Clinical Neurosciences, Geneva, Switzerland,

<sup>3</sup>Department of Otolaryngology, Taichung Veterans General Hospital, Taichung, Taiwan, <sup>4</sup>Howard Hughes Medical Institute, New York, USA, <sup>5</sup>Kavli Neural Systems Institute, New York, USA

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

### AIMS:

Smell test scores are strongly influenced by cultural factors and genetic background that determines sensitivity to a specific odor. This introduces sources of bias into most available smell tests. To overcome this, we created a smell sensitivity test (SMELL-S) and a resolution test (SMELL-R) based on complex odor-mixtures that should minimize these issues.

### METHODS:

We enrolled 75 healthy subjects who underwent a reliability study. Then, we invited 23 healthy subjects with variable sensitivity to phenylethyl alcohol (PEA) and 10 participants complaining of smell loss. They performed an accuracy study. Finally, 36 healthy Americans in New York City and 36 Taiwanese in Taichung participated to an equivalence study.

### RESULTS:

The reliability of SMELL-S and SMELL-R was high. The area under the ROC curve was 0.98 (95% CI=0.92-1.02) for SMELL-S and 0.83 (95% CI=0.69- 0.97) for SMELL-R. The specificity of Sniffin' Sticks PEA threshold test and SMELL-S was 61.5% (16/26) and 100% (26/26), respectively. The difference between the Taiwanese and the Americans was much smaller for SMELL-R (v2) than the UPSIT, as determined by calculating the difference in z scores. SMELL-R mean score was significantly higher in the Taiwanese population.

### CONCLUSIONS:

The proof-of-principle results suggest that SMELL-S and SMELL-R, which quantify the resolution and general sensitivity of the olfactory system, are reliable and accurate. SMELL-S overcomes genetic factors potentially biasing olfactory results. SMELL-R avoids the cultural bias seen for the UPSIT, in which test performance is systematically higher in the population for which the test was developed.

## UNIRHINAL OLFACTORY TESTING FOR THE DIAGNOSTIC WORKUP OF MILD COGNITIVE IMPAIRMENT – 4 YEARS FOLLOW-UP STUDY

Dr Caroline Huart<sup>1,2</sup>, Dr Bernard Hanseeuw<sup>2,3</sup>, Ms Lisa Quenon<sup>2,3</sup>, Prof Adrian Ivanoiu<sup>2,3</sup>, Prof André Mouraux<sup>1</sup>, Prof Philippe Rombaux<sup>1,2</sup>

<sup>1</sup>Department of Otorhinolaryngology, Cliniques universitaires Saint-luc, Brussels, Belgium, <sup>2</sup>Institute of Neuroscience, Université catholique de Louvain, Brussels, Belgium, <sup>3</sup>Department of Neurology, Cliniques universitaires Saint-Luc, Brussels, Belgium

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

**Introduction and aims:** We have shown in a previous study that patients with mild cognitive impairment (MCI) exhibit a significantly greater left/right asymmetry of olfactory function, as compared to aged-matched controls (AC). To better understand the meaning of this asymmetry and its diagnostic potential, we aimed to evaluate the evolution of olfactory and cognitive functions of the subjects enrolled in our first study at a 4-years follow-up.

**Methods:** We tested 7 MCI patients and 7 AC from our first study. All subjects received unirhinal olfactory assessment using the “Sniffin’ Sticks Test” (TDI score), and a complete neuropsychological evaluation.

**Results:** We found that, as compared to the initial assessment, the asymmetry of TDI score was significantly reduced in MCI patients, due to a significant reduction of TDI score at the best-performing nostril. In contrast, in the AC group, olfactory function remained relatively stable over time. Moreover, MCI patients had significantly lower olfactory function as compared to AC. Finally, we found a relation between olfactory decline and cognitive decline in MCI patients.

**Conclusions:** Evolution of MCI patients is associated with a significant reduction of olfactory function and a decrease in the asymmetry of olfactory function. Although further and larger studies are needed to confirm our results, our study suggests that olfactory testing is useful not only for the clinical assessment and follow-up of patients, but also as a mean to better understand the pathophysiology of Alzheimer’s disease.



## MICRODEBRIDER-ASSISTED SUBMUCOSAL TURBINATE REDUCTION: EXPERIENCE OF 260 CASES

Dr. Nickolay Grachev<sup>1</sup>, Dr. Georgiy Polev<sup>1</sup>, Dr. Igor Vorozhtsov<sup>1</sup>

<sup>1</sup>*Dmitriy Rogachev National Research Center of Pediatric Hematology, Oncology and Immunology, Moscow, Russian Federation*

Septal Surgery 4, Gielgud - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims.** To compare the effectiveness of Microdebrider-Assisted Submucosal Inferior Turbinate Reduction (MASTR), mechanical submucosal reduction and radiofrequency ablation.

**Methods.** 264 patients (127 male, 137 female, mean age 49±5.9 years) were included in the study with inferior turbinates hypertrophy. 162 patients have underwent MASTR (group 1), 42 - mechanical submucosal reduction (group 2), 60 – radiofrequency ablation (group 3). Patients were assessed with visual analog scale (0 – no nasal obstruction, 10 – complete nasal obstruction) before, seven days, one and 12 month after the surgery. All patients have undergone endoscopic assessment as a part of post-operative follow up.

**Results.** The mean score before the surgery was 7,2±1,7 in all three groups. Seven days after the highest score was in group 2 (7,5±2,6), in 2nd group 6,1±1,7, in MASTR group - 3,5±1,8. 1 month post-op average score in MASTR group was 2,4±0,8, in 2nd group 3,4±1,1, in radiofrequency group 2,9±0,4. One year postoperative scores were the best in MASTR group (1,9±1,0), in mechanical it was 2,9±0,9, in radiofrequency 2,5±3,2.

In the early post-operative period, the most crusting was observed on 7-10 days postop in MASTR group. On 14th days postop crusts were at the same level in all three groups, crusts disappeared in 90% of patients in 1 month and totally disappeared in all patients in 2 months.

**Conclusions.** The MASTR technique seems to be the most promising for surgical treatment regarding post-op results and complications, including crust formation. The only discussable disadvantage of technique is a necessity of general anesthesia.

## OUTCOME AFTER ESS IN CRSWNP PATIENTS : A 10 YEAR PROSPECTIVE FOLLOW-UP.

**Md Stephan Vlamincx**<sup>1</sup>, MD Kato Speleman<sup>2</sup>, MD, PhD Emmanuel Prokopakis<sup>3</sup>, MD, PhD Hideyuki Kawauchi<sup>4</sup>, MD, PhD Peter Hellings<sup>5</sup>, MD, PhD Mark Jorissen<sup>5</sup>, MD, PhD Frederic Acke<sup>6</sup>, MD, PhD Claus Bachert<sup>6</sup>, MD, PhD Thibaut Van Zele<sup>6</sup>, MD, PhD Philippe Gevaert<sup>6</sup>

<sup>1</sup>President Belgian Rhinologic Society, Bruges, Belgium, <sup>2</sup>St-John's Hospital, Bruges, Belgium, <sup>3</sup>Hospital University Crete, Crete, Greece, <sup>4</sup>Hospital University Shimane, Shimane, Japan, <sup>5</sup>University Hospital Leuven, Leuven, Belgium, <sup>6</sup>Ghent University Hospital, Ghent, Belgium, <sup>7</sup>Karolinska University Hospital, Stockholm, Sweden

CRS Outcomes 1, Victoria - Second Floor, April 23, 2018, 10:45 - 11:55

### Aim

Hundred and thirty three CRSwNP patients have been operated by the same surgeon. Factors related to possible recurrence of nasal polyps (NPs) and developing asthma were prospectively analyzed with a minimum of 10 years follow-up.

### Methods

Clinical symptoms, total nasal endoscopic score and quality of life were evaluated. Inflammatory profile was based on nasal tissue and nasal secretions.

### Results

On endoscopy 51% (68/133) of the patients showed normal mucosa. Recurrence of nasal polyps (NPs) was correlated with allergy ( $p=0.010$ ), asthma ( $p=0.005$ ), prior recurrence of NPs ( $p<0.001$ ) and prior surgery ( $p<0.001$ ). Initial asthma presence of 27 % (36/133) increased to 42.8% (57/133) over 10 years. New asthma patients showed more allergy ( $p=0.033$ ) and underwent more frequently revision surgery ( $p<0.001$ ).

### Conclusion

Sustained medical care after surgery is mandatory. When present allergy treatment should be conducted firmly. The increasing number of late asthma seriously questions if current care provided in our guidelines is adequate. The need of more intense clinical follow-up and treatment based on clinical nasal endoscopy scoring should be debated.

## LACK OF LONG-TERM ADD-ON EFFECT BY MONTELUKAST IN POSTOPERATIVE CHRONIC RHINOSINUSITIS PATIENTS WITH NASAL POLYPS

**MD Anna Nogués Sabaté<sup>1</sup>**, MD, PhD Laura Van Gerven<sup>1,2</sup>, MD Cristobal Langdon<sup>1</sup>, MD Arturo Cordero<sup>1</sup>, MD Sara Cardelús<sup>1</sup>, MD, PhD Joaquim Mullol<sup>1,3</sup>, MD, PhD Isam Alobid<sup>1,3</sup>

<sup>1</sup>Rhinology and Skull Base Unit, Department of Otorhinolaryngology, Hospital Clinic, University of Barcelona, Barcelona, Spain, <sup>2</sup>Clinical division of Otorhinolaryngology, Head & Neck Surgery, University Hospitals Leuven, Leuven, Belgium,

<sup>3</sup>Unitat de Rinologia i Clínica de l'Olfacte, ENT Department, Hospital Clinic; Clinical and Experimental Respiratory Immunology, IDIBAPS; CIBERES. , Barcelona, Spain

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

**Background:** Eosinophils and mast cells are among the key cells in inflammatory diseases like chronic rhinosinusitis (CRS) and asthma. Leukotriene antagonists have proven to be effective in the treatment of asthma but data about their efficacy in CRS are scarce while data on montelukast as add-on treatment to intranasal corticosteroids (INCS) in a post-operative setting are completely lacking.

**Aim:** In a prospective, randomized, open label trial with long-term follow-up, we evaluated the efficacy of montelukast as add-on treatment to INCS in post-operative CRS with nasal polyp (CRSwNP) patients.

**Methods:** CRSwNP patients (N=72) undergoing endoscopic sinus surgery (ESS) were randomized in two arms for the post-operative treatment. One group (N=36) received INCS in monotherapy while the other group (N=36) received INCS in association with montelukast for one year. The efficacy of montelukast with INCS was evaluated by assessing both subjective (T5SS, total 5 symptom score) and objective (nasal polyp score [NPS], Lund-Mackay [LMK] score, and subjective olfactometry [BAST-24]) outcome parameters and compared with the gold standard of INCS in monotherapy.

**Results:** After one year of surgery, T5SS, NPS, and LMK score were significantly reduced in patients treated with either INCS or INCS plus montelukast, without significant differences between the two treatment arms. Improvement of smell loss by olfactometry was also observed with no differences between arms. Similar findings were observed at 3 and 6 months.

**Conclusion:** These results suggest that the addition of montelukast to INCS should not be recommended in the treatment of post-operative CRSwNP patients.

## SINONASAL PAPILOMA: A PERSONAL SERIES OF 70 PATIENTS FROM 2000 TO 2017

Ms Grace Khong<sup>1</sup>, Mr Andrew Swift<sup>1</sup>

<sup>1</sup>*Aintree University Hospital, Liverpool, Uk, Liverpool, United Kingdom*

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

**Aim:** To analyse all sinonasal papilloma cases managed by the senior author from 2000 - 2017.

**Method:** Patients diagnosed with sinonasal papilloma were included and clinical details such as symptoms, Kraus staging, surgical management and recurrences were analysed.

**Results:** Seventy patients were included in this series with 32 patients (46%) presenting at stage III/IV. All patients were managed endoscopically including two frontal sinus drill outs. Considering the high proportion of patients presenting with stage III/IV disease, only 19 patients had recurrence of disease of whom 12 were of stage III/IV. The interval between surgery and recurrence ranged between 6 months to 5 years.

As this series is from a tertiary referral hospital, 18 (26%) were referred as recurrences with 11 patients in stage III and one patient with anterior skull base extension. Ten of the 18 patients had further recurrences indicating a more aggressive form of the disease.

Ten patients had multiple recurrences where 4 were stage I intranasal disease; indicating that the need for longer follow up is not stage-dependent as an early disease is as inclined to chronic or multiple recurrences.

**Conclusion:** Although endoscopic clearance of sinonasal papilloma is effective, there is a cohort of patients who will be prone to recurrence. Sinonasal papilloma is effectively managed endoscopically provided adequate expertise is available for advanced sinus surgeries. Early stage of disease should not be underestimated as it is just as liable for chronic recurrences. Recurrence is possible in any stage of disease but more likely in stage III/IV.

FCRN-DEPENDENT NASAL ADMINISTRATION: A NEW DELIVERY ROUTE FOR MONOCLONAL ANTIBODY THERAPY IN CHRONIC RHINOSINUSITIS WITH POLYPS

**Dr EMILIE Bequignon**<sup>1,2,3,4</sup>, Christine Dhommée<sup>5</sup>, Christelle Angely<sup>2,4</sup>, Lucie Thomas<sup>6</sup>, Mathieu Bottier<sup>2,4</sup>, Dr Estelle Escudier<sup>6</sup>, Daniel Isabey<sup>2,4</sup>, Pr André COSTE<sup>1,2,3,4</sup>, Bruno LOUIS<sup>2,4</sup>, Pr Jean-Francois PAPON<sup>2,4,7</sup>, Dr Valerie Gouilleux Gruart<sup>6</sup>

<sup>1</sup>Aphp-hôpital Henri Mondor, Creteil, France, <sup>2</sup>INSERM U955 equipe 13, Creteil, France, <sup>3</sup>centre hospitalier intercommunal de Creteil, , France, <sup>4</sup>Université Paris Est UPEC, , France, <sup>5</sup>Université François Rabelais de Tours, CNRS, GICC UMR 7292, , F-37032 Tours,, France, <sup>6</sup>Inserm U933, Paris, France and AP-HP Hôpital Armand-Trousseau, Service de génétique et d'embryologie médicale, , Paris, , France, <sup>7</sup>AP-HP, Hôpital Bicêtre, service d'Oto-Rhino-Laryngologie et de Chirurgie cervico-faciale, , Le Kremlin-Bicêtre, 94270,, France

CRS Medical Management 1, Gielgud - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** Monoclonal antibodies (mAbs) are emerging as promising therapies to treat chronic rhinosinusitis with nasal polyps (CRSwNP). In order to improve non-invasive and local delivery strategy of monoclonal antibodies, there is a need to develop new routes of administration in addition to the subcutaneous pathways. To date, no study has specifically assessed the potential function of neonatal Fc receptor (FcRn) in IgG transcytosis through the nasal airway epithelium.

**Methods:** The expression of FcRn was studied in an Air Liquid Interface (ALI) primary culture model of Human Nasal Epithelial Cells (HNEC) from polyps. FcRn expression was characterized by quantitative RT-PCR, Western blot and immunolabeling. Human embryonic kidney cell line (HEK-293) were used as positive control. The ability of HNECs to support mAb transcytosis via FcRn was then assessed by transcytosis assay.

**Results:** This study demonstrates a higher expression of FcRn mRNA and protein in HNEC than in HEK-293 (x1.3). We report a high expression of FcRn in the cytosol of ciliated, mucus and basal cells by immunohistochemistry with a higher level of FcRn proteins in fully differentiated nasal epithelial cells. We also proved transepithelial delivery of an IgG1 therapeutic mAb with a dose-response curve across the nasal epithelial cell layers even in the presence of mucus.

**Conclusions:** This is the first time that FcRn expression and mAb transcytosis has been shown in a model of human nasal respiratory epithelium in vitro. From a drug delivery perspective, this study is a prerequisite for FcRn-dependent nasal administration of therapeutic mAbs.

**RELATIONSHIP BETWEEN NASAL RESISTANCE AND NASAL CAVITY GEOMETRY IN A COHORT OF 1109 PATIENTS**

Dr Maxime Zielinski<sup>1,4</sup>, Dr Françoise Zerah-Lancner<sup>1,2</sup>, Dr Marie Devars Du Mayne<sup>4</sup>, Pr Jean-Francois PAPON<sup>2,3,5</sup>, Pr André COSTE<sup>1,2,3,4</sup>, Bruno LOUIS<sup>2</sup>, **Dr Emilie Bequignon<sup>1,2,3,4</sup>**

<sup>1</sup>Aphp-Hôpital Henri Mondor, Creteil, France, <sup>2</sup>INSERM U955 equipe 13, , France, <sup>3</sup>Université Paris Est-crétail UPEC, , France, <sup>4</sup>centre Hospitalier Intercommunal de Créteil, , France, <sup>5</sup>AP-HP Hôpital Kremlin Bicetre, Le Kremlin Bicetre, France

Imaging and Investigations 1, Albert - Second Floor, April 23, 2018, 12:05 - 13:15

**Aims:** The objective of this study was to investigate the relationship between nasal resistance and nasal geometry in a large population of patients with and without nasal obstruction.

**Methods:** We conducted a retrospective study, over 14 years, including subjects consecutively referred to our center for nasal functional tests (posterior rhinomanometry and acoustic rhinometry). Unilateral nasal resistance (R), minimal cross-sectional area (MCA), volumes (V1, V2, V3) and nasal mucosa deformability represented by the nasal compliance, were measured. Nasal obstruction was evaluated by visual analogic scale. Four subgroups were analysed according to their MCA and R, which were compared to the standards of the literature.

**Results:** We included 1109 patients (623 men, 486 women, mean age 44 years, mean BMI 26). Nasal functional tests were performed for nasal obstruction in 69% of subjects. A control group of healthy snorers free of nasal symptoms was included (345 patients). Correlations between R and MCA, V1 and V2 were moderate (correlation coefficients:0.3-0.5). The correlation was not better in the subpopulation complaining from nasal obstruction. The group of patients with high resistance despite a high MCA had higher compliance than the other groups ( $p < 0.0001$ ).

**Conclusions:** Nasal breathing function is dependent on the nasal geometry. The existence of apparently discordant results between the measurement of high resistance and a nasal cavity of normal size (high MCA) could be explained by nasal compliance, a reflection of nasal dynamics during inspiration.

## THE ROLE OF THE AUTOPHAGY-RELATED GENES IN PARANASAL SQUAMOUS CELL CARCINOMA WITH AND WITHOUT NECK METASTASIS

**Mr Sercan Gode<sup>1</sup>**, Ms. Bakiye Goker Bagca, Mr Rasit Midilli, Mr Bulent Karci, Mrs Cigir Biray Avci

<sup>1</sup>*Ege University- School Of Medicine, Izmir, Turkey*

Sinonasal Malignancy 2, Burton & Redgrave - Second Floor, April 25, 2018, 10:45 - 11:55

**Aims:** was to assess the role of the autophagy-related gene expression changes in squamous cell carcinoma (SCC) of paranasal sinuses with and without neck metastasis.

**Methods:** Eight paranasal SCC patients (5 without and 3 with neck metastasis) were included. 19 tissue samples (8 normal tissue, 8 primary tumor, 3 neck metastasis) were obtained during the surgery. Total RNA was isolated from the tissues using tripure (Roche), chloroform (Merck), isopropanol (Merck) extraction method. The purity and quantity of the total RNA measured using the NanoDrop 1000 (Thermo Scientific) instrument and software. cDNA synthesis was performed using the RT2 First Strand Kit (Qiagen). Expression levels of 96 genes which are located in autophagy pathway were determined using real-time quantitative PCR (RT-qPCR) via RT2 qPCR Mastermix (Qiagen), Autophagy Pathway PCR Array (Qiagen, PAHS-084Z) and LightCycler 480 II instrument (Roche). The results were evaluated using the  $2^{-\Delta\Delta CT}$  method, and fold changes of the gene expression levels in primary tumor and metastasis tissues were calculated according to the normal tissue.

**Results** Expression levels of genes that are positive regulators of autophagy such as AMBRA1, genes that encode autophagy related proteins such as ATGs and BCL2 showed a significant increase in both primary tumor and neck metastasis tissues of metastatic paranasal cancer patients. Upregulation of these genes were significantly higher in metastatic patients compared to non-metastatic ones.

**Conclusions:** The increase in autophagy-related gene expression levels may support the metastatic character in paranasal SCC's. This is the first study to assess autophagy-related genes in paranasal sinus cancer.

## INTERDISCIPLINARY APPROACH IN SURGICAL TREATMENT OF JNA INVOLVING THE SKULL BASE – THE 5 YEAR SINGLE-CENTER EXPERIENCE

**Dr. Nickolay Grachev<sup>1</sup>**, Dr. Igor Vorozhtsov<sup>1</sup>, Dr. Dmitriy Shubin<sup>1</sup>, Dr. Georgiy Polev<sup>1</sup>

<sup>1</sup>*Dmitriy Rogachev National Research Center of Pediatric Hematology, Oncology and Immunology, Moscow, Russian Federation*

Skull Base 1, Rutherford - Fourth Floor, April 24, 2018, 10:45 - 11:55

**Aims.** To increase the effectiveness of JNA removal, facilitate earlier postoperative rehabilitation and to optimize surgical treatment of JNA with skull base involvement by means of 3D CT - angiography scan reconstruction.

**Methods.** From 2013 to 2017 50 patients (32 primary cases, 18 revisions) with JNA stages I-IIIb Fisch-Andrews (9-17 y.o.) been operated. 62 surgeries performed, including 56 transnasal endoscopic approaches and 6 open (1 transmandibular, 1 transmaxillary and 4 maxillary swing approaches). In all cases selective percutaneous embolization was performed 24h before the surgery. 4 patients with JNA Fisch-Andrews IIIa-IIIb were scheduled for 2-staged surgery preoperatively. In all cases of open approaches the single-stage osteosynthesis was done with titanium miniplates and original occlusion restoration. The presence of residual tumor and the probability of recurrence was evaluated with 3D angio-CT scans reconstruction before and after surgery. The most advanced cases were operated with the help of image-guided surgery (IGS).

**Results:** The residual tumor was present in 13 patients, 8 of which required revision surgery. Other patients are in «watchful waiting» group. Follow-up of all 50 patients varies from 3 month to 4 years.

**Conclusion.** It is reasonable to perform maxillary swing approach as a first step of possibly staged procedure in surgical treatment of extended JNA (IIIa-IIIb) as it allows wide exposure of the antero-lateral skull base with the preservation of anatomical structures and landmarks in the nasal cavity for the potential second stage endoscopic procedure.



## EYESIGHT RECOVERY AFTER PROMPT SURGICAL DRAINAGE PLUS OPTIC NERVE DECOMPRESSION IN ACUTE OPTIC NEUROPATHY CAUSED BY AN ONODI CELL MUCOCELE

**Dr. Tiago Fuzeta Eça<sup>1</sup>**, Dr. Pedro Correia Rodrigues<sup>1</sup>, Dr. João Levy<sup>1</sup>, Dr. Paulo Borges Dinis<sup>1</sup>, Prof. Leonel Luis<sup>1</sup>  
<sup>1</sup>*Hospital Santa Maria, CHLN, Lisboa, Portugal*

CRS Surgery 1, Gielgud - Second Floor, April 23, 2018, 14:45 - 16:15

**Aims:** Present a case of acute optic neuropathy with an isolated Onodi cell mucocele and complete recovery after surgical drainage and optic nerve decompression.

**Method:** clinical case report with iconography and surgery illustration

**Results:** A 53 year-old male presented in the Emergency Room after a 48h progressive left visual acuity loss. CT scan and MRI revealed a homolateral Onodi cell mucocele. The patient was promptly submitted to endoscopic surgery, with drainage of the mucocele as well as optic nerve decompression. On day 4 post-op, pupillary reflexes normalized and visual acuity improved to 4/10. After 10 days of IV antibiotic and corticosteroids, the visual acuity reached 8/10. At 6 months post-op the visual loss reverted completely (10/10) with visual evoked potentials showing reduced amplitude and normal latency.

**Conclusion:** Acute optic neuropathy may lead to permanent vision loss. Sinus pathology, even in the absence of nasal symptoms, should be ruled out. The sphenoid sinus, but also the posterior ethmoid, need to be checked, namely for the presence of a sphenoethmoidal cell. An isolated Onodi cell mucocele is a rare cause for acute optic neuropathy. Its early recognition and prompt surgical drainage, with associated optic nerve decompression, may be critical for successfully reverting vision loss.

## DESTRUCTIVE AND TUMEFACTIVE LESIONS OF MIDLINE STRUCTURES ASSOCIATED WITH IGG4-RELATED DISEASE: COMPARISON TO COMMON MIMICKERS

Dr Alessandro Vinciguerra<sup>1</sup>, Dr Michele Tulli<sup>1</sup>, Dr Marco Lanzillotta<sup>2</sup>, Dr Emanuele Della-Torre<sup>2</sup>, Prof Matteo Trimarchi<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology, IRCCS San Raffaele Scientific Institute, Milano, Italy, <sup>2</sup>Unit of Medicine and Clinical Immunology, IRCCS San Raffaele Scientific Institute, Milano, Italy

Rhinology Potpourri 2, Victoria - Second Floor, April 26, 2018, 10:45 - 11:55

### Aims:

The spectrum of IgG4-related disease (IgG4-RD) has been recently updated including the destructive and tumefactive lesions of the midline structures (nose, paranasal sinuses and oral cavity). We have examined the clinical, serological, endoscopic, radiological, and histological features that might be of utility in distinguishing IgG4-RD from other inflammatory forms.

### Methods:

Eleven consecutive patients with erosive and/or tumefactive lesions of the midline structures, referred to San Raffaele Scientific Institute, Milano, were analyzed. Specifically, we had five patients with granulomatosis with polyangiitis (GPA), three with cocaine-induced midline destructive lesions (CIMDL), and three with IgG4-RD. All patients underwent serum IgG4 measurement, flow cytometry for circulating plasmablast counts, nasal endoscopy, radiological studies, and histological evaluation of tissue specimens.

### Results:

No clinical, endoscopic, or radiological findings specific for IgG4-RD was found. Increased serum IgG4 and plasmablasts levels were not specific for IgG4-RD. Moreover, all 11 patients had elevated blood plasmablast concentrations, and several patients with GPA and CIMDL had elevated serum IgG4 levels. Storiform fibrosis and an IgG4+/IgG + plasma cell ratio >20% on histological examination, however, were observed only in patients with IgG4-RD.

### Conclusions:

Histological examination of biopsies from destructive/tumefactive lesions represents the mainstay for the diagnosis of IgG4-RD involvement of the midline structures.

## IMAGE-GUIDED ENDOSCOPIC SURGERY (IGES) OF THE PARANASAL SINUSES AND SKULL BASE NEOPLASMS IN PEDIATRIC PRACTICE.

Dr. Igor Vorozhtsov<sup>1</sup>, Dr. Nickolay Grachev<sup>1</sup>

<sup>1</sup>*Dmitriy Rogachev National Research Center of Pediatric Hematology, Oncology and Immunology, Moscow, Russian Federation*

Paediatric Rhinology 3, Albert - Second Floor, April 25, 2018, 10:45 - 11:55

**Aims.** To improve the effectiveness of the transnasal surgery for the sinonasal, nasopharyngeal and skull base neoplasms in pediatric patients, thus improving rehabilitation time.

**Methods.** 82 patients with different pathology of nasal cavity, nasopharynx, sinuses and skull base in the age between 22 days and 18 years were included into the study. All patients were divided into two groups depending on the method of surgery. The main group (with IGS) included 41 patients and the control group of 41 patients (no IGS used). Each group was divided into two subgroups based on the extension of surgery (1st subgroup – biopsy, 2nd – removal).

**Results.** We did not find any significant differences between 1st subgroups of both groups. We saw the overall decrease in the operation time by 42.5 minutes ( $p < 0.05$ ), the intraoperative blood loss reduction by 325 ml ( $p < 0.01$ ), nasal breathing and life quality improvement scores on 3rd post-op day ( $p < 0,01$ , U-test Mann-Whitney). Nasal packing needed 4 times more rarely ( $p < 0,01$ ) and complication rate and its severity was also significantly lower in the main group ( $p < 0,05$ , exact Fischer test).

**Conclusion:** The use of IGS in endonasal surgery allows planning and control of the operation, targeted biopsy procedure, minimizes the risk of complications during the complex surgical procedures and offers a noninvasive approach. This leads to an overall decrease of operation and anesthesia time, blood loss, reduces recovery time and improves the quality of life of children in the early post-operative period.

RHINOPLASTY – DO PATIENTS AND SURGEONS SEE THE SAME?

## A DOUBLE BLIND STUDY WITH 100 RANDOMIZED PATIENTS

**Md Mariline Santos**<sup>1</sup>, MD Miguel Gonçalves Ferreira<sup>1</sup>, MD Diogo Oliveira e Carmo<sup>2</sup>, MD José Carlos Neves<sup>3</sup>, MD, PhD Frank Datema<sup>4</sup>, MD Miguel Coutinho<sup>1</sup>, MD Cecília Almeida e Sousa<sup>1</sup>

<sup>1</sup>Centro Hospitalar Do Porto, Porto, Portugal, <sup>2</sup>Hospital CUF Infante Santo, Lisboa, Portugal, <sup>3</sup>Hospital Lusíadas, Lisboa, Portugal, <sup>4</sup>Erasmus Medical Center, Rotterdam, The Netherlands

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

**Introduction:** Ideally, surgeons and patients see, discuss and quantify the same nasal defects. In reality, the subjective nature of perceiving aesthetics can cause variability of inter-rating nasal appearance. Therefore, one might question how well surgeons understand their patients. Do they see what patients see?

**Aim:** To assess the level of agreement on the evaluation of nasal appearance between patients and surgeons.

**Methods:** A prospective, observational and cross-sectional study was performed on a total of 100 randomized patients undergoing rhinoplasty. All patients were photographed before surgery and asked to rate the appearance of their nose on a 10 centimetre visual analogue scale (VAS). Subsequently, the photographs were, independently, rated by two rhinoplasty surgeons (one from The Netherlands and other from Portugal). Data regarding age, gender, skin type and major nasal deformity were also collected.

**Results:** It was found a moderate level of agreement between surgeons, regardless their country of origin (95% CI 0.291-0.601,  $p < 0.001$ ). However, we found that there is no statistical agreement between the aesthetical evaluation of the nose between patients and surgeons (95% CI -0.011-0.521,  $p = 0.027$ ). Based exclusively on the VAS for subjective evaluation of nasal appearance, our findings show that surgeons and patients do not “see the same” and generally, the score attributed by the surgeon is more favourable (almost 1 point higher) than the auto-assessment’s score.

**Conclusion:** The results obtained can be valuable during preoperative communication, through which surgeons and patients need to reach a certain level of agreement about the severity of present nasal deformities.

## CAN VIDEOTAPE RECORDINGS CORRELATE WITH POLYSOMNOGRAPHY FOR OBSTRUCTIVE SLEEP APNEA IN CHILDREN?

Dr. Carla Moreira<sup>1</sup>, Dr. Ivo Moura<sup>1</sup>, Dr. Diogo Raposo<sup>2</sup>, Dr. Inês Cunha<sup>1</sup>, Dr. Herédio Sousa<sup>1</sup>, Dr. Filipe Freire<sup>2</sup>, Dr. Ezequiel Barros<sup>1</sup>

<sup>1</sup>Centro Hospitalar de Lisboa Central, Lisbon, Portugal, <sup>2</sup>Hospital Prof. Doutor Fernando Fonseca, Lisbon, Portugal

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

The main goal of our study is to determine whether home videotape sleep recordings findings can correlate with polysomnography (PSG) results. Additionally, we purpose to evaluate the clinical usefulness of this technique in the diagnosis of pediatric obstructive sleep apnea (OSA).

### Methods

A prospective study was performed. All children underwent PSG and homemade videotape test during sleep. A type I PSG was made in sleep laboratory. Results from PSG were compared with corresponding analyses of 3 min videotape during sleep. Parents were instructed about how and when to record their children. Video was performed at 30 min, 1h and 2h after the beginning of sleep, all with 3 min duration. Video recordings were evaluated by three different independent raters and a score based on noisy breathing, movements, waking episodes, apnea, chest retractions and mouth breathing was used to classify patients.

Internal reliability was assessed by calculating interrater and intrarater intraclass correlation coefficients. For external validation, the association between video and PSG results was assessed.

### Results

We started with 30 patients. After selecting the ones that accomplished all correct data given by PSG and video test, our final sample was 22. There was a reliable level of agreement among the videotape raters; higher video scores were highly predictive of OSA when compared with PSG results.

### Conclusions

Homemade videotape can be a promising method in the diagnosis and to predict severity of OSA in children without chronic diseases. The interpretation of this technique seems to be simple and reproducible among observers.

## ULTRASONOGRAPHIC TRANSORAL MEASUREMENT OF SOFT PALATE THICKNESS – A PILOT ANATOMIC STUDY IN NORMAL SUBJECTS

Dr Mihai Dumitru<sup>1</sup>, Dr Codrut Sarafoleanu<sup>1</sup>, Dr Bianca Paraschiv<sup>1</sup>, Dr Romica Cergan<sup>1</sup>, Dr Adrian Costache<sup>1</sup>

<sup>1</sup>*Carol Davila University of Medicine and Pharmacy, Bucharest, Romania*

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

**Aims:** We propose an experimental imaging technique for ultrasonographic trans-oral measurement of soft palate thickness.

**Methods:** Previous studies by Innis W, et al. used magnetic resonance imaging for measuring soft palate thickness. Also Santosh VK, et al. applied a digital cephalometric study measuring soft palate thickness. Using an L-shaped ultrasound transducer initially designed for intraoperative imaging in abdominal surgery we could measure under local anesthesia the thickness of soft palate.

**Results:** We applied this method in a group of 20 healthy first year med school students. The L-shaped transducer was inserted via oral route under local topical anesthesia. The transducer was positioned on the mid-line along the uvula. Our measurements varied between 5 to 8 mm soft palate thickness depending on body mass index of the subject. This procedure could be used during radio-frequency surgery or pillar implant for a dynamic imaging of the surgical outcome.

**Conclusions:** We could successfully measure using sonography by trans-oral approach the thickness of soft palate. Future studies collecting data through this method could be applied in patients with obstructive sleep apnea syndrome. Also we need to further compare data with other diagnostic imaging modalities such as MRI or digital radiology. We hope that this method of soft palate thickness measurement will help a better planning of pillar surgery or radio-frequency procedures in OSAH cases.

**Keywords :** ultrasonography, soft palate, thickness

490

WITHDRAWN

## ENDOSCOPIC TRANSNASAL IMAGE-GUIDED APPROACH TO SECURING DIAGNOSIS IN ORBITAL APEX AND OPTIC CANAL LESIONS

**Mr Samit Unadkat<sup>1</sup>**, Miss Catherine Rennie<sup>1</sup>, Mr William Grant<sup>1</sup>

<sup>1</sup>*Charing Cross Hospital, Imperial College Healthcare, London, United Kingdom*

Skull Base 2, Albert - Second Floor, April 24, 2018, 12:05 - 13:15

### Aims

Prompted by recurring skull base MDT debate on the necessity of securing definitive tissue diagnosis before initiating treatment for lesions of the orbital apex, a review of the senior author's personal database of skull base procedures over an eleven year period was undertaken.

### Methods

Data collected prospectively on cases from 2006-2017 was analysed. Presenting symptoms, imaging findings, operation notes, histological findings, outcomes, complications and impact on treatment were evaluated. All surgery was carried out endoscopically with the aid of image guidance. Patients with diagnoses of chronic rhinosinusitis or dysthyroid orbitopathy were excluded.

### Results

21 patients undergoing endoscopic transnasal orbital apex and/or optic canal biopsy were included in the study group. The mean age was 49 years, with 12 male and 9 female patients. Five malignant tumours were identified, five benign tumours, seven infective cases – 2 TB and 5 fungal, and two cases of IgG4 related disease. Overall, two patients had non-diagnostic biopsies (one lesional sample, one not) and were treated successfully as Tolosa-Hunt syndrome. No deterioration in vision was experienced in any patient. One patient, with a large ossifying fibroma, had a CSF leak necessitating local flap closure.

### Conclusions

A successful diagnosis was achieved in nearly all cases without adverse impact other than in the single CSF leakage case. Management was directly influenced by the outcome in all cases except one where lesional material was not obtained from an anterior cavernous sinus lesion. The endoscopic image-guided transnasal approach, affords a safe option, avoiding transcranial and narrow-access transorbital approaches.



## INTRODUCING A NEW CLASSIFICATION FOR DRUG INDUCED SLEEP ENDOSCOPY (DISE): THE PTLTBE SYSTEM

Mr. Ryan Chin Taw Cheong<sup>1</sup>, Mr. Vikrant Veer<sup>2</sup>, Prof. Bhik Kotecha<sup>2</sup>

<sup>1</sup>Barking, Havering and Redbridge University Hospitals NHS Trust, London, United Kingdom, <sup>2</sup>Royal National Throat Nose and Ear Hospital, London, United Kingdom

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

Drug Induced Sleep Endoscopy (DISE), was first described by Croft & Pringle in 1991 and it has since become one of the most widely used methods of investigating the upper airway for sleep surgery worldwide. Numerous classification systems have been described, but no one system has been agreed upon. The authors believed there was a niche for a new classification system in which the inter observer reliability was high whilst still providing adequate clinical information.

### Methods

16 surgeons, inexperienced with DISE interpretation, were used in this study. Perceived ambiguity in the current classification systems was the aspect most prevalently communicated issue, in this cohort. A visual classification system was adopted as it provided the easiest method of remembering a system. PTLTbE (Palate, Tonsils, Lateral pharyngeal wall, Tongue base, Epiglottis), was finally decided upon as the name of the classification system. The cohort of surgeons, were asked to interpret 5 different DISE videos using the PTLTbE classification.

### Results

The overall interobserver reliability between the assessors was 0.873, using the kappa coefficient. This is far in excess of current classification systems available.

### Conclusion

PTLTbE classification has shown to have an excellent interobserver agreement across 16 different assessors when assessing DISE videos. Further investigations are currently ongoing using this system including software using image recognition to classify DISE.

## VALIDATION OF THE NATURAL SLEEP INDUCTION TECHNIQUE WITH DRUG INDUCED SLEEP ENDOSCOPY (DISE)

Mr. Ryan Chin Taw Cheong<sup>1</sup>, Mr. Vikrant Veer<sup>2</sup>, Prof. Bhik Kotecha<sup>2</sup>

<sup>1</sup>Barking, Havering and Redbridge University Hospitals NHS Trust, London, United Kingdom, <sup>2</sup>Royal National Throat Nose and Ear Hospital, London, United Kingdom

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

Drug Induced Sedation Endoscopy (DISE) is used to examine the upper aero-digestive tract during this light sedative state with anaesthetic agents to ascertain the probable location of collapse in patients with obstructive sleep apnoea (OSA). The primary criticism of this technique is that airway collapse seen under the influence of anaesthetic agents is not a true representation of natural sleep. This study provides some evidence of the validity of DISE as close representation of natural sleep.

### Methods

A technique used by the senior author utilises propofol's rapid onset and offset clinical effect by first inducing a relatively deep sedation by providing a bolus of propofol. A flexible nasendoscope is then inserted into the correct position to examine the upper airway. As the effects of propofol eventually become relatively subclinical over the period of 10-15 minutes, the patient became easily woken up by gentle verbal stimuli, similar to natural sleep.

### Results

The first 21 patients with this new technique allowed examination of the entire range of sedation depths, giving a more complete representation of a patient's natural sleep. In this cohort there was no obvious difference in obstructive level seen during the commonly used sedation level obtained with target controlled infusion propofol and when the patient is assumed to be naturally sleeping at the end of the procedure.

### Conclusion

This easily rousable state was indistinguishable from natural sleep and the authors believe this more accurately represents the conditions seen during natural sleep.

## RADIOFREQUENCY ABLATION (RFA) OF THE PALATE AND TONGUE BASE: OUTCOMES OF A TERTIARY SLEEP SURGERY UNIT

Mr. Ryan Chin Taw Cheong<sup>1</sup>, Mr. Vikrant Veer<sup>2</sup>, Prof. Bhik Kotecha<sup>2</sup>

<sup>1</sup>Barking, Havering and Redbridge University Hospitals NHS Trust, London, United Kingdom, <sup>2</sup>Royal National Throat Nose and Ear Hospital, London, United Kingdom

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

Radiofrequency ablation (RFA) is used in the treatment of sleep disordered breathing (SDB), particularly in the alleviation of snoring. The literature provides evidence that the short-term results are promising; however, the long-term efficacy is a matter of contention. The authors assess the outcomes of radiofrequency ablation (RFA) of the palate and tongue base at a tertiary sleep surgery unit.

### Methods

202 medical case notes of patients who underwent RFA were retrieved via medical records and pre-determined outcome measures of subjective improvement and complication rates were extracted and processed with Microsoft Excel. The technique used is 10 applications of 10 Watts to the palate and 6 applications of 6 Watts to the tongue base with the Celon bipolar device.

### Results

The patients were followed-up for an average of 315 days with a subjective improvement in 93.4% of the 202 patients. 95.8% of 72 'RFA only' patients had a subjective improvement at an average of 265 days follow-up. Complications reported were globus (3.8%), ulceration (1.4%) and post-operative pain (0.9%).

### Conclusion

The outcomes demonstrate that RFA is a safe technique to be used as a multilevel treatment in combination with other SDB surgical techniques.

## CEREBROSPINAL FLUID LEAK IN PITUITARY ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL SURGERY: IS FAT REALLY IMPORTANT IN RECONSTRUCTION?

MD Mariana Dalbo Contrera Toro<sup>1</sup>, MD Thiago Serrano<sup>1</sup>, MD Mateus Dal Fabbro<sup>1</sup>, MD, PhD Carlos Takahiro Chone<sup>1</sup>, PhD Fernando Augusto Lima Marson<sup>1</sup>, MD, PhD Marcelo Hamilton Sampaio<sup>1</sup>, MD, PhD Eulalia Sakano<sup>1</sup>, MD, PhD Carlos Takahiro Chone<sup>1</sup>

<sup>1</sup>UNICAMP, Campinas, Brazil

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

**AIM:** Transsphenoidal endonasal surgery for resection of pituitary tumors has become the standard treatment for this type of tumor and cerebrospinal fluid (CSF) leak can be seen as a possible complication. Although it is not expected but, when present, it should be recognized immediately and reconstruction should be done. Abdominal fat is frequently used in this type of reconstructions, specially when there are major CSF leaks, because it causes fibrosis and helps healing. So, we compare efficiency of fat usage in pituitary endonasal surgery for CSF leak correction.

**METHODS:** It was a retrospective study of 69 patients who underwent endoscopic endonasal transsphenoidal resection of hypophysis tumors from 2011 to 2017. There were enrolled patients that had CSF leak complication during surgery. We compared postoperative CSF leak in reconstructions that used fat versus the ones that fat was not chosen by the team to reconstruct CSF leak.

**RESULTS:** Out of 69 patients who underwent pituitary surgery, a total of 25/69 patients (36.2%) had CSF leak intraoperative. Sixteen were reconstructed using fat, with success (no CSF leak at postoperative) in 12/16 patients, but 4/16 (25%) of them showed postoperative CSF leak, needing reassessment. Fat was not used in nine patients and no one showed postoperative CSF leak. Fisher's test showed no statistical difference between the groups regarding the fat use.

**CONCLUSION:** CSF leak reconstruction continues to be a challenge. We observed no difference in results, but a larger sample and a prospective study could answer this doubt.

## COMPARATIVE ANALYSIS FROM ENDOSCOPIC ENDONASAL TRANSSPHEOIDAL SURGERY OUTCOMES IN PATIENTS WITH CUSHING DISEASE AND NON-FUNCTIONING PITUITARY ADENOMA

MD Thiago Luís Infanger Serrano<sup>1</sup>, **MD Mariana Dalbo Contrera Toro<sup>1</sup>**, MD Mateus Dal Fabbro<sup>1</sup>, MD, PhD Carlos Takahiro Chone<sup>1</sup>, PhD Fernando Augusto Lima Marson<sup>1</sup>, MD, PhD Marcelo Hamilton Sampaio<sup>1</sup>, MD, PhD Eulalia Sakano<sup>1</sup>, MD, PhD Carlos Takahiro Chone<sup>1</sup>

<sup>1</sup>UNICAMP, Campinas, Brasil

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

**AIM:** Pituitary tumor secreting adrenocorticotrophic hormone (ACTH) leads to changes in the anatomy and physiology of the nasal cavity. The variability is a result from hormonally induced abnormal soft tissue changes, in addition to capillary fragility. Mucosa seems to be thinner and healing seems to be different. So, we compared postoperative nasal alterations in patients with Cushing's disease versus patients with non-functioning macroadenoma who underwent endoscopic endonasal transsphenoidal surgery.

**METHOD:** We conducted a retrospective study including 11 patients with Cushing's disease who underwent initial transsphenoidal endonasal surgery for an ACTH-secreting adenoma. Forty-two patients who underwent the same surgery for non-functioning adenomas were selected as controls. The following data were collected to be used in statistical analysis: operative technique, presence of endoscopic alterations in late postoperative period and post-operative nasal complaints.

**RESULTS:** There were 10/11 (90.9%) female patients at Cushing group versus 23/42 (54.8%) at non-functioning adenoma group. Mean age at surgery was 35.1 years old at Cushing group versus 53.6 years old at non-functioning adenoma group ( $p < 0.01$ ). Access was similar between groups, with no differences in flap usage, turbinectomy or ethmoidectomy. Also, the groups were compared in post-operative results and no difference was observed in flap necrosis, anterior septal necrosis, synechia formation or nasal complaints.

**CONCLUSION:** Post-operative results are similar and healing could be expected to be equal. Therefore, no special surgery technique is needed in Cushing's patient surgery.

## SPHENOID SINUS MUCOCELE AFTER TRANSSPHEOIDAL PITUITARY SURGERY

Hyung Chae Yang, MD, PhD Dong Hoon Lee<sup>1</sup>, MD, PhD Sang Chul Lim<sup>1</sup>, Dr Seong Min Jin<sup>1</sup>, MD, PhD Woo Youl Jang<sup>1</sup>, MD, PhD Shin Jung<sup>1</sup>

<sup>1</sup>Chonnam National University Medical School And Hwasun Hospital, Hwasun, South Korea

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

**OBJECTIVE:** The purpose of this study was to review the clinical characteristics, treatment methods, and surgical outcomes of sphenoid sinus mucocele after transsphenoidal pituitary surgery.

**PATIENTS and METHODS:** A total of 404 patients who underwent transsphenoidal pituitary surgery between January 2010 and December 2016 were identified. Among them, 5 patients with sphenoid sinus mucocele were included in this study. In our hospital, a single-nostril endonasal endoscopic wide sphenoidotomy is routinely used for pituitary tumor surgery.

**RESULTS:** The occurrence rate of sphenoid sinus mucocele was 1.2 % (5 / 404). Of the 5 patients, 2 were males and 3 were females. Four lesions (80.0%) were located in the right sphenoid sinus and 1 lesion (20.0%) was located in the left sphenoid sinus. Endoscopic marsupialization for sphenoid sinus mucocele was performed under local anesthesia in all patients. There were no major complications resulting from the surgical intervention, and there was no recurrence at the time of the last follow-up.

**CONCLUSION:** Sphenoid sinus mucocele after endonasal transsphenoidal pituitary surgery is an extremely rare complication. Nasal endoscopy and MRI are useful for diagnosing this lesion. Endoscopic marsupialization is a safe and effective procedure for sphenoid sinus mucocele after endonasal transsphenoidal pituitary surgery.

## TURBINATE RESECTION DOES NOT CORRELATE WITH POOR FUNCTIONAL NASAL OUTCOMES

**Dr Eugene Wong<sup>1,2</sup>**, Dr Carolyn Orgain<sup>2</sup>, Dr Eugene Ritter Sansoni<sup>2</sup>, Dr Raquel Alvarado<sup>2</sup>, Prof Richard Harvey<sup>2</sup>  
<sup>1</sup>Concord Repatriation General Hospital, Concord, Australia, <sup>2</sup>St Vincent's Hospital Rhinology/Skull Base Research Group, Darlinghurst, Australia

Rhinology Potpourri 2, Victoria - Second Floor, April 26, 2018, 10:45 - 11:55

**Introduction:** Empty nose syndrome (ENS) is a poorly understood iatrogenic disorder without universally accepted consensus criteria for diagnosis. Patients diagnosed with ENS usually have the hallmark complaint of paradoxical nasal obstruction, typically following inferior turbinate resection. However, ENS can manifest as a constellation of nasal symptoms including nasal crusting, discharge and sleep disturbance.

**Aim:** We examined the relationship between turbinate resection and the perception of nasal airflow in adult patients.

**Methods:** Patients who underwent nose and sinus surgery between October 2008 and March 2013 for indications other than rhinitis, septal deviation, nasal valve disorder or chronic rhinosinusitis were retrieved from a database of patients operated upon by four tertiary rhinologists. Patients were excluded if their follow-up period was less than 12 months. Full patient demographics including number of near total (>80%) turbinate resections performed, as well as self-reported outcomes including 7-point Likert score for nasal obstruction, the SNOT-22 score, and 13-point global nasal function score were collected.

**Results:** A total of 294 patients (49.0% male) with mean age 52.9 years +/- 17.6 were included. 17.6% had at least one inferior turbinate resected while 20.0% had at least one middle turbinate resected. On multiple linear regression analysis, the number of turbinates resected did not reach statistical significance for nasal obstruction ( $p=0.99$ ), global nasal function ( $p=0.27$ ) or sleep score ( $p=0.29$ ).

**Conclusion:** There is no statistically significant impact of near total turbinate resection on self-reported nasal obstruction, sleep disturbance or nasal function in patients without rhinitis, septal deviation, nasal valve disorder or chronic rhinosinusitis.

## CADAVERIC ASSESSMENT OF THE EFFICACY OF SINUS IRRIGATION AFTER STAGED CLEARANCE OF THE MEDIAL MAXILLARY WALL

Dr Eugene Wong<sup>1,2</sup>, Dr Eugene Ritter Sansoni<sup>2</sup>, Dr Timothy Do<sup>2</sup>, Dr Raquel Alvarado<sup>2</sup>, A/Prof Larry Kalish<sup>1,2</sup>, Prof Raymond Sacks<sup>1,2</sup>, Prof Richard Harvey<sup>2</sup>

<sup>1</sup>Concord Repatriation General Hospital, Concord, Australia, <sup>2</sup>St Vincent's Hospital Rhinology/Skull Base Research Group, Darlinghurst, Australia

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

**Background:** Nasal irrigation is a significant component of effective medical management in patients with chronic rhinosinusitis (CRS.) Of the four sinuses, the maxillary sinus remains the most commonly operated upon among otolaryngologists due to its ease of access and its relatively consistent anatomy.

**Aims:** In this study we aimed to compare the effectiveness of cadaveric nasal irrigation in various levels of surgical dissection of the maxillary sinus.

**Methods:** Thawed fresh human cadavers underwent staged dissection of each maxillary sinus. At each surgical state the corresponding nostril was irrigated via adult 240mL irrigation bottles with 1/1000 10% fluorescein-labelled free water. A nasendoscope passed through the canine fossa into a fixed position in the maxillary sinus recorded the extent of sinus irrigation. These videos then underwent blinded assessment by two observers assessing for irrigation sinus distribution (scored as 0-4) and force (0-2). Ordinal correlation scores were assessed using Kendall's tau-b.

**Results:** A total of 17 sinuses were assessed from 11 heads. We found a statistically significant positive correlation between extent of maxillary sinus dissection and both sinus distribution and force as assessed by both observers ( $p < 0.0001$ ). There was good to excellent inter-observer agreement (Weighted Kappa Score 0.70, 0.56.) There was no definitive cut-point in surgical state that achieved statistical significance when compared to adjacent surgical states.

**Conclusion:** Increasing surgical dissection of the maxillary sinus appears to improve distribution and force of the sinus during nasal irrigation.



## UTILITY OF NARROW BAND IMAGING IN THE DIAGNOSIS OF MIDDLE TURBINATE HEAD EDEMA

Dr Eugene Wong<sup>1,2</sup>, Dr Aneeza Hamizan<sup>2</sup>, Dr Raquel Alvarado<sup>2</sup>, Prof Richard Harvey<sup>2</sup>

<sup>1</sup>Concord Repatriation General Hospital, Concord, Australia, <sup>2</sup>St Vincent's Hospital Rhinology/Skull Base Research Group, Darlinghurst, Australia

Allergic Rhinitis 4, Albert - Second Floor, April 26, 2018, 12:05 - 13:15

**Background:** Middle turbinate head edema has recently been found to have high specificity for diagnosis of inhalant allergy but a low sensitivity. Edema is often difficult to appreciate under white light endoscopy and narrow band imaging (NBI) has the potential to demonstrate oedema by reduced mucosal vascularity.

**Aims:** Narrow band imaging was assessed as a tool to identify middle turbinate edema in inhalant allergy.

**Methods:** A cross-sectional diagnostic study on patients who underwent white light endoscopy and narrow band imaging (NBI). Inhalant allergy was determined based on serology or epicutaneous testing. Endoscopically, areas of oedematous mucosa were identified and compared to areas of normal mucosa on the middle turbinate head. NBI images of these same areas were then converted to grey scale and a vascularity index was created by pixel analysis and brightness in Fiji Image J software (Wisconsin, US).

**Results:** Thirty-three middle turbinates were assessed. (age 42.4±12.5, 42.4%female) Allergy was present in 64% turbinates. NBI provided discrimination between oedematous area and those areas of normal endoscopic appearance (158.2 ± 48.4 v 96.9±32.7 p<0.01). Receiver operating curve (ROC) analysis suggested a threshold of 115 to define endoscopically visible edematous mucosa with sensitivity 70% and specificity 79% (ROC AUC, p=0.85)

**Conclusion:** NBI can differentiate edematous from normal mucosa. The potential for an objective measure of mucosal edema may assist research efforts and may provide a more sensitive tool for subtle mucosal inflammatory changes.

## CLINICAL PATTERN OF FUNGAL BALLS IN THE PARANASAL SINUSES

Dr. Seung-Kyu Chung<sup>1</sup>, Dr. Min Young Seo<sup>1</sup>

<sup>1</sup>*Samsung Medical Center, Seoul, South Korea*

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

**Aims:** To investigate the clinical pattern of fungal balls in the paranasal sinus.

**Methods:** We conducted a retrospective review of medical records. A total of 74 lesions in 70 patients were investigated. All patients were underwent multiple head and neck CT or MRI from 1994 to 2017, and pathologically confirmed as fungal ball in paranasal sinus.

**Results:** Among 74 cases, we observed the new formation of fungal balls in 15 cases that did not present at initial examinations taken in the range 27-162 months. Among these 15 cases, five patients did not have any symptoms. We observed 6 cases with new formation of fungal ball that only showed mild sinusitis initially in the period of 2 to 120 months. Among these 6 patients, four patients had no symptom. Fungal ball was observed in 49 lesions at initial exam, and the longest follow up was 197 months (range 1-197 months). In these 49 lesions, the size increment was observed in 29 (59.2%) lesions, and twelve patients (24.5%) were symptom free. In the 21 cases of new formation of fungal ball, further follow up images were noted in 9 cases. The follow up duration of these 9 cases were 5 to 90 months and all cases show the size increment. Thus, increment of size of the lesion was noted in 38 cases among 58 patients finally (65.5%).

**Conclusions:** The natural course of fungal ball is variable, and the time of surgery should be determined according to the clinical features of patients.

## ALTERNARIA ALTERNATE PROTEASE INDUCED NASAL EPITHELIAL BARRIER DISRUPTION

MD Seung-heon Shin<sup>1</sup>, MD Mi-Kyung Ye<sup>1</sup>, MD Yee-Hyuk Kim<sup>1</sup>, MD Jeong-Kyu Kim<sup>1</sup>

<sup>1</sup>*Daegu Catholic University Medical Center, Daegu, South Korea*

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

**Aims:** Fungi are ubiquitous and deposited on the airway mucosa with inhalation. *Alternaria* is commonly found and associated with upper and lower airway diseases. The aim of this study was to investigate the effects of *Alternaria* on the dysregulation of nasal epithelial barrier function and their pathophysiologic mechanism.

**Methods:** Primary human nasal epithelial cells were grown at an air-liquid interface system. *Alternaria alternata* was applied apically for 6 hours to determine transepithelial resistance (TER). Tight junctions (ZO-1, occludin, and claudin-1) and apical junction (E-cadherin) were determined using RT-PCR, Western blot analysis, and confocal microscopy. Intracellular reactive oxygen species (ROS) was determined with dichlorofluorescein assay. The role of proteases in *Alternaria* was determined with heat inactivation or protease inhibitors.

**Results:** *Alternaria* reduced the mean TER, and ZO-1 and claudin-1 mRNA expression was decreased as 20-30%. Decreases in ZO-1 and claudin-1 protein levels were evident in immunofluorescent confocal microscopic images. E-cadherin and occludin mRNA and protein level was not decreased. When the cells were treated with glutathion or heat-inactivated *Alternaria*, ZO-1 and claudin-1 mRNA and protein level was not changed. *Alternaria* enhanced the ROS production and when the *Alternaria* was pretreated with serine protease inhibitor or heat inactivation, ROS production was not increased. And ZO-1 and claudin-1 mRNA and protein expression was not changed.

**Conclusions:** *Alternaria* decreased the expression of ZO-1 and occludin through the production of intracellular ROS. Serine protease in *Alternaria* may exert a harmful effect on nasal epithelial barrier function and the production of intracellular ROS.

## NASAL FUNCTION AFTER ORBITAL DECOMPRESSION IN PATIENTS WITH GRAVES' ORBITOPATHY

Dr. Kerstin Stähr<sup>1</sup>, Dr. Anke Schlüter<sup>1</sup>, Dr. Friederike Kaster<sup>1</sup>, Professor Dr. Stephan Lang<sup>1</sup>, Professor Dr. Anja Eckstein<sup>2</sup>, Dr. Stefan Mattheis<sup>1</sup>

<sup>1</sup>University Hospital Essen, Department of Otorhinolaryngology, Essen, Germany, <sup>2</sup>University Hospital Essen, Department of Ophthalmology, Essen, Germany

Orbit and Lacrimal 2, Albert - Second Floor, April 25, 2018, 12:05 - 13:15

**Aims:** Orbital decompression is a well-established treatment for patients with Graves' orbitopathy (GO). Most surgical decompression techniques include a resection of the medial orbital wall alternating intranasal anatomy. To determinate whether this influences nasal function, we monitored pre- and postoperative sense of smell and nasal airflow.

**Methods:** In a prospective study we included 25 patients (50 orbits) who underwent orbital decompression due to Graves' orbitopathy. Sense of smell was tested using Sniffin' Sticks and nasal airflow was tested by anterior rhinomanometry preoperatively and six weeks postoperatively. In addition, postoperative incidence of sinus infections, persistent pressure pain and infraorbital hypoesthesia were assessed with a questionnaire.

**Results:** The olfactory performance increased significantly ( $p < 0.05$ ) after surgery, while the nasal airflow significantly decreased ( $p < 0.05$ ). However, patients themselves did not report any impairment of nasal breathing. Sinus infection occurred in three cases, infraorbital sensibility disorder in eight cases within the first six weeks after surgery.

**Conclusion:** Orbital decompression including the resection of the medial orbital wall may lead to a decrease in nasal airflow. The olfactory performance is not impaired by the procedure. Other complications like sinus infections are relatively rare.

## ANTIBIOTIC PROPHYLAXIS IN ENDOSCOPIC ENDONASAL PITUITARY AND SKULL BASE SURGERY

**MD Giacomo Sollini<sup>1,2</sup>**, MD Laura Milanese<sup>3</sup>, MD Matteo Zoli<sup>3</sup>, MD Paolo Farneti<sup>4</sup>, MD Ernesto Pasquini<sup>1</sup>, MD Diego Mazzatenta<sup>3</sup>

<sup>1</sup>Ear, Nose and Throat Metropolitan Unit – AUSL Bologna, Bellaria Hospital, Bologna, Italy, <sup>2</sup>Department of Otorhinolaryngology-Head and Neck Surgery, University of Genoa, Genoa, Italy, <sup>3</sup>Center of Surgery for Pituitary Tumors and Endoscopic Skull Base Surgery. Department of Neurosurgery. IRCCS Istituto delle Scienze Neurologiche, Bologna, Italy, <sup>4</sup>Bologna University Medical School-DIMES - Ear, Nose and Throat Unit of Sant'Orsola-Malpighi Hospital, Bologna, Italy

Skull Base 2, Albert - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Postoperative infection is a potentially dramatic consequence in endoscopic endonasal surgery. The aim of this study is to assess the efficacy of our intraoperative antibiotic prophylaxis, analyzing the risk factors of postoperative meningitis in our series.

**Methods:** Each endoscopic endonasal procedure performed since 1998 in patients with no preoperative infections and a follow-up longer than 30 days have been included and retrospectively reviewed. Antibiotic protocol consisted in single antibiotic administration of ampicillin/sulbactam 3 g or cefazolin 2 g on induction, no postoperative administrations have been performed after 2005. All cases of CSF leak, meningitis, and systemic infection were recorded.

**Results:** Two thousand thirty-two procedures matched the inclusion criteria (median age 50; range: 1-89, male/female ratio: 1:1.12). Intraoperative CSF leak occurred in 32.8% of the cases and postoperative CSF leak in 3.4%. The rate of meningitis was 0.69%, other systemic infections were observed in 0.44% of cases. Meningitis was statistically associated with intra- and postoperative CSK leak ( $p < 0.001$ ). Other risk factors were the intradural extension of the tumors and their malignant histology. Extended approaches producing wide osteo-dural defects were correlated with a higher risk of meningitis ( $p < 0.001$ ).

**Conclusions:** Our ultra-short antibiotic prophylaxis proved safe and effective with a low rate of postoperative meningitis. All surgical maneuvers to prevent, detect and quickly repair intra- and postoperative CSF leak are crucial to avoid these insidious complications.

## NON CONTACT, TIME RELATED, OBJECTIVE ASSESSMENT OF DRUG EFFECTIVENESS IN NASAL MUCOSA, BY MEANS OF MULTISPECTRAL IMAGING.

**Ent Specialist Stylianos Velegrakis<sup>1</sup>**, PhD Vassilis Papadakis<sup>2</sup>, Ent Specialist Maria Doulaptsi<sup>1</sup>, Phd Grigorios Tsagkatakis<sup>3</sup>, MD, PhD, Ass. Professor Alexander Karatzanis<sup>1</sup>, MD, PhD, Ass. Professor Emmanuel Prokopakis<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology, Head and neck surgery, University of Crete, School of Medicine, Heraklion, Greece,*

<sup>2</sup>*Institute of Molecular Biology & Biotechnology, FORTH - Foundation for Research & Technology, Heraklion, Greece,*

<sup>3</sup>*Institute of Computer Science, FORTH - Foundation for Research & Technology, Heraklion, Greece*

Technological Advances 1, Rutherford - Fourth Floor, April 23, 2018, 12:05 - 13:15

### Introduction

To objectively assess the effectiveness of pharmaceutical agents in the nasal mucosa, by means of non-contact optical metrology.

### Patients and Method

Ten healthy individuals without history of rhinosinusitis or current inflammation were included in the study. Exclusion criteria were the use of corticosteroids, decongestives and/or antihistamines in the past 30 days. For control purposes we considered as time “zero” the measurement of nasal mucosa before drug application. Measurements were achieved by a specifically developed system, based on advanced computer vision techniques.

We performed endoscopic examination of the anterior third of the inferior turbinate, before and after the use of Oxymethazoline, at predetermined time intervals. The 4 mm Karl Storz 0 ° nasal endoscope coupled to a multi-spectral imaging camera was used. Recordings were continuously performed for the first 6 min, followed by acquired short video sequences (~5sec each) every 6 min. Each measurement was completed in 60 min. Data acquisition and analyses were performed with a custom developed software for this project. The methodology is based on the absorption differences of the blood oxygenation, which corresponds to the spatial blood concentration of the inferior turbinate.

### Results

We managed to detect time related changes in the oxygenation characteristics of hemoglobin at the inferior turbinate. The relevant curves obtained at each pixel of the area of interest were recorded, processed and quantitatively illustrated.

### Conclusion

The objective, non contact drug effectiveness evaluation of different pharmaceutical agents, by means of multispectral imaging, may be of great value for both clinicians and researchers.

## IS THERE AN IMMUNOMODULATORY ROLE FOR VITAMIN D IN CHRONIC RHINOSINUSITIS?

**Dr Amy Wong<sup>1</sup>**, Dr Chun Chan<sup>1</sup>, Mr Charles Giddings<sup>1,2</sup>, Dr Joanne Rimmer<sup>1,2</sup>

<sup>1</sup>Department of Otolaryngology Head and Neck Surgery, Monash Health, Melbourne, Australia, <sup>2</sup>Department of Surgery, Monash University, Melbourne, Australia

CRS Pathophysiology 3, Victoria - Second Floor, April 26, 2018, 12:05 - 13:15

### Aims

Chronic rhinosinusitis (CRS) is characterised by inflammation of the sinonasal mucosa. It can be divided into two main phenotypes, CRS with nasal polyps (CRSwNP) and without (CRSsNP). Its aetiology and pathogenesis remains unknown but is thought to be the result of a dysfunctional host-environment interaction. Vitamin D has been shown to have immunomodulatory effects on both adaptive and innate immunity locally within the respiratory epithelium, and may therefore play a role in CRS. Our study aimed to investigate the association between vitamin D levels and CRS in a Victorian population.

### Methodology

We conducted a multicentre prospective controlled study of patients with a confirmed diagnosis of CRS, both with (CRSwNP) and without polyps (CRSsNP). Patients undergoing septoplasty acted as controls. 111 patients were recruited with 37 patients in each of the three groups. Serum vitamin D samples were taken and CRS severity was assessed using the SNOT-22 questionnaire, Lund-Mackay score and endoscopic grading score. Patients who had received vitamin D supplements, oral steroids or immunomodulatory medications in the previous 6 months were excluded.

### Results

Analysis of preliminary data showed 43 patients with mean age 42 years, 32 (76%) males and 29 (67%). Mean vitamin D levels were 55 nmol/L in the control group, 51 nmol/L in CRSsNP and 53 nmol/L in CRSwNP.

### Conclusion

Preliminary results demonstrated no significant difference in vitamin D levels between patients with and without CRS. Further data analysis will determine whether vitamin D plays a role in CRS, including the potential role of vitamin D supplementation.

## UNILATERAL PATHOLOGY OF THE PARANASAL SINUSES: A REVIEW OF 790 CASES IN 10 YEARS

Prof. Dr. med. Joerg Lindemann<sup>1</sup>, Cand. med. Brigitte Gloeckle<sup>1</sup>, Dr. med. Fabian Sommer<sup>1</sup>

<sup>1</sup>University Hospital Ulm, Ulm, Germany

CRS Diagnosis and Investigation 3, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims:** According to the current opinion the presence of a malignant disease should be considered in a unilateral radiographic opacification of the paranasal sinuses in patients with corresponding unilateral sinus disease (USD). The aim of this study was to evaluate complaints, CT findings and pathology in patients who had undergone unilateral sinus surgery.

**Methods:** 790 patients in 10 years underwent unilateral sinus surgery due to USD and unilateral opacification of the sinuses. The data collection was realized by electronic patient record and clinic-internal PACS. Patients' complaints, CT findings, and histopathology were evaluated.

**Results:** All patients presented a unilateral sinus opacification on the CT. 43% of the patients were female, 57% male. The average age was 47 years. Both sides were affected equally. 55% (441/790) presented polyps. Most of the patients had chronic rhinosinusitis (47%) followed by antrochoanal polyp 11%, fungal sinusitis 11%, mucosal cyste 9%, inverted papilloma 7%, mucocele 4% and other benign 4% tumours. Malignant tumours were present in 8% with 17 different entities. Most of the malignant tumours presented no nasal polyps (50/59). These patients were significantly older (average 68y) and more often male (m:f, 2:1).

**Conclusions:** Although USD is most likely to represent a chronic sinusitis or other benign pathology, there is a risk of 8% for malignant tumour especially in older male patients with no nasal polyps. Additionally, there is a large number of benign and semi-malignant tumours that require specific therapy. Therefore, a unilateral radiographic opacification with corresponding complaints should always be clarified histologically.



## NASAL VALVE ELASTOGRAPHY: QUANTITATIVE DETERMINATION OF THE MOTILITY OF THE NASAL VALVE

Medical Student Liga Akmenkalne<sup>1</sup>, Klaus Vogt<sup>2</sup>, Matthias Prill<sup>3</sup>

<sup>1</sup>University of Latvia, Faculty of Medicine, Riga, Latvia, <sup>2</sup>Center of Experimental Surgery, University of Latvia, Faculty of Medicine, Riga, Latvia, <sup>3</sup>Prettl Electronics Lübeck GmbH, Grevesmühlen, Germany

Imaging and Investigations 1, Albert - Second Floor, April 23, 2018, 12:05 - 13:15

### Introduction:

The nasal valve is the narrowest region of the entire upper airway. It is the mobile part of the nose as STARLING-resistor. Numerous procedures and spreader devices are published to widen the nasal valve or to stabilize it, but the indications are based only on the surgeon's experience. The aim of the new developed procedure is the quantitative determination of the interaction between nasal airstream and valve deflection.

### Material and Methods:

The deflection of elastic steel elements touching the lower nasal side at its deepest point and fixed at a headband was measured by strain gauge elements. The deflection is calibrated by metal blocks. A special 4-phase-rhinomanometer (4PR) with a big protective face mask allows at the same time to measure air flux and differential pressure. The signals are recorded together with the deflection signals simultaneously on both sides. The measurements have been carried out in 32 volunteers as unilateral and bilateral measurements according to anterior and posterior rhinomanometry. As a comparative method, the distance between the nasal wing and an inductive distance sensor was measured. Practical demonstration intended.

### Results:

The nasal valve is mostly already moving during quiet breathing. Airflow and pressure difference generating a complete closure of the nose can be determined and have expectedly a high variance between individuals. The obtained measurements show good intra-individual repeatability.

### Conclusions:

Elastography is in accordance with 4PR and will after development as medical product allow the quantitative measurement of the influence of the nasal valve on the nasal air stream.

## EFFICIENT AND ACCURATE RECORDING OF RHINOLOGY PATIENT REPORTED OUTCOME MEASURES (PROMS) USING A DEDICATED ONLINE WEBSITE

Ms Anna Slovick<sup>1</sup>, Mr Andrew Harrison<sup>1</sup>, Miss Catherine Rennie<sup>1</sup>, Mr Hesham Saleh<sup>1</sup>

<sup>1</sup>ENT Dept, Imperial College London, London, United Kingdom

Technological Advances 1, Rutherford - Fourth Floor, April 23, 2018, 12:05 - 13:15

### Aims

PROMs recording is not routine outside of the research setting in rhinology, despite numerous validated PROMs instruments. PROMs are being used increasingly to improve clinical quality and develop databases for managing individual care and healthcare provider performance. Challenges include form filling, data analysis time-restraints in the clinic setting and difficulty contacting patients long-term. Traditionally paper forms are filled in clinic or sent to patients at home. Little has been published on online PROMs data collection.

The aim of this study was to trial routine recording of rhinology patient report outcome measures pre- and post-operatively using a dedicated online website.

### Methods

The Otavalo online patient feedback website was used to collect SNOT-22 PROMs data on patients undergoing functional endoscopic sinus surgery at Charing Cross Hospital (October 2017–date). 28 patients completed questionnaires on trust iPads pre-operatively. Scores and graphs were automatically produced and viewed at consultation, demonstrating symptom severity to surgeons and patients. Patient questionnaires are automatically emailed both 3 and 6 months post-operatively, ensuring prompt data collection.

### Results

28 patients completed questionnaires pre-operatively. 92% fully completed pre-operative forms. Pre-operative SNOT-22 scores ranged from 30-110 (mean score 45.0). Females reported higher scores than males. Post-operative data is pending.

### Conclusions

Online recording of patient outcome measures via a dedicated website, can be a highly efficient and timely way of recording, analysing and presenting PROMs data. It may also improve post-operative data capture compared to paper forms and provide registers for further rhinology research, patient care improvement and healthcare provider performance monitoring.

## OUTCOMES OF THE MODIFIED Z-PLASTY OF THE INTERNAL NASAL VALVE (INV) FOR MANAGEMENT OF MECHANICAL NASAL OBSTRUCTION

Mr Kiran Varadharajan<sup>1</sup>, Miss Nadine Caton, Dr Jack Faulkner, Miss Natasha Choudhury

<sup>1</sup>*Surrey & Sussex Nhs Trust, London, United Kingdom*

Septal Surgery 4, Gielgud - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:** High deviations of the nasal septum in Cottle's area II, results in narrowing of the internal nasal valve (INV) and symptoms of nasal blockage. Septoplasty surgery alone is typically of limited benefit due to preservation of a sufficient dorsal strut. The modified Z-plasty utilises a mucosal local advancement flap that is positioned to widen the INV angle and relieve nasal obstruction. We have prospectively evaluated patient reported outcomes using this technique, in a DGH setting.

**Methods:** Complete data has been obtained on 21 patients to date, who have undergone a modified Z-plasty of the internal nasal valve under a single surgeon over a 2-year period (2015-2017). Pre- and post-operative NOSE score and VAS score for nasal obstruction, were recorded.

**Results:** The total NOSE score improved in 95% of patients (mean 13.2 to 5.3,  $p < 0.01$ ). The mean VAS for nasal obstruction improved in 90% of patients (mean 7.0 to 2.8,  $p < 0.01$ ). Mean scores for each component of the NOSE score pre- and post-op respectively were as follows: N (3.2, 1.7), O (2.9 and 1.0), S (3.0 and 1.1), S (2.6 and 1.1) and E (2.5 and 0.9).

**Conclusion:** The modified INV Z-plasty is a simple, effective and relatively non-invasive technique that used to treat INV obstruction to improve nasal potency.

## ENDOSCOPIC MEDIAL MAXILLECTOMY WITH PRESERVATION OF INFERIOR TURBINATE: HOW DO WE DO IT?

**MD Laura Pardo Muñoz<sup>1</sup>**, PhD Juan Ramon Gras-Cabrerizo<sup>1</sup>, PhD Juan R. Montserrat-Gili<sup>1</sup>, MD Katarzyna Kolanczak<sup>1</sup>, PhD Humbert Massegur-Solench<sup>1</sup>, MD Albert Pujol-Olmo<sup>1</sup>

<sup>1</sup>*Hospital De La Santa Creu I Sant Pau, Barcelona, Spain*

CRS 1, Albert - Second Floor, April 24, 2018, 10:45 - 11:55

### Aim

The aim of this study was to describe the endoscopic medial maxillectomy technique with preservation of the inferior turbinate and its effectiveness of the preservation of the nasal function.

### Methods

We retrospectively reviewed the clinical charts and surgical technique in 21 patients treated by endoscopic medial maxillectomy conserving the inferior turbinate from January 2005 to December 2016.

### Results

We performed 22 endoscopic medial maxillectomy conserving the inferior turbinate (EMMCI) on 21 patients. The most frequent pathologies diagnosed were inverted papillomas (13/22) and antrochoanal polyps (5/22). There were 17 primary lesions and 5 patients had been previously treated, three of them were inverted papillomas and two antrochoanal polyps. All inverted papillomas involved on any maxillary wall other than the medial wall. Twelve papillomas had the origin in the maxillary sinus and one of them in the ethmoid sinus. They were classified according to Krouse's staging system as T3 and B group according to Cannady system. No recurrences were diagnosed with a minimum 1-year follow-up. Nasal breathing was satisfying in all cases and no nasal crusting was evidenced postoperatively. Postoperative epistaxis was not observed, and none of the patients reported epiphora or facial pain after the surgery.

### Conclusion

This technique has been successfully performed allowing the access to maxillary sinus with the preservation of the inferior turbinate maintaining its physiological functions

## SILENT SINUS SYNDROME- REPORT OF A CASE

**Dr. Aleksandra Mickielewicz<sup>1</sup>**, Dr. Iwonna Gwizdalska<sup>1</sup>, Dr. Katarzyna Lazecka<sup>1</sup>, Dr. Edyta Witkowska<sup>1</sup>, Ass. Prof. Piotr Skarzynski<sup>1,2,3</sup>, Prof. Henryk Skarzynski<sup>1</sup>

<sup>1</sup>*Institute of Physiology and Pathology of Hearing, Kajetany/ Warsaw, Poland*, <sup>2</sup>*Institute of Physiology and Pathology of Hearing, Kajetany, Poland*, <sup>3</sup>*The Heart Failure and Cardiac Rehabilitation Department, Medical University of Warsaw, Warsaw, Poland*

CRS Surgery 4, Burton & Redgrave - Second Floor, April 25, 2018, 12:05 - 13:15

**Aim:** Silent sinus syndrome (SSS) is a disease characterized by asymptomatic chronic maxillary sinusitis which leads to enophthalmos or hypoglobus secondary to the collapse of the orbital floor. We present a case of unilateral silent sinus syndrome in a healthy 35-year old woman, treated with endoscopic sinus surgery.

**Methods:** 35-year old woman with well-controlled allergic rhinitis, no previous surgery nor nasal trauma presented with unilateral SSS, observed in CT scans (total opacification of right maxillary sinus). Minor complaints like postnasal drip, periodically blocked nose with smell disorders were linked with allergic rhinitis. 4 months prior to surgery patient reported decreased vision acuity in the right eye. Surgery, postponed due to family and maternity reasons of the patient, was successfully performed endoscopically with great surgical outcome. Right maxillary sinus antrostomy was done.

**Results:** Follow-up visits showed normal recovery. 1 month post surgery middle wall of right maxillary sinus, massively retracted before surgery was easily visible in endoscopy with wide, patent ostium. Additionally patient reported vision acuity improvement.

**Conclusion:** Silent sinus syndrome is a very rare condition, joining ophthalmological symptoms with rhinological, endoscopic treatment. The diagnosis can only be confirmed by imaging studies. The only treatment is surgical, including not only endoscopically performed maxillary sinus antrostomy, but in severe cases also orbital floor repair.

## THE COMBINED AIRWAY CLINIC: EXAMPLES OF NOVEL MULTI-MODALITY MANAGEMENT

**Mr Edward Noon<sup>1</sup>**, Dr Imran Aziz<sup>1</sup>, Professor B Nirmal Kumar<sup>1</sup>

<sup>1</sup>*Wrightington, Wigan and Leigh NHS Foundation Trust, Wigan, United Kingdom*

Rhinology Potpourri 1, Victoria - Second Floor, April 25, 2018, 12:05 - 13:15

### Introduction

The one airway concept of disease has led to the formation of multi-disciplinary one airway clinics, combining expertise in both the upper and lower respiratory tracts, facilitating a holistic approach to symptom management in those with refractory airway symptoms. New treatments have recently emerged, allowing some of the most severely affected patients access to potential disease control rather than requiring frequent high-dose oral corticosteroid therapy.

### Methods

We present specific examples of emerging therapies, alongside protocol-driven indications for use, many of which are only accessible through a multi-disciplinary team setup. Such patients have often received many local or systemic treatments and may have consulted with multiple doctors before the true diagnosis can be refined in the one-airway clinic and optimal treatment initiated.

### Results

The majority of patients receiving newer treatments from the one airway clinic had received numerous oral corticosteroids for severe asthma and FESS procedures for uncontrolled sinonasal symptoms. One patient had recurrent nasal polyposis, asthma and was identified to have eosinophilia so received anti-IL5 (mepolizumab). A further patient with a similar history had a raised total IgE and was treated with anti-IgE therapy (omalizumab). Other patients received aspirin desensitisation and antifungal therapy.

### Conclusion

A number of emerging alternative therapies with specific targets are available for use in clinical and research settings in patients with severe upper and lower airway disease. The one airway clinic is a valuable setting in which to establish a true diagnosis and to identify patients who may benefit from such novel treatments.

## 3D PRINTING OF A NASAL CAVITY MODEL FOR THE ASSESSMENT OF NASAL SPRAY DISTRIBUTION: TECHNIQUE AND APPLICATIONS

**Mr Edward Noon<sup>1</sup>**, Mr Bilal Anwar<sup>2</sup>, Mr Haydn Insley<sup>3</sup>, Ms Sadie Khwaja<sup>2</sup>

<sup>1</sup>Wrightington, Wigan and Leigh NHS Foundation Trust, Wigan, United Kingdom, <sup>2</sup>Manchester University NHS Foundation Trust, Manchester, United Kingdom, <sup>3</sup>School of Engineering, Manchester Metropolitan University, Manchester, United Kingdom

Technological Advances 1, Rutherford - Fourth Floor, April 23, 2018, 12:05 - 13:15

### Introduction

Little is known about the optimal method of nasal medication delivery. Where should a spray or drop be directed in the nose to be maximally effective? As a step towards being able to establish this, we wished to evaluate where such devices deposit medication in the nasal cavity. In vivo measurement would be complex, and a search for an existing model yielded few useable results so we sought to build our own.

### Methods

The technique for designing and printing a 3D nasal cavity model is presented, and we illustrate how it may be used to deliver nasal sprays in a 'sealed unit' to assess the distribution of spray droplets, and how the model may be 'opened' for analysis. We explore the potential research and patient-feedback applications.

### Results

Image data from a CT temporal bones scan was taken due to the thin CT slices and the inclusion of the nasal cavity in the image volume. Data was imported into computer-aided design software and an edge-finding algorithm and a thresholding mask used to delineate the nasal cavity including overlying mucosa. The model was printed using a thermoplastic elastomer which is solid but possesses elastic properties, mimicking tissue.

### Conclusion

We present a technique for 3D printing a realistic model of the nasal cavity and discuss its potential applications. Although the optimal site of nasal medication deposition is not yet known, a 3D printed model facilitates the measurement of spray deposition with varying parameters including nozzle design, trajectory and effect of head position.

## CHALLENGES IN THE MANAGEMENT OF SINO-NASAL CANCER. A TEN YEAR EXPERIENCE.

**Professor Hisham Khalil<sup>1,2</sup>**, Mr Marios Stavrakas<sup>1</sup>, Mrs Stephanie Murgatroyd<sup>1</sup>

<sup>1</sup>*Plymouth Hospitals NHS Trust, Plymouth, United Kingdom*, <sup>2</sup>*Peninsula Schools of Medicine and Dentistry, Plymouth, United Kingdom*

Sinonasal Malignancy 2, Burton & Redgrave - Second Floor, April 25, 2018, 10:45 - 11:55

### Aims

Sinonasal malignancies (SNM) are uncommon and account for 1% of all cancers and 3% to 5% of all head and neck malignancies. We aim to identify the challenges in the diagnosis and treatment of this rare type of cancer.

### Methods

This was a retrospective audit of all patients diagnosed with SNM in Plymouth Hospitals NHS trust, a tertiary referral centre in the Southwest Peninsula, UK, between January 2007 and August 2017. Patients were identified through the coding system and MDT data base .

The route of referral, presenting symptoms, staging on presentation, histopathology, treatment and outcome were collated.

### Results

55 patients were diagnosed with a primary SNM over the audit period out of 1192 patients with a primary Head and Neck cancer (4.6%). There were 35 males and 20 females (1.75:1). Only 16.4% were referred through the 2-week fast-track referral system. The most common presentation was a unilateral nasal obstruction (65.5%) followed by epistaxis (23.6%). Squamous Cell Carcinoma was the most common histological diagnosis (50.1%), followed by Malignant Melanoma(21.8%) and Sino-nasal Undifferentiated Carcinoma (10.9%). Rare diagnoses included carcinosarcomas (3.6%). 56% of patients were Stage IV at presentation.

Nineteen patients(34.5%) had surgery as a treatment modality, Ten of these patients had endoscopic resections. other treatments included chemoradiotherapy and proton-beam therapy. 36.4% of patients died within 5 years of being diagnosed.

### Conclusions

SNM presents late with a relatively poor prognosis. There is a need to increase GP awareness of the presenting symptoms of SNM and review the 2-week fast-track referral criteria.



## LONG-TERM RESULTS OF FUNCTIONAL ENDOSCOPIC SINUS SURGERY IN CHILDREN WITH CHRONIC RHINOSINUSITIS.

Dr. Marjolein Cornet<sup>1</sup>

<sup>1</sup>*Amc, Amsterdam, The Netherlands*

Paediatric Rhinology 3, Albert - Second Floor, April 25, 2018, 10:45 - 11:55

**Aim:** Chronic rhinosinusitis with nasal polyps (CRSwNP) is rare in children and has a major impact on the Quality of Life (QoL). Functional endoscopic sinus surgery (FESS) has proven to be an effective treatment, but it is still unclear what long term outcomes are in children with CRSwNP. The objective of this study was to assess long term results of FESS in children with CRSwNP.

**Methods:** We performed a combined prospective and retrospective study. A QoL questionnaire was sent to all children with CRSwNP who received FESS between the year 2000-2010. Almost half on the children also filled in this questionnaire preoperatively.

**Results:** 44 Children underwent FESS. From 18 patients we also preoperatively collected QoL questionnaires. The mean follow-up period was 4.0 years ( $\pm 2.9$ ). The mean age at surgery was 13 years ( $\pm 2.9$ ). Of these children 9 had cystic fibrosis (CF) (25%) and 10 children asthma (28%). R-SOM scores showed a significant improvement both in general symptoms as well as several different domains when comparing pre- and postoperative questionnaires ( $p=0.04$ ). Only 14% (5) of the patients needed a subsequent intervention. In children with CF this was 33% (3/9).

**Conclusion:** This study demonstrates that long term results after FESS in children with CRSwNP are good. QoL has improved significantly, especially in nasal symptoms, showing that FESS is a good treatment in children with CRSwNP. Furthermore even children with CF show good results.

## MP-AZEFLU HAS SUPERIOR EFFECT ON THE TRANSACTIVATION OF ANTI-INFLAMMATORY GENES THAN FLUTICASONE PROPIONATE AND AZELASTINE ALONE IN NASAL MUCOSA AND POLYP FIBROBLASTS

Laura Pujols<sup>1</sup>, Jordi Roca-Ferrer<sup>1</sup>, Borje Callejas-Diaz<sup>1</sup>, Mireya Fuentes-Prado<sup>1</sup>, Maria Perez-Gonzalez<sup>1</sup>, Isam Alobid<sup>2</sup>, Antonio Valero<sup>2</sup>, Cesar Picado<sup>2</sup>, Ruth Murray<sup>3</sup>, **Joaquim Mullol<sup>2</sup>**

<sup>1</sup>IDIBAPS & CIBERES, , Spain, <sup>2</sup>IDIBAPS, CIBERES & University Hospital Clinic of Barcelona, , Spain, <sup>3</sup>Medscript Consultancy, , Ireland

Rhinology Potpourri 2, Victoria - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:** MP-AzeFlu, a novel intranasal formulation of azelastine hydrochloride (AZE) with fluticasone propionate (FP) in a single device, has superior clinical efficacy in rhinitis versus these drugs alone. MP-AzeFlu also has greater anti-inflammatory potency than FP and AZE, inhibiting eosinophil survival and cytokine release from nasal mucosa (NM) epithelial cells. We compared effects of MP-AzeFlu, AZE, and FP on transactivation of anti-inflammatory genes in cultured fibroblasts from control NM and nasal polyps (NP) of patients with chronic rhinosinusitis with NP (CRSwNP).

**Methods:** NM and NP fibroblast cultures (N=6 each) were incubated with serial dilutions of MP-AzeFlu (1:10<sup>2</sup> to 1:10<sup>4</sup>) or equivalent dilutions of FP (7.3µM to 73nM) or AZE (24µM to 240nM) for 2h and 6h. Glucocorticoid-induced leucine zipper (GILZ) and mitogen-activated protein kinase phosphatase-1 (MKP-1) gene expression were analyzed by RT-PCR. Results were expressed as mean ± SEM fold-increase over untreated cells.

**Results:** At 6h, MP-AzeFlu and FP markedly increased GILZ and MKP-1 gene expression in NM and NP fibroblasts at all dilutions (all P<0.05). AZE also increased target gene expression, but only at 1:10<sup>2</sup> dilution (P<0.05). MP-AzeFlu (1:10<sup>2</sup>) induced significantly (P<0.05) greater GILZ gene expression than FP or AZE (NM: 36.5±7.9/MP-AzeFlu, 19.8±2.4/FP, 7.9±2.8/AZE; NP: 31.4±9.2/MP-AzeFlu, 15.3±4.5/FP, 2.8±0.9/AZE) and significantly (P<0.05) greater MKP-1 expression than AZE (NM: 5.4±1.7/MP-AzeFlu, 4.7±1.0/FP, 1.8±0.6/AZE; NP: 6.2±2.4/MP-AzeFlu, 4.8±1.6/FP, 1.9±1.3/AZE).

**Conclusion:** This superior clinical efficacy of MP-AzeFlu may reflect stronger induction of the anti-inflammatory genes GILZ and MKP-1, revealing the molecular basis for MP-AzeFlu's efficacy in rhinitis and potential benefit in CRSwNP.

## MP-AZEFLU IMPROVES SLEEP QUALITY IN PATIENTS WITH PERSISTENT ALLERGIC RHINITIS: DATA FROM AUSTRIA, IRELAND AND SWEDEN

**Prof. Par Stjarne**<sup>1</sup>, Dr. Ranbir Kaulsay<sup>2</sup>, Prof. Wolfgang Pohl<sup>3</sup>

<sup>1</sup>Karolinska Institute, Stockholm, Sweden, <sup>2</sup>Clontarf Clinic, , Ireland, <sup>3</sup>Karl Landsteiner Institut für Experimentelle und Klinische Pneumologie, Vienna, Austria

Allergic Rhinitis 2, Burton & Redgrave - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Most allergic rhinitis (AR) patients have moderate/severe persistent AR (PER) and report reduced sleep quality. MP-AzeFlu comprises intranasal azelastine hydrochloride and fluticasone propionate in a single device. Its real-life effectiveness in AR is established over 14 days. However, its impact on sleep quality is unknown. We assessed impact of MP-AzeFlu on sleep quality when used in routine clinical practice by PER patients.

**Methods:** Patients (N=428, ≥12 years old) with moderate/severe PER were enrolled in prospective, noninterventional studies (n=214/Austria, n=53/Ireland, n=161/Sweden). MP-AzeFlu (one spray/nostril BID; daily doses: AZE=548 µg; FP=200 µg) was prescribed per label. Patients assessed 7 days of reflective sleep quality using a 5-point scale ('very good' to 'very bad').

**Results:** Many patients (52.3%/Austria, 77.4%/Ireland, 50.9%/Sweden) reported sleep disturbance before MP-AzeFlu prescription. After 28 days of MP-AzeFlu treatment, more patients reported 'very good' quality sleep vs baseline (35.3% vs 2.4%/Austria, 24.5% vs 0.0%/Ireland, 15.7% vs 3.7%/Sweden); similar 'good' sleep vs baseline (44.6% vs 25.1%/Austria, 50.9% vs 24.5%/Ireland, 44.4% vs 28.6%/Sweden), with corresponding reductions in patients reporting 'bad' or 'very bad' sleep quality. Sleep quality improved at assessed time points (all P<.0001 for Days 7, 14, 21, 23, and 28 compared with baseline) and across phenotypes (perennial or perennial + seasonal AR).

**Conclusion:** MP-AzeFlu improves sleep quality in patients with moderate/severe PER in real-world European settings. These data support MP-AzeFlu as an effective drug choice for AR.

## ONSET OF ACTION FOR INTRANASAL AZELASTINE-FLUTICASONE PROPIONATE VERSUS ORAL LORATADINE WITH INTRANASAL FLUTICASONE PROPIONATE

Dr. Jean Bousquet<sup>1</sup>, Dr. David Price<sup>2</sup>, Dr. Eli O. Meltzer<sup>3</sup>, Dr. Duc Tung Nguyen<sup>4</sup>, Dr. Hans-Christian Kuhl<sup>4</sup>, Dr. Arkady Koltun<sup>5</sup>, **Dr. Ferdinand Kopietz<sup>4</sup>**, Dr. Ullrich Munzel<sup>4</sup>

<sup>1</sup>MACVIA-LR EIP on AHA, Montpellier, France, , France, <sup>2</sup>Observational & Pragmatic Research Institute Pte Ltd, , Singapore, <sup>3</sup>Allergy & Asthma Medical Group and Research Center, San Diego, United States, <sup>4</sup>Mylan Inc., , Germany, <sup>5</sup>Mylan Inc., Canonsburg, United States

Allergic Rhinitis 3, Victoria - Second Floor, April 25, 2018, 10:45 - 11:55

**Aims:** A novel formulation of intranasal azelastine hydrochloride-fluticasone propionate (MP-AzeFlu) has proven a more effective treatment for allergic rhinitis (AR) than monotherapy with azelastine hydrochloride (AZE) or fluticasone propionate (FP), but its onset of action requires further investigation. We compared onset of action of MP-AzeFlu with sequential monotherapies of oral loratadine and intranasal fluticasone propionate (LORA/INFP).

**Methods:** In this single-center, randomized, active- and placebo-controlled, double-blind, double-dummy, three-period crossover trial, AR was induced in asymptomatic, ragweed-sensitive patients by ragweed pollen challenge in an environmental exposure chamber. Patients received single-dose MP-AzeFlu, LORA/INFP, or placebo and were monitored for 4 hours. Primary outcome was onset of action measured by total nasal symptom score (TNSS). Secondary measures were onset of action assessed by total ocular symptom score (TOSS), total score of the seven nasal and ocular symptoms (T7SS), and the global visual analogue scale (VAS).

**Results:** Seventy-eight patients completed all treatments. TNSS was significantly reduced vs placebo from 5 minutes for MP-AzeFlu and 150 minutes for LORA/INFP onward (both  $p < 0.05$ ) until the end of assessment (0-4 hours). Compared with LORA/INFP or placebo, MP-AzeFlu reduced TNSS to a greater extent at each time point from 5-90 minutes ( $p < 0.05$ ) and over the entire assessment interval ( $p = 0.0045$ ). No statistically significant difference between LORA/INFP and placebo was observed over the assessment interval ( $p = 0.182$ ). MP-AzeFlu onset of action assessed by TOSS, T7SS, and VAS was 10 minutes, 2 hours earlier than LORA/INFP.

**Conclusion:** MP-AzeFlu had a rapid onset of action (5 min) and was more effective than LORA/INFP.

## PROFILE OF PATIENTS WITH PERSISTENT ALLERGIC RHINITIS PRESCRIBED MP-AZEFLU IN ROUTINE CLINICAL PRACTICE IN SWEDEN, IRELAND, AND AUSTRIA

**Prof. Par Stjarne**<sup>1</sup>, Prof. Wolfgang Pohl<sup>2</sup>, Dr. Ranbir Kaulsay<sup>3</sup>

<sup>1</sup>Karolinska Institute, , Sweden, <sup>2</sup>Karl Landsteiner Institut für Experimentelle und Klinische Pneumologie, , Austria,

<sup>3</sup>Clontarf Clinic, , Ireland

Allergic Rhinitis 2, Burton & Redgrave - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Many allergic rhinitis (AR) patients have moderate-to-severe persistent AR (PER). We characterised the PER patient prescribed MP-AzeFlu (azelastine hydrochloride and fluticasone propionate in a single spray) in real life and quantified the symptomatic burden of PER.

**Methods:** Three prospective, observational studies included adults/adolescents (n=161/Sweden, n=53/Ireland, n=214/Austria) with moderate/severe PER for whom MP-AzeFlu was prescribed per label. Patient demographics, AR phenotype, allergen sensitisation, symptomatology, AR treatments in previous year, and reasons for MP-AzeFlu prescription were recorded.

**Results:** Most patients had both seasonal and perennial AR (range 53-70% across countries); 30-47% had perennial AR alone. Most were sensitized to animal dander (dog, cat, other pet) or house dust mite; many were polysensitized. Prior to MP-AzeFlu prescription, patients had troublesome symptoms (55-89%), impairment of daily activities (49-96%), sleep disturbance (51-77%), and impairment of school/work (34-92%). Congestion was considered the most bothersome symptom by most (53-68%). Most common reasons for MP-AzeFlu prescription were other therapies were insufficient (59-83%) or insufficient to treat acute symptoms (16-24%). Previous therapy differed by country and included oral antihistamines (55-91%), intranasal corticosteroids (9-83%), and intranasal antihistamines (9-33%), with 32-74% using  $\geq 2$  AR therapies in the past year.

**Conclusion:** Many patients in Sweden, Ireland, and Austria live with uncontrolled PER despite mono- and multiple-treatment therapies. A more effective treatment option, such as MP-AzeFlu, could improve AR control and reduce associated management costs.

## HPV IMPLICATION IN SINONASAL TUMORS

Dr. Vlad Budu<sup>1,2</sup>, Dr. Tatiana Decuseara<sup>2</sup>, Dr. Mihail Tusaliu<sup>1,2</sup>, Dr. Lavinia Sava<sup>2</sup>

<sup>1</sup>Umf "Carol Davila", Bucharest, Bucharest, Romania, <sup>2</sup>ENT National Institute "D. Hociota", Bucharest, Romania

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

### Aim

In the last decades, as endoscopic surgery evolved, several methods of determination of the etiology have also developed. Papillomatous tumors and sinonasal inverted papilloma have, undoubtedly, a viral etiology – HPV.

### Methods

Inverted papilloma can have an aggressive evolution. Its fundamental treatment is represented by complete surgical resection. Yet, knowing it has a viral etiology and malignancy risk, it is important to determine whether it is a low risk or high risk genotype.

### Results

Using PCR technique, more than 70% of our cases presented tumoral cells with viral RNA. The viral etiology and the precise genotype determines the therapeutic approach. In our clinic the therapeutic management for inverted papilloma with viral etiology includes endoscopic or open surgery, antiviral treatment with interferone  $\alpha$  or cidofovir, HPV vaccination, monoclonal antibodies treatment.

### Conclusion

Sinonasal tumors, either benign or malignant, are a challenging pathology in rhinology practice. High recurrence and possibility of malignancy makes inverted papilloma an important pathology and therapeutic strategy must include etiopathogenic treatment.

Key words: endoscopic sinus surgery, HPV, nasal tumors

## REAL-LIFE EFFECTIVENESS OF MP-AZEFLU IN PERSISTENT ALLERGIC RHINITIS, ASSESSED BY VISUAL ANALOGUE SCALE: DATA FROM SWEDEN, IRELAND, AND AUSTRIA

**Prof. Par Stjarne**<sup>1</sup>, Prof. Wolfgang Pohl<sup>2</sup>, Dr. Ranbir Kaulsay<sup>3</sup>

<sup>1</sup>Karolinska Institute, , Sweden, <sup>2</sup>Karl Landsteiner Institut für Experimentelle und Klinische Pneumologie, , Austria,

<sup>3</sup>Clontarf Clinic, , Ireland

Allergic Rhinitis 2, Burton & Redgrave - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Most allergic rhinitis (AR) patients have moderate/severe persistent AR (PER). MP-AzeFlu comprises intranasal azelastine (AZE) hydrochloride and fluticasone propionate (FP) in a single device. Real-life effectiveness of MP-AzeFlu in AR is established over 14 days; longer-term effectiveness in PER is unknown. We assessed effectiveness of MP-AzeFlu in routine clinical practice in PER using the Allergic Rhinitis and its Impact on Asthma (ARIA)-endorsed language of AR control: visual analogue scale (VAS), 50mm recommended cutoff.

**Methods:** Three prospective, observational studies included adults/adolescents with moderate/severe PER (n=161/Sweden, n=53/Ireland, n=214/Austria) for whom MP-AzeFlu (one spray/nostril twice daily; daily doses: AZE=548µg; FP=200µg) was prescribed per label. Patients assessed symptom severity using VAS (0mm, not at all bothersome; 100mm, very bothersome) prior to morning MP-AzeFlu, daily for 42 days.

**Results:** MP-AzeFlu treatment was associated with a 38mm reduction in mean VAS score from baseline to day 42 (P<0.0001). Score reduction was rapid and significantly reduced from baseline by Day 1 (P<0.05) and every time point thereafter (all P<0.01). Patients typically achieved VAS score <50mm before day 7. Results were consistent across age groups, baseline severity, and AR phenotype (perennial, seasonal+perennial).

**Conclusion:** MP-AzeFlu provided effective and rapid control of PER assessed by VAS in real-world settings in three countries. Symptom improvement was noted from day 1 and sustained for 42 days. These data support the validity of MP-AzeFlu for real-life AR treatment.

## ENDOSCOPIC DACRYOCYSTORHINOSTOMY WITH AND WITHOUT SILICONE INTUBATION: 4 YEARS RETROSPECTIVE STUDY

**MD Puya Dehgani Mobaraki<sup>1,4</sup>**, MD Fabrizio Longari<sup>2</sup>, MD Angela Luisa Ricci<sup>3</sup>, MD Ruggero Lapenna<sup>2</sup>, Prof. Carlo Cagini<sup>3</sup>, Prof. Giampietro Ricci<sup>2</sup>

<sup>1</sup>Section of Otorhinolaryngology, Gubbio-Gualdo Tadino Hospital, Perugia, Italy, <sup>2</sup>Section of Otorhinolaryngology, Department of Surgery and Biomedical Science, S.M. della Misericordia Hospital, University of Perugia, Perugia, Italy,

<sup>3</sup>Section of Ophthalmology Department of Surgery and Biomedical Science, S.M. della Misericordia Hospital, Perugia, Perugia, Italy, <sup>4</sup>Association "Naso Sano" Onlus, Umbria Regional Registry of volunteer activities, Corciano, Italy

Lacrimal Surgery 1, Gielgud - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

To assess different outcomes between endoscopic dacryocystorhinostomy (En-DCR) with and without silicone intubation.

### Methods

We retrospectively analyzed 84 patients (89 procedures), suffering from chronic epiphora for primary acquired nasolacrimal duct obstruction, treated with En-DCR and divided into two groups depending on silicone stent intubation.

Preoperative findings that led to the decision for not stenting were: presence of a distended sac and/or regurgitation of mucopurulent- mucoid discharge from the lacrimal canaliculi, especially the lower one, when pressing the area of the sac; a visible, not stenosed, lacrimal puncti, especially the lower one. The decision for not stenting was finally made during surgery.

Functional success was defined as absence of epiphora, no further episodes of dacryocystitis and a patent ostium after fluorescein irrigation.

### Results

45 En-DCR with stent and 44 En-DCR without stent were performed. The surgical outcomes were evaluated at 7 post-operative controls using Munk's score criteria. Success rate after 18 months follow-up were respectively 82,2% in the stent group and 88,6% in the non-stent group (OR 0.59) with no statistical differences. Ostial size reduction has been reported in higher percentage in the stent group, due to peristomal granuloma (OR 3.64), scar tissue formation (OR 2.25) and turbinoseptal synechia (OR 1.76).

### Conclusion

The benefits of non-intubation are less patient discomfort, reduced surgical time and costs, simpler follow-up regimen and less intubation-associated complications. En-DCR without silicone stent intubation should be the first choice of procedure, stent intubation should be reserved in selected cases with poor local conditions pre and intra-operatively assessed.



## MODIFIED NASAL FLOOR AND INFERIOR MEATUS FLAP FOR SEPTAL PERFORATION REPAIR. EXTENSION AND LIMITS OF THE TECHNIQUE.

**M.D. Alfonso Santamaría Gadea<sup>1</sup>**, M.D. Mauricio López-Chacon<sup>1</sup>, M.D. Laura Van-Gerven<sup>1</sup>, M.D. Cristóbal Langdon Montero<sup>1</sup>, M.D. Meritxell Valls Mateus<sup>1</sup>, M.D. PhD Isam Alobid Alobid<sup>1</sup>

<sup>1</sup>*Rhinology and Skull Base Unit, Department of Otorhinolaryngology, Hospital Clinic, Universitat de Barcelona, Spain, Barcelona, Spain*

Septal Surgery 4, Gielgud - Second Floor, April 26, 2018, 10:45 - 11:55

**Objectives:** The nasal floor and inferior meatus (NFIM) flap represents an available option for the reconstruction of septal perforation (SP). This study explores the feasibility of repairing SP using a modified simple and extended (including inferior turbinate) NFIM flap.

**Methods:** An anatomic study was achieved in 76 nasal fossae of cadaveric specimens to measure the area and lengths of NFIM flap. SP repair with simple and extended NFIM flaps was performed in 10 cadaveric specimens. A preoperative radiological analysis was accomplished to study the limits of reconstruction of the simple or extended NFIM flap in 150 nasal fossae of CT scans. A cohort of 4 patients with SP reconstruct with a NFIM flap was included.

**Results:** Complete SP repair with NFIM was achieved in all specimens. Coronal ( $2.6\pm 0.4$  cm) and sagittal ( $4.7\pm 0.6$  cm) lengths and area ( $12.3\pm 2.3$  cm<sup>2</sup>) of simple were smaller than extended NFIM flap ( $5.7\pm 0.5$  cm,  $4.7\pm 0.6$  cm,  $28.8\pm 3.3$  cm<sup>2</sup> respectively;  $p < 0.05$ ). The radiological analysis revealed that a  $40.2\pm 5.7$  % and a  $79.6\pm 11.1$  % of septal height could be reconstructed with a simple and extended NFIM flap, respectively. Complete SP repair was achieved in 4 patients with a modified NFIM flaps.

**Conclusion:** The simple or expanded NFIM flap represents a feasible option to repair small or medium-size perforations located at the lower 1/3 or 3/4 of the nasal septum.

## SEPTOPLASTY – THE PATIENTS’ PERSPECTIVE

Miss Isma Iqbal<sup>1</sup>, Dr Hamish Walker<sup>1</sup>, Mr James O'Hara<sup>1</sup>, Professor Janet Wilson<sup>1</sup>, Mr Sean Carrie<sup>1</sup>, Joanna Buckley<sup>1</sup>

<sup>1</sup>Newcastle Hospitals NHS Foundation Trust, Newcastle Upon Tyne, United Kingdom

Septal Surgery 1, Rutherford - Fourth Floor, April 23, 2018, 10:45 - 11:55

### Aims:

1. To ascertain if Septoplasty information leaflets are helpful
2. To determine the five most important factors leading patients to Septoplasty
3. To record patients opinions on SNOT22 and NOSE questionnaires
4. To analyse if nasal blockage and SNOT22 or NOSE scores correlate

### Methods:

Adults (>18 years) awaiting septoplasty in a teaching hospital were interviewed during January-February 2015. Questions about septoplasty; symptoms; and views on SNOT22 and NOSE were asked. Their perceived nasal blockage (0 - no blockage - 10 complete blockage), five most troublesome symptoms, and SNOT22 and NOSE scores were recorded.

### Results:

Twenty-one patients (16 male; 5 female) were interviewed (8 –telephone; 13 – in person). Mean patient age was 39 (range 20 - 71). 81% received septoplasty leaflets; 47% found them helpful. Factors leading to septoplasty were; nasal blockage (14), sleep disturbance (12), nasal congestion (8), snoring (6) and headaches (6). 91% felt the questionnaires asked about relevant factors. SNOT22 was described as more relevant by 62%. The mean SNOT22 and NOSE scores were 40.6 and 72.4 respectively. Average severity of nasal blockage was 7.1. There was a positive correlation between perceived nasal blockage and the SNOT22 (rhinology subscale) and NOSE scores ( $r=0.54$  and  $r=0.80$ ). The correlation for the NOSE questionnaire was greater (SNOT22  $r^2= 0.29$ ; NOSE  $r^2=0.65$ ).

### Conclusions:

We demonstrate that SNOT22 and NOSE assess symptoms important to patients. Less than 50% patients found the information leaflets helpful. The NOSE questionnaire has greater positive correlation to perceived nasal blockage than the SNOT22.

## NASAL ALLERGEN PROVOCATION TEST: EVALUATION OF SAFETY AND REPRODUCIBILITY

**MD PhD Ibon Eguiluz Gracia<sup>1</sup>**, MD PhD Paloma Campo<sup>1</sup>, MD Natalia Perez<sup>1</sup>, PhD María del Carmen Plaza Serón<sup>2</sup>, MD Jesús Verge<sup>3</sup>, Nurse Teresa Espino<sup>1</sup>, BSc Raquel Jurado<sup>2</sup>, MD PhD Francisco Feo Brito<sup>4</sup>, MD PhD Maria Jose Torres<sup>1</sup>, MD PhD Carmen Rondon<sup>1</sup>

<sup>1</sup>Allergy Unit, Hospital Regional Universitario de Málaga and IBIMA, Málaga, Spain, <sup>2</sup>Allergy Research Laboratory, IBIMA-Regional University Hospital of Málaga, Málaga, Spain, <sup>3</sup>Unit of Otorhinolaryngology and Head and Neck Surgery, Hospital Universitario Virgen de la Victoria, Málaga, Spain, <sup>4</sup>Allergy Unit, Ciudad Real General Hospital, Ciudad Real, Spain

Allergic Rhinitis 1, Victoria - Second Floor, April 23, 2018, 12:05 - 13:15

### Background:

Nasal allergen provocation test (NAPT) helps establishing the relevance of IgE-sensitizations and monitoring allergen immunotherapy in allergic rhinitis patients. NAPT is also useful to investigate the mechanisms of airway allergy. However, only few small studies have evaluated its safety and reproducibility.

### Objective:

To analyse the safety/reproducibility of NAPT in a large group of rhinitis patients and healthy controls.

### Methods:

Retrospective study of the NAPTs performed in our Allergy Unit until December/2017. In patients with a negative bilateral saline challenge excluding nasal hyperreactivity, a bilateral NAPT was performed. All subjects signed a written informed consent. The response was assessed by both nasal-ocular symptoms and acoustic rhinometry. NAPT safety was investigated by the development of extra-nasal/ocular reactions (ENOR), severe adverse events (SAE), and the use of rescue medication (RM) in all procedures performed. ENOR was evaluated by clinical symptoms, physical examination, cardiopulmonary auscultation, spirometry, and oxygen saturation. The reproducibility of NAPT was assessed by comparison of the results in two or more sessions with  $\geq 1$ -month interval.

### Results:

We analysed 11256 NAPT performed in 6160 subjects (68% female) evaluated from September/2005 to December/2017. The rates of ENOR and use of RM were both 0.04%: 4 patients developed mild-moderate uvula oedema, and one subject pharynx pruritus. Three patients required oral antihistamines, and one oral antihistamine+corticosteroid. No bronchospasm or SAE occurred. A high reproducibility of the NAPT was observed (coefficient of correlation of 99.61%).

### Conclusion:

NAPT is a very safe and highly reproducible diagnostic test that can be used in clinical practice.

## ORBITAL COMPLICATIONS AFTER ETHMOIDAL ARTERY LIGATION FOR EPISTAXIS

Ms Sabrina Bischoff<sup>1</sup>, PD Dr. med. Christina Gerth-Kahlert<sup>1</sup>, Prof. Dr. med. David Holzmann<sup>1</sup>, PD Dr. med. Michael Soyka<sup>1</sup>

<sup>1</sup>Universitätsspital Zürich, Zürich, Switzerland

Epistaxis 1, Burton & Redgrave - Second Floor, April 23, 2018, 10:45 - 11:55

### Objective

The aim of this study was to gain knowledge of the morbidity of ethmoidal artery ligation in the management of intractable (non-sphenopalatine-artery) posterior epistaxis. Orbital complications, especially diplopia, is a well-recognized, but in the literature yet rarely described complication.

### Method

Patient charts from 19 patients treated with ethmoidal artery ligation performed by an external approach at the University Hospital of Zurich between 2012 and 2017 were analyzed retrospectively. In patients, with no reported complications a guided telephone interview was performed. Patients with ophthalmologic complications were seen by a specialized Ophthalmologist.

### Results

The rebleeding rate was 5,3% but in more than 25% of the patients ophthalmological consultation after surgery were needed because diplopia was mentioned by patients. In all cases the diplopia was transient, but needed at least 4 months to cease.

### Conclusion

This study concludes that ethmoidal artery ligation for posterior epistaxis in the area of the ethmoidal artery has a good success rate. However, diplopia is a very frequent and disturbing complication that lasts for several months. It seem extraordinarily important to have knowledge on complications in this infrequently performed surgery. The unknown exact pathophysiology merits a prospective investigation of this sequela in future.

## STRUCTURAL PLASTICITY OF THE PRIMARY AND SECONDARY OLFACTORY CORTICES: INCREASED GREY MATTER VOLUME FOLLOWING SURGICAL TREATMENT FOR CRS

**Miss Katherine L Whitcroft<sup>1</sup>**, Miss Jessica Fischer<sup>2</sup>, Dr Pengfei Han<sup>2</sup>, Dr Claudia Raue<sup>3</sup>, Dr Moustafa Bensafi<sup>4</sup>, Dr Volker Gudziol<sup>2</sup>, Mr Peter Andrews<sup>5</sup>, Prof Thomas Hummel<sup>2</sup>

<sup>1</sup>UCL (Ear Institute) and Technische Universitat Dresden, London, United Kingdom, <sup>2</sup>Department of Otorhinolaryngology, TU Dresden, Dresden, Germany, <sup>3</sup>Department of Neuroradiology, TU Dresden, Dresden, Germany, <sup>4</sup>Department of Psychology, University of Lyon I, Lyon, France, <sup>5</sup>Royal National Throat Nose and Ear Hospital, Department of Rhinology and Facial Plastic Surgery, London, UK

CRS Diagnosis and Investigation 3, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

### Aims:

We performed a prospective neuroimaging study in patients undergoing FESS for CRS. We aimed: 1. To determine whether improved olfactory function is associated with grey matter (GM) structural plasticity in the primary and secondary olfactory cortices 2. To provide novel, objective evidence for the efficacy of FESS in improving olfaction.

### Methods:

We used voxel-based morphometry to investigate GM volume change in 12 adult patients (M:F=7:5; age 47.2±14.9), 3-months after surgery. All patients underwent pre/post-op assessment including: 3T-MRI, nasendoscopy, airflow assessment, psychophysical and subjective olfactory tests. FESS was performed according to local protocol. Control measures included: 1. Assessment of GM changes in primary somatosensory, auditory and visual cortices in patients 2. Assessment of GM changes in healthy, non-surgical control group using same protocol (6 participants).

### Results:

In patients, there was a significant improvement in olfactory function according to psychophysical testing and patient-reported measures. Using a region of interest analysis (threshold  $p < 0.005_{corr}$ , clusters  $> 10$  voxels), we found significantly increased post-operative GM volumes within the primary (left piriform cortex, right amygdala) and secondary (right orbitofrontal cortex, right hippocampal-parahippocampal complex) olfactory networks. Regarding control measures, there was no significant GM change within the primary somatosensory, auditory or visual cortices of patients. Furthermore, we found no GM volume changes at 3-months in healthy controls, except in the hippocampal-parahippocampal complex.

### Conclusions:

This is the first study to demonstrate GM structural plasticity within the primary and secondary olfactory cortices, following restoration of olfactory function. We also provide novel evidence for the efficacy of FESS in improving olfaction.

## ASSOCIATION OF EPISTAXIS WITH ATHEROSCLEROTIC CARDIOVASCULAR DISEASE: CASE-CONTROL STUDY

Ms. Seraina Kunz<sup>1</sup>, Dr. Michael B. Soyka<sup>1</sup>, Prof. Dr. Med. David Holzmann<sup>1</sup>

<sup>1</sup>University Hospital Zurich, Zurich, Switzerland

Epistaxis 1, Burton & Redgrave - Second Floor, April 23, 2018, 10:45 - 11:55

**Aims:** To investigate the association between epistaxis and atherosclerotic cardiovascular disease.

**Methods:** This project was designed as a case-control cohort study including patients of the tertiary care ENT department at the University Hospital of Zurich between December 1, 2016 and June 1, 2017. We assessed the cardiovascular risk profile in a group of 41 patients presenting with epistaxis, and a group of 41 matched controls, focusing on a surrogate parameter for atherosclerosis; the carotid intima-media thickness (CIMT).

**Results:** With a mean of 1.06 mm, CIMT values were on average 26% higher in epistaxis patients than in their controls. Occurrence of severe epistaxis was also associated with lower ABI values and significantly higher QRISK2 relative risks than found in the control group. A binary logistic regression model, adjusted for possible confounders, showed an odds ratio of 2.5 for the occurrence of epistaxis per increase in CIMT of 0.1 mm in the study population.

**Conclusions:** The occurrence of severe epistaxis was shown to be closely associated with the prevalence of atherosclerotic cardiovascular disease, which is proposing CVD to be a major risk factor for nasal bleeding. Accordingly, severe epistaxis should be regarded as a sign of an elevated overall cardiovascular risk, and therefore a predictor of future cardiovascular events.

## INTRANASAL VITAMIN A IS BENEFICIAL IN POST-INFECTIOUS OLFACTORY LOSS

**Miss Katherine L Whitcroft<sup>1</sup>**, Dr Gina Rueter<sup>2</sup>, Prof Antje Haehner<sup>2</sup>, Prof Thomas Hummel<sup>2</sup>

<sup>1</sup>*UCL (Ear Institute) and Technische Universitat Dresden, London, United Kingdom*, <sup>2</sup>*Interdisciplinary Center for Smell & Taste, Department of Otorhinolaryngology, TU Dresden, Dresden, Germany*

Smell and Taste 2, Burton & Redgrave - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:** Vitamin A plays a decisive role in the regeneration of olfactory receptor neurons. In this retrospective cohort study we investigated the effectiveness of topical vitamin A in patients with post-infectious and posttraumatic smell disorders.

**Methods:** A total of 170 patients (age range 18–70 years, mean age 52 years) participated. Forty-six patients were treated with smell training only. The remaining 124 patients received smell training and topical vitamin A. Olfactory function was assessed using the Sniffin' Sticks test kit, a validated technique to measure odor thresholds, discrimination and identification. The duration of olfactory training was 12 weeks. In patients receiving vitamin A, this was applied topically (head back position) at a dose of 10,000 IU/day for 8 weeks. Follow-up testing was performed approximately 10 months after the first assessment.

**Results:** Thirty-seven per cent of all post-infectious patients treated with vitamin A exhibited clinical improvement, whereas only 23% improved in controls. Using a Chi-square test, this was a significant result ( $\chi^2=7.06$ ,  $df=2$ ,  $p=0.03$ ). In addition, when comparing change in score after treatment, olfactory training+vitamin A produced significantly greater improvement compared with training alone, in discrimination score for all patients (1.4 points,  $p=0.008$ ), and in threshold and discrimination in the post-infectious group (1.6 points,  $p=0.01$  and 1.4 points,  $p=0.04$  respectively).

**Conclusion:** Intranasal vitamin A at a dose of 10,000 IU per day for two months may be useful in the treatment of post-infectious olfactory loss. Further work with prospective, placebo-controlled studies is required to confirm these findings.

## RECURRENCE RATE OF EPISTAXIS: A COMPARISON BETWEEN SINGLE-LUMEN AND DOUBLE-LUMEN RAPID RHINO NASAL PACKING

Ms. Seraina Kunz<sup>1</sup>, Dr. Michael B. Soyka<sup>1</sup>, Prof. Dr. Med. David Holzmann<sup>1</sup>, Mr. Yves Waser<sup>1</sup>

<sup>1</sup>University Hospital Zurich, Zurich, Switzerland

Epistaxis 3, Albert - Second Floor, April 26, 2018, 10:45 - 11:55

**Aims:** Rapid Rhino nasal packings are among the most commonly used and most effective devices for treatment of epistaxis. Until July 2010, the tertiary ENT centre of the University Hospital Zurich used the single-lumen, 7.5 cm tamponade device only, whereas since then the double-lumen, 9 cm nasal packing is used as well. We compared the outcome of the two different models.

**Methods:** This project was designed as a retrospective study including patients being treated for epistaxis at the University Hospital Zurich with Rapid Rhino packings from 2006 to 2016. Individual medical records were searched for various patient characteristics such as age, gender, hemostasis impairing conditions or medication, and localisation of the nasal bleeding. Details of the treatment were noted (type of tamponade device, uni- or bilateral packing, amount of air used for blocking) and most importantly the number and time span of recurrences, in-hospital stays and additional treatment measures needed.

**Results:** 334 patients with fully documented history were included in the study. There was no significant difference in total recurrences or recurrences with nasal packing still in situ. Nevertheless, we could show a significantly shorter in-hospital stay in patients where the double-lumen device was used. Also, epistaxis patients were less likely to be hospitalised since the double-lumen Rapid Rhino nasal packing was introduced.

**Conclusions:** The double-lumen Rapid Rhino nasal packing has effectively reduced hospitalisations and reduced time of in-hospital stays due to epistaxis overall.



## ENDOSCOPIC DACRYOCYSTORHINOSTOMY: A MODIFIED MUCOSAL SPARING THREE-FLAPS TECHNIQUE

Dr. Nikolay Krakhovetskiy<sup>1</sup>, Dr. Eugenia Atkova<sup>1</sup>, Dr. Oleg Zhukov<sup>1</sup>

<sup>1</sup>*Eye Diseases Research Institute, Moscow, Russian Federation*

Lacrimal Surgery 1, Gielgud - Second Floor, April 24, 2018, 14:45 - 16:15

**Aim.** To describe a novel mucosal sparing technique for endoscopic dacryocystorhinostomy (DCR) and to evaluate its effectiveness.

**Methods.** Prospective, non-randomised, interventional case series. 54 patients (43 females and 11 males) with primary nasolacrimal duct obstruction underwent modified endoscopic DCR procedure. A total of 60 surgeries were performed. The surgical technique included creation of two trapezium-shaped nasal mucosal flaps. The anterior one was lower edge-based, the posterior one was posterior edge-based. It was then partially cut up to 3/4 of height from the bottom upwards, leaving the pedicle at the upper edge, and turned to the upper edge of osteotomy. This allowed covering the upper edge of osteotomy, which was exposed due to anterior mucosal flap contraction. Thus, DCR-ostium was formed triangular with all of its three sides covered with nasal mucosa. The follow-up period was 12 months. Success was defined as the resolution of symptoms, positive nasal dye disappearing test, unobstructed lacrimal irrigation and endoscopic visualisation of a patent DCR-ostium.

**Results.** The final success was achieved in 95,0%. No intraoperative complications were noted.

Postoperative complications included ostium granuloma formation in 7 cases (11,6%) and intranasal synechia formation between the middle turbinate and ostium site in 2 cases (3,3%). There was one case (1,6%) of flap dislocation from the DCR-ostium site 4 days post-operation.

**Conclusion.** The modified three-flaps technique for endoscopic DCR provides healing by primary intention, reduces the risk of granuloma formation and decreases restenosis rate. It may be recommended as a surgical procedure that achieves satisfactory objective and subjective success rates.

## ASSESSMENT OF A NEW, CHEAP AND TRANSPORTABLE OLFACTOMETER FOR THE RECORDING OF CHEMOSENSORY EVENT-RELATED POTENTIALS

**Dr. Caroline Huart<sup>1,2</sup>**, Prof. André Mouraux<sup>2</sup>, Prof Philippe Rombaux<sup>1,2</sup>

<sup>1</sup>*Department of Otorhinolaryngology, Cliniques universitaires Saint-luc, Bruxelles, Belgium,* <sup>2</sup>*Institute of Neuroscience, Université catholique de Louvain, Bruxelles, Belgium*

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

**Introduction and aims:** Olfactory function is usually assessed using psychophysical testing. Although these tests are validated and easy-to-use, they are subject to patients' response bias. On another hand, olfactory event-related potentials (ERPs) provide a relatively unbiased information regarding olfactory functioning. However, recording of olfactory ERPs requires the use of an olfactometer, which is an expensive device, hence limiting the availability of this technique. In the present study, we aimed to investigate whether a cheap and transportable olfactometer could be used to reliably generate chemosensory stimuli for the electrophysiological assessment of chemosensory function.

**Methods:** EEG responses to relatively selective trigeminal (menthol) and olfactory (phenylethyl alcohol) stimulation were recorded in 12 normosmic subjects. These responses were analyzed using conventional time-domain and joint time-frequency analysis.

**Results:** After time-domain analysis, trigeminal ERPs were clearly identifiable in all subjects, while olfactory ERPs could not be identified in 2 subjects. Conversely, time-frequency analysis revealed the presence of EEG response following olfactory and trigeminal evaluation in all subjects.

**Conclusion:** Chemosensory ERPs can be recorded after stimulation with a simple, cheap and transportable olfactometer. This opens the perspective of a larger use and democratization of this technique. Further studies in large cohort of subjects should be performed to confirm the reliability of this device.

## SEPTAL FLIP FLAP FOR ANTERIOR SKULL BASE RECONSTRUCTION AFTER ENDOSCOPIC RESECTION OF SINONASAL CANCERS: PRELIMINARY OUTCOMES

Prof. Paolo Battaglia<sup>3</sup>, MD Mario Turri-Zanoni<sup>3</sup>, MD Francesca De Bernardi<sup>3</sup>, MD Puya Dehgani Mobaraki<sup>1,2</sup>, MD Apostolos Karligkiotis<sup>3</sup>, MD Federico Leone<sup>3</sup>, Prof. Paolo Castelnovo<sup>3</sup>

<sup>1</sup>Gubbio-Gualdo Tadino Hospital, Perugia, Italy, <sup>2</sup>Association "Naso Sano" Onlus, Umbria Regional Registry of volunteer activities, Corciano, Italy, <sup>3</sup>Division of Otorhinolaryngology, Department of Biotechnology and Life Sciences (DBSV), University of Insubria, Varese, Italy

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

### Aims

Over the past decade surgery for sinonasal malignancies encroaching into the anterior skull base (ASB) has evolved from open craniofacial resection to the use of minimally invasive endoscopic approaches. Nowadays ASB reconstruction is most often performed in a multilayer fashion with autologous free grafts which leads to the production of nasal crusting in the postoperative months and patients discomfort.

In carefully selected cases we propose harvesting a flap from the contralateral nasal septum based on the septal branches of the anterior and posterior ethmoidal arteries (Septal Flip Flap, SFF), which can be rotated to resurface the ASB defect.

### Methods

In our tertiary care referral center, ASB reconstruction using the SFF was performed in four patients; one was affected by ethmoidal teratocarcinoma, one by persistence of sinonasal undifferentiated carcinoma after radio-chemotherapy, another by olfactory cleft esthesioneuroblastoma and the fourth by ethmoidal squamous cell carcinoma.

Exclusion criteria for using the SFF were as follows: cases where the tumor extended on both ethmoid complexes; cases where there was nasal septum or planum sphenoidale involvement by the disease; cases of sinonasal malignant tumor with multifocal histology.

### Results

Successful skull base reconstruction was obtained in all cases without any intra or post-operative complications.

Currently no recurrences of disease have been observed after a mean follow-up of 32 months.

### Conclusions

The SFF proved to be a safe and effective technique for ASB reconstruction with success rates similar to those obtained with other pedicled flaps. Larger case series are needed to validate the preliminary results obtained.

## IMMUNOPHENOTYPIC ASSESSMENT OF NATURAL KILLER CELLS IN CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

Assistant Profesor Malgorzata Leszczynska<sup>1</sup>, PHD Joanna Jackowska, Karolina Wasicka, PHD Mariusz Kaczmarek

<sup>1</sup>*Poznan University of Medical Science, Poznan, Poland*

CRS Pathophysiology 2, Victoria - Second Floor, April 25, 2018, 14:45 - 16:15

Chronic rhinosinusitis is a chronic inflammatory process of the mucous membrane paranasal sinuses. In the physiological state NK cells are the first line of defense against pathogens leading to cytolysis of the infected cell. This function may be limited under pathological conditions.

The aim of the study was to evaluate percentage and the degree of maturation of NK cells and also expression of CD314, CD336, CD337 receptors in peripheral blood and tissue from patients with chronic sinusitis with or without polyps and from healthy people.

The research material was obtained from 49 patients with chronic sinusitis (36 with nasal polyps, 13 without polyps) undergoing endoscopic nasal and sinus surgery and from 15 patients with septum deviation and hypertrophic rhinitis - control samples. Immunophenotypic identification of NK cells was carried out with the use of flow cytometer.

The results didn't show any significant differences in the percentage of NK cells in the analyzed groups. Significant differences were present within the degree of maturation of NK cells between the examined groups and tissues. In the material from patients with chronic sinusitis lowered expression of the receptors has been found compared to the control group. The results indicate the involvement of NK cells in inflammation process, the different expression of receptors in the analyzed groups may indicate the presence of a modifying agent.

Disorders of the maturation process and lower expression of receptors activating function of NK cells may be an important element of etiopathogenesis of chronic rhinosinusitis with and without polyps.

## LOWER AIRWAY SYMPTOMS ASSESSMENT IN PATIENTS WITH LOCAL ALLERGIC RHINITIS

Dr Paloma Campo<sup>1</sup>, Dr Ibon Eguíluz<sup>1</sup>, Dr Gador Bogas<sup>1</sup>, Dr Francisca Gomez<sup>1</sup>, Dr Adriana Ariza<sup>2</sup>, Mrs Maria Dolores Cañamero<sup>1</sup>, Dr Javier Fernandez<sup>3</sup>, Dr Maria Jose Torres<sup>1</sup>, Dr Carmen Rondon<sup>1</sup>

<sup>1</sup>Allergy Unit-Regional Hospital of Malaga-IBIMA, Malaga, Spain, <sup>2</sup>Allergy Research Laboratory-Regional Hospital of Malaga-IBIMA, Malaga, Spain, <sup>3</sup>Allergy Unit-Alicante General Hospital, Alicante, Spain

Allergic Rhinitis 1, Victoria - Second Floor, April 23, 2018, 12:05 - 13:15

### Background:

Similarly to what has been described in allergic rhinitis, there is an important association of local allergic rhinitis (LAR) with lower airway symptoms suggestive of asthma, being self-reported in 24.4% of LAR patients after five years of follow-up, and increasing to 30.7% after 10 years. However, clinical suspicion alone it is not enough for asthma diagnosis and could overstate its real prevalence.

### Objective:

To evaluate the real prevalence of asthma in LAR patients based on validated objective methods

### Methods:

Seventy-five patients (29 with LAR, 20 with non-allergic rhinitis (NAR), 18 with allergic rhinitis (AR)), and 8 healthy controls (HC) were included. All patients had perennial history of rhinitis and bronchial symptoms suggestive of mild-moderate asthma for at least two years. Non-specific airways hyperresponsiveness (methacholine challenge test, using tidal breath method following ATS guidelines) was performed in all subjects.

### Results:

Subjects were mostly young females, non-smokers. Median  $\mu\text{g/day}$  of inhaled corticosteroids (budesonide/equivalent dose) was similar in all groups. Median FEV<sub>1</sub>% in AR group (75.5%) was significantly lower compared to LAR (90%,  $P=0.002$ ), NAR (85%,  $P=0.007$ ) and HC (88%,  $P=0.005$ ). In the LAR group, 15/29 (51.7%) had a positive methacholine, 12/20 (60%) in the NAR, 15/18 (83.3%) in AR group and 0/8 (0%) in HC. Patients with LAR had a significant lower percentage of confirmed asthma than AR ( $P=0.031$ ) and similar to NAR ( $P=0.771$ ). No differences were detected between AR vs NAR ( $P=0.155$ ).

### Conclusion:

Presence of objectively demonstrated asthma was lower in LAR compared to AR, and with better lung function.

## THE IMPACT OF DENTAL IMPLANTOLOGY ON SINUS DISEASE IN THE 21ST CENTURY

Mr Abbad Toma<sup>1</sup>, Miss Sarah Little<sup>1</sup>, Dr Koray Feran<sup>2</sup>, Professor Cemal Ucer<sup>3</sup>

<sup>1</sup>St George's University Hospital, London, United Kingdom, <sup>2</sup>The London Centre for Implant and Aesthetic Dentistry, London, United Kingdom, <sup>3</sup>Implant Centres of Excellence Foundation, Manchester, United Kingdom

CRS 1, Albert - Second Floor, April 24, 2018, 10:45 - 11:55

### Aims

Demonstrate conditions and complications related to the maxillary sinus caused by dental implants and sinus augmentation.

### Methods

The two rhinology authors have collaborated with the two dental surgeons to collect and disseminate information regarding odontogenic sinusitis caused by dental implants and its related procedures over the last seven years. This has been done through hands-on courses in London and Manchester and multidisciplinary discussions with dental surgeons nationally via the internet.

### Results

In the last decade there has been a rapid increase in dental implants and in the procedures and systems used to replace missing teeth. In the UK 100000-300000 implants are placed per year. In the USA 3 million people have implants and the market is growing by 500000 per year. Procedures include dental implants, zygoma implants, autologous and nonautologous sinus lift procedures. This has led to an increase in preoperative sinus investigations and post-operative sinus complications requiring endonasal intervention.

### Conclusions

The increase in demand for dental implants and sinus lift procedures has increased the incidence of secondary sinus disease often requiring urgent surgery. This also requires a re-think of how to manage symptomatic and asymptomatic sinus conditions prior to consideration of dental implants. Over the seven years of this collaboration we have seen an improvement in the dental surgeons' ability to identify sinus pathology prior to any dental surgery and the management of surgical complications. Probably the biggest advance has been attributed to the use of Cone Beam CT scans in dental planning instead of plain X-rays

## ORBITAL COMPLICATIONS OF ACUTE RHINOSINUSITIS: CHANDLER'S CLASSIFICATION REVISED ON AN ANATOMICAL BASIS.

**MD Stephan Vlamincx<sup>1</sup>**, MD Kato Speleman<sup>2</sup>, MD Lisabeth Mus<sup>2</sup>, MD, PhD Peter Hellings<sup>3</sup>, MD, PhD Frederic Acke<sup>4</sup>, MD, PhD Thibaut Van Zele<sup>4</sup>, MD, PhD Claus Bachert<sup>4</sup>, MD, PhD Philippe Gevaert<sup>4</sup>

<sup>1</sup>President Belgian Rhinologic Society, Bruges, Belgium, <sup>2</sup>St-Johns Hospital, Department Otolaryngology, Bruges, Belgium,

<sup>3</sup>University Hospital Leuven, Leuven, Belgium, <sup>4</sup>Ghent University Hospital, Ghent, Belgium

CRS Diagnosis and Investigation 3, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

### Aim

The most commonly used classification for orbital complications in acute rhinosinusitis is the Chandler's classification. This classification dates from the pre-CT era, and lacks specificity in describing the anatomical localisation.

### Methods

We propose a new classification for orbital complications of acute rhinosinusitis based on radiological anatomy illustrated with a case series.

### Results

The new classification only comprises true orbital complications. Eye lid infection (preseptal inflammation) and intracranial complications of the Chandler's classification are now excluded. True orbital abscesses are then subdivided into 'extraconal' abscesses, located outside the muscular cone, versus 'intraconal' abscesses located within the muscular cone. Subsequently the extraconal abscesses can be subdivided in sub periosteal abscesses or non-subperiosteal abscesses. Intraconal abscesses can be considered with an intact or disrupted conal envelope (possible traumatic perforation of the envelope).

### Conclusion

Our proposal for a new classification of orbital complications in acute rhinosinusitis is based on radiological anatomic margins and may help the clinician in determining the probable aetiology and hence orient the preferred treatment strategy.

## LATERAL FRONTOETHMOIDAL CELLS: A COMPUTED TOMOGRAPHIC STUDY

MD Phd Tomasz Gotlib<sup>1</sup>, MD Magdalena Kuźmińska<sup>1</sup>, Professor Kazimierz Niemczyk<sup>1</sup>

<sup>1</sup>Otolaryngology Department, Medical University of Warsaw, Warsaw, Poland

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

Two major classifications of frontoethmoidal cells, Kuhn's and IFAC (International Frontal Sinus Anatomy Classification) distinguish anterior, posterior and medial cells. According to IFAC, anterior cells push the frontal sinus drainage pathway (FSDP) medially, posteriorly or posteromedially, posterior cells push FSDP anteriorly and medial cell push FSDP laterally and/or posteriorly. The European Position Paper on the Anatomical Terminology of the Internal Nose and Paranasal Sinuses (2014) includes also lateral cells, which have not been characterized so far. Aims: to characterize the lateral cells.

Methods: 103 thin-slice computed tomography results (206 sides) were analysed using multiplanar reconstruction with adjustable plains.

Results: Laterally based cells, extending between the skull base and the frontal beak were found in 31 sides (15%), in 27 subjects (26%). These cells could not be classified as anterior, posterior or medial according to Kuhn and IFAC classifications. They pushed FSDP anteromedially (in 20 sides) or medially. They extended above the frontal beak in 22 sides, and above the level of the orbital roof in 5. The prevalence of these cells was higher than supraorbital ethmoid cells (as defined according to IFAC), which were found in 8% of sides.

Conclusions: The prevalence of the lateral cells is relatively high in comparison to other cell types.

Neglecting these cells may lead to inconsistent results between radioanatomical studies and impede communication between the surgeons. For this reason they should be included in existing classifications of frontoethmoidal cells.



## COST ANALYSIS OF CHRONIC RHINOSINUSITIS IN ENGLAND: REGRESSION ANALYSIS USING LINKED CPRD AND HES DATA

**Dr Caroline Clarke<sup>1</sup>**, Dr Elizabeth Williamson<sup>2</sup>, Dr Spiros Denaxas<sup>3</sup>, Professor James Carpenter<sup>2,4</sup>, Professor Mike Thomas<sup>5</sup>, Dr Hannah Evans<sup>3</sup>, Dr Helen Blackshaw<sup>6</sup>, Professor Anne Schilder<sup>6</sup>, Professor Carl Philpott<sup>7,8</sup>, Professor Claire Hopkins<sup>9</sup>, Professor Steve Morris<sup>10</sup>

<sup>1</sup>Research Department of Primary Care and Population Health, University College London, London, United Kingdom, <sup>2</sup>Department of Medical Statistics, London School of Hygiene and Tropical Medicine, London, United Kingdom, <sup>3</sup>Farr Institute, University College London, London, United Kingdom, <sup>4</sup>MRC Clinical Trials Unit at UCL, University College London, London, United Kingdom, <sup>5</sup>University of Southampton, Southampton, United Kingdom, <sup>6</sup>evidENT, UCL Ear Institute, University College London, London, United Kingdom, <sup>7</sup>Norwich Medical School, University of East Anglia, Norwich, United Kingdom, <sup>8</sup>ENT Department, James Paget University Hospital NHS Foundation Trust, Great Yarmouth, United Kingdom, <sup>9</sup>ENT Department, Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom, <sup>10</sup>Department of Applied Health Research, University College London, London, United Kingdom

MACRO Programme, Abbey - Fourth Floor, April 26, 2018, 10:45 - 11:55

### Aims:

Chronic rhinosinusitis (CRS) symptoms (facial pain, anosmia, nasal obstruction/discharge, sleep disturbance) have been reported in 11% of UK adults, and have a major impact on quality of life. Data from outside the UK indicate that cost of CRS is high. This study's aim was to estimate NHS costs of CRS in England and factors associated with these.

### Methods:

Linked electronic health records (EHR) from the Clinical Practice Research Datalink (CPRD) primary care and the Hospital Episode Statistics (HES) hospital care databases in England were examined through the CALIBER platform. "Definite" CRS cases were identified using Read/OPCS/ICD-10 diagnostic terms. Resource use data were extracted on numbers and types of consultations, investigations, prescriptions and hospital procedures, and costed using published unit costs. Regression analysis (generalised linear model, gamma distribution with log link) will be used to investigate factors associated with healthcare costs.

### Results (tbc):

A total of 62,690 CRS-definite patients were identified, with around a third having known positive nasal polyp status. Of these, 12,608 had undergone sinus surgery, with around two-thirds having positive polyp status.

Surgery costs were the largest component, with mean costs per patient-year around 30 times higher than in non-surgery years. These costs appeared slightly higher in patients with positive polyp status than in those without.

Regression analysis will examine the association between healthcare costs and age, gender, and nasal polyp status.

### Conclusions (tbc):

Costs associated with treating CRS can be substantial. Factors associated with these costs in the English NHS will be explored.

## IS METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS A PREDISPOSING FACTOR FOR RECURRENCE OF ALLERGIC FUNGAL RHINOSINUSITIS? CASE SERIES.

Dr NADA ALSHAIKH<sup>1</sup>

<sup>1</sup>MOH- Dammam Medical Complex, DAMMAM, Saudi Arabia

CRS Pathophysiology 1, Gielgud - Second Floor, April 23, 2018, 12:05 - 13:15

### Background:

Community acquired MRSA (CA-MRSA) infection is progressively emerging disease entity that causes major healthcare problems in many countries all over the world. Over last few decades, CA-MRSA became the most common cause of skin and soft tissue infections presenting to emergency department in USA. Moreover, there is a significant increase in the rate of recovery of MRSA in patients with acute and chronic rhinosinusitis over the last several years. MRSA infection is associated with significantly more morbidity and higher risk of mortality. In some reports, mortality associated with invasive MRSA infections reached up to 17%.

### Objectives:

In this article, we report four cases of CA-MRSA acute rhinosinusitis associated with recurrence of allergic fungal rhinosinusitis (AFRS). The aim of reporting is to find a causality association between MRSA and AFRS. In addition, we gave recommendations on how to predict MRSA rhinosinusitis, manage it, and prevent the recurrence of AFRS.

### Methods:

Clinical observation and file review of case series of CA-MRSA acute rhinosinusitis in patients diagnosed and previously operated for AFRS is carried out. A literature review on MRSA sinusitis and its association with AFRS is reported, too.

### Results:

Four cases of previously diagnosed and operated allergic fungal rhinosinusitis patients who developed recurrence during an attack of acute rhinosinusitis caused by CA-MRSA are reported.

### Conclusion:

High index of suspicion for the presence of MRSA in acute rhinosinusitis and a more frequent use of sinus culture especially in patients with recalcitrant disease is recommended.

## IMAGING SINONASAL DISEASE WITH MRI: PROVIDING INSIGHT OVER AND ABOVE CT

Mr Annakan Navaratnam<sup>1</sup>, Dr Alina Dragan<sup>1</sup>, Dr GeoiPHY Pulickal<sup>1</sup>, Dr Ravi Lingam<sup>1</sup>

<sup>1</sup>Northwick Park Hospital, London, United Kingdom

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

Computed tomography (CT) imaging remains the first line investigation of choice in evaluating sinonasal disease. Easy availability, familiar interpretation and cost effectiveness continue to make CT imaging an attractive first line imaging tool. However, developments in Magnetic Resonance Imaging (MRI) have led to new roles for this imaging modality in the investigation of sinonasal disease. The aim of this presentation is to depict advantages of MRI of the paranasal sinuses over CT imaging.

### Methods

This presentation reviews the applications of magnetic resonance imaging (MRI) in sinonasal disease. We have divided evaluation of the sinuses into various topics where a distinct advantage can be garnered by supplementing conventional computed tomography (CT) evaluation of the sinuses with MRI. These areas are - sinonasal anatomy, evaluation of anosmia, sinusitis (fungal sinusitis and complications), benign lesions, sinonasal malignancy and extra-sinus pathology extending into sinonasal spaces.

### Results

Clinical cases are presented in each topic with clinical and radiological images highlighting the advantages of MRI over CT. Furthermore, the impact of additional diagnostic information from MRI on medical management and surgical planning in these cases is described, emphasising the important role of MRI in the investigation of sinonasal disease.

### Conclusion

MRI of the sinuses provides considerable advantage over conventional CT sinus imaging alone in specific clinical scenarios by increasing diagnostic specificity and accuracy in delineating loco-regional involvement. As such it should be considered a valuable adjunct to first line CT imaging of the sinuses.

## PATENCY OF NASOLACRIMAL DRAINAGE SYSTEM AFTER POWER ASSISTED MEDIAL FLAP TURBINOPLASTY

Dr Hussain Albaharna<sup>1</sup>

<sup>1</sup>*Qatif Central Hospital, Qatif, Saudi Arabia*

Septal Surgery 1, Rutherford - Fourth Floor, April 23, 2018, 10:45 - 11:55

### Background:

Power assisted medial flap turbinoplasty (PAMFT) technique is not conservative but provides a effective and reliable reduction, and recontouring of the inferior turbinate. It produces a superior overall success rate at 12 and 60 months in comparison to other methods of treating inferior turbinate hypertrophy. There was a question regarding the safety of this technique on the nasolacrimal drainage system.

### Objectives:

To examine the safety of power assisted medial flap turbinoplasty on the nasolacrimal drainage system

### Methods:

All patients undergoing power assisted medial flap turbinoplasty with/without septoplasty in the period of Sep 2016 - Sep 2017 and having normal nasolacrimal drainage system confirm by endoscopic fluorescein dye test pre operatively are included in the study.

In order to confirm the effect of the power assisted medial flap turbinoplasty on the nasolacrimal drainage system, all the patients who will be included in the study are going to be tested for the patency on nasolacrimal drainage system preoperatively and then 3 months post power assisted medial flap turbinoplasty using fluorescein dye endoscopic test.

### Results:

30 patients are included in the study, 25 males and 5 females.

the age was ranging from 17- 51 years.

All our patients have patent nasolacrimal drainage system with good airway patency.

### conclusion:

power assisted medial flap turbinoplasty is an effective safe procedure and having no complications over nasolacrimal drainage system.

## VISUAL PERCEPTION OF IMAGE ENHANCEMENT DURING ENDONASAL ENDOSCOPIC SURGERY: A QUALITATIVE SURVEY STUDY

Dr Selcuk Mulazimoglu<sup>1</sup>, Prof Dr Yucel Anadolu<sup>1</sup>, Ass Prof Suha Beton, **Dr Hazan Basak<sup>1</sup>**, Prof Dr Irfan Yorulmaz<sup>1</sup>, Prof Dr Cem Mecro<sup>1,2</sup>

<sup>1</sup>Ankara University Department of ORL HNS, Ankara, Turkey, <sup>2</sup>Salzburg Paracelsus Medical University Department of ORL HNS, Salzburg, Austria

Technological Advances 1, Rutherford - Fourth Floor, April 23, 2018, 12:05 - 13:15

**Objective:** Endonasal endoscopic surgeries evolve in correlation to technological developments. Nowadays endovision systems play a crucial role in conveying dark surgical corridors to the endoscopic surgeons. We aimed to evaluate subjective visual perception of the new image enhancement modalities during endonasal endoscopic surgeries.

**Methods:** An online survey was distributed to participants. The survey consisted of 12 endoscopic images, 4 enhanced with Clara™ mode, 4 enhanced with Chroma™ mode, 4 enhanced with Clara+Chroma™ mode, randomized along with non-enhanced images. Participants asked to choose the superior image according to the brightness, contrast and sharpness, depth of field, and overall preference after introducing the aforementioned qualities with non-medical samples. Brightness, contrast and sharpness were included in calculating enhancement perception scores.

**Results:** Survey was fully responded by 205 participants. Among them 81 otorhinolaryngologists, 94 other specialty colleagues' (35 endoscopy/laparoscopy users, 59 non-users) and 30 non-medical image experts evaluated the survey. Overall 91,8% chose Clara, 91,7% chose Clara+Chroma enhanced images according to brightness. 87% chose Clara+Chroma, 86,7% chose Chroma enhanced images according to contrast and sharpness. According to depth of field %88,2 chose Clara, 90,9% chose Clara+Chroma enhanced images. There was no significant difference between perception scores among the groups. Mean perception scores were higher in group using endoscopic image enhancement comparing to non-users which lacks statistical significance.

**Conclusion:** In our survey group endoscopic image enhancement modalities created a preference of the endoscopic image, although not significant. Clara mode that enhances local brightness was desired for better perception of depth of field.

## RECURRENCE OF NASAL POLYPS AFTER ENDOSCOPIC SINUS SURGERY: EVALUATION OF RATE AND ASSOCIATED RISK FACTORS.

Donia Alredha<sup>1</sup>, Nada Alshaikh

<sup>1</sup>Moh- Dammam Medical Complex, DAMMAM, Saudi Arabia

CRS Outcomes 1, Victoria - Second Floor, April 23, 2018, 10:45 - 11:55

### Aim:

Chronic rhinosinusitis constitutes one of the commonest conditions encountered in medical practice. Approximately 20% of cases of chronic rhinosinusitis are associated with nasal polyps. The aim of this study is to identify the recurrence rate of nasal polyposis after endoscopic sinus surgery and to evaluate the associated risk factors.

### Methods:

A prospective study of a retrospective data was conducted over a period of 4-years. The records of patients who underwent endoscopic sinus surgery during the study period were reviewed. Statistical analysis was performed using PAWS version 18. The study was approved by the local scientific committee.

### Results:

150 patients underwent endoscopic sinus surgery (ESS) during the study period. Only 108 cases (66 males and 42 females) met our inclusion/exclusion criteria. Mean age is  $35 \pm 13.8$  years. The most common presenting symptom was nasal obstruction (95 patients, 87.9%). Sixty-two-patients (57.4%) had concurrent allergic rhinitis, 46 (42.6%) were asthmatics, and 57 patients (52.7%) had deviation of the nasal septum. Recurrence of nasal polyps was observed in 48 patients (44.4%) and was significantly associated with the extent of disease based on CT scan scores ( $p= 0.002$ ). Presence of anatomic variations and concurrent medical conditions do not seem to be associated with increased risk for recurrence.

### Conclusion:

Recurrence rate of nasal polyposis is high and significantly associated with initial extent of disease. Further researches are required in order to study association between recurrence and other factors such as presence of allergic rhinitis and/or bronchial asthma, anatomic variations, and extent of surgery.

## THE MICROBIOLOGY OF REPEATED CULTURES IN RECURRENT SINUSITIS

Dr. Dan Yaniv<sup>1</sup>, Dr. Daniel Stern<sup>2</sup>, Dr. Dafna Yahav<sup>3</sup>, Dr. Ethan Soudry<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology, Head and Neck Surgery, Rabin Medical Center, Petah Tiqva, Israel, <sup>2</sup>Sackler School of Medicine, Tel Aviv University, Israel, Tel Aviv, Israel, <sup>3</sup>Infectious Diseases Unit, Rabin Medical Center, Petah Tiqva, Israel

Acute Rhinosinusitis 1, Burton & Redgrave - Second Floor, April 23, 2018, 12:05 - 13:15

**Aim:** To describe and analyze the microbiology of recurrent sinusitis.

**Methods:** Retrospective analysis of endoscopic middle meatal cultures taken from adult patients with at least two recurrent sinus infections at least 30 days apart and less than 6 months apart.

**Results:** 100 patients were included with a total of 226 cultures. Each patient had between 2 and 6 cultures. 22 patients were diagnosed with recurrent acute sinusitis and 78 with chronic sinusitis exacerbations. The most common bacteria isolated were *Staphylococcus Aureus* (38%), *Pseudomonas Aeruginosa* (26%) and *Haemophilus Influenzae* (20%). Interestingly, when comparing acute versus chronic patients there were no significant differences in the majority of bacteria isolated during acute exacerbations.

In 24% of patients, bacterial isolates changed between repeated cultures. In 5% of repeat cultures, microbial isolates developed antimicrobial resistance.

The incidence of polymicrobial growth was 24% on initial culture. In repeat culture 20% of patients who initially had monobacterial growth developed polymicrobial growth. In 71% of cultures with polymicrobial growth anaerobes were involved. Asthma was an independent risk factor for polymicrobial growth.

**Conclusion:** Although the common microbiology of sinusitis is well known, in patients with recurrent infections/exacerbations microbiology may vary between infections and drug resistance may develop. These factors along with polymicrobial growth and patient comorbidities are important considerations needed to be taken into account when considering the appropriate antimicrobial regimen. Repeated cultures in recurrent sinus infections are essential for choosing the best antimicrobial therapy.



## DUPIUMAB SIGNIFICANTLY IMPROVES SINUS DISEASE IN PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPOSIS WHEN MEASURED WITH THE ZINREICH-MODIFIED LUND–MACKAY CT SCAN ASSESSMENT

Prof Dr. Dr. H.c. Claus Bachert<sup>1</sup>, **Dr. James Zinreich**<sup>2</sup>, Chunpeng Fan<sup>3</sup>, Dr. Nikhil Amin<sup>4</sup>, Dr. Leda Mannent<sup>5</sup>  
<sup>1</sup>University Hospital Ghent, Ghent, Belgium, <sup>2</sup>The Johns Hopkins Hospital, Baltimore, USA, <sup>3</sup>Sanofi, Bridgewater, USA,  
<sup>4</sup>Regeneron Pharmaceuticals, Inc., Tarrytown, USA, <sup>5</sup>Sanofi, Chilly-Mazarin, France

CRS Medical Management 1, Gielgud - Second Floor, April 23, 2018, 10:45 - 11:55

**AIMS:** Dupilumab, a fully human anti-interleukin (IL)-4R- $\alpha$  monoclonal antibody, inhibits IL-4/IL-13 signaling, and is approved in the EU, USA, and other countries for treatment of adults with inadequately controlled moderate-to-severe atopic dermatitis. Dupilumab improves endoscopic, clinical, and patient-reported outcomes in chronic rhinosinusitis with nasal polyposis (CRSwNP) patients (NCT01920893). This post hoc analysis reports dupilumab's effect on sinus opacification using Zinreich-modified Lund–Mackay (zLMK) scoring, increasing granularity through ostiomeatal complex (OMC) segmentation.

**METHODS:** Sixty adults with CRSwNP were assigned weekly subcutaneous dupilumab 300mg or placebo, with daily mometasone furoate nasal spray (MFNS). Sinus computed tomography (CT) scans were performed at baseline and Week 16. Each sinus was scored 0–4 (left/right) based on % opacification from mucosal thickening (0=0%, 1=1–24%, 2=25–74%, 3=75–99%, 4=100%), and the OMC was segmented to frontal recess, middle meatus, infundibulum and spheno-ethmoidal recess, scored 0 (no obstruction) or 1 (obstruction), with a total maximum opacification score of 48.

**RESULTS:** At Week 16, significant zLMK score improvements were observed in the dupilumab group versus placebo ( $P < 0.0001$ ) for the left (least-squares mean difference  $-7.30$  [95% CI  $-9.47, -5.12$ ]) and right sinuses ( $-8.07$  [ $-10.05, -6.09$ ]), and total zLMK score ( $-15.2$  [ $-19.28, -11.46$ ]). Mean change from baseline across OMC segments ranged from  $+0.03$  to  $-0.14$  for placebo and  $-0.33$  to  $-0.56$  in the dupilumab group.

**CONCLUSIONS:** Dupilumab significantly improved sinus disease in CRSwNP patients on daily MFNS after 16 weeks of treatment, demonstrated by CT scans using a more granular zLMK scoring.

## A DEDICATED NASAL FRACTURE CLINIC PROVIDING MUA UNDER LOCAL ANAESTHESIA IMPROVES TIME TO ASSESSMENT AND MANIPULATION

Mr Rohan Pinto<sup>1</sup>, Ms Rosanna Wright<sup>1</sup>, Mr Samit Ghosh<sup>1</sup>

<sup>1</sup>*Pennine Acute Hospitals NHS Trust, Manchester, United Kingdom*

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

Guidelines for nasal injury state that assessment should be at 7-10 days post injury and management within 14 days. We performed a Plan, Do, Study, Act improvement cycle to assess whether a dedicated nasal fracture service led to better outcomes.

### Methods

Retrospective series documenting time from injury to ENT assessment, time from injury to MUA, time from ENT assessment to MUA and subsequent need for septorhinoplasty. Prospective data collection after implementation of a fracture clinic providing MU local anaesthetic.

### Results

525 patients (381 male: 144 female) underwent MUA for nasal fracture between February 2013 and December 2016. Mean time from injury to ENT assessment was 10 days, mean time from injury to surgery was 14.5 days. 5% were immovable by the date of surgery. Rate of SRP was 2.3% (12/525).  
Second Look: 119 patients (78 males:36 females) over 6 months. 59 had isolated bony injury and 15 had combined bony and septal injury. 37 underwent MUA with 29 (78.4%) having a successful outcome. Median time from injury to ENT assessment and manipulation was 5 days (range 1-15 days). 3.4% (2/59) of patients with bony injury underwent SRP.

### Conclusion

Our unit meets the standards stated by ENT UK for the management of nasal injury. Rates of SRP following nasal trauma are low. Implementation of a dedicated nasal fracture clinic providing MUA under LA improved our time performance and is well tolerated. Assessment earlier than 7 days is feasible and advice for referral can be changed accordingly.

## A COMPARISON OF SPHENOPALATINE ARTERY LIGATION VS EMBOLISATION FOR THE SURGICAL MANAGEMENT OF EPISTAXIS.

Dr Thomas Geyton<sup>1</sup>, Dr Rupert Phillips, Dr Michael Nally, Mr Philippe Bowles

<sup>1</sup>Brighton And Sussex University Hospitals NHS Trust, Brighton, United Kingdom

Epistaxis 3, Albert - Second Floor, April 26, 2018, 10:45 - 11:55

### Aims

We set out to compare the outcomes following SPA ligation (SPA-L) and embolisation (SPA-E) for the operative control of intractable epistaxis.

### Method

A retrospective single centre analysis of patient notes was undertaken. Analysis included complications, re-bleeding rates and need for re-intervention.

### Results

174 patients requiring operative intervention for epistaxis were identified between 2003 and 2017. This included 161 SPA-L and 17 SPA-E. 60 (37%) of the 161 SPA-Ls and 13 (76%) of the SPA-Es were randomly selected and analysed.

SPAL and SPAE were compared in terms of post op bleeding during same admission or readmission with epistaxis within one month (11% vs 15%), re-intervention on same admission or within one month (6% vs 0%) and need for re-intervention beyond 1 month (5% vs 7.6%)

### Discussion

Our study demonstrates comparable clinical outcomes in terms of post-operative bleeding to that of the published literature (7-33%).<sup>1 2</sup> However it is the first direct comparison of the 2 methods at a single centre. Of note patients undergoing SPAL were less likely to suffer postoperative bleeding but more likely to require an additional procedure in the event of post-operative bleeding.

SPA-E is more expensive than SPA-L however is better tolerated by patients who are unable to undergo a general anaesthetic<sup>3</sup>

### Conclusion

Both SPA-L and SPA-E are effective management strategies for surgical control of refractory epistaxis.

## ENDOSCOPIC ENDONASAL SKULL BASE SURGERY FOR 43 PEDIATRIC CASES: AN INSTITUTIONAL EXPERIENCE

Ass Prof Gokmen Kahilogullari<sup>2</sup>, **Ass Prof Suha Beton**<sup>1</sup>, Dr Murat Zaimoglu<sup>2</sup>, Dr Hazan Basak<sup>1</sup>, Prof Dr Agahan Unlu<sup>2</sup>, Prof Dr Cem Mecoc<sup>1,3</sup>

<sup>1</sup>Ankara University Department of ORL HNS, Ankara, Turkey, <sup>2</sup>Ankara University Department of Neurosurgery, Ankara, Turkey, <sup>3</sup>Salzburg Paracelsus Medical University Department of ORL HNS, Salzburg, Austria

Paediatric Rhinology 2, Rutherford - Fourth Floor, April 24, 2018, 12:05 - 13:15

**Objective:** To discuss the endoscopic endonasal approach in pediatric age group with its advantages and disadvantages.

**Methods:** Retrospective analysis of 43 pediatric patients that are operated via endonasal endoscopic approach in Ankara University Medical Faculty between years 2010 to 2017.

**Results:** 27 patients (62,7%) were male and 16 patients were female (37,3%). The main age was 9.4(2-18). Twelve of the cases were craniopharyngioma (29%), 9 pituitary adenoma (22%), 4 traumatic CSF rhinorrhea (9%), 4 meningocele (9%), 4 malign tumors (9%), 2 germinoma (4%), 2 pituitary inflammation (4%), 1 odontoidectomy (2%), 1 fibrous dysplasia (2%), 1 hemangiopericytoma (2%), 1 neurocytoma (2%), 1 dermoid cyst (2%), 1 fibrous dysplasia (2%) and 1 capillary hemangioma (2%). Among 32 patients with pathological results; total or gross total excision was achieved in 26 (81%), subtotal resection was achieved in 6 (19%). No patient had a postoperative CSF leak or meningitis. 9 patients had transient diabetes insipidus, 1 patient had temporary loss of lateral gaze and the case after odontoidectomy had pneumocephalus one week after surgery following a sneeze attack. One patient was died because of endocrinological failure and hypohyponatremia imbalance.

**Conclusion:** Endonasal endoscopic approach is an effective method for surgery in managing various pathologies of the pediatric age group. Due to its less invasive nature, it protects the developing bony structures of the face and the skull, while achieving satisfactory outcomes. Nevertheless narrow transnasal corridor as well as inadequate sphenoid sinus pneumatization could be the main handicaps of this approach in pediatric patients

## STRATEGIC USE OF ENDOSCOPIC ENLARGED SKULL BASE APPROACH TO TUBERCULUM SELLAE MENINGIOMA

**MD. Vitor Oliveira<sup>1</sup>**, MD. Artur Lourenço<sup>2</sup>, MD. Cesar Silva<sup>1</sup>, MD. Mariana Calha<sup>1</sup>, Phd. Leonel Luis<sup>1</sup>, MD. Ilidio Gonçalves<sup>2</sup>

<sup>1</sup>*Santa Maria Hospital, Lisboa, Portugal*, <sup>2</sup>*Faro University Hospital, Faro, Portugal*

Skull Base 2, Albert - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Tuberculum sellae meningiomas (TSMs) are challenging lesions to deal due to their proximity to neurovascular structures and frequent extension into the optic nerve tracts. Optimal endoscopic approach should warrant a complete decompression of the area of the tumour ensuring a correct identification of both carotids and optic nerves with a safe margin of normal dura.

**Methods:** We highlight the nuances of the technique of endoscopic enlarged skull base approach to a TSM with optic nerve extension and skull base defect reconstruction.

**Results:** TSMs tend to compress optical apparatus resulting in visual deficits. Due to frequent extension of the tumour into the optic canal the combination of planum sphenoidal and tuberculum sellae bone removal with drill out of the optic canal allow an advantageous exposure of medial optic canal invasion by the tumour facilitating the microsurgical extracapsular dissection in this challenging area of instrumentation.

**Conclusions:** TSMs present as a unique type of tumours due to their surrounding neurovascular key structures. Far lateral exposure over and above the optic nerves allows an utmost inspection of the meningeal in-layer of the optic canal, an area otherwise not reachable by angle instruments and guarantees a complete resection of the tumour and a decompression of the optics while ensuring an excellent post-operative visual score recovery.

656

WITHDRAWN

## EVALUATION OF SMELL DISORDERS DURING RADIOTHERAPY IN PATIENTS WITH LARYNGEAL CANCER

**Md Phd Cristian Mircea Neagos<sup>1</sup>**, Md Anda Stefan<sup>2</sup>, Md Larisa Irimia<sup>2</sup>, Md Robert Bertoldi<sup>2</sup>, Md Alex George Stanciu<sup>2</sup>, Md. PhD Adriana Neagos<sup>1</sup>

<sup>1</sup>University Of Medicine And Pharmacy Tirgu Mures, Tirgu Mures , Romania, <sup>2</sup>Emergency County Hospital Tirgu Mures, ENT Department , Tirgu Mures, Romania

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

Patients with laryngeal tumors show a decrease in quality of life and loss of nasal function with the appearance of smell disturbances. A prospective-observational study was conducted, involving 52 patients, with the diagnosis of Laryngeal Malignant Tumor. The total radiation dose at which patients were exposed was 60-70 Gy. For oncologic treatment, fractions of 2 Gy per day, 5 days per week and a total of 32-35 fractions were used. Qualitative olfactory sense was evaluated by four odors. For the quantitative evaluation, the Alcohol Sniff Test (AST) was used. The quality of life was assessed using the QLQ 30 version 3.0 questionnaire.

For the quantitative determination of smell, the statistically significant results occurred in the fourth week, respectively, at the radiation dose of 40 Gy. Recovery of quantitative olfactory function was observed six months after treatment. Quantitative olfactory sense disorders were observed 20 months after the radiotherapy course with a dose greater than 10 Gy, 5 years after treatment. The qualitative assessment of the smell showed a statistically significant decrease from the fifth week of radiotherapy ,to 50 Gy The qualitative assessment of the smell in patients, 2 weeks after the end of the radiotherapy, revealed olfactory disorder at higher doses of 20 Gy. And the return to normal after 12 months post-treatment.

During radiotherapy, the olfactory function is affected from the fourth week of radiotherapy and causing considerable odor impairment, which persists even after cessation of treatment.

## ENDONASAL ENDOSCOPIC REPAIR OF OROANTRAL FISTULA VIA MODIFIED ENDOSCOPIC MEDIAL MAXILLECTOMY WITH FREE NASAL MUCOSAL FLAP

**Dr Jiao Xia<sup>1</sup>**, Prof Youxiang Ma<sup>1</sup>, Mr Hao Tian<sup>1</sup>, Mr Ruxiang Zhang<sup>1</sup>

<sup>1</sup>Beijing Friendship Hospital, Capital Medical University, Beijing, China

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

**Aims:** Many techniques have been proposed for the closure of oroantral fistula (OAF). Majority of them are transoral repair with oral soft tissue flaps. We followed the results of endonasal surgical repair of OAF via modified endoscopic medial maxillectomy (MEMM) with free nasal mucosal flaps. **Methods:** 16 patients were retrospectively analyzed from May 2013 to Dec 2017, including 9 cases of odontogenic maxillary cysts (7 radicular cysts, 2 dentigerous cysts), 4 cases of odontogenic maxillary sinusitis, and 3 cases secondary to teeth extraction. The size of OAF was 0.2×0.2 cm to 1.0×1.5cm. MEMM was made under general anesthesia for each patient. The standard procedure was to dissect the front part of inferior turbinate (IT), reverse it towards middle meatus to expose the medial wall of maxillary sinus, do partial medial maxillectomy to expose the site of OAF, move the cysts and inflammatory tissue in sinus, extract teeth if necessary, repair OAF with free nasal mucosa obtained from nasal septum, IT or nasal base, at last, reposit IT and suture in its original position. **Results:** All patients were followed at least 3 months. All patients healed after 1 month, except 1 patient left a 0.1×0.2 cm perforation at the center of the flap and received second repair with palatal flap. No obvious complications were observed. **Conclusions:** Endonasal repair of OAF via MEMM with free nasal mucosal flaps is feasible. The approach preserves 'normal' oral and nasal physiology post-operatively. It could be used alone or with transoral closure approach for huge OAF.



## CHRONIC RHINOSINUSITIS WITH NASAL POLYPS IN PATIENTS TREATED WITH INTRANASAL CORTICOSTEROIDS: ANALYSIS OF CONTROL AND ASSOCIATION WITH CLINICAL-BIOLOGICAL MARKERS

**MD Edgar Mauricio López-Chacón<sup>1</sup>**, MD-PhD Isam Alobid<sup>1</sup>, Mireya Fuentes<sup>2</sup>, MD-PhD Cesar Picado<sup>2</sup>, MD-PhD Joaquim Mullol<sup>1,2</sup>, PhD Laura Pujols<sup>2</sup>

<sup>1</sup>Rhinology Unit and Smell Clinic, ENT Department, Hospital Clínic i Universitari, Barcelona, Spain., Barcelona, Spain,

<sup>2</sup>Clinical and Experimental Respiratory Immunoallergy, IDIBAPS, Barcelona, Spain., Barcelona, Spain

CRS Diagnosis and Investigation 3, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims:** To evaluate the sensitivity of EPOS-12 staging system to assess disease control in treated patients with CRSwNP and to correlate the control score with clinical and biological markers of CRSwNP severity.

**Methods:** Patients with CRSwNP treated with intranasal corticosteroids were evaluated at the time of inclusion(v1) and at three(v2) and six(v3) months: intensity of nasal symptoms, severity of disease(VAS 0-10cm), size of nasal polyps(0-8), smell(BAST-24), control EPOS-12. In v1 and v3, asthma comorbidity, prick-test, peripheral blood eosinophilia, total and specific serum-IgE, and SNOT-22 were also evaluated.

**Results:** 30 patients (56.2yrs,60% men): 50% partially-controlled, 50% uncontrolled. In v1, uncontrolled patients presented greater intensity ( $p < 0.05$ ) of nasal symptoms (nasal obstruction:7.3vs2.2, facial pain:2.0vs0.3, anterior rhinorrhea:4.4vs1.9, greater size of polyps(5.3vs3.9), and worse BAST-24 (detection:35.3%vs86%, memory:20.7%vs67.3%, forced identification:16.3%vs49.3%)( $p < 0.01$ ).

In v3, uncontrolled patients had a greater intensity( $p < 0.05$ ) of nasal symptoms (nasal obstruction:5.7vs2.7, anterior rhinorrhea:3.2vs1.6, loss of smell:8.9vs4.4), greater disease severity(6.8vs3.5, $p < 0.0001$ ), larger polyp size(6.1vs4.1, $p < 0.0001$ ), and lower BAST-24 (detection:32.2%vs83.2%, knowledge:22.7%vs72%)( $p < 0.05$ ).

Between v1 and v3, a significant decrease in CRSwNP severity was observed (5.1vs3.7, $p < 0.006$ ). There was an important decrease in patients with uncontrolled disease (v1:50% vs. v3:30%) despite not being significant. Significant differences were observed in the percentage of eosinophils among patients with mild, moderate and severe disease( $p < 0.004$ ). There was a significant decrease in eosinophilia values (7.1%vs5.6%, $p < 0.005$ ) and absolute values (0.52vs0.39, $p < 0.008$ ). A positive correlation (v1: $r = 0.572$ , v3: $r = 0.676$ , $p < 0.001$ ) between the control of CRSwNP and severity of disease assessed in v1 and v3.

**Conclusion:** The assessment of disease severity by VAS appears to be more sensitive in CRSwNP patient's follow-up than EPOS-12 control staging score.

## HUMAN IL-17-PRODUCING TYPE 2 INNATE LYMPHOID CELLS GOVERN NEUTROPHILIC INFLAMMATION IN CYSTIC FIBROSIS

Dr. Kornel Golebski<sup>1</sup>, Dr. Suzanne Bal<sup>1</sup>, Dr. Cornelis van Drunen<sup>1</sup>, Prof. Wytse Fokkens<sup>1</sup>, Prof. Hergen Spits<sup>1</sup>, Dr. Xavier Romero Ros<sup>1</sup>

<sup>1</sup>*Academic Medical Center, Amsterdam, Netherlands*

Rhinology Potpourri 1, Victoria - Second Floor, April 25, 2018, 12:05 - 13:15

**Introduction:** Up to 45% of cystic fibrosis (CF) patients develop CRSwNP. In CF-CRSwNP, inflammation is neutrophil driven and sinus cultures typically grow *P. aeruginosa* or *S. aureus*. We have shown that IL-5 producing type 2 innate lymphoid cells (ILC2s) are enriched in typically eosinophilic NP of non-CF CRSwNP. However, neutrophil influx in CF-CRSwNP may alter ILC composition. We have previously demonstrated that IL-1 $\beta$  plus IL-12 induced conversion of NP-ILC2s into IFN- $\gamma$ -producing ILC1. Here, we identify epithelium-derived TGF- $\beta$ , IL-1 $\beta$ , and IL-23 as inducers of ILC2 transdifferentiation in CF-CRSwNP into IL-17-producing ILC3s and their role in neutrophil recruitment/maintenance in NP tissue.

**Results:** IL-17-producing ILC3 are enriched in CF-CRSwNP (72% of ILCs), whereas ILC2 are absent, in contrast to non-CF CRSwNP (22% and 62% respectively). Increased frequencies of ILC3 in CF may be a consequence of ILC2 plasticity. Here we show that key cytokines in CF: TGF- $\beta$ , IL-1 $\beta$ , and IL-23 govern ILC2 transdifferentiation towards ILC3. ILC2 from non-CF CRSwNP exposed to TGF- $\beta$  plus IL-1 $\beta$  plus IL-23 produced IL-17 and down-regulated CRTH2 expression. Conversely, ILC3 from CF-CRSwNP exposed to IL-4 restored CRTH2 and IL-5 production. This was not true for ILC3 from non-CF CRSwNP. The source of TGF- $\beta$ , IL-1 $\beta$ , and IL-23 may be epithelium as co-cultures of ILC2 with *P. aeruginosa*-challenged nasal epithelium resulted in IL-17 production by ex-ILC2s. These ex-ILC2s enhance neutrophilia, as they produce GM-CSF, IL-8, and TNF. ILC2/ILC3 ratio in NP correlates with eosinophil/neutrophil ratios.

**Conclusions:** TGF- $\beta$ , IL-1 $\beta$ , and IL-23 govern ILC2 plasticity in CF. IL-17-producing ILC3s enhance neutrophilia in CF-CRSwNP.

## ASSESSING CONDUCTIVE FACTORS ASSOCIATED WITH CHRONIC RHINOSINUSITIS INDUCED OLFACTORY DYSFUNCTION

Dr. Dennis Onyeka Frank-Ito<sup>1</sup>, Ms. Tracy Cheng<sup>1</sup>, Mr. David Carpenter<sup>1</sup>, Dr. David Witsell<sup>1</sup>, Dr. Ralph Abi Hachem<sup>1</sup>, Dr. David Jang<sup>1</sup>

<sup>1</sup>Duke University Medical Center, Durham, United States

Smell and Taste 1, Victoria - Second Floor, April 23, 2018, 14:45 - 16:15

**AIMS:** Although chronic rhinosinusitis (CRS) induced olfactory dysfunction is thought to be a combination of sensorineural disorder and disruption of odorant-laden air transport to the olfactory receptors (conductive disturbance), the latter has been less studied, particularly when such losses cannot be attributed to polyps. This pilot study aims to provide important preliminary insight into the role of conductive factors, such as nasal morphology and airflow transport on CRS-induced olfactory dysfunction.

**METHODS:** Three-dimensional reconstruction of the nasal anatomy from 10 CRS subjects without nasal polyps were generated from subject-specific computed tomography scans. Five of these subjects reported olfactory dysfunction (CRS-OD) and the other five reported normal olfaction (CRS-NOD). For assessment of nasal anatomic differences between CRS-OD and CRS-NOD subjects, surface area (SA), volume (V), SA to V ratio (SA:V) were quantified and compared. For comparison of airflow-related quantities, computational fluid dynamics simulations were performed in subjects' nasal cavity at 15Pa inspiratory pressure.

**RESULTS:** The nasal cavity among CRS-NOD subjects had larger SA (median: CRS-NOD=22555mm<sup>2</sup> vs CRS-OD=18125mm<sup>2</sup>) and V (median: CRS-NOD=23581mm<sup>3</sup> vs CRS-OD=16243mm<sup>3</sup>), and smaller SA:V (median: CRS-NOD=0.98mm<sup>-1</sup> vs CRS-OD=1.05mm<sup>-1</sup>). Similarly, CRS-NOD subjects had larger olfactory recess (SA median: CRS-NOD= 1487mm<sup>2</sup> vs CRS-OD= 1393mm<sup>2</sup>) and (V median: CRS-NOD= 875mm<sup>3</sup> vs CRS-OD= 794mm<sup>3</sup>), and smaller SA:V (median: CRS-NOD=1.64mm<sup>-1</sup> vs CRS-OD=1.78mm<sup>-1</sup>). Furthermore, nasal airflow was higher among CRS-NOD subjects (median: CRS-NOD=13.6L/min vs CRS-OD=9.7L/min) and nasal resistance was lower (median: CRS-NOD=0.031Pa.s/ml vs CRS-OD=0.066Pa.s/ml).

**CONCLUSION:** Results from our pilot study showed distinct differences in nasal anatomy sizes and airflow-related characteristics between CRS-OD and CRS-NOD subjects.

675

WITHDRAWN

## THE MUCO-CILIARY CLEARANCE AND NASAL PATHOLOGY

**Md Phd Adriana Neagos<sup>1</sup>**, Student Cristian Mircea Neagos<sup>1</sup>, Md Anda Stefan<sup>2</sup>, Md Larisa Irimie<sup>2</sup>, **Md Robert Bertoldi<sup>2</sup>**

<sup>1</sup>University Of Medicine And Pharmacy Tirgu Mures, ENT Department , Tirgu Mures , Romania, <sup>2</sup>Emergency County Hospital Tirgu Mures, ENT Department , Tirgu Mures, Romania

Rhinology Potpourri 1, Victoria - Second Floor, April 25, 2018, 12:05 - 13:15

The muco-ciliary System is designed to purify inspired air and remove foreign substances and particles from the nasal cavity. Muco-ciliary clearance plays an important role in protecting the nasal mucosa and absorbing active substances at its niche.

The aim of the study is to highlight the impact of nasal pathology on nasal clearance and to compare with rhinomanometric parameters

A prospective observational study was performed on a group of 123 patients divided into 2 groups: 63 patients with nasal pathology such as nasal septum deviation, chronic rhinosinusitis, nasal polyps and the second control group. Nasal endoscopy, posterior rhinomanometry, and ciliary clearance measurement were performed with the methylene blue method.

According to the results, the group of control patients had a mean muco-ciliary clearance of 6.767 minutes with a median of around 7. In contrast, a notable delay in muco-ciliary cleavage was observed in patients with nasal pathology up to an average of 23.41 minutes with a median of around 20.

Mucociliary clearance measured in both nasal passages had a statistically significant delay in patients with nasal pathology. For the left nasal fossa, healthy patients measured a time of 6.93 min  $\pm$  1.13 compared to 23.32 min  $\pm$  8.5 in sick patients.

Nasal resistance is closely related to nasal flow. So there is a relationship of inverse proportionality between the two parameters. If the nasal flow increases, the nasal resistance will decrease and the muco ciliary clearance changes in direct accordance with these.

## MANAGEMENT OF LATERAL CRURAL PATHOLOGY: A SURGICAL ALGORITHM FOR TRAINEES.

Mr Saleh Okhovat<sup>1</sup>, Mr Natarajan Balaji<sup>1</sup>

<sup>1</sup>University Hospital Monklands, Lanarkshire, United Kingdom

Rhinoplasty 1, Victoria - Second Floor, April 24, 2018, 10:45 - 11:55

### Aims:

Nasal tip deformities are often the most challenging aspect of rhinoplasty. The lateral crus (LC) is an integral component of the nasal tripod and deformities relating to its size, contour and position can affect the nasal tip architecture.

We aim to describe an algorithm for assessment and management of LC pathology and review of available surgical techniques.

### Methods:

Retrospective case analysis using pre and post operative photographs. Description of LC deformity types and review of surgical techniques available for correcting deformities.

### Results:

LC pathology is broadly divided into 5 types based on the relationship between its width, length and nature of curvature (convexity/concavity): Type 1: Convex-wide; Type 2: Convex-narrow; Type 3: Concave-wide; Type 4: Concave-narrow; Type 5a: Excess LC length; 5b: Short LC length. Surgical options include a combination of sutures techniques, resection, transposition and grafting procedures all with the aim to restoration of normal form and function.

### Conclusion:

This algorithm aims to provide structured framework for trainees to facilitate assessment of LC deformities and help in selecting appropriate surgical techniques to correct nasal tip deformity of this aetiology.

## CLINICAL AND MUTATION PROFILING OF OLFACTORY NEUROBLASTOMA, ESTABLISHMENT OF NOVEL OLFACTORY NEUROBLASTOMA CELL CULTURE MODELS AND RESULTS FROM DRUG SCREENING

**Mr. Matt Lechner**<sup>1,2,3</sup>, Mr. Graham Wells<sup>4</sup>, Dr. Chris Steele<sup>2</sup>, Dr. Nils Engel<sup>5</sup>, Dr. Volker Schartinger<sup>6</sup>, Ms. Karen Young<sup>7</sup>, Dr. Nischalan Pillay<sup>2</sup>, Dr. Chris Kranjec<sup>8</sup>, Mr. Luke Williams<sup>2</sup>, Ms. Debbie Ho<sup>2</sup>, Dr. Nur Ayne Zaharoff<sup>2</sup>, Dr. Julia Koller<sup>4</sup>, Dr. Cillian Forde<sup>1</sup>, Dr. Martin Forster<sup>1</sup>, Dr. Amrita Jay<sup>9</sup>, Prof. Wendell G. Yarbrough<sup>10,11</sup>, Dr. Jozsef Dudas<sup>6</sup>, Prof. Herbert Riechelmann<sup>6</sup>, Dr. Mario Turri-Zanoni<sup>12</sup>, Prof. Paolo Castelnovo<sup>12</sup>, Prof. Fabio Facchetti<sup>13</sup>, Prof. Piero Nicolai<sup>14</sup>, Dr. Mario Hermsen<sup>15</sup>, Prof. Jose L. Llorente<sup>15</sup>, Ms. Katherine Whitcroft<sup>1</sup>, Mr. Peter Andrews<sup>1</sup>, Prof. Tim Meyer<sup>2</sup>, Dr. Simon Wan<sup>16</sup>, Dr. Guido Wollmann<sup>17</sup>, Prof. Ulrich Schueller<sup>18</sup>, Prof. David Capper<sup>19</sup>, Prof. Udo Oppermann<sup>4</sup>, Dr. Tim Fenton<sup>2</sup>, Prof. David Howard<sup>1,20</sup>, Valerie Lund<sup>1,2</sup>

<sup>1</sup>Royal National Throat, Nose and Ear Hospital and Head and Neck Centre, University College London Hospitals NHS Trust, London, United Kingdom, <sup>2</sup>UCL Cancer Institute, University College London, London, United Kingdom, <sup>3</sup>Barts Health NHS Trust, London, United Kingdom, <sup>4</sup>Botnar Research Centre, University of Oxford, Oxford, United Kingdom, <sup>5</sup>Department of Oncology and Hematology with Sections Bone Marrow Transplant and Pneumology, Hubertus Wald Tumorzentrum / University Cancer Center Hamburg, University Medical Center Hamburg, Hamburg, Germany, <sup>6</sup>Department of Otolaryngology, University Hospital of Innsbruck, Innsbruck, Austria, <sup>7</sup>William Harvey Research Institute, Queen Mary University of London, London, United Kingdom, <sup>8</sup>Department of Pathology, University of Cambridge, Cambridge, United Kingdom, <sup>9</sup>Department of Histopathology, University College London Hospitals NHS Trust, London, United Kingdom, <sup>10</sup>Molecular Virology Program, Yale Cancer Center, Yale School of Medicine, New Haven, United States, <sup>11</sup>Department of Surgery, Division of Otolaryngology, Yale School of Medicine, New Haven, United States, <sup>12</sup>Unit of Otorhinolaryngology - Head and Neck Surgery, University of Insubria, Varese, Italy, <sup>13</sup>Pathology Unit, Department of Molecular and Translational Medicine, University of Brescia, Brescia, Italy, <sup>14</sup>Department of Otorhinolaryngology - Head and Neck Surgery, University of Brescia, Brescia, Italy, <sup>15</sup>Department of Otolaryngology, Hospital Universitario Central de Asturias, Oviedo, Spain, <sup>16</sup>Institute of Nuclear Medicine, University College Hospital, London, United Kingdom, <sup>17</sup>Division of Virology and Christian Doppler Laboratory for Viral Immunotherapy, Medical University of Innsbruck, Innsbruck, Austria, <sup>18</sup>Institute for Neuropathology, University Hospital Hamburg-Eppendorf, Hamburg, Germany, <sup>19</sup>Institute for Neuropathology, Charité Universitaetsmedizin Berlin, Berlin, Germany, <sup>20</sup>ENT Department, Charing Cross Hospital, Imperial College Healthcare NHS Trust, London, United Kingdom

Sinonasal Malignancy 2, Burton & Redgrave - Second Floor, April 25, 2018, 10:45 - 11:55

### Aims:

To analyse clinical data on olfactory neuroblastoma (ONB) patients, identify molecular markers and putative targets for therapy, establish cell culture models and to test compounds specifically targeting ONB, a rare nasal neoplasm usually originating from the olfactory neuroepithelium in the superior nasal cavity.

### Methods:

Immunohistochemical data were obtained from 98 ONB samples from multiple centres across Europe. Clinical data have been collected and analysed and whole-exome sequencing (WES) performed on twelve samples. In addition, fresh tumor tissue from endoscopic resections in five patients was dissected and cells grown using a modified Schlegel method and subsequently drug-screened.

### Results:

The majority of ONB patients presented with nasal obstruction and anosmia. The WES analysis revealed a relatively low mutational burden. The most significant possible driver was NUP210L, with truncating mutations in two samples. Primary olfactory neuroblastoma cell cultures were established and drug

screened, showing a significant growth arrest with a number of compounds, including kinase inhibitors and a histone demethylase inhibitor.

**Conclusion:**

This work on the largest series of olfactory neuroblastoma patients published so far, contributes to the understanding of the clinical features and genetic basis of olfactory neuroblastoma. Moreover, it demonstrates the feasibility of establishment of primary cancer cell cultures from olfactory neuroblastoma samples and their utility in successfully testing a panel of targeted therapies. This work could eventually improve the outcome of this rare and potentially life-threatening disease.



## ENDONASAL DACRYOCYSTORHINOSTOMY - FEASIBILITY AS AN OUTPATIENT DAY-CASE PROCEDURE

Dr. Angelo Carvalho<sup>1</sup>, Dr. Francisco Patrão<sup>1</sup>, Dr. Vera Soares<sup>1</sup>, Dr. Rui Tavares<sup>2</sup>, Dr. Filipe Rodrigues<sup>1</sup>, Dr. Raúl Amaral<sup>1</sup>, Dr. José Marques dos Santos<sup>1</sup>

<sup>1</sup>ENT Department, Centro Hospitalar Tondela-Viseu, Viseu, Portugal, <sup>2</sup>Ophthalmology Department, Centro Hospitalar Tondela-Viseu, Viseu, Portugal

Lacrimal Surgery 1, Gielgud - Second Floor, April 24, 2018, 14:45 - 16:15

### AIMS

Elective endonasal dacryocystorhinostomy (DCR) has been widely used to treat nasolacrimal duct obstruction in patients with epiphora. Our aim was to determine the rate of complications in patients who underwent day-case surgery and, therefore, determine its safety.

### METHODS

Retrospective analysis of the clinical records of 73 patients who underwent endoscopic DCR, 86 procedures, 35 of which accompanied by septoplasty, at a single institution and performed by a single surgical team (one Otolaryngologist and one Oculoplastic Surgeon), between 2014 and 2017, as a day-case procedure. Multiple data (demographic, surgical and anesthetic) was analyzed to determine whether any predicted the occurrence of post-operative complications and unexpected admissions to the emergency room (ER).

### RESULTS

All 73 patients were admitted as day-case outpatients and underwent surgery under general anaesthesia. No patient was admitted overnight. The rate of unexpected admissions to the ER in the first 30 days following the surgical procedure was 16.44%. Post-operative complications include proximal extrusion of lacrimal stents (n=8), non-purulent local secretions (n=2), keratoconjunctivitis sicca (n=1) and self-limited epistaxis (n=1). No major complications were observed in this period. Statistical analysis was performed on the variables identified (including demographic factors, primary vs revision DCR, septoplasty) but no statistically significant values were obtained correlating any of them with increased risk of complications.

### CONCLUSIONS

In line with previous reports, our study suggests that endo-DCR is a safe outpatient day-case procedure.

## THE ROLE OF BIOFILMS IN PAEDIATRIC OTORHINOLARYNGOLOGY

**Mr Simon Goldie**<sup>1</sup>, Miss Hasnaa Ismail-Koch<sup>1</sup>, Mr Phillip Harries<sup>1</sup>, Professor Rami Salib<sup>1,2</sup>

<sup>1</sup>Department of otorhinolaryngology, Southampton Children's Hospital, Southampton, United Kingdom, <sup>2</sup>Faculty of Medicine, Clinical Experimental Sciences, Southampton university, Southampton, United Kingdom

Paediatric Rhinology 3, Albert - Second Floor, April 25, 2018, 10:45 - 11:55

**Aims:** A review of the role biofilms play in paediatric airway disease and evaluation of new and novel therapies under development

**Methods:** A non-systematic review of the literature was undertaken using Medline(1950-2017), EMBASE (1980-2017) and Ovid (1958-2017) databases using search terms including children, paediatrics, biofilm, adenoiditis, tonsillitis, otitis media, cystic fibrosis, silver nanoparticles, quorum inhibitors, nitric oxide donors, iron chelators and bacteriophage.

**Results:** Bacteria exist in planktonic (free-floating) and biofilm forms. Biofilms are communities of microorganisms that live in a protective glycocalyx matrix and share metabolites and genes allowing them to survive in many diverse environments. A significant number of children worldwide suffer from common ear, nose and throat conditions such as otitis media, chronic adenoiditis, recurrent tonsillitis, and rhinosinusitis. There is clear evidence that bacterial biofilms are implicated in these chronic conditions. Antimicrobial resistance and new appreciation of the biofilm lifecycle has led to the development of new antimicrobial compounds including nitric oxide, silver nanoparticles and baculovirus therapy that compliment antibiotics and will augment our approach to biofilm treatment in the future.

**Conclusions:** New technologies detecting biofilms and eluding intercellular messengers and transcription patterns are beginning to suggest biofilms have a large role to play in paediatric otorhinolaryngology. Biofilms have evolved a number of complex mechanisms to protect themselves against current antibiotics and the immune system. Newer therapies show great promise in targeting intercellular messengers, removing enzyme cofactors and encouraging metabolism that induce stress responses and make biofilms more susceptible to antibiotic effects.

## COMPONENT RESOLVED DIAGNOSTICS FOR GRASS POLLEN ALLERGIC RHINITIS

MD, PhD Marit Westman<sup>1</sup>, **MD Karin Åberg**<sup>2</sup>, MD, PhD Magnus Wickman<sup>3</sup>, MD, PhD Jean Bousquet<sup>4</sup>, MD Rudolf Valenta<sup>5</sup>, MD, PhD Marianne van Hage<sup>1</sup>

<sup>1</sup>Dept. of Medicine Solna, Immunology and Allergy Unit, Karolinska Institutet, Stockholm, Sweden, <sup>2</sup>Dept. of Clinical Science, Intervention and Technology, Division of Ear, Nose and Throat Diseases, Karolinska Institutet, Stockholm, Sweden, <sup>3</sup>Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden, <sup>4</sup>University Hospital of Montpellier, Hôpital Arnaud de Villeneuve, , Montpellier, INSERM 1018, Villejuif, France, <sup>5</sup>Division of Immunopathology, Department of Pathophysiology and Allergy Research, Center for Pathophysiology, Infectiology and Immunology, Medical University of Vienna, Vienna, Austria

Allergic Rhinitis 1, Victoria - Second Floor, April 23, 2018, 12:05 - 13:15

### Aim:

Molecular allergology has improved allergy diagnostics. The aim of this study was to investigate the value of component resolved diagnostics in grass pollen allergy.

### Methods:

Questionnaire data and sera from a random subset of 763 children at 4, 8 and 16 years of age from the Swedish birth cohort BAMSE were analyzed for IgE-reactivity to molecules from timothy grass *Phleum pratense* (Phl p 1, 2, 4, 5, 6, 7, 11 and 12) at the three time points using a modified allergen chip based on ISAC technology (the MeDALL chip). Grass pollen allergic rhinitis (ARg) was defined as symptoms of rhinitis at exposure to grass pollen.

### Results:

The most prevalent sensitizing allergen molecule was Phl p 1, followed by Phl p 4 and 5. There was an overlap of IgE-reactivity among these 3 molecules although not complete. IgE-reactivity to the other Phl p molecules only occurred as co-sensitization to any of Phl p 1/4/5 (except one child with Phl p 6). 27.1% were sensitized to timothy extract whereof 99.0% of children showed IgE-reactivity to Phl p 1/4/5. At 16 years, 37.1% had IgE-reactivity to Phl p 1/4/5, whereof 72.1% had IgE-antibodies to timothy extract. After adjustment, the odds of reporting ARg were significantly increased only among children with IgE-reactivity to Phl p 1, 4 or 5.

### Conclusion:

IgE reactivity to Phl p 1, 4 and 5 is more sensitive to detect grass pollen sensitization than IgE reactivity to timothy extract. Sensitization to these three molecules is independently associated with symptoms.

## A SYSTEMATIC REVIEW OF THALIDOMIDE AS A TREATMENT FOR RECURRENT EPISTAXIS IN HEREDITARY HAEMORRHAGIC TELANGIECTASIA

Miss Laura Harrison<sup>1</sup>, Mr Paul Jervis<sup>1</sup>

<sup>1</sup>*Northampton General Hospital, London, United Kingdom*

HHT 1, Epistaxis 2 and GPA 1, Gielgud - Second Floor, April 25, 2018, 10:45 - 11:55

**Introduction:** Hereditary haemorrhagic telangiectasia (HHT) is a rare autosomal dominant vascular dysplasia. The most common presentation of HHT is severe and recurrent epistaxis, for which there are few efficacious options and these offer only a temporary solution. Thalidomide, previously known for its teratogenic side effects in the 1960s, has now re-emerged as a promising treatment for angiodysplasia-related bleeding in HHT. We undertook a systematic review investigating the therapeutic uses of thalidomide in HHT patients with refractory epistaxis.

**Methodology:** A systematic review was performed using MEDLINE, EMBASE, Cochrane Library and NHS Evidence from inception to December 2016.

**Results:** The search yielded 176 results of which 17 were considered to be relevant. All studies using thalidomide therapy showed a reduction in frequency and duration of epistaxis, this was detected as early as 4 weeks in one study. In addition, thalidomide therapy has been shown to increase median haemoglobin levels as well as reduce blood transfusion dependence from 54% to 5%.

**Conclusion:** Current available evidence suggests low dose thalidomide is effective in transiently reducing epistaxis frequency and duration. Further studies are required to establish treatment regimen, such as continuous treatment with smaller dosages to mitigate against side effects. Thalidomide therapy should be considered when other management options have been exhausted.

## EFFICACY AND SAFETY OF COX-2 INHIBITOR FOR POSTOPERATIVE PAIN AFTER ENDOSCOPIC SINUS SURGERY

DR Takashi Shikina<sup>1</sup>

<sup>1</sup>*Ikeda Municipal Hospital, Ikeda, Japan*

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

### BACKGROUND:

Patients undergoing endoscopic sinus surgery (ESS) include a certain numbers of patients with both NSAIDs exacerbated respiratory disease (NERD, also known as Aspirin exacerbated respiratory disease, or Samter's triad) and aspirin tolerant asthma (ATA). The use of NSAIDs for ESS patients has a risk for asthma attack. The use of specific cox-2 inhibitors have shown to be safe for AERD (Morales DR et al. JACI 2014). The aim of this study was to evaluate effectiveness of celecoxib, a cox-2 inhibitor for postoperative pain after endoscopic sinus surgery (ESS).

### OBJECTIVE:

To evaluate the efficacy of postoperative use of celecoxib for postoperative pain compared with acetaminophen after endoscopic sinus surgery (ESS).

### METHODS:

Retrospective case series with patients undergoing ESS for chronic rhinosinusitis in a single hospital. CRS patients undergone ESS were treated with celecoxib since April 2017, whereas those were treated with acetaminophen until then.

### RESULT:

The postoperative pain measured by visual analog scale (VAS) scores under treatment with celecoxib were comparable to those with acetaminophen. No patient experienced asthma attack.

## THE IMPORTANCE OF SEPTAL SURGERY IN ENDONASAL SEPTORHINOPLASTY - TECHNICAL CONSIDERATIONS

Dr Catarina Tinoco<sup>1</sup>, Dr Diogo Oliveira e Carmo<sup>1</sup>, Dr Paula Campelo<sup>1</sup>, Dr Ana Campos<sup>1</sup>, Professor João Paço<sup>1</sup>  
<sup>1</sup>*Hospital CUF Infante Santo, Lisboa, Portugal*

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

Deformities of the nasal pyramid and septum deviations have important functional and aesthetic implications. The septum plays a critical role in both nasal airflow and external nasal appearance. Septal surgery can also help in correcting and aligning several nasal pyramid deformities.

Although sometimes more challenging, the endonasal septorhinoplasty has known clinically significant advantages: minimized local tissue trauma, no visible scar, reduced postoperative edema, and faster recovery.

The understanding of the anatomy, the relationships of its constituents and the mechanisms of support of the external nose, a correct preoperative analysis, as well as the knowledge of the various techniques and forms of manipulation appropriate to each problem are fundamental in the septorhinoplasty.

The authors present a step-wise approach covering the different techniques used in the septoplasty during the endonasal septorhinoplasty: performing hemitransfixive or complete transfixive incisions, removing cartilage for grafting, removing a piece of perpendicular ethmoidal lamina, working on the relationship between the septum and the anterior nasal spine, removing the pre maxilla bone to enable a trans-septal suture, working on the caudal septum and managing the septum-alar-columellar relationship. Non-destructive and reliable techniques appropriate to the different septal and pyramid problems are described, with satisfactory results.

In conclusion, the main goals in the described step-wise techniques of septoplasty in septorhinoplasty are: provide unimpeded bilateral nasal airflow, obtain good cartilage grafts, get adequate support and achieve an harmonious form for the external nose. The final surgical objective is always a cosmetically pleasing nose that function appropriately.

701

WITHDRAWN

## UNILATERAL ENDOSCOPIC RESECTION WITH TRANSNASAL CRANIECTOMY FOR INTESTINAL-TYPE SINONASAL ADENOCARCINOMA

**Dr Marco Ferrari<sup>1</sup>**, Dr Vittorio Rampinelli<sup>1</sup>, Dr Alberto Schreiber<sup>1</sup>, Dr Davide Mattavelli<sup>1</sup>, Prof Maurizio Bignami<sup>2</sup>, Prof Paolo Castelnuovo<sup>2</sup>, Prof Piero Nicolai<sup>1</sup>

<sup>1</sup>University Of Brescia, Brescia, Italy, <sup>2</sup>University of Insubria, Varese, Italy

Sinonasal Malignancy 1, Albert - Second Floor, April 23, 2018, 10:45 - 11:55

### Aims.

Intestinal-type adenocarcinoma (ITAC) of the ethmoid mostly affects patients exposed to wood dust. Traditionally, bilateral resection has been favored over unilateral surgery based on the association with inhalants. Recent improvements in endoscopic surgery and imaging have allowed a better local mapping of the tumor. The aim of the present study was to validate unilateral endoscopic resection with transnasal craniectomy (uERTC) in selected ITACs.

### Methods.

Patients affected by ITAC who underwent uERTC from 2004 to 2016 at the Unit of Otorhinolaryngology – Head and Neck Surgery of the Universities of Brescia and Varese were retrospectively analyzed. A control group of bilateral endoscopic resection with transnasal craniectomy (ERTC) that was comparable in terms of occupational exposure, TNM stage, grade, positive margins, adjuvant radiotherapy, age, and gender was selected. Olfactory and taste function were studied with VAS score and olfactometry. Survival and functional outcomes of the two groups were compared.

### Results.

Forty-six patients who underwent uERTC (23/46) or ERTC (23/46) were included. Three-year OS, DFS, and DSS in the uERTC group (86%, 83%, and 92%) and ERTC group (94%, 100%, and 94%) were not statistically different. Olfactory function was preserved in 31% and 0% of uERTC and ERTC, respectively. Differently from ERTC group in which taste was always compromised, it was preserved in all patients who underwent uERTC.

### Conclusions.

uERTC is an adequate surgical procedure for selected unilateral ITAC with similar survival rates and lower morbidity compared to ERTC. Strict adherence to indications and close follow-up are strongly recommended in uERTC.



## IDENTIFYING PATIENTS AT RISK FOR UNCONTROLLED CHRONIC RHINOSINUSITIS WITH NASAL POLYPS: DEVELOPMENT OF A MULTIVARIABLE MODEL

MD PhD Seija Vento<sup>2</sup>, MD PhD Paula Virkkula<sup>2</sup>, MD PhD Anni Koskinen<sup>2</sup>, MD PhD Sari Hammarén-Malmi<sup>2</sup>, MD PhD Anu Laulajainen-Hongisto<sup>2</sup>, MD PhD Maija Hytönen<sup>2</sup>, MD PhD Paula Kauppi<sup>1</sup>, MD PhD Jura Numminen<sup>3</sup>, Professor Markus Rautiainen<sup>3</sup>, MD PhD Saara Sillanpää<sup>3</sup>, Professor Wytske Fokkens<sup>4</sup>, MD PhD Sietze Reitsma<sup>4</sup>, MD PhD Markus Lilja<sup>2</sup>, **MD PhD Sanna Toppila-salmi<sup>1</sup>**

<sup>1</sup>*Skin and Allergy Hospital, Helsinki University Hospital, Helsinki, Finland,* <sup>2</sup>*Department of Otorhinolaryngology, Helsinki University Hospital, Helsinki, Finland,* <sup>3</sup>*Department of Otorhinolaryngology, Tampere University Hospital, Tampere, Finland,* <sup>4</sup>*Department of Otorhinolaryngology, Academic Medical Center, University of Amsterdam, Amsterdam, Netherlands*

CRS Diagnosis and Investigation 3, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

**Objectives:** There is lacking knowledge of the optimal predictive factors of uncontrolled chronic rhinosinusitis with nasal polyps (CRSwNP). The aim of this retrospective follow-up study was to identify patients at a risk of uncontrolled CRSwNP.

**Methods:** Data of CRSwNP patients (N=203) undergoing CRS-surgical consultation in 2002-12 were used. Patient characteristics and follow-up data (until 2017) were collected from patient records and questionnaires. Six predictors were used: Lund-Mackay (LM) score, NP eosinophilia, endoscopic NP score, infective exacerbations, nasal obstruction, and systemic corticosteroid treatment. Current CRS-surgery or revision CRS-surgery during follow-up were used as outcome measurements reflecting uncontrolled CRSwNP. Associations were analyzed by adjusted survival and logistic regression models. Predictive performance was assessed by the area under the receiver operating characteristic curve (AUROC).

**Results:** 77% of the CRSwNP patients underwent current CRS-surgery. Of them 32% underwent revision CRS-surgery in five years. In regression and survival models, all the six predictors showed significant association with current and/or revision CRS-surgery at  $p < 0.001$  level, however adjustments for confounding factors significantly affected the results. Using sum of the four non-invasive predictors (NP score, obstruction, exacerbations, corticosteroids) gave similar AUROC values (0.8) as using LM score or NP eosinophilia detecting group needing current CRS-surgery. Sum of non-invasive predictors predicted revision-CRS surgery with a dose-response effect ( $p < 0.001$ ) in survival models.

**Conclusions:** This was a preliminary study using multivariable models to identify uncontrolled CRSwNP patients, and those in a high risk for revision surgery. Prospective cohort studies are needed to validate the predictive algorithms of uncontrolled CRSwNP.

## ENDOSCOPIC RESECTION OF NASOETHMOIDAL CANCER WITH BRAIN INVASION: REFLECTION ON INDICATIONS

**Dr Marco Ferrari<sup>1</sup>**, Dr Vittorio Rampinelli<sup>1</sup>, Dr Alberto Schreiber<sup>1</sup>, Dr Davide Mattavelli<sup>1</sup>, Dr Andrea Bolzoni Villaret<sup>1</sup>, Dr Davide Lancini<sup>1</sup>, Dr Valentina Taglietti<sup>1</sup>, Dr Mario Turri-Zanoni<sup>2</sup>, Prof Paolo Castelnovo<sup>2</sup>, Prof Piero Nicolai<sup>1</sup>

<sup>1</sup>University Of Brescia, Brescia, Italy, <sup>2</sup>University of Insubria, Varese, Italy

Sinonasal Malignancy 1, Albert - Second Floor, April 23, 2018, 10:45 - 11:55

### Aims.

Brain invasion from nasoethmoidal malignancies is associated with poor prognosis and generally considered a contraindication to endoscopic resection. From a technical perspective, endoscopic resection with transnasal craniectomy and subpial dissection (ERTC-SD) is feasible, but the oncological adequacy has not been precisely defined.

### Methods.

All patients who underwent ERTC-SD for tumors with brain invasion demonstrated at the postoperative histologic examination at the Units of Otorhinolaryngology – Head and Neck Surgery of the Universities of Brescia and Varese were included. Demographics, preoperative imaging, histology, postoperative complications, follow-up status and duration, and oncological outcomes were retrospectively analyzed.

### Results.

Twelve patients were included in the study. Mean age at diagnosis was 63-year-old. In all the cases, brain invasion was suspected at preoperative magnetic resonance imaging. Histologies were distributed as follows: 6 olfactory neuroblastomas, 3 sinonasal neuroendocrine carcinomas, 2 intestinal-type adenocarcinomas, and 1 fibrosarcoma. One patient developed a subdural hematoma; no other major complications neither treatment-related death occurred. Mean follow-up after treatment was 35 months. At last follow-up examination, 6 patients were alive without evidence of disease, 3 patients were alive with disease, and 3 patients died of disease. Three-year overall survival and locoregional control were both 57%.

### Conclusions.

ERTC-SD allows radical excision of selected tumors with intracranial extension and suspicious for minimal brain infiltration.

## LONG-TERM MORBIDITY AND QUALITY OF LIFE AFTER ENDOSCOPIC RESECTION OF JUVENILE ANGIOFIBROMA

Dr Vittorio Rampinelli<sup>1</sup>, Dr Marco Ferrari<sup>1</sup>, Dr Davide Mattavelli<sup>1</sup>, Dr Alberto Schreiber<sup>1</sup>, Dr Bruno Guarneri<sup>2</sup>, Dr Giacomo Bertazzoni<sup>1</sup>, Professor Piero Nicolai<sup>1</sup>

<sup>1</sup>Unit of Otorhinolaryngology - University Of Brescia, Brescia, Italy, <sup>2</sup>Department of Electrophysiology - University of Brescia, Brescia, Italy

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

### Aims:

Endoscopic endonasal resection (EER) of juvenile angiofibroma (JA) is universally considered a “minimally invasive” technique, despite the possible sacrifice of several neurovascular structures. The aim of this study is to evaluate long-term neurological morbidity after ER of JA.

### Methods:

All patients who underwent EER for JA at the Unit of Otorhinolaryngology – Head and Neck Surgery of the University of Brescia from 2000 to 2016 were included. Minimum follow-up was 12 months. The vidian nerve function was assessed bilaterally with Schirmer-test. The impairment of sensitive nerves at higher risk of damage was topographically analysed by comparing the operated and contralateral sides with an electrophysiological threshold test (figure 1). The impact on Quality of life of lacrimal function and sensitivity impairment was investigated with Ocular Surface Disease Index (OSDI) and visual analogue scale (VAS; 0-10), respectively.

### Results:

Eighteen patients were included. Median Schirmer-test value was 5.5mm and 28.5mm for the operated and contralateral side, respectively ( $p=0.003$ ). Analysis of sensitivity revealed a significant impairment only in the hard palate region. Mean OSDI score was 6.6 (normal). The mean values of VAS score of the hard palate, alveolar ridge, buccal mucosa, and premaxillary skin were 1.7, 1.7, 1.2, and 2.3, respectively.

### Conclusions:

EER for JA can result in objective reduction of tearing and sensitivity on the operated side, though their impact on quality of life is negligible. Predictable morbidity of the procedure should be discussed during preoperative counseling.

## SURGICAL TREATMENT OF RECURRENT EPISTAXIS: TO WHOM?

MD Beatriz Lança<sup>1</sup>, MD Diogo Tomé<sup>1</sup>, MD Paulo Rocha Pereira<sup>1</sup>, MD Marta Canas Marques<sup>1</sup>, PhD Leonel Luís<sup>1</sup>  
<sup>1</sup>*Centro Hospitalar Lisboa Norte, Lisboa, Portugal*

Epistaxis 3, Albert - Second Floor, April 26, 2018, 10:45 - 11:55

**AIMS:** Idiopathic epistaxis is one of the most prevalent emergencies in ENT practice. Its management is often challenging and may require several treatments. This study compares two different clinical criteria in order to optimize patient selection for early sphenopalatine artery ligation/cauterization (SPAL/C).

**METHODS:** Retrospective study assessing 125 patients admitted in our department with a diagnosis of recurrent epistaxis from January/2014 to December/2017. We excluded epistaxis due to trauma, postoperative, malignancy, coagulopathies, loss of follow-up and pregnancy. We analyzed the clinical profile of all patients included and divided them into two groups: A) patients who were operated during hospitalization and B) non operated group. We applied the Wexham criteria and RHINO-ooze score to identify those who would benefit with early SPAL/C.

**RESULTS:** In our sample (n=50) we identified a male preponderance (7:1) and a median age of 63 years. In group A (16 patients) only the Wexham criteria showed a statistically significant correlation, pointing to 15 patients who would have benefited with early surgical intervention ( $p=0,00004$ ) versus 2 patients for the RHINO-ooze score ( $p=0,116$ ). Applying Wexham criteria, the most statically relevant criteria is the persistent posterior epistaxis uncontrolled by nasal packing. According to Wexham criteria, another 12 patients from group B could have been operated.

**CONCLUSIONS:** In our sample the Wexham criteria showed good sensitivity and poor specificity, concerning the need for surgical treatment. These results may be explained by the small sample size and the retrospective design.

## ENDOSCOPIC ENDONASAL RECONSTRUCTION OF ANTERIOR SKULL BASE DEFECTS: WHAT FACTORS REALLY INFLUENCE THE OUTCOMES?

**Dr Mario Turri-Zanoni<sup>1</sup>**, Dr Paolo Battaglia<sup>1</sup>, Dr Alessia Lambertoni<sup>1</sup>, Dr Jacopo Zocchi<sup>1</sup>, Dr Apostolos Karligkiotis<sup>1</sup>, Prof Paolo Castelnuovo<sup>1</sup>

<sup>1</sup>*University of Insubria, Varese, Italy*

Skull Base 1, Rutherford - Fourth Floor, April 24, 2018, 10:45 - 11:55

### Aims.

Endoscopic endonasal surgery has considerably evolved during the last decades, requiring comparable advances in reconstructive techniques. Objectives of this study are to retrospectively review the outcomes of endoscopic anterior skull base (ASB) reconstruction and to analyse factors that might influence the failures.

### Methods.

Data of patients who underwent endoscopic endonasal ASB reconstruction in a single Institution from 1998 to 2016 were collected. Patients were stratified according to selected risk factors: sex, reconstruction technique (overlay graft, multilayer grafts, pedicled flap), defect dimension (<1cm<sup>2</sup>, 1-2cm<sup>2</sup>, 2-6 cm<sup>2</sup>, >6 cm<sup>2</sup>), defect location (olfactory cleft, ethmoidal roof, planum sphenoidalis, posterior wall of frontal sinus), pathology treated (cerebro-spinal fluid leaks, benign tumors, malignant tumors), post-operative radiotherapy, and year of surgery. Statistical significance was assessed using Fisher's exact tests. A univariate logistic regression is implemented to analyse the association between risk factors and failures.

### Results.

513 cases met the inclusion criteria with a median follow-up of 96 months (range 12-257). There was a success rate of 95% (487/513) for initial repair, with 100% of secondary closure after revision surgery. Failures were not significantly related to sex (p=.54), reconstruction technique (p=.28), location of the defect (p=.65), dimension (p=.69), pathology (p=.83), and post-operative radiotherapy (p=.83). The year of surgery, considered as a continuous variable, was associated with a statistically significant reduction of failures (Odd-Ratio=0.89, p.005).

### Conclusion.

Endoscopic surgery is safe and effective for ASB reconstruction both for CSF-leaks repair and after sinonasal tumors resection. Refinements in surgical technique have contributed to improve success rates over the years.

## A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS OF THROAT PACK USE IN NASAL SURGERY.

Mr Raj Lakhani<sup>1</sup>, Mr Nikul Amin<sup>1</sup>

<sup>1</sup>St George's University Hospitals NHS Foundation Trust, London, United Kingdom, <sup>2</sup>Epsom & St Helier University Hospitals, London, United Kingdom

CSF Leaks 2 and CRS Surgery 3, Rutherford - Fourth Floor, April 24, 2018, 14:45 - 16:15

### Aims

To perform a systematic review and meta-analysis of randomised controlled trials regarding the use of throat packs in nasal surgery specifically assessing post-operative nausea and vomiting (PONV), sore throat and adverse events.

### Methods

The databases and registers searched were; The Cochrane Central Register of Controlled Trials Medline, EMBASE via Ovid SP, Science Citation Index, World Health Organisation International Clinical Trials Registry Platform (WHO ICTRP) and ClinicalTrials.gov

### Selection criteria

Randomised controlled trials of patients having nasal surgery under general anaesthesia comparing the use of a throat pack versus no throat pack.

### Data collection and analysis

Standard data collection for meta-analysis was undertaken. Effect estimates were calculated with 95% confidence intervals using the random-effects model. Risk of bias was assessed using Cochrane methodology and quality of evidence evaluated according to GRADE.

### Results

Nine trials were included in this review (896 patients). No significant difference between the intervention and control groups was found in a meta-analysis of proportion of patients with PONV (RR 1.44; 95% CI 0.91-2.28; p=0.12) or proportion of patients with post-operative sore (RR 1.13; 95% CI 0.92-1.40; p=0.46). Sore throat at 24 hours was found to be 24% higher in those patients receiving throat packs (RR 1.24; 95% CI 1.01-1.52; p=0.04).

### Conclusion

Although higher sore throat levels (24 hours) were found in the intervention group, no significant difference was found for other outcomes or time-points. Future well-designed randomised trials should focus upon robust reporting of clinically important outcomes and adverse outcomes to allow inclusion in meta-analysis.

## T-CELL ACTIVATION IN LYMPH NODES AND BLOOD AFTER ALLERGEN SPECIFIC INTRALYMPHATIC IMMUNOTHERAPY WITH TWO CONCOMITANT ALLERGENS

**M.D. Laila Hellkvist<sup>1,2</sup>**, M.Sc. Eric Hjalmarsson<sup>1</sup>, M.Sc, Ph.D. Susanna Georén Kumlien<sup>1</sup>, Nurse Agneta Karlsson<sup>1</sup>, M.D., Ph.D. Karin Lundkvist<sup>1</sup>, M.D., Professor Ola Winqvist<sup>3</sup>, M.D., Ass. Professor Ulla Westin<sup>4</sup>, M.D., Professor Lars Olaf Cardell<sup>1,2</sup>

<sup>1</sup>Division of ENT Diseases, Department of Clinical Sciences, Intervention and Technology, Karolinska Institutet, Stockholm, Sweden, <sup>2</sup>Department of ENT diseases, Karolinska University Hospital, Stockholm, Sweden, <sup>3</sup>Department of Medicine, Unit of Translational Immunology, Karolinska Institutet, Stockholm, Sweden, <sup>4</sup>Laboratory of Clinical and Experimental Allergy Research, Department of Otorhinolaryngology Malmö, Lund University, Skåne University Hospital, Malmö, Sweden

Allergic Rhinitis 2, Burton & Redgrave - Second Floor, April 24, 2018, 12:05 - 13:15

### Aims

Intralymphatic allergen specific immunotherapy (ILIT) has been introduced to shorten the treatment duration of allergy vaccination. This study was focused on T-cell activation in lymph nodes and peripheral blood following a concurrent intralymphatic administration of grass and birch allergens.

### Methods

60 patients were randomized 1:1 to three ultrasound guided lymph node injections with ALK Alutard Birch and Grass 1000 SQ/U in each groin or double placebo, with one-month interval. The symptomatic outcome of a nasal allergen provocation with grass was scored before and 6-9 month after the start of the treatment. Peripheral blood and lymph node biopsies for flow cytometry analyses, were obtained in 14 patients before the start and after the last injection.

### Results

51 patients fulfilled all follow up-visits and were included in the efficacy analysis. Side effects were mild to moderate. The nasal provocation symptom score were reduced by 28% in the active group (16% improvement over placebo). In lymph nodes CD4+ memory T-cells cells increased as the result of active ILIT. In blood, the proportion of CD4+ effector memory CCR7- cells were augmented. In analogy, CD4+memory Th1-cells (CD4+CCR5+) and effector memory cells with T-reg phenotype (CD4+CD25++) were also increased. This was not seen after placebo.

### Conclusions

ILIT with two concomitant allergens appears to be feasible and safe. The reduction in rhinoconjunctivitis symptoms upon allergen challenge is promising. Local administration of allergen into lymph nodes generates systemic changes in the lymphocyte population, which further supports the idea ILIT as a new immunotherapy modality for the future.

## RADIOLOGICAL CHARACTERISATION OF THE ANTERIOR SKULL BASE AND THE FRONTAL SINUS IN THE SAGITTAL PLANE

Mr Babatunde Oremule<sup>1</sup>, Dr Maria Iqbal, Mr Samit Ghosh

<sup>1</sup>*Pennine Acute Hospitals, Manchester, United Kingdom*

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

The anterior skull base has been described in the coronal view on CT. With frontal sinus surgery planning the sagittal view is the most useful. This study characterises the shape of the anterior skull base in the sagittal plane, and the variability of lateral extent of the frontal sinus and the anterior-posterior width of the frontal recess to inform operative approaches to the frontal sinus.

### Methods

Retrospective review of 100 CT scans of adult paranasal sinuses. The following measurements were taken for both sides at a fixed point; the sagittal shape of the anterior skull base, the A-P width of the frontal recess, angle of the skull base in the sagittal plane at the frontal recess, lateral extent of the frontal sinuses and whether or not the skull base dipped below a horizontal plane between the nasal beak and junction of the anterior wall of the sphenoid and the skull base.

### Results

Four shapes of the skull base were identified. The frontal sinus extended to the lateral third above the orbit in 9% of cases. The mean width of the frontal recess was 7.6mm. The mean angle of the skull base was 135 degrees from beak- sphenoid to frontal recess. There was asymmetry of shape of the skull base in 10% and it dipped below the horizontal in 13.5% of cases.

### Conclusion

We describe a new sagittal classification of shape of the skull base and have provided an original description of the frontal sinus extent.



## CONNEXIN 43 EXPRESSION IN ADENOCARCINOMA OF NASAL CAVITY AND PARANASAL SINUSES

**M.d., PhD Ana Penezić<sup>1</sup>**, M.D. Sandra Doko<sup>1</sup>, MD, PhD Alma Demirović<sup>1</sup>, MD, PhD, Assistant Professor Marko Velimir Grgić<sup>1</sup>, MD, PhD, Professor Tomislav Baudoin<sup>1</sup>, MD, PhD, Professor Davor Vagić<sup>1</sup>, MD, PhD, Assistant Professor Goran Geber<sup>1</sup>, MD, PhD, Professor Livije Kalogjera<sup>1</sup>

<sup>1</sup>University Hospital Center "Sisters of Mercy", Zagreb, Croatia

Sinonasal Malignancy 2, Burton & Redgrave - Second Floor, April 25, 2018, 10:45 - 11:55

**AIM:** To investigate the immunohistochemical expression of connexin (cxn) 43 in patients with adenocarcinoma of nasal cavity and paranasal sinuses.

**METHODS:** This was a retrospective study which included patients with adenocarcinoma of nose and paranasal sinuses operated at ENT Department of University Hospital Center Sister of Mercy in 10 years period (from 2007-2017). Immunohistochemical analysis was performed on a single representative block from 20 cases. We used primary antibody for connexin 43 (Abcam). Material was routinely processed and analyzed under the light microscope. Each section was analyzed in the whole mount two times. First time under low power (x40) and second time under high power magnification (x400).

**RESULTS:** All cases showed negative reaction for cxn 43.

**CONCLUSION:** The preliminary data of our study showed the absence of the reaction for cxn 43 in patients with adenocarcinoma of nasal cavity and paranasal sinuses. These findings are in concordance with the results of studies performed on adenocarcinomas of ovary, prostate, lung and stomach. Further studies are needed to explore the potential prognostic role of cxn 43 expression in these patients.

726

WITHDRAWN

## TOPICAL BETADINE: AN ADJUNCTIVE TREATMENT FOR RECALCITRANT CHRONIC RHINOSINUSITIS

Dr. Warren Mullings<sup>2</sup>, **Mr. Rikesh Panchmatia<sup>2</sup>**, Dr. Katrien Samoy<sup>1</sup>, Mr. Al-Rahim Habib<sup>2</sup>, Prof Amin Javer<sup>2</sup>  
<sup>1</sup>Heilig Hart ziekenhuis, Heverlee, Belgium, <sup>2</sup>Division of Otolaryngology, University of British Columbia, St. Paul's Sinus Centre, Vancouver, Canada

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

**Introduction:** Recalcitrant chronic rhinosinusitis (CRS) is a persistent inflammatory condition affecting the sinonasal mucosa despite adequate medical therapy and sinus surgery. With limited alternatives, patients continue to experience a reduced quality of life. We aim to demonstrate the effectiveness of Betadine sinus rinses on endoscopic Modified Lund-Kennedy (MLK) scores.

**Methods:** This is a retrospective chart review of 59 recalcitrant CRS patients who added Betadine to saline rinses (0.08%) between September 2016 and August 2017. Patients were evaluated endoscopically at baseline and at least 40 days later.

**Results:** Betadine rinses resulted in significant decreases of median total MLK scores (64% of all patients improved by  $\geq 1$  point;  $p=0.0001$ ) and of median total MLK discharge subscores (63% of all patients improved by  $\geq 1$  point;  $p=0.0001$ ). Median total MLK score decreases were not significant in patients with a baseline total MLK score of 1 to 4, nor in patients diagnosed with CRS with nasal polyps (CRSwNP). Decreases in median MLK discharge subscores were also not significant in CRSwNP patients or in patients concurrently on antibiotics or antifungals. The decrease was instead significant amongst patients not on these medications (68% improved by  $\geq 1$  point;  $n=37$ ,  $p=0.0001$ ). Additionally, no patients followed-up within 40 to 55 days experienced a worsening in discharge subscore ( $n=30$ ;  $p = 0.0001$ ).

**Conclusions:** Topical betadine rinses, as a short-term adjunct therapy to recalcitrant CRS management, is associated with significant positive improvement in sinonasal endoscopic appearance. Further research to delineate the efficacy and safety is currently ongoing at our centre.

729

WITHDRAWN

## POSTERIOR TRANSSEPTAL-TRANSSPHENOIDAL COMBINED ENDO-MICROSCOPIC PITUITARY SURGERY (CEMPS)

**Md Phd Zsolt Bella<sup>1</sup>**, MD Béla Fülöp<sup>2</sup>, MD PHD László Szakács<sup>1</sup>, MD Andrea Radler<sup>2</sup>, Prof. MD PHD László Rovó<sup>1</sup>, Prof. MD. PHD. DsC Pál Barzó<sup>2</sup>

<sup>1</sup>University of Szeged, ENT Department, Szeged, Hungary, <sup>2</sup>University of Szeged, Neurosurgical Department, Szeged, Hungary

Skull Base 1, Rutherford - Fourth Floor, April 24, 2018, 10:45 - 11:55

**Aims:** It was reported by numerous studies and metaanalysis to compare the microscopic and endoscopic pituitary surgical two techniques.

**Methods:** With the special combination of these basic methods, the posterior transnasal, transsphenoidal endo-microscopic approach (CEMPS) could be result a real minimal invasive surgical technique. 202 patients (91 ♀, 111 ♂, 20-83yrs) were involved with 72-6 months follow up.

**Results:** Tumor resection was successful totally in 92,8%, and partially in 7,2%. The rate of complications was not higher as compared to the classical microscopic method. Minor epistaxis occurred in 6,2%, transitional diabetes insipidus in 44%, intraoperative CSF leak in 25% (in last 100 cases reduced to 14%), post operative CSF leak in 3,1% and meningitis in 9,4% (in last 100 cases reduced to 4%) of the patients. Three patient died in the early post operative period (apoplexia, internal carotid artery injury, intracranial bleeding after pituitary adenoma extirpation).

**Conclusions:** The success of the surgical treatment is based on the professional pre- and postoperative endocrinological care and intraoperative haemostatic control. Endoscope was used in the nasal and intrasphenoid phase. Microscope with high quality 3D magnification was performed during the opening the sella and for the differentiation of pituitary adenoma from normal gland and for the tumor removal. The endoscopes with wide angulated vision (30°,45°), make the better opportunities for checking the operating field, the para and suprasellar area as well. CEMPS combined the technical benefits and is able to reduce the operating time and complications and maximalized the gross tumor removal.

## GLOBAL OSTEITIS SCORING SCALE IN INTRACTABLE CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

**Dr. Retno Wardani<sup>1</sup>**, Dr Indrati Suroyo<sup>2</sup>, Dr Mulyaningrum Moereto<sup>1</sup>, Dr Syfia Hidayati<sup>2</sup>, Dr Joedo Prihartono<sup>3</sup>  
<sup>1</sup>Rhinology Division, ORL HNS Department, Faculty of Medicine Universitas Indonesia Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia, <sup>2</sup>Radiology Department, Faculty of Medicine Universitas Indonesia - Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia, <sup>3</sup>Community Health Medicine, Faculty of Medicine Universitas Indonesia - Dr. Cipto Mangunkusumo, Jakarta, Indonesia

CRS Diagnosis and Investigation 3, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

Intractable chronic rhinosinusitis with nasal polyps (NP) is a disease with significant morbidity. There is subset of patients that remain quite resistant to medicine and surgery referred as refractory or recalcitrant rhinosinusitis and has been a challenge for its management

Group of NP were meet the criteria that could be followed up to 12 weeks post-operatively and polyps was still exist although the pre-operative and post operative maximal medical treatment already given. Control group consist of 40 ct-scan of chronic rhinosinusitis without nasal polyps (CRS) revealed from Radiology PACS data. Lund Mc Kay Score (LMSS) and Global Osteitic Scoring Scale (GOSS) score were determine by our radiologist colleague.

We found 29 subjects intractable NP met the criteria compare to 40 subjects CRS. LMSS and GOSS median value in first group were 14 (min – max: 10-20), 1 (min-max: 0-4) in NP grade 2 - 3 and 20 (min-max: 7 – 24), 4 (min-max: 0 – 17) in NP grade 4 – 6. While in CRS, LMSS was 4.88 + 4.51 and GOSS was 0.57 + 1,75. Spearman correlation analysis in intractable NP, R= 0.37 p=0.05 and in CRS group, R=0.20, p=0.225 Finding the etio-pathogenesis is a way to understand disease nature. The evidence of a correlation between osteitis and mucosal inflammation severity in group of NP compare to group CRS were found in our study. Mucosal and osteitis score in CRS with and without NP could be a prognosis predictor and help to educate patient for treatment compliance.

## THE ROLE OF HPV IN SINONASAL INVERTED PAPILOMA

Miss Louise Melia<sup>1</sup>, Mr Gerald McGarry<sup>1</sup>

<sup>1</sup>*Glasgow Royal Infirmary, Glasgow, United Kingdom*

Benign Nasal Tumours 1, Albert - Second Floor, April 23, 2018, 14:45 - 16:15

**Aims:** To examine the role of HPV in inverted papillomas and evaluate its impact on rates of recurrence and malignant transformation.

**Methods:** We retrospectively reviewed all cases of inverted papilloma (IP) and sinonasal squamous cell carcinoma (SCC) in our unit, over a 10-year period from 2002 to 2012. Formalin fixed tissue specimens of IP and SCC were identified and screened for HPV DNA using in-situ hybridisation (ISH). DNA was then extracted from paraffin sections of ISH positive cases and subjected to polymerase chain reaction using primers specific for HPV subtypes 11 and 16.

**Results:** 62 patients with IP and SCC were treated over the 10-year period by 5 surgeons, with mean follow up of five years. 44 patients had IP, 18 patients had SCC. 6 cases of IP with synchronous SCC were identified. 13 (29.5%) IPs were HPV positive, all subtype 11. 4 (22.2%) SCCs were HPV positive, all subtype 16. No IP with SCC were HPV positive. In the 5 year follow up 7 (15.9%) of the IPs recurred. Of the cases that recurred 6 (85.7%) were HPV positive.

**Conclusion:** Inverted papillomas are a benign sinonasal tumour with a propensity for recurrence and malignant transformation. Despite many investigations its aetiology and causes for malignant transformation have yet to be elucidated, and in particular exact cellular mechanisms by which infection leads to subsequent recurrence and development of carcinoma. Our study suggests that HPV infection plays a role in the progression of inverted papilloma and confers an increased risk of recurrence.

## THE CLINICAL EFFICACY OF TOPICAL NASAL POMEGRANATE FRUIT EXTRACT (PFE) (PUNICA GRANATUM) FOR PATIENTS WITH CHRONIC RHINITIS, CHRONIC SINUSITIS AND NASAL POLYPS.

Prof. Itzhak Braverman<sup>1</sup>, Dr. Miri Sarid<sup>2</sup>

<sup>1</sup>Hillel Yaffe Medical Center, Hadera. Technion Faculty Of Medicine, Nesher, Israel, <sup>2</sup>western galilee college, , Israel

CRS Medical Management 1, Gielgud - Second Floor, April 23, 2018, 10:45 - 11:55

The potential of pomegranate as anti-biofilm agent in addition to explaining the traditional use of pomegranate as an antimicrobial agent directed us to explore the role of topical nasal Pomegranate fruit extract (PFE) for clinical use in patients with CRS, NP and Chronic Rhinitis (CR) in a double blind study. Material and methods: PFE was examined on 3 groups: CRS, NP, CR. Each group got the PFE spray randomly twice a day as a PFE or as a placebo for 30 days. ENT examination and a SNOT 20 questioner was done, before and after treatment.

Results: 111 patients participated in this study and included three groups: Each group got randomly either PFE or placebo. Comparison of treatment effect among study and control group pointed to decrease of headache and facial pain frequency in study group ( $p < .001$ ;  $p = ns$ , respectively). A significant decrease of dizziness was found also among study group ( $p < .05$ ;  $p = ns$ ). Disturbance of night sleep ( $p < 0.02$ ;  $p = ns$ ). A decrease of attention and distraction ( $p < 0.05$ ;  $p = ns$ ). We found that the treatment reduced symptoms of runny nose among study group who suffer from CR while among control with runny nose there was no improvement ( $p = 0.003$ ).

Topical nasal Pomegranate fruit extract is clinically effective in treatment for patients with chronic rhinitis. We conclude that PFE spray was effective in reduction symptoms headaches and facial pain, dizziness and sleep disturbances as well as attention and distraction and runny nose among CR patients.



## ORBITAL COMPLICATIONS OF ACUTE RHINOSINUSITIS IN PAEDIATRIC PATIENTS: OUR 10-YEAR EXPERIENCE

Dr Mariana Calha<sup>1</sup>, Dr João Levy<sup>1</sup>, Dr Vitor Oliveira<sup>1</sup>, Professor Leonel Luis<sup>1</sup>

<sup>1</sup>*Hospital De Santa Maria, Lisboa, Portugal*

Paediatric Rhinology 2, Rutherford - Fourth Floor, April 24, 2018, 12:05 - 13:15

**AIMS:** Amongst children, acute rhinosinusitis poses as an extremely common clinical scenario. Although less frequent, local and regional complications may occur. Orbital cellulitis accounts for the majority of these. Even with aggressive care, orbital infections remain a threat to vision and can extend to cavernous sinus thrombosis, requiring prompt treatment.

The objective of the study was to review the aetiology, symptoms at presentation and clinical criteria in diagnosing orbital cellulitis as a complication of acute sinusitis in the paediatric population. Our therapeutic and surgical experience is also discussed.

**METHODS:** Retrospective descriptive study of all the rhinogenic derived orbital cellulitis in paediatric patients managed between January 2007 and September 2017 in a tertiary referral hospital. Demographic data and symptoms at presentation were gathered and cross-referenced with imaging, antibiotic type, need for surgical approach and days of hospitalisation.

**RESULTS:** Of the 230 children admitted with orbital cellulitis secondary to acute rhinosinusitis more than half had no previous history of sinonasal symptoms. The average age at presentation was 9 years old, being the palpebral oedema the most frequent symptom described. Regarding classification of the cellulitis more than 40% presented as Chandler stage I, followed closely by stage II in 30% of the patients. More than 75% of the cases resolved without surgery, being *Streptococcus anginosus* the most commonly cultured pathogen.

**CONCLUSIONS:** The complications of acute rhinosinusitis are challenging, although the prognosis can be favourable. Early diagnosis and aggressive medical management, combined in selected cases with surgical drainage, remain the standard of care.

## THE ROLE OF ENT MANAGEMENT IN PAEDIATRIC PRIMARY CILIARY DYSKINESIA

**Mr Morad Faoury**<sup>1</sup>, Mr Steven Frampton<sup>1</sup>, Dr Woolf Walker<sup>1,3</sup>, Professor Jane Lucas<sup>1,3</sup>, Associate Professor Rami Salib<sup>1,3</sup>, Mrs Hasnaa Ismail-Koch<sup>1</sup>, Mrs Andrea Burgess<sup>1,2</sup>

<sup>1</sup>University Hospital Southampton, Southampton, United Kingdom, <sup>2</sup>Royal Hampshire County Hospital, Winchester, United Kingdom, <sup>3</sup>University of Southampton, Southampton, United Kingdom

Paediatric Rhinology 2, Rutherford - Fourth Floor, April 24, 2018, 12:05 - 13:15

**Aims**

To review the role of ENT management within the multidisciplinary care of the paediatric patient with Primary Ciliary Dyskinesia (PCD).

**Methods**

Non-systematic literature review

**Results**

Primary ciliary dyskinesia (PCD) is a heterogeneous group of autosomal recessively inherited disorders characterised by abnormal function of motile cilia. Patients with PCD suffer chronic lung disease, rhinosinusitis, hearing impairment and subfertility, while a subset of patients (approximately 50%) display Kartagener's syndrome with situs inversus totalis, chronic sinusitis and bronchiectasis. Most cases present in childhood with respiratory symptoms but in some, ENT manifestations are the initial presentation. These children can present with neonatal respiratory distress, early onset rhinitis, recurrent otitis media with effusion, chronic rhinosinusitis, or obstructive sleep apnoea (OSA).

Traditional teaching is to avoid ventilation tubes, which can result in persistent otorrhoea. This has however been challenged by some recent studies. Our experience is to offer hearing aids as first line, and we perform simultaneous suction diathermy adenoidectomy if ventilation tubes are inserted. Rhinitis is treated with nasal douche and the potential addition of intranasal steroids. We consider adenoidectomy both to improve nasal obstruction and reduce the potential reservoir of infection; adenotonsillectomy may be required for OSA symptoms. Sinus surgery has historically had a very limited role, although this too has been challenged in recent studies which indicate beneficial reductions in lung colonization and trends to improved lung function.

**Conclusions**

Management of the upper airway in PCD impacts on quality of life with emerging evidence of potential beneficial effects on lung status.

## RISK OF MORTALITY FOLLOWING MACROLIDE PRESCRIPTION IN CHRONIC RHINOSINUSITIS PATIENTS: A COHORT STUDY USING PRIMARY CARE ELECTRONIC HEALTH RECORDS

**Dr Elizabeth Williamson<sup>1</sup>**, Dr Spiros Denaxas<sup>2</sup>, Professor Steve Morris<sup>7</sup>, Dr Caroline S Clarke<sup>8</sup>, Professor Mike Thomas<sup>3</sup>, Dr Hannah Evans<sup>2</sup>, Dr Helen Blackshaw<sup>4</sup>, Professor Anne Schilder<sup>4</sup>, Professor Carl Philpott<sup>5</sup>, Professor Claire Hopkins<sup>6</sup>, Professor James Carpenter<sup>1</sup>

<sup>1</sup>London School Of Hygiene & Tropical Medicine, London, United Kingdom, <sup>2</sup>Farr Institute of Health Informatics, London, UK, <sup>3</sup>University of Southampton, Southampton, UK, <sup>4</sup>evidENT, UCL Ear Institute, University College London,, UK, <sup>5</sup>Norwich Medical School, University of East Anglia, Norwich, UK; ENT Department, James Paget University Hospital NHS Foundation Trust,, Great Yarmouth, UK, <sup>6</sup>ENT Department, Guy's and St Thomas' NHS Foundation Trust, , UK, <sup>7</sup>Department of Applied Health Research, University College London,, , UK, <sup>8</sup>Research Department of Primary Care and Population Health, UCL, , London, UK

MACRO Programme, Abbey - Fourth Floor, April 26, 2018, 10:45 - 11:55

### Aims

Macrolides are a class of antibiotics increasingly prescribed to patients with Chronic Rhinosinusitis (CRS) in primary care. A number of studies in other clinical settings recently raised concerns about elevated cardiovascular risk, particularly in the period immediately following treatment.

### Methods

We developed an EHR phenotyping algorithm that classified patients after 01/04/1997 as either definite, likely or probable CRS. Such patients were included in the analysis if they received a prescription for either macrolide or penicillin as a first-line treatment, defined as being recorded within five days of the CRS-related consultation. Patients were followed from their first CRS-related macrolide or penicillin prescription until death, leaving their GP practice, or 28/02/2016. Confounders were defined using algorithms from the CALIBER resource. We used Cox proportional hazards models, adjusting for potential confounders including age and sex, to estimate the risk of macrolide versus penicillin.

### Results

We identified 70,151 patients with definite, likely or probable CRS. Of these, 14,372 first received a course of an antibiotic from the macrolide class while 55,779 first received a course of penicillin. 4042 (5.8%) died during follow-up. Adjusting for age and sex, we found no evidence of an increased hazard of macrolides on all-cause and circulatory mortality (all cause HR 1.00, 95% CI (0.92, 1.08), p=0.99). However, there was a non-significant suggestion of an increased risk in the first 14 days following treatment.

### Conclusion

We found no evidence of an increased risk of mortality for macrolide treatment.

Future work should account for multiple prescriptions and GP preferences.

## PROFILE OF PATIENTS WITH UNCONTROLLED ALLERGIC RHINITIS PRESCRIBED MP-AZEFLU IN ROUTINE UK CLINICAL PRACTICE

**Dr. Glenis Scadding**<sup>1</sup>, David Price<sup>2</sup>, Tariq El-Shanawany<sup>3</sup>, Shahzada Ahmed<sup>4</sup>, Ravishankar Sargur<sup>5</sup>, Nirmal Kumar<sup>6</sup>

<sup>1</sup>Royal National Throat Nose & Ear Hospital, , United Kingdom , <sup>2</sup>Observational & Pragmatic Research Institute Pte Ltd, , Singapore, <sup>3</sup>University Hospital of Wales, , United Kingdom, <sup>4</sup>Queen Elizabeth Hospital, , United Kingdom, <sup>5</sup>Northern General Hospital, , United Kingdom, <sup>6</sup>Wrightington, Wigan and Leigh NHS Foundation Trust, , United Kingdom

Allergic Rhinitis 2, Burton & Redgrave - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** One in four individuals in United Kingdom (UK) has allergic rhinitis (AR). This study aimed to characterise patients prescribed MP-AzeFlu in the UK and physicians' reasons for prescribing it, and quantify personal and societal burdens of AR before MP-AzeFlu prescription.

**Methods:** This multicentre, prospective, noninterventional study enrolled patients (N=193) with moderate-to-severe AR and acute symptoms eligible to receive MP-AzeFlu (azelastine hydrochloride and fluticasone propionate in a single spray) per label. Patient demographics, disease and treatment history, number and reasons for previous AR visits, and reason for prescribing of MP-AzeFlu were recorded.

**Results:** Patients had seasonal AR (SAR) alone (10.4%), SAR in combination with perennial AR (PAR; 35.2%), AR of unknown origin (35.8%), or PAR alone (18.6%). Mean (standard deviation [SD]) duration of AR was 8.5 (9.4) years. Patients reported troublesome symptoms (78.2%), sleep disturbance (64.8%), and ocular symptoms (68.4%). Congestion was considered most bothersome (54.4%). Most common reason for MP-AzeFlu prescription was other therapies insufficient in past (78.8%) or insufficient for acute symptoms (16.1%). Most patients (79.3%) reported using  $\geq 2$  AR therapies in the past year. Patients reported a mean (SD) of 1.6 (1.9) doctor visits due to AR.

**Conclusion:** Many patients in the UK live with uncontrolled disease despite treatment with single/multiple therapies and repeat doctor visits. More effective treatment with MP-AzeFlu should improve AR control and reduce doctor visits and costs.

## GRADED ENDOSCOPIC BALANCED ORBITAL DECOMPRESSION IN PATIENTS WITH GRAVES' ORBITOPATHY

**PD Dr. med. Stefan Mattheis<sup>1</sup>**, Prof. Dr. med. Anja Eckstein<sup>1</sup>, Dr. med. Kerstin Stähr<sup>1</sup>, Dr. med. Anke Schlüter<sup>1</sup>, Dr. med. Laura Holtmann<sup>1</sup>

<sup>1</sup>*University Hospital Essen, Essen, Germany*

Orbit and Lacrimal 2, Albert - Second Floor, April 25, 2018, 12:05 - 13:15

**Introduction and Aims:** Graves' orbitopathy (GO) leads to variable symptoms at the orbit. The most common are inflammation, proptosis, keratitis, diplopia, eye motility disorders or optic nerve compression, very often differently pronounced at one side.

**Aim of our study** was the development of a preoperative surgical algorithm to achieve an individualized graded surgical therapy of each orbit.

**Methods:** Between 2011 and 2017 we treated 553 patients (948 orbits) with a graded endoscopic balanced decompression, via endoscopic approaches using drills, piezo surgery and recently 4K-camera systems.

**Results:** In 93% of all patients the post-operative Hertel-Index difference between left and right side was 1mm or below. The mean reduction of proptosis was 6,3 mm. In 80% of all cases decompression lead to an deactivation of the disease. The rate of new onset diplopia was low at a level of 25%.

**Conclusions:** An individualized, graded surgical decompression following a pre-operative algorithm leads to satisfying and symmetric post-operative results.

754

## SURGICAL MANAGEMENT OF NASAL VALVE NARROWING

Mr Atef El-kholy<sup>1</sup>

<sup>1</sup>*Manchester University Foundation Trust, Manchester, United Kingdom*

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

the presentation will discuss anatomy and causes of nasal valve narrowing .there is a simple classification of normal,mild and sever nasal valve narowing. I will discuss and demonstrate the surgical manage ment of simple narrowing through M pasty and different techniques off management of severe narrowing

## PARANASAL MUCOCELES: OUR SURGICAL SERIES - AN OPPORTUNITY FOR A NEW MUCOCELE CLASSIFICATION

Dr Mariana Calha<sup>1</sup>, Dr Tomás Carvalho<sup>1</sup>, Dr César Silva<sup>1</sup>, Dr Vitor Oliveira<sup>1</sup>, Professor Leonel Luis<sup>1</sup>

<sup>1</sup>*Hospital De Santa Maria, Lisboa, Portugal*

CRS Diagnosis and Investigation 1, Rutherford - Fourth Floor, April 23, 2018, 14:45 - 16:15

**AIMS:** Paranasal mucoceles are expansile indolent cysts, lined with functional respiratory epithelium, which can become symptomatic through bone remodeling caused by chronic expansion. The frontal sinus is by far the most common location. Traditionally the approach to this type of lesion tended to a complete surgical excision. Recently the strategy shifted towards a more conservative approach with endoscopic marsupialisation.

Several classifications have been previously described, regarding the location of the mucocele. The authors propose a new stratified imaging classification focusing both on the involved sinus and the extra-sinonasal extension.

**METHODS:** Retrospective descriptive study of all mucocele cases observed between January 2010 and December 2017 in a tertiary referral hospital. Demographic data and symptoms at presentation were gathered and cross-referenced with imaging, surgical approach, follow-up and need for revision surgery.

**RESULTS:** From the total of 23 mucocele cases, almost half (48%) had some sort of complications at the time of diagnosis. The frontal sinus was the most common location (60%). Endoscopic marsupialisation was the most frequent approach (78%), being the combined approach far less common. Revision surgery was performed in a small number of patients (n=4).

**CONCLUSIONS:** The majority of symptomatic mucoceles present as a surgical challenge. The classification proposed adds information on the specific involved sinus and extra-sinus extension, which determines surgical complexity and planning.

## ACCURACY OF CLINICAL CODING AND FINANCIAL REMUNERATION FOR ENDOSCOPIC SINO-NASAL PROCEDURES: MULTIDISCIPLINARY CHANGES THROUGH A THREE CYCLE QUALITY IMPROVEMENT PROJECT

Mr Joshua Whittaker<sup>1</sup>, Mr Bassem Mettias<sup>1</sup>, Miss Katie Midwinter<sup>1</sup>, Mr Yujay Ramakrishnan<sup>1</sup>

<sup>1</sup>Nottingham University Hospitals NHS Trust, Nottingham, United Kingdom

CRS Surgery 5, Gielgud - Second Floor, April 26, 2018, 12:05 - 13:15

**Aims:** Assess the accuracy of translating endoscopic sino-nasal procedures into hospital episode statistics (HES) and corresponding health resource grouping (HRG), which determine financial remuneration. Investigate the effect of interventions to improving the accuracy.

**Methods:** A three-cycle service evaluation including all rhinology patients operated on at a single tertiary centre in the UK. In each cycle, operation notes were reviewed independently by two clinicians briefed in clinical coding to generate 'standard' codes. Procedures were then retrospectively reviewed to obtain the 'original' clinical codes assigned and their related HRG. Further cycles assessed interventions to improve accuracy including standardised operation notes, streamlining coding procedures and increasing awareness in multiple disciplines.

**Results:** 45 and 49 procedures were included in the 1st and 2nd cycle respectively (3rd cycle ongoing). From the first cycle, 56% of procedure were recorded by the consultant rhinologist. The most common standard codes were medial maxillary antrostomy (69%), anterior/posterior ethmoidectomy (60%) and nasal polypectomy (51%). Accuracy of original coding was 62%. Of the procedures miscoded, 18%, 9% and 11% were over, under and wrongly coded respectively. The inaccuracy in coding resulted in a tariff over-payment of £109.92 per procedure. Result from cycle two and three will be available at presentation.

**Conclusion:** There were significant inaccuracies in translation of endoscopic sino-nasal procedure into clinical coding which resulted in inaccurate financial remuneration. This may have significant cumulative effect in financially constrained healthcare systems. Interventions to improve the clinical coding procedure have been undertaken and will be available for presentation by April 2018.



## INITIAL ASSESSMENT IN THE HOSPITAL-BASED MANAGEMENT OF ADULT EPISTAXIS: A SYSTEMATIC REVIEW.

**Ms Maha M. Khan<sup>1,2</sup>**, Ms Katherine Conroy<sup>1,2,3</sup>, Mr Kishan Ubayasiri<sup>4</sup>, Mr James Constable<sup>4</sup>, Mr Matthew E Smith<sup>5</sup>, Mr Richard J Williams<sup>6</sup>, Isla Kuhn<sup>7</sup>, Mary Smith<sup>8</sup>, Professor Carl Philpott<sup>9</sup>

<sup>1</sup>Manchester Foundation Trust, Manchester, United Kingdom, <sup>2</sup>Health Education North West, Manchester, United Kingdom, <sup>3</sup>Lancashire Teaching Hospitals, Preston, United Kingdom, <sup>4</sup>Queen's Medical Centre, Nottingham, United Kingdom, <sup>5</sup>Department of Otolaryngology, Addenbrooke's Hospital, Cambridge, United Kingdom, <sup>6</sup>Institute of Naval Medicine, Gosport, United Kingdom, <sup>7</sup>University of Cambridge, School of Clinical Medicine, Cambridge, United Kingdom, <sup>8</sup>Exeter Health Library, Peninsula Medical School, United Kingdom, <sup>9</sup>Nowrith Medical School, University of East Anglia, United Kingdom

HHT 1, Epistaxis 2 and GPA 1, Gielgud - Second Floor, April 25, 2018, 10:45 - 11:55

### Aims:

The initial hospital-based assessment of the adult patient with epistaxis will commonly include various first aid measures, observation of vital signs, focused history taking, and clinical examinations and investigations. This systematic review aimed to identify evidence that informs how the initial assessment of these patients should be conducted.

### Methods:

A systematic review of the literature was performed using a standardised published methodology and custom database search strategy.

### Results:

Seventeen articles were included. The factors which were associated with patient outcome in epistaxis were identified as: co-morbidity, intrinsic patient factors, coagulation screening and ice pack use. Hypertension and anticoagulant use were demonstrated to adversely affect outcomes. Coagulation screening is useful in patients on anticoagulant medication. Four studies could not be accessed. Retrospective methodology and insufficient statistical analysis limit several studies.

### Conclusions:

Sustained ambulatory hypertension, anticoagulant therapy and posterior bleeding may be associated with recurrent epistaxis, and their presence or absence should therefore be identified and recorded. The application of an oral ice pack may decrease bleeding severity and can be considered as a first aid measure. Coagulation studies are appropriate for patients with a history of anticoagulant use, or history of confirmed or suspected bleeding diatheses.

## SURGICAL ANATOMY OF THE PARANASAL SINUSES - NEW EDUCATIONAL MEDIA

Mr Eyal Schechter<sup>1</sup>, Mr Martyn Barnes<sup>1</sup>

<sup>1</sup>*Southend University Hospital, London, United Kingdom*

Imaging and Investigations 2, Albert - Second Floor, April 25, 2018, 14:45 - 16:15

### Aims

Surgical anatomy of the paranasal sinuses is traditionally taught intraoperatively. Trainees often over rely on the bony lamellae, and not the pneumatized pathways they encase, and can fail to conceptualise the true 3-dimensional structures seen in endoscopic images and conventional CT. The typical "I do one side, you do the other" approach allows trainees to develop as technicians but fails to foster an understanding of the complexity of the sinuses, drainage pathways and surrounding structures.

### Methods

A MicroCT of a cadaveric sinonasal block was used to create extremely high resolution 3-axis images. These in turn were used to create virtual endoscopy anatomical demonstrations, an interactive 3D model and plastic 3D prints.

### Results

Peer reviewed articles have championed the use of similar formats and there are now several comparable free teaching resources available. We present the media we have created and highlight the new strategies for the teaching of sinus anatomy.

### Conclusion

Simulation training, both physical and digital, is increasingly being shown to improve teaching. Our new simulation modalities are freely available online and, when combined with traditional approaches, can be used to provide an enhanced method of formal and informal training. In time, further development will allow 3D models to be created for each patient pre-operatively, not only aiding the trainee surgeon but also improving safety and efficiency in more advanced sinus surgery cases. Other specialities such as neurosurgery are already benefiting from these exciting new methods and it is important we begin to do the same.

## IMPORTANCE OF SKULL BASE DISSECTION IN PAEDIATRIC CEREBROSPINAL FLUID LEAKS

Dr. João Levy<sup>1</sup>, Dr César Silva<sup>1</sup>, Dr Vitor Oliveira<sup>1</sup>, Professor Leonel Luis<sup>1</sup>

<sup>1</sup>*Hospital De Santa Maria, Lisbon, Portugal*

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

**AIMS:** Traumatic and iatrogenic causes account for the majority of cerebrospinal fluid leak (CSF) cases. The localization of the CSF leak within the nasal cavity can be identified with variable degrees of anatomical detail according to the imaging tests used. With this series, we try to exemplify the importance of skull base dissection during surgery in paediatric cerebrospinal fluid leaks.

**METHODS:** Report of two consecutive cases.

**RESULTS:** The authors describe a series of 2 paediatric cases (ages 10 and 2 respectively) with a diagnosis of a CSF leak following head trauma. The first patient had a history of a previous unsuccessful transcranial bi-coronal approach. Both patients were studied with high definition CT-scan assisted with cisternography which did not achieve the needed accuracy to allow the correct location of the cranial base defect. Due to persistent rhinorrhea, the patients were admitted to surgery for skull base inspection and reconstruction. During both surgeries, the correct location of the defect causing the CSF leak did not match the suspected areas identified by imaging. This required an extended skull base dissection in order to scope surrounding areas.

**CONCLUSIONS:** Imaging tests are of utmost importance in the evaluation of every patient with traumatic skull base CSF leaks. Even so, it should not substitute a careful and thorough dissection of the skull base whenever there is a discrepancy between the pre-operative findings and the surgical exploration. This is especially true in paediatric cases, in which thinner bone and smaller anatomy challenge imaging interpretation.

## THE EFFECT OF SYSTEMIC CORTICOSTEROIDS ON BONE MINERAL DENSITY IN ADULT PATIENTS WITH NASAL POLYPS

Drs. Evelijn Lourijsen<sup>1</sup>, Prof. dr. Wytske Fokkens<sup>1</sup>

<sup>1</sup>*Academic Medical Centre, Amsterdam, Netherlands*

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

**Aims:** Patients with uncontrolled chronic rhinosinusitis with nasal polyps (CRSwNP) are usually treated with intermittent bursts of systemic corticosteroids, which carry a potential risk of osteoporosis and fractures. At the moment it is unclear if doses of corticosteroids that are commonly used for patients with CRSwNP increase the risk of osteoporosis and risk of fractures. We aimed to inquire the effect of systemic corticosteroids on bone mineral density (BMD) measured with Dual-Energy X-Ray Absorptiometry (DXA) in patients with CRSwNP.

**Methods:** A prospective study was conducted at a tertiary-care rhinology practice. Adult patients > 40 years of age with CRSwNP presenting to the outpatient rhinology clinic between April 2016 and December 2017 were invited to participate if they had 1) a DXA-scan performed in the past two years or were about to get a new DXA-scan performed 2) received at least one short course of oral corticosteroid in the past five years. We surveyed each patient about relevant comorbidities, amount of physical exercise, dietary caffeine and dairy consumption, amount of systemic corticosteroids prescribed throughout life, medication usage with known influence on BMD and history of fractures.

**Results:** 113 patients were asked to participate in the study. The prevalence of osteoporosis and risk of fractures will be discussed. The risk induced by systemic corticosteroids will be quantified.

**Conclusions:** The effect of systemic corticosteroids on BMD in patients with CRSwNP will be summarised and future research recommendations will be given.

## EMPLOYING AN OLD TECHNIQUE FOR YOUNG PATIENTS: NASAL RECONSTRUCTION WITH FOREHEAD FLAP IN THE PAEDIATRIC POPULATION

Ms Denise Osei-Kuffour<sup>1</sup>

<sup>1</sup>Royal Free Hospital, London, United Kingdom

Paediatric Rhinology 3, Albert - Second Floor, April 25, 2018, 10:45 - 11:55

The nose is a prominent feature of facial appearance and of functional importance. For reasons congenital or acquired, deformity in this area results in significant impairment. The forehead flap is one of the oldest recorded techniques for nasal restoration. First described in Indian texts in 600 BC, during WW1 this technique was pioneered by Gillies to reconstruct facial injuries. Widely used for reconstruction of large defects in adults, its use in infants is less widely reported and raises a number of issues around growth, development and timing of surgery.

A literature review of cases of nasal reconstruction by forehead flap in infants was performed. Articles published in English, within the last 30 years with documented long term outcomes (> 12 months, functional and aesthetic) were included.

Of 66 articles identified, 10 met criteria; representing 18 clinical cases (8 congenital and 10 acquired). Length of follow up ranged from 1.5– 20 years. The majority of cases (83%) involved early reconstruction (under 6) and required no further corrective surgeries (89%). Functionally, there were no breathing issues and few complications (nasal stenosis 3 and scarring 4). The reconstructed nose grew proportionately in 17/18 cases, resulting in a satisfactory cosmetic result.

There is evidence that early reconstruction ideally before school age is optimal for social and psychological development. Furthermore, the evidence demonstrates that the reconstructed nose can grow in proportion to the child. Further studies with longer follow up and using objective outcomes are needed to help define the optimal timing of surgery.

## RHINO-OOZE SCORE FOR PREDICTING RISK OF 30-DAY READMISSION BY RECURRENT EPISTAXIS – APPLICATION ON A TERTIARY HOSPITAL POPULATION

**Dr. Joana Araújo<sup>1</sup>**, Dr. César Anjo<sup>2</sup>, Dr. Cristovão Ribeiro<sup>1</sup>, Dr. Ezequiel Barros<sup>1</sup>

<sup>1</sup>*Centro Hospitalar De Lisboa Central - Central Lisbon Hospital Centre, Lisboa, Portugal*, <sup>2</sup>*Centro Hospitalar do Algarve - Algarve Hospital Centre, Algarve, Portugal*

HHT 1, Epistaxis 2 and GPA 1, Gielgud - Second Floor, April 25, 2018, 10:45 - 11:55

### Aims

The aim of this work was to apply a scoring tool (RHINO-ooze score) for identifying patients that would be at risk of epistaxis readmission on a 30-day period, on a tertiary hospital population.

### Methods

We retrospectively analysed every patient admitted to our ENT Emergency Department from January 2015 to December 2015. We identified possible risk factors for readmission and applied the RHINO-ooze score to all patients. We excluded patients below the age of 18, trauma associated epistaxis and patients with coagulopathies.

### Results

Three hundred and eighty-nine patients were admitted for epistaxis during the study time and 66 patients (14,4%) were readmitted on a 30-day period. Considering the RHINO-ooze score (5 variables, with a maximum total of 8), the mean score for readmitted patients was 3,98 (1-8 range) and 1,17 (0-5 range) on the non-readmitted patients, with a significant difference between groups ( $p < 0.0001$ ). When considering the variables independently, haemorrhage point unidentified, and oral anticoagulant therapy were more common in the readmitted patients' group ( $p=0,02$  and  $p=0,03$ , respectively)

### Conclusions

The RHINO-ooze score seems to be a good tool to help predict epistaxis cases more likely to recur on a 30-day period. This can help to stratify patients that benefit from more definitive intervention, since the immediate conservative treatment may be insufficient to prevent epistaxis recurrence.

## ANTERIOR ETHMOID ARTERY SEPTAL FLAP: A NOVEL ENDOSCOPIC RECONSTRUCTION TECHNIQUE FOR FRONTAL SINUS CSF LEAK

**Mr Hassan Elhassan<sup>1,2</sup>**, Dr Jacopo Zocchi<sup>2</sup>, Dr Alessia Lambertoni<sup>2</sup>, Dr Apostolos Karligkiotis<sup>2</sup>, Dr Mario Turri-Zanoni<sup>2</sup>, Dr Paolo Battaglia<sup>2</sup>, Prof Maurizio Bignami<sup>2</sup>, Prof Paolo Castelnuovo<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology, University Hospital Lewisham, London, United Kingdom, <sup>2</sup>Department of Otorhinolaryngology, University of Insubria, Ospedale di Circolo e Fondazione Macchi, Varese, Italy

CSF Leaks 1, Gielgud - Second Floor, April 24, 2018, 10:45 - 11:55

### Aims

Anterior skull base cerebrospinal fluid leak (CSFL) are managed successfully with endonasal surgery. Endoscopic closure of CSFL from the posterior table of the frontal sinus remains challenging. Vascularized Hadad-Bassagasteguy flap (HBF) reconstruction of the skull base has increased CSFL closure rates. We describe our novel vascularized septal flap pedicled by the anterior ethmoid artery (AEASF) for repairing frontal defects.

### Methods

A retrospective case series of frontal CSFL using AEASF. Flap design: An anterior vertical septal mucosa incision at the posterior border of the frontal sinusotomy is made and extended to the nasal floor. A posterior vertical incision is made 1 cm posterior to the projection of the axilla of the middle turbinate on the septum and is extended to the nasal floor. A horizontal incision along the nasal floor joins the two incisions. The flap is raised and rotated into the frontal sinus over the posterior table reconstructed defect.

### Results

Three patients identified. Two males, one female, aged 11, 33 and 56. Patient histories included recurrent bacterial meningitis following head trauma; recurrent sinusitis and fronto-ethmoidal osteoma, with intraoperative CSFL and reconstruction and meningoencephalocele and CSF rhinorrhea. The three posterior wall defects were successfully repaired endoscopically using the AEASF.

### Conclusion

The anterior ethmoid artery septal flap can be successfully utilised for frontal CSF leak repair. This flap is conveniently located for frontal sinus defects and when the septum is intact it is our primary choice for reconstruction.

## A SYSTEMATIC REVIEW OF HAEMATOLOGICAL FACTORS IN THE MANAGEMENT OF HOSPITAL-BASED ADULT EPISTAXIS.

**Ms Maha Khan**<sup>1</sup>, A Williams<sup>2</sup>, A Biffen<sup>2</sup>, N Pilkington<sup>2</sup>, L Arrick<sup>2</sup>, Mr Richard J Williams<sup>3</sup>, Mr Matthew E Smith<sup>4</sup>, Mary Smith<sup>5</sup>, J Birchall<sup>6</sup>

<sup>1</sup>Manchester Foundation Trust, Hale Barns, United Kingdom, <sup>2</sup>Department of Anaesthesia, Derriford Hospital, Plymouth, United Kingdom, <sup>3</sup>Institute of Naval Medicine, Gosport, United Kingdom, <sup>4</sup>Department of Otolaryngology, Addenbrooke's Hospital, Cambridge, United Kingdom, <sup>5</sup>Exeter Health Library, Peninsula Medical School, Exeter, United Kingdom, <sup>6</sup>Department of Haematology, North Bristol NHS Trust, NHS Blood and Transplant,, Bristol, United Kingdom

Epistaxis 3, Albert - Second Floor, April 26, 2018, 10:45 - 11:55

### Aims:

Optimal management of epistaxis requires an understanding of haematological factors which may complicate its outcomes and treatment. This systematic review is the result of a suite of six distinct reviews examining the evidence supporting epistaxis-specific management strategies relating to warfarin, direct oral anticoagulants, heparin, antiplatelet agents, tranexamic acid and blood and blood-product transfusion.

### Methods:

A systematic review of the literature was performed using a standardised published methodology and custom search strategy.

### Results:

Within each of the six reviews, a limited number of articles were identified. Only evidence regarding the use of tranexamic acid represented level 1 evidence. No studies met the inclusion criteria within the heparin, direct oral anticoagulants or transfusion systematic reviews. Many studies were limited by small sample sizes and significant risk of bias.

### Conclusions:

The management of major bleeding and transfusion practice is well documented in established national guidance from multiple sources. These guidelines provide advice on management of anticoagulants, antiplatelet agents and tranexamic acid in the patient with bleeding in general. In the absence of more specific evidence, these guidelines should also therefore be applied in the management of epistaxis.



## EFFICACY OF PRIMARY ENDOSCOPIC DACRYOCYSTORHINOSTOMY WITH AND WITHOUT INTRAOPERATIVE MITOMYCIN-C.

Dr Francisco Patrao<sup>1</sup>, Dr Miguel Carvalho<sup>1</sup>, Dr Sofia Sousa<sup>1</sup>, Dr Filipe Rodrigues<sup>1</sup>, Dr Catarina Almeida<sup>2</sup>, Dr Vera Soares<sup>1</sup>, Dr Rui Tavares<sup>2</sup>, Dr. José Marques dos Santos<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology, Head and Neck Surgery; Centro Hospitalar Tondela-Viseu, Viseu, Portugal,

<sup>2</sup>Department of Ophthalmology; Centro Hospitalar Tondela-Viseu, Viseu, Portugal

Lacrimal Surgery 1, Gielgud - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

Endoscopic Dacryocystorhinostomy (EN-DCR) is an excellent treatment option for selected patients with nasolacrimal duct obstruction. The success rate of EN-DCR has been reported to be around 90%. EN-DCR failures have been attributed to osteum closure due to fibrosis and scarring. Mitomycin C (MMC) has been proposed as a surgical adjunct, potentially inhibiting osteum closure, maintaining its postoperative patency. MMC role in reducing failure rate of revision EN-DCR is well established but its role on primary EN-DCR remains controversial. The purpose of this study is to evaluate the potential benefit of intraoperative MMC usage on the success rate of primary EN-DCR.

### Methods

Retrospective analysis of the clinical records of patients who underwent primary EN-DCR at Centro Hospitalar Tondela-Viseu in the last 4 years. Subjects were divided into non-mitomycin C and mitomycin C groups. Mitomycin C 0,02% was applied to the osteotomy site for 5 minutes before stent placement. Nasal endoscopic evaluation was performed during follow-up and anatomical and functional success evaluated. Only patients with minimum follow-up of 6 months were included.

### Results

A total of 62 primary EN-DCR were performed, 45 without MMC application and 17 with MMC application. An overall success rate of 85.48% was obtained. In the non-MMC group, success rate was 86.67% compared to 82,35% in the MMC group. Revision surgery was proposed to all failure cases.

### Conclusions

Despite the difference between the two groups under study, our data suggests that intraoperative MMC use in primary EN-DCR does not improve patient outcomes.

## CLINICAL BENEFIT AND COST-EFFECTIVENESS OF ENDOSCOPIC SINUS SURGERY IN ADULT PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS – POLYPESS TRIAL

Drs. Evelijn Lourijsen<sup>1</sup>, Dr. Corianne de Borgie<sup>1</sup>, Prof. dr. Wytske Fokkens<sup>1</sup>

<sup>1</sup>*Academic Medical Centre, Amsterdam, Netherlands*

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

**Aims:** There is no consensus on the right timing and extent of disease that warrants surgery in adult patients with chronic rhinosinusitis with nasal polyps (CRSwNP). Furthermore, there is no clinical knowledge from randomised trials about the benefit of surgery over medical treatment only. Our trial evaluates outcomes in adult patients with CRSwNP who failed medical management and are randomised in either a continuation of medical management only or endoscopic sinus surgery (ESS) in addition to medication. We investigate in a randomised fashion whether ESS in addition to medication versus medical treatment only differ in generic and disease specific Health-Related Quality of Life.

**Methods:** Adult patients with CRSwNP indicated for primary or revision ESS are enrolled in a prospective randomised controlled multicentre trial. Patients are randomised into either medical therapy only (n=119) or ESS in addition to medical therapy (n=119). Relevant baseline characteristics and clinical findings are collected prior to randomisation and at 3,6,12,18 and 24 months after start of the allocated treatment. Complete follow-up is 24 months per patient. Primary outcome measurement is disease-specific Health-Related Quality of Life quantified by the SNOT-22 questionnaire after 12-months follow-up. Secondary outcomes measures include generic Health-Related Quality of Life (EQ-5D-5L), objective signs of disease, adverse effects of treatment and cost-effectiveness.

**Results:** The first results are expected in 2019. The trial is still open for enrollment.

**Conclusions:** Implementation of results will lead to tailored care for patients with CRSwNP and improvement of clinical pathways.

## MODIFIED OBLIQUE-OVERLAY ALAR BATTEN GRAFTING TECHNIQUE IN THE MANAGEMENT OF NASAL VALVE COLLAPSE. FUNCTIONAL AND AESTHETIC OUTCOMES.

Ms Nimeshi Jayakody<sup>1</sup>, Mr Dimitrios Ioannidis<sup>1</sup>, Mr Simon Dennis<sup>1</sup>

<sup>1</sup>Salisbury NHS Foundation Trust, Salisbury, United Kingdom

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

### Aim:

The purpose of the study was to describe and assess the efficacy of a modified oblique-overlay alar batten grafting technique in correcting nasal valve collapse and evaluate its functional and aesthetic outcomes.

### Methods:

A retrospective review of patients records surgically treated for nasal obstruction due to nasal valvular collapse was conducted over a 3-year period. 20 patients in total were treated using a modified oblique-overlay technique in which slightly curved alar batten grafts were inserted through a marginal incision and positioned precisely on the pyriform apertures. 19 cases were primary and 1 case was a revision. Outcomes were assessed using the NOSE questionnaire pre-op and 1 year post-op. Patient aesthetic satisfaction was also recorded to ensure no cosmetic grievances.

### Results:

No complications in the post op period were recorded. 19 of 20 patients presented improved NOSE scores post-op and reported aesthetic improvement. 1 of the patients, the revision case, reported unfavourable post-op NOSE score and no aesthetic improvement.

### Conclusions:

Alar batten cartilage grafting is a versatile technique for addressing nasal valve collapse. The oblique overlay modification described herein has been proven to be a reliable technique with favourable functional and aesthetic outcomes in the vast majority of cases.

## FIRST EXPERIENCE WITH RESORBABLE MOMETASONE-ELUTING STENTS IN FESS FOR CHRONIC RHINOSINUSITIS

Dr. med. Justus Ilgner<sup>1</sup>, Dr. med. Thien An Duong Dinh<sup>1</sup>, Univ.-Prof. Dr. med. Martin Westhofen<sup>1</sup>

<sup>1</sup>University Hospital Aachen, Aachen, Germany

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

**Introduction:** Various studies have considered the use of drug-eluting devices being positioned during surgery which remain in place for a given time. In this pilot study, we are reporting first experience with a resorbable drug-eluting stent for endonasal use following surgery.

**Patients and Methods:** We employed drug eluting stents (PROPEL(R), manufacturer Intersect ENT Inc., Menlo Park, CA, USA), each containing 370µg of Mometasone Fuorate per unit, which is embedded in a flexible polylactide cylindrical structure with a maximum diameter of about 50mm and 23mm (PROPEL(R)) or 16mm (PROPEL Mini (R)) in length. 12 stents (5 PROPEL and 7 PROPEL Mini) were inserted in between July 2017 and December 2017. Preferred sites were the frontal sinus ostium (8) and the anterior ethmoid (4).

**Results:** Up to present, we did not observe adverse reactions related to the stent material. There were no dislocations seen over the whole period of insertion. However, we preferred to remove the stent under local anaesthesia after 10 days as most of the drug is eluted over this period and the stent degrades to lactic acid after 20 to 30 days, causing potential irritation to the wound. There was marked reduction of granulating tissue during application observed under endoscopic follow up on days 10, 21 and 30.

**Conclusion:** Mometasone Fuorate eluting stents provide an interesting modality to aid wound healing following functional endoscopic sinus surgery. However, larger patient populations and long-time follow up have to be considered for a conclusive evaluation of the device.

## NASAL EVALUATION OF ASTHMA PATIENTS TREATED WITH OMALIZUMAB

Dr. Gustavo Antunes de Almeida<sup>1</sup>, Dr. João C. Pimentel<sup>1</sup>, Dr. Joana Serras<sup>2</sup>, Dr. Rita Sousa<sup>1</sup>, Prof. Dr. Pedro Escada<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology - Centro Hospitalar De Lisboa Ocidental - Egas Moniz Hospital, Lisbon, Portugal,

<sup>2</sup>Department of Pneumology - Centro Hospitalar De Lisboa Ocidental - Egas Moniz Hospital, Lisbon, Portugal

CRS Medical Management 2, Gielgud - Second Floor, April 25, 2018, 14:45 - 16:15

**AIMS**—IgE plays a central role in allergic asthma. Omalizumab is used for treatment of moderate to severe asthma. These patients usually have a comorbid chronic rhinosinusitis (CRS) with (CRSwNP) or without nasal polyps (CRSsNP), suggesting possible IgE sensitization to a bystander pathogen. Studies have shown significant improvement of asthma and CRSwNP in patients treated with omalizumab. Our aim was to retrospectively evaluate the sinonasal and lung status of patients with asthma treated with omalizumab.

**METHODS**—The case series includes 10 patients from a tertiary hospital. The presence and severity of sinonasal disease were evaluated by 2 otorhinolaryngologists, the patients' lung status was evaluated by 2 pulmonologist and the results were collected. The 31-item Rhinosinusitis Outcome Measuring Instrument, and Asthma Quality of Life Questionnaire was applied.

**RESULTS**—The majority (80%) of patients were already followed at ENT and Pneumology clinics. 50% had a history of CRS with repeated antibiotic and systemic steroid use and history of sinus surgery. Sinonasal disease remained difficult to control in the first months of omalizumab therapy, which was followed by decrease in antibiotic use and better subjective quality of life.

Omalizumab dose was individualized according to the patient's weight and IgE serum level. Our series results are consistent with recent studies, where omalizumab decreased sinonasal and asthma exacerbations, inhaled corticosteroid and rescue medication use, and improved quality of life.

**CONCLUSIONS**—Omalizumab should be considered as an effective treatment option in patients with CRS and allergic asthma who fail to improve quality of life with maximal medical and surgical treatment.

## CAUCASIAN MEDITERRANEAN PATIENTS SEEKING RHINOPLASTY – ANTROPOMETRIC MEASUREMENTS AND PREVALENCE OF MAJOR DEFORMITIES

**Md Mariline Santos<sup>1</sup>**, MD Miguel Gonçalves Ferreira<sup>1</sup>, MD Daniel Monteiro<sup>2</sup>, MD Miguel Bebiano Coutinho<sup>1</sup>, MD Cecília Almeida e Sousa<sup>1</sup>

<sup>1</sup>*Centro Hospitalar Do Porto, Porto, Portugal*, <sup>2</sup>*Hospital Vila Franca de Xira, Lisboa, Portugal*

Rhinoplasty 2, Burton & Redgrave - Second Floor, April 25, 2018, 14:45 - 16:15

**Aim:** to describe the average values of the nasal anthropometric measurements of Caucasian and Mediterranean patients seeking rhinoplasty.

**Methods:** This prospective, observational and cross-sectional study was performed on a total of 100 randomized patients undergoing aesthetic rhinoplasty. The exclusion criteria were as follows:  $\leq 18$  years of age, revision rhinoplasty and reconstructive rhinoplasty for neoplastic or severe traumatic nasal deformities. Standardized photography was performed before surgery (frontal,  $\frac{3}{4}$ 's, profiles and base view) and nasal measurements were obtained from all subjects. It was measured the length of the nose, intercanthal width, naso-frontal, naso-facial and naso-mental angles. It was also evaluated the type of skin and major nasal defects. Data regarding age and gender was collected. All parameters were compared with published aesthetic evaluations of Caucasian nose.

**Results:** The study population included a total of 100 Caucasian Mediterranean patients seeking aesthetic rhinoplasty. Sixty-four (64%) were female and 36 (36%) were male. Intermediate skin type was the most prevalent and the major nasal deformity was a dorsal hump in eighty patients (80%). The means of female's length of the nose, naso-frontal, naso-facial and naso-mental angles were  $55,05 \pm 24,6$ ;  $138,50 \pm 8,2$ ;  $33,42 \pm 3,28$  and  $124,27 \pm 5,18$ , respectively. The means of male's length of the nose, naso-frontal, naso-facial and naso-mental angles were  $63,54 \pm 27,03$ ;  $137,24 \pm 9,7$ ;  $32,83 \pm 3,61$  and  $125,59 \pm 5,02$ .

**Conclusion:** The average values of the nose in this population may be used as a guide to plan aesthetical surgery. Rhinoplastic surgeons performing cosmetic surgical procedures must assess the appropriate nasal features of their patients.

## ENDOSCOPIC SEPTAL CROSS OVER FLAP TECHNIQUE FOR CHOANAL ATRESIA AND OUTCOMES

Dr Francesco Bandi<sup>2</sup>, Mr Hassan Elhassan<sup>1,2</sup>, Dr Apostolos Karligkiotis<sup>2</sup>, Dr Jacopo Zocchi<sup>2</sup>, Dr Mario Turri-Zanoni<sup>2</sup>, Dr Paolo Battaglia<sup>2</sup>, Professor Maurizio Bignami<sup>2</sup>, Professor Paolo Castelnuovo<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology, University Hospital Lewisham, London, United Kingdom, <sup>2</sup>Department of Otorhinolaryngology, University of Insubria, Ospedale di Circolo e Fondazione Macchi, Varese, Italy

Paediatric Rhinology 2, Rutherford - Fourth Floor, April 24, 2018, 12:05 - 13:15

### Aims

Choanal atresia (CA), a congenital obliteration of the posterior nasal aperture, causes nasal obstruction. Endoscopic endonasal surgery has led to successful CA repair and fewer complications. We describe our technique using septal mucosal flaps without stenting.

### Methods

A retrospective review of CA patients who underwent primary surgery in our unit including demographics and outcomes were recorded. Flap design: bilateral vertical septal mucosa incisions are performed on either side of the posterior third of the vomer to prepare two mucoperiosteal flaps. The vomer and atretic plates are then removed. The first flap is pedicled superiorly and rotated over the bare sphenoid rostral bone. The second contralateral flap is pedicled inferiorly and rotated to cover the vomer remnant and hard palate bone. Lateral nasal wall mucosal integrity is maintained. This technique is used both for unilateral and bilateral atresia.

### Results

Eight patients operated on from 2013 to 2017 were included. Age range was 1-50 with male to female ratio of 1:3. This patient cohort all had unilateral CA. Four had bony CA, the remainder mixed. Paraseptal silastic splints were used to aid healing. 4 patients (mean age 3 y.o.) underwent second-look endoscopy under sedation an average 33 days following primary surgery. Post operatively all repairs remained patent.

### Conclusion

The cross over technique for CA has a high success rate and low morbidity. Removal of the vomer, use of mucoperiosteal flaps to cover the exposed bone and minimal instrumentation to the lateral nasal wall are the best ways to avoid postoperative stenosis.

## ORBITAL APPROACHES IN RHINOLOGY

**Mr Raj Lakhani**<sup>1</sup>, Miss Sarah Osborne<sup>1</sup>, Miss Sarah Little<sup>1</sup>

<sup>1</sup>St George's University Hospitals NHS Foundation Trust, London, United Kingdom, <sup>2</sup>Epsom & St Helier University Hospitals, London, UK

Orbit and Lacrimal 2, Albert - Second Floor, April 25, 2018, 12:05 - 13:15

### Aims

External access to the medial orbital wall or frontal sinus may be required in cases of infection, mucocele, epistaxis, tumour or trauma. A number of approaches have been previously described. The approaches commonly used necessitate a prominent external scar. We describe the use of two orbital approaches (retrocaruncular and anterior orbitotomy) in a series of patients with varying sinonasal pathology. These approaches obviated the need for a visible external scar and provided wide, safe surgical access.

### Methods

The retrocaruncular approach is performed under general anaesthesia. An incision is made between the caruncle and plica semilunaris. It is extended conjunctivally superiorly and inferiorly. Blunt dissection is undertaken toward the posterior lacrimal crest to expose the medial orbital wall. This is a useful technique when considering access anywhere from the maxilla-ethmoidal strut to the orbital roof.

The anterior orbitotomy approach involves placement of the incision in the lid crease followed by a superior plane of dissection which can be adapted to the frontal bone or orbital rim.

### Results

Postoperative follow-up of the operated patients revealed excellent disease control. Long term follow up confirmed a high level of cosmetic acceptability to the patients treated.

### Conclusion

The orbital approaches described can be used to provide wide exposure to the medial orbit or frontal sinus in a very safe manner. These approaches can also be easily combined with endoscopic techniques. External approaches, such as the Lynch-Howarth incision, necessitate the use of a scar on the face however the orbital approaches described avoid this.



## OUTCOMES OF CONCOMITANT SEPTOPLASTY WITH PRIMARY ENDOSCOPIC DACRYOCYSTORHINOSTOMY

Dr Francisco Patrao<sup>1</sup>, Dr Miguel Carvalho<sup>1</sup>, Dr Sofia Sousa<sup>1</sup>, Dr Filipe Rodrigues, Dr Catarina Almeida<sup>2</sup>, Dr Vera Soares<sup>1</sup>, Dr Rui Tavares<sup>2</sup>, Dr José Marques dos Santos<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology, Head and Neck Surgery; Centro Hospitalar Tondela-Viseu, Viseu, Portugal,*

<sup>2</sup>*Department of Ophthalmology; Centro Hospitalar Tondela-Viseu, Viseu, Portugal*

Lacrimal Surgery 1, Gielgud - Second Floor, April 24, 2018, 14:45 - 16:15

### Aims

Nasal septal deviations may complicate the surgical approach to endonasal dacryocystorhinostomy (EN-DCR). In warranted situations, septoplasty can be performed to improve visualization during surgery and to facilitate endoscopic follow-up. However, the impact of extending the surgical field to opposing and otherwise healthy mucosa is unknown. The purpose of this study is to evaluate long term outcomes of concomitant septoplasty with primary endoscopic dacryocystorhinostomy.

### Methods

Retrospective review of the clinical records of patients who underwent primary EN-DCR at Centro Hospitalar Tondela-Viseu in the last four years. Subjects were divided into Septoplasty and non-Septoplasty groups. Only patients with a minimum follow-up of 6 months were included.

### Results

A total of 62 primary EN-DCR and 35 concomitant septoplasties were performed. An overall success rate of 85.48% was obtained. In the septoplasty group success rate was 91,43% compared to 77,78% in the non-septoplasty group. Occurrences rate for septoplasty group was 17,74% vs 18,52% for non-septoplasty group, which included proximal extrusion of lacrimal stents (n=5), non-purulent local secretions (n=2), synechia (n=3) and self-limited epistaxis (n=1).

### Conclusions

Our data suggests that EN-DCR and concomitant septoplasty is a safe procedure and might improve patient outcomes, without increasing complications. In our hands concomitant septoplasty provides better exposure of the surgical field and allows easier nasal cavity care during endoscopic follow-up.

## EPISTAXIS : RECURRENCE PREDITIVE FACTORS

Dr Patricia Gomes<sup>1</sup>, Dr Sergio Caselhos, Dr Pedro Salvador, Dr Alexandra Gomes, Dr Rui Fonseca

<sup>1</sup>*Hospital Senhora Oliveira , Braga, Portugal*

Epistaxis 3, Albert - Second Floor, April 26, 2018, 10:45 - 11:55

**Introduction:** Epistaxis is one of the most frequent pathologies observed in ENT emergency rooms. This paper aims to determine predictive factors of epistaxis recurrence.

**Methods:** Patients observed in ENT service from 1 January 2011 to 31 December 2015 were included in this study. Personal history, epidemiological data, clinical findings, characteristics of the epistaxis and their therapeutic approach were recorded.

**Results:**

During the 5-year study, 12848 ENT episodes were registered at Hospital Senhora da Oliveira, with 1428 (11%) episodes of epistaxis corresponding to 1005 patients. Epistaxis were more frequent in males (58.8%) than females (41.2%), with a bimodal distribution of ages, with a peak in the first two decades of life and a second peak in the 7th and 8th decades of life . There was a peak of seasonal incidence, predominating in the months of December to March. Recurrence of epistaxis was observed in 303 patients (30.1%). In univariate inferential analysis, the presence of active bleeding on presentation, anticoagulation, antiaggregation, history of arterial hypertension, treatment with chemical cauterization, tamponade, traumatism and age over 65 years was associated with an increased risk of recurrent epistaxis. Multivariate inferential analysis, after correction of confounding factors, revealed that tamponade (OR 1,390, 95% CI 1,045-1,850), anticoagulation (OR 1,633, 95% CI 1,119-2,383) and age (OR 1,012, 95% CI 1.004 -1,020) are predictive factors of increased risk of recurrent epistaxis.

**Conclusions:** Presence of anticoagulant medication, advanced age and the need of tamponade are predisposing factors for recurrent epistaxis.

## ASSESSMENT OF NASAL ACTIVITIVY IN ENT PATIENTS WITH GRANULOMATOSIS WITH POLYANGITIS – BEYOND ANCA

**Mr Ivor Kwame**<sup>1</sup>, Mr Peter Andrews<sup>1</sup>, Mr Guri Sandhu<sup>2</sup>, Ms Romana Kuchai<sup>2</sup>, Professor Charles Pusey<sup>2</sup>

<sup>1</sup>Royal National Throat Nose And Ear Hospital, London, United Kingdom, <sup>2</sup>Imperial College London, London, United Kingdom

HHT 1, Epistaxis 2 and GPA 1, Gielgud - Second Floor, April 25, 2018, 10:45 - 11:55

### AIMS

The role of anti-neutrophil cytoplasmic antibody ANCA in diagnosing and monitoring the clinical responses of patients with ANCA associated vasculitis (AAV) has been long established. Nonetheless ANCA may become positive at set points or remain entirely negative throughout diagnosis, induction, remission and relapse in confirmed AAV cases. In this project we reviewed patients receiving systemic treatment for their AAV with otorhinolaryngological (ENT) features over a 10 year period at a tertiary vasculitis referral centre in London. We noted their ANCA status at time of induction and also looked at nasal features during remission and relapse.

### METHODS

A ten-year retrospective review of patients receiving anti-CD20 monoclonal antibody (rituximab) for AAV. The ANCA status and clinical responses were noted pre- and post- induction.

### RESULTS

51 patients with ENT features of AAV received monoclonal antibody for local and/or systemic manifestations. 21% of patients were ANCA negative at diagnosis and remained so throughout treatment. 68% had nasal features. Consistently nasal activity was clinically associated with the presence of granulomata, ulceration, bloody nasal discharge, significant crusts and / or active inflammation of inferior and or middle meati (indicating sinus involvement).

### CONCLUSIONS

ANCA plays an important role in diagnosis and monitoring the responses to treatment of patients with ANCA. In patients with nasal and or other ENT features it may remain negative. Here we have also highlighted our experience of the nasal clinical features noted by experienced vasculitis clinicians to help determine activity and response to treatment.

## CORRELATION BETWEEN SERUM VITAMIN D LEVEL AND ENDOSCOPY-BASED CHRONIC RHINOSINUSITIS IN KOREAN ADULTS

Professor Chi Sang Hwang<sup>2</sup>, Professor Eun Jung Lee<sup>1</sup>, Professor KYUNG-SU KIM<sup>1</sup>

<sup>1</sup>Yonsei University College Of Medicine, Seoul, South Korea, <sup>2</sup>Yonsei University Wonju College of Medicine, Seoul, South Korea

CRS Pathophysiology 1, Gielgud - Second Floor, April 23, 2018, 12:05 - 13:15

**Aims:** We aimed to investigate the correlation between serum vitamin D level and endoscopy-based chronic rhinosinusitis (CRS) in adults using the Korean National Health and Nutrition Examination Survey.

**Methods:** The data were based on the Korean National Health and Nutrition Examination Survey from 2008 to 2011. Endoscopy-based CRS was based on endoscopic findings of mucopurulent rhinorrhea in the middle meatus or nasal polyps, with nasal symptoms satisfying symptom-based CRS. Nasal symptoms included nasal obstruction, anterior/posterior nasal drip, facial pain, and the loss of smell. Serum vitamin D level was defined as deficient (<20 ng/mL), insufficient (20–29.9 ng/mL), or sufficient (≥30 ng/mL).

**Results:** The serum vitamin D level in the CRS group was  $19.293 \pm 7.035$ , which was higher than that of the control group ( $18.057 \pm 6.56$ ,  $p = 0.0072$ ). Among symptom combinations of endoscopy-based CRS, some combinations with mucopurulent rhinorrhea at the middle meatus were significantly related to normal vitamin D level ( $p < 0.05$ ). Meanwhile, the combinations including nasal polyps did not show significant relationships with serum vitamin D level.

**Conclusion:** Low serum vitamin D level might not be associated with increased prevalence of CRS in Korean adults; rather, patients with CRS showed higher serum vitamin D levels than the control group. Thus, these results, contradicting those of previous studies, should be further verified in other countries to investigate the role of vitamin D in CRS.

## LONG-TERM OLFACTORY OUTCOME AFTER NASOSEPTAL FLAP RECONSTRUCTIONS IN MIDLINE SKULL BASE SURGERY

Prof. Dr. Med. David Holzmann<sup>1</sup>, Dr. Carlo Serra<sup>2</sup>, Prof. Dr. Luca Regli<sup>2</sup>, c.m. Eva Meier<sup>1</sup>, PD Dr. Michael Soyka<sup>1</sup>

<sup>1</sup>*Division Of Rhinology And Skull Base Surgery Department of Otorhinolaryngology Head and Neck Surgery, University Hospital Zurich, Switzerland,* <sup>2</sup>*Department of Neurosurgery, University Hospital Zurich, Switzerland*

Skull Base 1, Rutherford - Fourth Floor, April 24, 2018, 10:45 - 11:55

### BACKGROUND:

Along the further development of endoscopic skull base surgery the nasoseptal flap (NSF) to cover skull base defects after extended sinonasal surgery is enjoying a revival. Long-term follow-up of complications, sequelae, and smell function is largely unknown.

### OBJECTIVE:

The goal of the present study was to investigate the monorhinal olfaction after transsphenoidal skull base surgery.

### METHODS:

Patients who underwent skull base surgery for midline lesions (craniopharyngioma and pituitary lesions) by using a NSF, were assessed for their long-term outcome. Endoscopic examination was conducted and the bilateral "Sniffin' Sticks" test was performed before surgery. In the postoperative follow-up visit, each side was tested separately.

### RESULTS:

Twenty patients could be enrolled for the study. No flap necrosis was observed. There were two septal perforations, one anterior and one small posterior, during long-term follow-up. None of the patients complained of nasal obstruction, whereas two patients had epistaxis. A significant decrease in olfactory function was observed on the flap donor side in four patients (20%) compared with that observed in one patient (5%) on the opposite side.

### CONCLUSION:

In the long term, NSF reconstruction for midline lesions was efficient and safe. Olfactory deficit on the donor side was frequently encountered. Although subclinical, these findings justified a monorhinal smell testing before surgery, which possibly prevented bilateral smell impairment in patients with preexisting single-sided olfactory loss.

## IS INTRANASAL COCAINE SYSTEMICALLY ABSORBED DURING ENDOSCOPIC SINUS SURGERY AND DOES IT AFFECT THE DEPTH OF ANAESTHESIA?

Dr Joanne Rimmer<sup>1</sup>, Dr Dean Page<sup>1</sup>, Dr Charles Giddings<sup>1</sup>

<sup>1</sup>Monash Health, Melbourne, Australia

CRS Surgery 4, Burton & Redgrave - Second Floor, April 25, 2018, 12:05 - 13:15

**Aims:** There is limited contemporary research into the systemic absorption of cocaine after intranasal topical application of modified Moffatt's solution during endoscopic sinus surgery. Additionally, cocaine may play a role in depth of anaesthesia by way of its action as a dopamine reuptake inhibitor. Increasing evidence suggests that awakening from anaesthesia is due to activation of the Dopamine 1 receptor. This prospective trial aims to demonstrate if systemic absorption of cocaine occurs, and if so whether it has an effect on the depth of anaesthesia.

**Methodology:**

Modified Moffatt's solution was atomised preoperatively into the nose of patients undergoing endoscopic sinus surgery. Plasma cocaine levels were measured at intervals during surgery and up to 12 hours post operatively. Depth of anaesthesia was measured using intraoperative Bispectral Index (BIS) monitoring and correlated with cocaine plasma levels.

**Results:**

Nine cases received Modified Moffatt's solution. The mean peak plasma concentration was 21.9µg/L occurring at 120mins post administration. Plasma cocaine was detected up to 6hrs post administration.

**Conclusion:**

Cocaine is absorbed systemically but the peak plasma levels are low. We discuss the implications of our findings for patients undergoing endoscopic sinus surgery.

## COMPARISON BETWEEN DIFFERENT QUESTIONNAIRES FOR THE DIAGNOSIS OF BODY DYSMORPHIC DISORDER IN RHINOSEPTOPLASTY POPULATION

**Prof. Philippe Rombaux<sup>1</sup>**, Dr Caroline de Toeuf<sup>1</sup>, Dr Valérie Hox<sup>1</sup>, Dr Caroline Huart<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology, Cliniques universitaires Saint-luc, Bruxelles, Belgium*

Rhinoplasty 1, Victoria - Second Floor, April 24, 2018, 10:45 - 11:55

**Introduction and aims:** It is well known that there is a high prevalence of body dysmorphic disorder (BDD) in patients seeking aesthetic rhinoplasty. Several questionnaires have been developed for the diagnosis of BDD. In the present study, we aimed to compare the outcomes BDD-YBOCS and BDD-AS for the diagnosis of BDD, and to evaluate whether the diagnosis of BDD influences satisfaction after rhinoseptoplasty.

**Methods:** 170 patients were included in a prospective study. Patients were asked to answer BDD-YBOCS and BDD-AS questionnaire. Nasal patency was assessed with the PNIF. Nasal patency and nasal shape were rated, based on visual analog scales. The testing was repeated three times: preoperatively, 10 days after the surgery, and 3 months after surgery. The satisfaction of patients was assessed using the Rhinoplasty Outcome Evaluation (ROE) score, at 10 days and 3 months after surgery.

**Results:** We found a highly significant correlation between the two BDD questionnaires, suggesting that BDD-AS is a reliable tool. Moreover, we found that BDD patients had a significantly lower ROE score, as compared to non-BDD patients. Finally, we found a general and significant increase in the PNIF score, at 3 months after surgery.

**Conclusion:** Questionnaires and PNIF are useful and simple tools in the preoperative and postoperative assessment of rhinoseptoplasty patients. Because the BDD-AS is focused on aesthetic surgery population and because it is quick and easy to perform, it should become a standard in the preoperative assessment of patients.

**NON-ANESTHESIOLOGIST PROPOFOL SEDATION AS METHOD OF SEDATION IN DRUG INDUCED SEDATION ENDOSCOPY - DISE BY THE ENT-TEAM ALONE**

**Mrs Eva Kirkegaard Kiær**<sup>1</sup>, Mr Christian von Buchwald<sup>1</sup>, Mr Poul Jørgen Jennum<sup>1</sup>, Mr Philip Tønnesen<sup>1</sup>, Mr Anders Bilde<sup>2</sup>, Mr Niclas Rubek<sup>1</sup>, Mr Henrik Bredahl<sup>1</sup>, Mrs Anne Hammering<sup>1</sup>, Mrs Christine Møller<sup>1</sup>, Mrs Anne Marie Hildebrandt<sup>1</sup>

<sup>1</sup>Copenhagen University Hospital, Copenhagen, Denmark, <sup>2</sup>Hamlet Hospital, Copenhagen, Denmark

Snoring and OSA 1, Albert - Second Floor, April 24, 2018, 14:45 - 16:15

**Aim:**

In 2015, we introduced Drug Induced Sedation Endoscopy (DISE) in the Department of Otorhinolaryngology, Head & Neck Surgery and Audiology (ENT) at Copenhagen University Hospital. The nurses and doctors underwent specialist training in propofol administration organized and supervised by the Department of Anesthesiology. The patients were sedated with propofol in small, divided doses administered by an ENT staff nurse under the supervision of an ENT-specialist. The aim of this study was to evaluate safety and feasibility of DISE without the presence of an anesthesiologist.

**Methods:**

In this prospective study, we evaluated the safety and feasibility of DISE when propofol was administered by the ENT-team without the presence of an anesthesiologist. We examined patients with obstructive sleep apnea or severe snoring. The patients were monitored by electrocardiography (ECG), oxygen saturation, blood pressure and respiration during sedation. A pharyngeal tube, oxygen supply and ventilation mask were at hand as well as the possibility for prompt anesthesiologist back-up if needed.

**Results:**

We examined 200 patients between May 2015 and November 2017. No significant changes in blood pressure, heart rate or oxygen saturation requiring treatment were encountered in the study. No adverse events were reported by the patients immediately after DISE or at the follow up appointment.

**Conclusion:**

DISE by the ENT-team, without the presence of an anesthesiologist seems safe and feasible when performed by ENT specialists and trained staff in a hospital setting with the possibility for anesthesiologist back-up if needed. To our knowledge this is the first study on this subject.



## MONTHLY INCIDENCE OF SPONTANEOUS EPISTAXIS IN GREECE. HOW DOES IT CORRELATE WITH CLIMATOLOGICAL CONDITIONS?

Dr Alexandros Delidis<sup>1</sup>, Dr Efi Sigalou<sup>1</sup>, Dr Nikos Papadimitriou<sup>1</sup>, Dr Pavlos Maragoudakis<sup>1</sup>

<sup>1</sup>2nd ENT Department, School of Medicine, National & Kapodistrian University Of Athens, Greece, Athens, Greece

Epistaxis 1, Burton & Redgrave - Second Floor, April 23, 2018, 10:45 - 11:55

**INTRODUCTION:** Epistaxis is the most common rhinological emergency affecting all ages. Primary care facilities as well as tertiary hospitals deal with patients suffering with mild anterior nosebleeds to severe posterior life-threatening epistaxis mandating emergency surgical or other interventional treatment. Some studies from various areas around the world have correlated the incidence of epistaxis to climate, with dry cold months having a higher incidence of spontaneous epistaxis.

**PATIENTS, METHODS:** A retrospective chart review study was performed for patients treated at the emergency ENT department in a tertiary hospital in the Athens area. The study period was 5 years (2012 to 2106). Patient's epidemiological profiles were retrieved and the number of visits per month were correlated with climatological conditions of the Athens area, retrieved from the registry of the Hellenic National Meteorological Service. Trauma cases were excluded.

**RESULTS:** total of 1738 cases of epistaxis were included. 12% required hospital admission, whereas a total of 2.5% needed further surgical or interventional radiological treatment. Mean age for all patients was 56.85 (SD ± 23.03). January, February and March showed the higher incidence, whereas July and August the lowest. Low average temperatures and higher rainfall levels were strongly correlated with a higher incidence.

**CONCLUSION:** Spontaneous epistaxis is climate-dependent. Our data confirm other reports from around the world correlating epistaxis with low temperatures but contradictory to other, showing that higher rainfall levels are also correlated a higher incidence.

## ENDOSCOPIC SPHENOPALATINE LIGATION AS AN EMERGENCY SURGICAL TREATMENT FOR UNCONTROLLED POSTERIOR EPISTAXIS IN PATIENTS WITH MULTIPLE COMORBIDITIES

Dr Alexandros Delidis<sup>1</sup>, Dr Nikos Papadimitriou<sup>1</sup>, Dr Efi Sigalou<sup>1</sup>, Dr Kostas Proikas<sup>1</sup>, Dr Pavlos Maragoudakis<sup>1</sup>  
<sup>1</sup>2nd ENT Department, School of Medicine, National & Kapodistrian University Of Athens, Greece, Athens, Greece

Epistaxis 1, Burton & Redgrave - Second Floor, April 23, 2018, 10:45 - 11:55

**INTRODUCTION:** Endoscopic sphenopalatine ligation (ESPL) is a safe and effective procedure for the treatment of posterior epistaxis. This may not always be true in patients with multiple comorbidities that have a high risk for administration of general anesthesia. Dissection of the sphenopalatine vessels in these patients may also be more challenging.

**METHODS / PATIENTS:** This is a retrospective chart review study of patients treated for severe recurrent posterior epistaxis with ESPL.

Inclusion criteria were recurrent episodes of epistaxis treated at least once with nasal packing and endoscopic coagulation. Patients had more than one systemic comorbidity including uncontrolled Diabetes Mellitus, uncontrolled hypertension, systemic administration of anticoagulants, chronic renal failure, hematologic malignancies, thrombocytopenia, severe anemia, pregnancy or were more than 70 years old. Patients with Hemorrhagic Hereditary Telangiectasia or nasal tumors were excluded.

**RESULTS:** 21 patients underwent ESPL. All patients were operated as an emergency procedure with ongoing hemorrhage. All had been treated more than once with either anterior/posterior nasal packing and posterior bleeding was confirmed with nasal endoscopy. Success rate was 76.2% . In 6 patients ESPL was combined with anterior ethmoidal artery ligation. In 5 patients epistaxis recurred. 3 of them were treated successfully with interventional radiological management and 2 required revision surgery. There were no complications.

**CONCLUSION:** ESPL remains a safe and effective treatment in patients with multiple comorbidities. Although more challenging for the anesthetist and the surgeon it is preferable for these individuals than nasal packing or multiple attempts to treat them under local anesthesia.

## Nasal growth after pediatric septoplasty at long-term follow-up

Dr Claudio La Melia<sup>1</sup>, Dr Ignazio Tasca<sup>1</sup>

<sup>1</sup>*Hospital Santa Maria della Scaletta, Imola, Italy*

Paediatric Rhinology 3, Albert - Second Floor, April 25, 2018, 10:45 - 11:55

### BACKGROUND:

Septoplasty in children is still a matter of open discussion, because it is thought that a surgical procedure on a developing structure might produce some adverse effects on normal nasal growth. The goal of this retrospective study is to evaluate the effects of pediatric nasal septum surgery in a long-term follow-up by anthropometry.

### METHODS:

Forty-four Italian patients, 25 male patients and 19 female patients, who had undergone septoplasty during childhood using the endonasal approach, were reassessed after a mean follow-up of 12.2 years. Nasal measurements consisted of five linear parameters, three angular parameters, and three proportional index.

### RESULTS:

There were no significant differences in any of the measures between the sample and controls ( $p > 0.1$ ) with regard to gender, with the exception of the nasolabial angle measurement. Indeed, the nasolabial angle of the female patients was significantly reduced compared with controls ( $p = 0.04$ ), whereas that of the male patients was reduced compared with controls ( $p = 0.08$ ). This measurement seems to be influenced by the type of operation, because it has been noted that the nasolabial angle of patients treated surgically by extracorporeal septoplasty were significantly lower than those of patients treated surgically by conservative septoplasty.

### CONCLUSION:

Pediatric septoplasty may be indicated in selected cases of obstructing nasal septum deformities. The operation, performed via endonasal approach, does not interfere with the normal growing nasal process

## PHENOTYPES OF CHRONIC RHINOSINUSITIS WITH NASAL POLYPS

Luo Zhang<sup>1</sup>

<sup>1</sup>*Beijing Institute of Otolaryngology, ,*

CRS 1, Albert - Second Floor, April 24, 2018, 10:45 - 11:55

We recently identified cellular phenotypes of CRSwNP using cluster analysis and defined an algorithm for different clusters associated with polyp recurrence. Overall, 366 patients with CRSwNP were enrolled in this retrospective analysis. Eighteen variables, including clinical characteristics and tissue/peripheral inflammatory cells assessments, were selected for factor analysis. Unsupervised cluster analysis was performed after variables reduction and standardization and differences in polyp recurrence during follow-up for a minimum of 24 months were analysed among clusters. Discriminant analysis was further used to develop a clinically useful algorithm for predicting clustering.

Five phenotypic clusters were identified. Clusters 1 and 2 were plasma cell-dominant and lymphocyte-dominant phenotypes, respectively. Cluster 3 revealed a mixed inflammatory pattern. Cluster 4 was characterized by infiltration of predominantly neutrophils. Cluster 5 was characterized by a marked tissue eosinophilia and highest recurrence rate of 98.5%. The clinical algorithm predicted clustering with 93.7% accuracy.

Chinese CRSwNP patients may be classified into five phenotypes with different polyp recurrence rates, based on the presence of predominantly plasma cells, lymphocytes, neutrophils, eosinophils or mixed inflammatory cells in polyps.

## Allergic Rhinitis (AR) Management in China: A nationwide physician E-survey on their understanding of the clinical Guideline and Real-World Clinical Practice Patterns

Lei Cheng<sup>1</sup>, Huabing Li<sup>2</sup>, **Dili Daer**<sup>3</sup>, Yamei Zhang<sup>4</sup>, Peng Lin<sup>5</sup>, Huijun Li<sup>6</sup>, Dongdong Zhu<sup>7</sup>, Zhao<sup>8</sup>, Beibei Yang<sup>9</sup>, Yong Li<sup>10</sup>, Feng Liu<sup>11</sup>, Yucheng Yang<sup>12</sup>, Zezhang Tao<sup>13</sup>, Shengnan Ye<sup>14</sup>, Gehua Zhang<sup>15</sup>, Rui Xu<sup>16</sup>, Lan Li<sup>17</sup>, Li Shi<sup>18</sup>, Na Li<sup>19</sup>, Hua Zhang<sup>20</sup>, Fuquan Chen<sup>21</sup>

<sup>1</sup>Jiangsu Province Hospital, First Affiliated Hospital of Nanjing Medical University, Jiangsu, China, , , <sup>2</sup>EYE and ENT hospital of Fudan University, Shanghai, China, , , <sup>3</sup>MSD Medical Affairs, , , <sup>4</sup>Beijing Children's Hospital, Capital Medical University, Beijing, China, , , <sup>5</sup>Tianjin First Center Hospital, Tianjin, China, , , <sup>6</sup>The First Affiliated Hospital of Harbin Medical University, Heilongjiang, China, , , <sup>7</sup>Sino-Japan Friendship Hospital, Jilin University, Jilin, China, , , <sup>8</sup>Second Hospital of Shanxi Medical University, Shanxi, China, , , <sup>9</sup>The Second Affiliated Hospital of Zhejiang University School of Medicine, Zhejiang, China, , , <sup>10</sup>Hangzhou First People's Hospital, Zhejiang, China, , , <sup>11</sup>West China Hospital, Sichuan University, Sichuan, China, , , <sup>12</sup>The Hospital Group of the First Affiliated Hospital of Chongqing Medical University, Chongqing, China, , , <sup>13</sup>Renmin Hospital of Wuhan University, Hubei, China, , , <sup>14</sup>The First Affiliated Hospital of Fujian Medical University, Fujian, China, , , <sup>15</sup>The Third Affiliated Hospital, Sun YAT-SEN University, Guangdong, China, , , <sup>16</sup>The First Affiliated Hospital, Sun YAT-SEN University, Guangdong, China, , , <sup>17</sup>Shenzhen Children's Hospital, Guangdong, China, , , <sup>18</sup>The Second Hospital of Shandong University, Shandong, China, , , <sup>19</sup>The Affiliated Hospital of Qingdao University, Shandong, China, , , <sup>20</sup>The First Affiliated Hospital of Xinjiang Medical University, Xinjiang, China, , , <sup>21</sup>Xijing Hospital, the Fourth Military Medical University, Xi'an, China, ,

Allergic Rhinitis 2, Burton & Redgrave - Second Floor, April 24, 2018, 12:05 - 13:15

This study aims to investigate physicians' adherence and level of understanding of the Chinese AR Guideline (2015, Tianjing), and to identify the gaps between the guideline and real world clinical practice.

### MATERIALS AND METHODS

The cross-sectional nationwide survey was administered by China Medical Association of ENT via electronic questionnaire by asking physicians at academic conferences to scan QR code or via email invitations. There are a total of 33 questions in the questionnaire, including information on responding physicians; understanding of the guideline; clinical reality of AR diagnosis, AR treatment and outcome evaluation; attitude towards patient education, and expectations on updating guideline.

### RESULTS

A total of 734 physicians from 31 provinces completed the questionnaire, including 700 ENT specialists. The majority (89.8%) of respondents had 5+ years of experience.

Only 128 (17.4%) reported to fully follow the guideline while 73.6% reported of combining the guideline recommendations with his/her own clinical experience. Respondents graded patient's nasal symptoms (mean score 8.25), nasal mucosal examinations (7.36), eye symptoms (6.13), Serum-specific IgE test(5.88), allergen skin prick test ( 5.81) , as most favored AR diagnosis criteria. As it for treatment choices, efficacy (mean score 8.53), indication minimum age (8.31), safety profile (8.28), were ranked as the most cared three elements. Patient preference (4.80) was ranked the last. 77.7% physicians agreed that the current scales could help patients' self-assessment.

### Conclusion:

Significant gaps on the diagnosis criteria, treatment preferences and the assessment methods between guideline and practice were found.

## The Effect of Topical Ocular Anesthetic Proparacain on Conjunctival and Nasal Mucosal Flora in Dry Eye Disease Patients

**Ozlem Onerci Celebi<sup>1</sup>**, Ali Riza Cenk Celebi<sup>2</sup>

<sup>1</sup>Eregli State Hospital, Department of Otorhinolaryngology, Eregli, Konya, Turkey, <sup>2</sup>Acibadem University School of Medicine, Department of Ophthalmology, Atakent, Istanbul

Allergic Rhinitis 3, Victoria - Second Floor, April 25, 2018, 10:45 - 11:55

Presenting Author - Ozlem Onerci Celebi

Co-Author - Ali Riza Cenk Celebi

**Purpose:** To investigate the effect of topically applied ocular anesthetic proparacaine on conjunctival and nasal bacterial mucosal flora in dry eye disease patients.

**Materials and Methods:** There were 80 consecutively selected dry eye disease patients. Schirmer test was done with (group 1) and without (group 2) topical anesthetic proparacain in 40 patients for each group. Conjunctival cultures were taken from all eyes (one eye randomly selected for each patient for analysis) before and 10 minutes after performing Schirmer test. Moistened sterile cotton-tipped applicators were placed in both nostrils and were immediately cultured before and 15 minutes after performing the Schirmer test. The bacterial culture- positivity rate, species of bacteria were recorded in the two groups both before and 15 minutes after performing Schirmer test.

**Results:** Overall patients' mean age was 62 years (70 female, 10 male). Of the 80 patients 50 (62,5%) had positive conjunctival culture and 62 (77,5%) had positive nasal culture with the most commonly isolated organisms being coagulase negative staphylococcus in each group for both sites. In group 1 the conjunctival bacterial culture positivity rate was decreased from 26 eyes (65%) to 6 eyes (15%) ( $p < 0.001$ ), however this rate was decreased slightly from 24 eyes (60%) to 20 eyes (50%) in group 2 ( $p > 0.05$ ). For the nasal cultures; the bacterial culture positivity rate was decreased from 80% to 20% and from 75% to 65% in groups 1 ( $p < 0.001$ ) and 2 ( $p > 0.05$ ), respectively.

**Conclusion:** Topically applied ocular anesthetic proparacaine has an antibacterial activity both on conjunctival and nasal flora in dry eye patients.

## CORRELATION OF SINONASAL SYMPTOM SCORES WITH THE SIZE AND POSITION OF NASAL SEPTAL PERFORATION (NSP)

Ms Grace Khong<sup>1</sup>, Mr Samuel Leong<sup>1</sup>, Dr Sarah Fleming<sup>1</sup>

<sup>1</sup>Aintree University Hospital, Liverpool, Uk, Liverpool, United Kingdom

Septal Surgery 2, Victoria - Second Floor, April 24, 2018, 14:45 - 16:15

**Aim:** To determine how the size and position of NSP correlates with sinonasal symptom scores and quality of life assessment.

**Method:** Patients attending the rhinology clinic with NSP were included. Patients completed the Sino-Nasal Outcome Test-22 (SNOT-22) including additional NSP-specific questions (nasal crusting, epistaxis and whistling noise during nasal breathing). SNOT-22 scores were analysed, including clinico-psychometric domains (rhinologic symptoms, extra nasal, ear/facial symptoms, psychological dysfunction and sleep dysfunction). Size of perforation was measured radiologically by calculating the area in cm<sup>2</sup>. Position of the perforation was determined by the distance from the columella to the anterior edge. Correlation was done using the Spearman's rank correlation coefficient with a significant P value of <0.05.

**Results:** Twenty-nine patients were included in this study. No correlation was observed between SNOT-22 score (including clinico-psychometric domains) with either position or size of NSP. However, NSP-specific symptoms were found to have a statistically significant negative correlation ( $r = -0.46$ , P value = 0.01) with the position of NSP. There was no significant correlation between NSP-specific symptoms and size of perforation.

**Conclusion:** This study has demonstrated that SNOT-22 scores were comparable to patients with recalcitrant chronic rhinosinusitis. Nevertheless, SNOT-22 did not correlate with the size and position of NSP. Sinonasal symptoms typically observed in NSP improved with more posterior perforations although did not correlate with the size of the defect. The data presented has significant clinical implications as it provides insight into the quality of life impact of NSP and affirms clinical observation that anterior NSP are more symptomatic.

## Cough Associated With Spring Pollinosis

Atsushi Kamijo<sup>1</sup>

<sup>1</sup>University of Yamanashi, Japan, ,

Rhinitis 1, Gielgud - Second Floor, April 24, 2018, 12:05 - 13:15

**Aims:** Coughing is sometimes a major burden among patients with Japanese cedar pollinosis. We surveyed the actual situation of coughing comorbid with spring pollinosis in 2013 and 2014 by a questionnaire, in some cases complemented with some intervention.

**Methods:** We conducted a questionnaire for adult patients who were suffering from spring pollinosis between March and April in two consecutive years; 2013 and 2014.

**Results:** Questionnaires from 232 and 249 patients who consulted doctors because of pollinosis were collected in 2013 and 2014, respectively. In 2013, 28.4% of patients with spring pollinosis had complained about coughing every spring, and the rate was almost the same in 2014: 28.5%. 14.7% of patients in 2013, and 6.4% of patients in 2014, complained about coughing only within that year. The degree of troublesome coughing was estimated by a numeric rating scale (NMR), and it was almost the same mean in 2013 ( $4.24 \pm 2.70$ ) as 2014 ( $4.31 \pm 2.48$ ). With patients whose NMR was higher, bronchodilators tended to be effective in ameliorating coughing.

**Conclusion:** Although the rate for those with seasonally chronic comorbid pollinosis with coughing was the same in both years, the rate of coughing for the year-specific patients could have been affected by the amount of pollen scattered in each respective year. The cause of coughing is diverse, yet objective data are lacking. We speculated that seasonal cough variant asthma was one of the mechanisms which induces coughing in spring pollinosis patients.



## Multiperspective Anatomy And Development Model Of The Frontal Sinus

Vittorio Rampinelli

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

It is well known that the anatomy of the frontal sinus and recess is extremely complex, with a large inter-individual variability. Most surgical procedures addressing the frontal sinus are nowadays performed via an endoscopic approach; therefore, surgical anatomy of the frontal recess and surrounding structures should be analyzed in an endoscopic-oriented perspective. On the other hand, anatomy can be difficult to understand in a frontal bi-dimensional endoscopic view. This lecture aims primarily to provide a descriptive, multi-perspective view of the frontal recess anatomy to precisely explain the complex relationship between the uncinate process and surrounding structures, moving from an endoscopic view to gross external anatomy. Furthermore, the anatomic variability of the frontal sinus drainage pathway (FSDP) and surrounding spaces can be simplified based on the knowledge of the developmental mechanism of the frontal recess. According to Terracol and Ardouin, the frontoethmoidal area develops from 3 groups of “primordial” cells of the anterior ethmoid (nasal, orbital, or bullar). As a consequence, specific anatomical variants of the frontoethmoidal area could be distinctive of a specific origin (i.e., nasal, orbital, or bullar) of the frontal sinus. We validated the above-mentioned model by analyzing 57 Cone-beam computed tomography studies performed at the Unit of Radiology of the University of Brescia between March and November 2012, and studying statistical associations between the location of FSDP and frontoethmoidal anatomical variants. Our intent is to propose the Terracol and Ardouin developmental model as an additional way to better understand the frontal anatomy and provide a simplified anatomical classification of the wide array of frontoethmoidal variants.

## Multiperspective Anatomy And Development Model Of The Frontal Sinus

Marco Ferrari

CRS Surgery 2, Burton & Redgrave - Second Floor, April 24, 2018, 14:45 - 16:15

It is well known that the anatomy of the frontal sinus and recess is extremely complex, with a large inter-individual variability. Most surgical procedures addressing the frontal sinus are nowadays performed via an endoscopic approach; therefore, surgical anatomy of the frontal recess and surrounding structures should be analyzed in an endoscopic-oriented perspective. On the other hand, anatomy can be difficult to understand in a frontal bi-dimensional endoscopic view. This lecture aims primarily to provide a descriptive, multi-perspective view of the frontal recess anatomy to precisely explain the complex relationship between the uncinate process and surrounding structures, moving from an endoscopic view to gross external anatomy. Furthermore, the anatomic variability of the frontal sinus drainage pathway (FSDP) and surrounding spaces can be simplified based on the knowledge of the developmental mechanism of the frontal recess. According to Terracol and Ardouin, the frontoethmoidal area develops from 3 groups of “primordial” cells of the anterior ethmoid (nasal, orbital, or bullar). As a consequence, specific anatomical variants of the frontoethmoidal area could be distinctive of a specific origin (i.e., nasal, orbital, or bullar) of the frontal sinus. We validated the above-mentioned model by analyzing 57 Cone-beam computed tomography studies performed at the Unit of Radiology of the University of Brescia between March and November 2012, and studying statistical associations between the location of FSDP and frontoethmoidal anatomical variants. Our intent is to propose the Terracol and Ardouin developmental model as an additional way to better understand the frontal anatomy and provide a simplified anatomical classification of the wide array of frontoethmoidal variants.

# Poster

# Abstracts

1

## SINO-NASAL OUTCOME TEST-22 QUALITY OF LIFE PATTERNS IN PATIENTS PRESENTING WITH NASAL SEPTAL PERFORATION

Mr. Samuel Leong<sup>1</sup>, Mr. Christopher Webb<sup>2</sup>

<sup>1</sup>Aintree University Hospital NHS Foundation Trust, Liverpool, United Kingdom, <sup>2</sup>Royal Liverpool University Hospital, Liverpool, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** To assess the impact of nasal septal perforation on quality of life.

**Methods:** Retrospective cohort study of patients attending two rhinology clinics with the diagnosis of symptomatic nasal septal perforation (NSP). Patients (n=26) diagnosed with NSP completed the Sino-Nasal Outcome Test-22 (SNOT-22) at their first clinic attendance. The collated data was compared with SNOT-22 scores from a cohort of healthy volunteers (n=34) and a cohort of patients (n=30) diagnosed with chronic rhinosinusitis (CRS).

**Results:** The mean total SNOT-22 score of NSP and CRS cohorts were higher than that observed in healthy volunteers. The mean total SNOT-22 score in the CRS cohort (57.2, standard deviation SD 10.3) was the higher than NSP (50.2, SD 23.5), although this difference did not achieve statistical significance. The mean score for the rhinologic-specific domains (rhinologic symptoms, extra-nasal rhinologist symptoms), ear/facial symptoms and psychological dysfunction domain were higher in the CRS cohort compared to NSP, although statistical significance was only observed in the extranasal rhinologic symptoms domain (11.2, SD 2.4 vs. 6.4, SD 4.1). Conversely, the mean sleep dysfunction domain score for NSP (12.7, SD 7.5) was higher than CRS (10.0, SD 4.9 respectively) although this was not statistically significant.

**Conclusions:** The present study has assessed the clinimetric and psychometric properties of patients suffering with symptomatic NSP. Future reports should consider inclusion of SNOT22 data but with the addition of perforation-specific symptoms (nasal crusting, epistaxis, whistling noise).

## ENDOSCOPIC SPHENOID SINUS ANATOMY IN VIEW OF TRANSSPHEOIDAL SURGERY: STANDARDIZED WAY-POINT CADAVER DISSECTION

**Prof Balegh Abdel Hak<sup>1</sup>**, Dr Mostafa Esmael<sup>1</sup>, Prof Olaf Michel<sup>2</sup>, Dr Rasha Abdel Moneim<sup>1</sup>

<sup>1</sup>Faculty Of Medicine, Minia University, MD, PhD, Minia, Egypt, <sup>2</sup>Prof, ENT department, University Hospital Brussels, Vrije Universiteit MD, PhD, Brussel, Belgium

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aim:** In the view of continuous evolution in surgical techniques and instrumentation, cadaveric dissection is still the golden key for improving surgical skills and familiarity required for surgery in such critical regions with complicated anatomical details. We present an anatomical cadaveric dissection study to describe endoscopic anatomy of the sphenoid sinus using a waypoint stepwise dissection procedure.

**Methods:** Cadaveric dissection was conducted progressively in twenty fresh cadavers simulating endoscopic endonasal transsphenoidal approach. Our standardized waypoint procedure was followed in all specimens determining its role as a base for surgical training in such region. Anatomical variations including; level of the sphenoid sinus ostium, sphenoid pneumatization, inter-sphenoid septation and intra-sphenoid bony landmarks and measurements were evaluated.

**Results:** The standardized waypoint cadaver dissection procedure in sphenoid sinus region provided an accurate surgical orientation and relationship between anatomical landmarks founding an ideal conception for the safe and efficient surgery. Our measurements showed significant variations related to sphenoid sinus ostium, pneumatization and intra-sphenoid bony landmarks.

**Conclusion:** Current study emphasizes the role of specialized waypoint training on cadavers for more detailed knowledge of the anatomy of challenging regions providing surgeon with a convenient surgical experience and familiarity. Although several anatomic variations were recorded in our series, it is considered as a good surgical training expedient for the alterations of anatomical structure in live surgery.

## GALECTIN 1 & 3 CONCENTRATION IN THE TISSUE OF NASAL POLYPS AND POLYPS IN PARANASAL SINUSES

Prof.dr hab. med. Jarosław Markowski<sup>1</sup>, prof. dr hab.n.med. Jan Pilch<sup>1</sup>, MD, Ph.D. Aleksandra Ślaska-Kaspera<sup>1</sup>  
<sup>1</sup>*Department of Laryngology, School of Medicine in Katowice, Medical University of Silesia, Katowice, Poland*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction.** Nasal polyps are frequent problems dealt with by contemporary laryngology. Researchers look for markers, which would allow to predict which patients are particularly exposed to the risk of polyp re-occurrence, and thus demand more intense clinical supervision. Galectins constitute a group of glycoproteins-their sugar moiety may play a role in transduction of intercellular signals.

**Aim:** The presented research project has the following aims:

- 1.The assessment of galectin-1 and galectin-3 content in the tissue of nasal polyps, excised surgically.
- 2.The assessment of galectin-1 and galectin-3 content, depending on polyp type (allergic or inflammatory one).
- 3.The assessment of dependence between recurrence risk for nasal polyps and the content of galectin-1 and galectin -3.

**Material and method.** Polyp tissues have been collected intraoperatively and have been stored in the temp. of -70C, until homogenates are prepared and laboratory determination is performed. The concentration of galectins 1 and 3 in tissue homogenates have been determined by means of commercial ELISA kits.

**Results.** Results of studies concerning the content of galectin-1 and galectin-3 in the nasal polyp tissue will be presented, both for the polyps that occur for the first time, as well as recurring polyps. Concentrations of galectins in allergic polyps and inflammatory polyps have been compared.

**Conclusion.** In the scientific literature there are no studies examining the above relations. We want to assess whether the galectin content in polyp tissue depends on the type of polyp and whether it may be a prognostic factor for polyp recurrence risk.

## OBSTRUCTIVE SLEEP APNOEA IN CHILDREN – A NEGLECTED ENTITY

Dr Amulya Thotambailu<sup>1</sup>

<sup>1</sup>Royal Pearl Hospital, Tiruchirapalli, India

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Obstructive Sleep Apnoea Syndrome (OSAS) is a spectrum which include primary snoring, upper airway resistance syndrome, obstructive hypoventilation and obstructive sleep apnoea. Sleep disordered breathing (SDB) is characterized by snoring, witnessed apnoea, frequent arousal, mouth breathing, restless sleep, irritability, recurrent upper respiratory tract infections etc.

### AIMS

To measure the prevalence of snoring and sleep-disordered breathing in children

### METHODS

This was a prospective observational study, which included the children who presented to the Otorhinolaryngology, Pulmonary Medicine, Paediatric, Oral and Maxillofacial department with clinical symptoms of obstructive sleep apnoea.

### RESULTS:

20 children, 13 (65%) males and 7 (35%) females were included. Snoring was the most common complaint.

15 (75%) were obese, 5 had adenotonsillar hypertrophy(25%) as the risk factor for OSA.

15 out of the 20 children were graded under Mallampati class 1(75%), 4 under class 2(20%),1 under class 3(5%). There was no significant association in severity of OSA between 2 genders ( $p=0.82$ ).

Positive Correlation ( $r=0.52$ ) was found between AHI and BMI and is found to be statistically significant ( $p=0.02$ ), which suggests that degree of obesity does predict the severity of OSA

### CONCLUSION:

Obesity is the most significant risk factor among them followed by adenotonsillar hypertrophy. Hence children who snore should undergo polysomnography and necessary corrective measures should be prescribed.

## SIRT1 REGULATES IL-4 GENE EXPRESSION IN HUMAN MAST CELL

Associate Professor Yuji Nakamaru<sup>1</sup>, Dai Takagi<sup>1</sup>, Masanobu Suzuki<sup>1</sup>, Aya Homma<sup>1</sup>, Professor Akihiro Homma<sup>1</sup>  
<sup>1</sup>*Faculty of Medicine and Graduate School of Medicine, Hokkaido University, Sapporo, Japan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Rationale:** Histone protein modification control gene transcription via chromatin remodeling. Because a differentiation from naïve T cell to Th2 cell was induced by the chromatin remodeling, it may regulate allergic diseases. SIRT1 is an NAD-dependent deacetylase that regulate stress response and modulates inflammation and cell survival. This study was to investigate whether SIRT1 control IL-4 production in human mast cells.

**Methods:** The HMC-1 (human mast cell line) was cultured with or without SIRT1 activator and inhibitor and stimulated with calcium ionophore and PMA. Four hours after the stimulation, mRNA was extracted from these cells for IL-4 real time PCR. Quantitative measurement of IL-4 in cell supernatant was performed using the human IL-4 ELISA kit. To clarify the direct function of SIRT1, we used small interference RNA against SIRT1. Two kinds of SIRT1 siRNA and negative control siRNA were transfected into HMC-1 cells by electroporation.

**Results:** HMC-1 cells were expressing IL-4 mRNA in unstimulated state. Stimulation with A23187 and PMA increased the expression of IL-4 mRNA at basal level. Expressions of IL-4 mRNA were enhanced in the presence of splitomysin with dose dependent manner. On the other hand, the resveratrol suppressed IL-4 mRNA expression in dose dependent manner. Quantitative measurement of IL-4 in cell supernatant revealed that IL-4 protein production was enhanced in the presence of splitomysin and suppressed in the presence of resveratrol. SIRT1 knock down up regulates IL-4 mRNA expression.

**Conclusion:** SIRT1 may play some role in developing allergic diseases via control IL-4 gene expression.



## THE NASAL CYCLES DURING SLEEP ON THE PATIENT WITH OBSTRUCTIVE SLEEP APNEA

Mr Kentaro Matsuura<sup>1,2</sup>, Mr Kota Wada<sup>1</sup>, Mr Shintaro Chiba<sup>2,3</sup>

<sup>1</sup>Department of Otorhinolaryngology, Toho University Omori Medical Center, Tokyo, Japan, <sup>2</sup>Ota Memorial Sleep Center, Kanagawa, Japan, <sup>3</sup>Department of Otorhinolaryngology, Jikei University School of Medicine, Tokyo, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Background and Objectives

The phenomena of periodic cycles of vascular engorgement on the nasal cavity mucosa that alternate between right and left sides are termed the "nasal cycle." It has been reported that nasal cycle duration during sleep is longer than in wakefulness by Kimura et al. They also reported that the reversal of cyclic phase during sleep (RCS) tended to be associated with REM sleep and postural changes. In this study, we evaluated the nasal cycle on the patients with Obstructive Sleep Apnea (OSA).

### Methods

We utilized the portable rhinoflowmeter measuring airflow independently through each nostril on 27 subjects with OSA aged 24 to 69 years diagnosed by polysomnography.

### Results

Eleven of 27 (40.7%) subjects with OSA presented RCS during sleep.

In 11 subjects, the mean number of RC during sleep is  $2.36 \pm 1.37$  (the total number is 26). Eleven of 26 (42.3%) reversals occurred associated with postural changes. RCS occurred in REM sleep is only 1 subject (7.7%).

### Considerations

According to the study done by Kimura et al, RCS tended to be associated with REM sleep (68.8%) and postural changes (18.8%) in healthy subjects. In OSA subjects, it was 16.2%, 50.0% each. So, RCS that was associated with postural changes was increased and RCS that was associated with REM sleep was decreased in OSA subjects. As AHI rose, RCS became hard to occur. It was considered that OSA patients present entirely different nasal cavity physiology from healthy subjects.

## ENDOSCOPIC REPAIR OF ANTERIOR SEPTAL PERFORATION USING ANTERIOR ETHMOIDAL ARTERY FLAP

Dr Mohamed Hegazy<sup>1</sup>

<sup>1</sup>*Damietta Ent Center, Damietta, Egypt*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Surgery for repair of a septal perforation is one of the most difficult , annoying, bad outcome surgery for an ENT surgeon

My objective is to let rhinologists know that there is a technique that may help with good results in certain types of perforations

Making a good surgery needs certain steps to get a great outcome, 1st is good infiltration with xylocaine-adrenalin solution to get good decongestion and hydro dissection, 2nd is refreshing the edges of the perforation all around, 3rd is elevating the right nasal septal flap, 4th is freeing the lower edge of the flap, 5th is freeing posterior edge of the flap to create a superiorly based flap taking its blood supply from anterior ethmoidal artery, 6th is anterior rotation of the flap, 7th is suturing the flap using 3/0 sutures> this procedure could be done under general anesthesia or local anesthesia with moderate sedation.

Advantage of this technique is that you have vascular flap ensure good graft taking

On the other hand we face some limitations like that you should have a cartilaginous rim to get good fixation of the flap and good healing.

Finally we can say that using anterior ethmoidal artery flap in repairing anterior septal perforation is a good option with good post-operative results.

## PARTIAL MAXILLECTOMY FOR AMELOBLASTOMA OF THE MAXILLA WITH EXTENSION TO THE INFRATEMPORAL FOSSA: A COMBINED ENDOSCOPIC ENDONASAL AND TRANSORAL APPROACH

MD, Phd Petr Schalek<sup>1</sup>, MD Anasuya Guha<sup>1</sup>

<sup>1</sup>ENT dpt., Third Medical Faculty of Charles University, Prague, Czech Republic

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Background:** Ameloblastoma represents the most common epithelial odontogenic tumor. Because of the proximity of the maxillary tumors to the orbit and skull base, it should be managed as radically as possible. Maxillectomy mainly via the transfacial or transoral approach represents the most common type of surgical procedure. Drawback of these approaches is limited control of the supero-medial extent of the tumor in the paranasal area.

**Material and methods:** We report the use of a combined endoscopic endonasal and transoral approach to manage maxillary plexiform ameloblastoma in a 48 year old male patient.

**Results:** A combined endoscopic endonasal and transoral approach enabled the radical removal of tumor with a 1.5 cm margin of radiographically intact bone with good control from both the intrasinusal and intraoral aspects. Adequate visualization of the extent of the lesion (e.g. orbit, infratemporal fossa, anterior cranial base) had been achieved. Healing proceeded without any complications. This technique of limited partial maxillectomy led to very good esthetic and functional results. No recurrence had been noted during review appointments.

**Conclusions:** The combination of endoscopic endonasal and transoral approach for a limited maxillectomy allows sufficient reduction of the defect without the necessity for reconstruction and reducing the morbidity associated with it.

## Acute Adult Rhinosinusitis Guidelines Worldwide: Similarities and Disparities

Dr Ofer Gluck<sup>1</sup>, Dr Shay Shemesh<sup>1</sup>, Dr Tal Marom<sup>1</sup>, Dr Yehuda Schwarz<sup>1</sup>, Dr Naomi Rabinovics<sup>1</sup>, Dr Sharon Ovnat-Tamir<sup>1</sup>

<sup>1</sup>Assuta Ashdod Medical Center, Ashdod, Israel

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**INTRODUCTION:** Acute rhinosinusitis (ARS) is a common respiratory disease, with a major public healthcare impact regarding morbidity and antibiotic consumption. Position statements and national ARS guidelines have been published worldwide. Our objective was to analyze similarities and disparities between such guidelines.

**METHODS:** We conducted an electronic database search for ARS guidelines using relevant keywords between 1/1/1989 through 31/08/2017. Overall, 25 guidelines from 39 countries were retrieved: 8 from 8 developed countries, and 17 from 31 developing countries. Representative guidelines from developing and developed countries from America, Europe (EPOS 2012), Africa, Asia, and Oceania were evaluated. We compared the identity of the guidelines' initiators, diagnostic criteria, and treatment recommendations.

**RESULTS:** In most developed countries, Rhinological societies publish guidelines, whereas in developing countries the Ministry of Health formulates the guidelines or adopts international guidelines. Many similarities for ARS diagnosis criteria were found, such as purulent nasal discharge on examination and a sensation of nasal obstruction. In contrast, maxillary cultures as a tool for diagnosis were mentioned in developed countries, while mostly ignored in developing countries. Watchful waiting policy was unanimously adopted in developed countries, but only partly mentioned in others. The recommended first-line antibiotic therapy is Amoxicillin, with or without clavulanic acid, whereas options for second and third-line therapies vary.

**CONCLUSION:** Worldwide ARS guidelines share many aspects, while specific recommendations may depend on local epidemiology and healthcare accessibility. The formulation of a unified guideline may help reduce the burden of ARS.

## RESULTS OF THE ENDOSCOPIC SURGERY IN CHILDREN WITH SILENT SINUS SYNDROME

Professor Yuri Rusetsky<sup>1</sup>, Ulyana Malyavina<sup>1</sup>, Aleksandra Pashkova<sup>1</sup>, Elena Latysheva<sup>1</sup>, Olga Spiranskaya<sup>1</sup>

<sup>1</sup>*National Medical Research Center of Children's Health, Moscow, Russian Federation*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Object.** Silent sinus syndrome or chronic maxillary sinus atelectasis characterized by asymptomatic hypoplasia of maxillary sinus, progressive enophthalmos, facial asymmetry. Hypoplasia of maxillary sinus caused by its long-term hypoventilation due to anatomical changes in osteomeatal complex. The diagnosis based on clinical features and data of computed tomography. The majority of documented patients with silent sinus syndrome aged from 24 to 60 years old.

**Aim of the study:** to evaluate the efficacy of endoscopic sinus surgery in restoration of the ventilation and volume of the maxillary sinus in children with chronic maxillary atelectasis

**Methods:** study included 5 children with chronic maxillary sinus atelectasis. Children had symptoms of recurrent unilateral

sinusitis during several years. Medical treatment was ineffective. Preoperatively and 6 month after surgery CT with calculation of the

maxillary sinus volume was performed. All children underwent endoscopic sinus surgery.

**Results:** In time performed endoscopic sinus surgery with restoration of the maxillary sinus ventilation leads to spontaneous increase of the sinus volume, decrease of the facial asymmetry, normal development of the paranasal sinuses and facial skeleton in children.

## THE EFFICACY OF TOPICAL NASAL STEROID SPRAY IN ALLERGIC RHINITIS PATIENTS WITH DRY EYE

**Dr Alper Yenigun<sup>1</sup>**, Dr Ahmet Elbay<sup>2</sup>, Dr Orhan Ozturan<sup>1</sup>, Dr Mehmet Hakan Ozdemir<sup>2</sup>

<sup>1</sup>Bezmialem Vakif University, Faculty of Medicine, Department of Otorhinolaryngology, Istanbul, Turkey, <sup>2</sup>Bezmialem Vakif University, Faculty of Medicine, Department of Ophthalmology, Istanbul, Turkey

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Background:** Dry eye is characterized by reduced tear production and increased evaporation of the tear film barrier. Allergic rhinitis is an inflammatory disease caused by the involvement of immunoglobulin E in the rhino-ocular mucosa due to allergens. This study was planned to demonstrate the effect of nasal steroid treatment on intraocular pressure and dry eye in allergic rhinitis patients with dry eye.

**Material and Methods:** Twenty-nine patients with allergic rhinitis and dry eye diagnosis were included. Symptoms and findings of patients before and after nasal steroid therapy were compared. The patients were assigned into 2 groups: Before (Group 1) and after (Group 2) topical nasal steroid (beclomethasone dipropionate) treatment.

**Result:** The study included 29 allergic rhinitis and dry eye patients (18 females (62%), 11 males (38%)) who were examined in our clinic. Ocular Surface Disease Index scores showing dry eye symptoms showed a significant improvement after nasal steroid treatment ( $p=0.003$ ). In the Schirmer test, no significant change was observed in the right and left eyes ( $p=0.167$ ) ( $p=0.489$ ). In the tear film break-up time, no significant change was observed in the right and left eyes ( $p=0.076$ ) ( $p=0.170$ ). No significant change was observed in the right eye and left eye in intraocular pressure test ( $p=0.893$ ) ( $p=0.495$ ).

**Conclusion:** In our study, only symptoms of dry eye with allergic rhinitis were significantly improved with nasal steroid treatment. Dry eye symptoms associated with the rhino-ocular Type 1 hypersensitivity reaction were seen to have a positive response to nasal steroid therapy without affecting intraocular pressure.

## THE EFFECT OF ALLERGIC RHINITIS ON THE OPERATION OF DIODE LASER DACRYOCYSTORHINOSTOMY

Dr Selahattin Tugrul<sup>1</sup>, Dr Remzi Dogan<sup>1</sup>, Dr Erol Senturk<sup>1</sup>, Dr Sabri Baki Eren<sup>1</sup>, Dr Orhan Ozturan<sup>1</sup>

<sup>1</sup>Bezmialem Vakif University, Faculty of Medicine, Istanbul, Turkey

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Diode laser dacryocystorhinostomy is now widely used in the treatment of nasolacrimal ductal obstruction due to its ease of administration, short operation time and minimal risk of morbidity. Studies in patients with nasolacrimal duct obstruction revealed the association of allergic rhinitis. The aim of our study is to investigate the role of allergic rhinitis in surgical failure after long term diode laser dacryocystorhinostomy.

**Methods:** 137 patients who underwent diode laser dacryocystorhinostomy between the years 2009 and 2012 were included. Patients were recalled at 12 months postoperatively and a control examination was performed. Skin prick test, endoscopic nasal examination and nasal symptom scoring were performed on this examination.

**Results:** The complaints of nasolacrimal obstruction were completely improved in 111 patients (81.1%). 26 patients had the same complaints before operation. Twenty-two of 26 patients were skin prick test positive (84%). All 22 patients had an allergic rhinitis appearance with endoscopic examination and nasal symptom scores were high. There was a significant difference in skin prick test positivity between both groups ( $p < 0.05$ ). Significant differences were also found between the two groups in terms of nasal symptom scores ( $p < 0.05$ ).

**Conclusions:** Allergic rhinitis is a pathology that may prevent the success of operation in patients with opacities due to nasolacrimal duct obstruction. Preoperative and postoperative allergic rhinitis treatment may be useful in selecting appropriate surgical procedure to increase the success of operation in these patients.

## PRIMARY CILIOPATHY

Dra Ángeles Oviedo Santos<sup>1</sup>, Dra. Mercedes Valido Quintana, DRa Loida Garcia Cruz, Dr Carlos Colina Etala, Dr Javier González González, Dr Alfredo Santana Rodríguez

<sup>1</sup>Huq Dr. Negrín, Las Palmas Gc, Spain

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Introduction.

The ciliopathies are a category of diseases caused by disruption of the physiological functions of cilia. Ciliary dysfunction results in a broad range of phenotypes, including renal, hepatic, and pancreatic cyst formation; situs abnormalities; retinal degeneration; anosmia; cerebellar or other brain anomalies; postaxial polydactyly; bronchiectasis; and infertility. The specific clinical features are dictated by the subtype, structure, distribution, and function of the affected cilia.

### Material and methods.

We report a 34 years old woman, pregnant (5 months) through fecundation in vitro, referred by Neumologist for ciliar hypoplasia, bilateral bronchiectasis with multiple colonization by *P. aeruginosa*, sinusitis, chronic otitis, nasal polyps, nephrolithiasis, esplecnectomized for hereditary spherocytosis. With family history of hereditary spherocytosis on her mother and ciliar hipoplasia and bilateral bronchiectasis on her brother.

### Results.

She was referred to preventive service (vaccines) and to genetics service. She will be revised in ENT office after delivery - breastfeeding and cited for a sinus CT scan.

### Conclusions.

Primary cilia are ubiquitous organelles that serve a sensory function. Disruption of the function of primary cilia results in clinically heterogeneous disorders that may affect a single organ or result in a syndromic phenotype. There is substantial clinical and genetic heterogeneity. There is some evidence suggesting that certain ciliary defects might affect primary and motile cilia associated with PCD (primary ciliary dyskinesia). The use of genome-wide copy number analysis coupled with in vitro and in vivo, whole-genome, sequenced-based analysis and massively parallel resequencing are a powerful techniques for the identification of genetic causes of ciliopathies



## ODONTOGENIC ORBITAL ABSCESS: A CASE REPORT AND REVIEW OF LITERATURE.

Dra Sandra Domínguez Sosa<sup>1</sup>, Dra María Soledad Cabrera Ramírez<sup>1</sup>, Dra María Jesús Torres Aguiar<sup>1</sup>, Dra Ángeles Oviedo Santos<sup>1</sup>, Dr. Javier González González<sup>1</sup>, Dra. Mercedes Valido Quintana<sup>1</sup>

<sup>1</sup>Hugo Dr. Negrín, Las Palmas Gc, Spain

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Introduction.

Odontogenic orbital abscess is a rare complication of sinusitis and infection spreading from dental apical lesion, with an incidence of approximately 5% at present. Infections can spread to the orbit usually from molars or premolar root into the maxillary sinus.

### Material and methods.

We report a case of 29 year old male patient with positive recent history of a periapical dental infection arising from the second upper left premolar spread into maxillary sinus.

The patient had shown left eyelid edema, ocular pain, ipsilateral maxillary sinus pain, proptosis, ophthalmoplegia and initial visual symptoms.

### Results.

A paranasal sinuses and orbits CT showed ethmoidal and maxillary sinuses opacification and the presence of a intraorbital hypodense collection with flogistic involment of ocular extrinsic muscles.

A nasal endoscopic approach was performed with maxillary meatotomy and anterior ethmoidectomy with resection of the inferior region of papyraceous lamina, draininig the orbital abscess.

The microbiological exam resulted positive for Streptococcus constellatus penicillin-sensitive.

The patient presented a general clinical improvement, with resolution of the oftalmoplegia and proptosis.

### Conclusion.

Odontogenic orbital abscess represents a rare clinical entity due to dental infections that if not promptly diagnosed and treated could seriously damage the orbital contents and may extended intracranial, with high risk for patient life. The CT scan is necessary in order to know the exact location of the abscess and to indicate the surgica approach.

## AUGMENTATION OF THE POSTERIOR PHARYNGEAL WALL WITH AUTOLOGOUS TRAGAL CARTILAGE FOR VELOPHARYNGEAL VALVE INSUFFICIENCY AFTER REPAIR OF CLEFT PALATE IN PEDIATRIC PATIENTS.

Dr Ahmed Khafagy<sup>1</sup>, Dr Amr Rabie<sup>1</sup>, Dr Ahmed Abdelhamed<sup>2</sup>

<sup>1</sup>Ain Shams University Hospitals- otorhinolaryngology department, Cairo, Egypt, <sup>2</sup>Ain Shams University Hospitals- Phoniatic department- , Cairo, Egypt

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aim:

The aim of this study was to evaluate posterior pharyngeal wall augmentation using autologous tragal cartilage graft in patients with velopharyngeal valve insufficiency (VPI) after simple palatoplasty for cleft palate.

### Methods :

This study included 18 patients with postpalatoplasty VPI (grade 2 or 3), with ages ranging from 5 to 14 years. Patients were followed up for 24–48 months postoperatively. Percent of speech intelligibility and grade of closure of velopharyngeal valve with nasopharyngoscope were evaluated preoperatively and postoperatively.

### Results :

Statistically significant improvement in grade of closure of velopharyngeal valve ( $P=0.001$ ) and percent of intelligibility ( $P=0.001$ ) was found after surgery.

### Conclusions :

Augmentation of the posterior pharyngeal wall using tragal cartilage is a safe technique, with generally good surgical and phoniatic outcomes in the management of pediatric patients with grades 2 and 3 VPI after simple palatoplasty to overcome hypernasality.

## CAROTID ARTERIAL CALCIUM SCORING USING UPPER AIRWAY COMPUTED TOMOGRAPHY ON THE OBSTRUCTIVE SLEEP APNEA PATIENT: CLINICAL USEFULNESS AS THE PREDICTOR OF CEREBROCARDIOVASCULAR DISEASE

Md, Phd Eun-Ju Kang<sup>1</sup>, MD Jae-Hoon Lee<sup>1</sup>, MD Nam Yoon Jung<sup>1</sup>

<sup>1</sup>*Dong-a University, Busan, South Korea*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Objective:** The purpose of our study is to evaluate the clinical value of upper airway computed tomography (CT) in patients with obstructive sleep apnea (OSA) as predictor of cerebrocardiovascular disease (CCVD) by quantitative analysis of carotid arterial calcification.

**Materials and methods:** This study included a total of 287 consecutive patients aged 40–80 years old who underwent both polysomnography and upper airway CT between March 2011 and October 2015. The carotid arterial calcium score (CarACS) on each upper airway CT were quantified using the modified Agatstone scoring method. Various clinical characteristics including age, gender, body mass index (BMI), comorbid disease (e.g., hypertension, diabetes mellitus, and smoking), blood pressure, and total cholesterol were analyzed in each patient. We investigated the prevalence of CCVD events, including ischemic heart disease, cerebral infarction, cardiac or cerebrovascular death.

**Results:** Among the 287 patients, CCVD events were seemed on 27 patients (9.3%) at the end of follow-up. The patients with CCVD events showed significantly higher prevalence of old age and hypertension. The carotid arterial calcification (CarAC) was found in 68 patients, and the incidence of CarAC was 51.9% (14/27) in patients with CCVD events, which was significantly higher than those without CCVD events (20.7%, 54/260,  $P < 0.001$ ). The severity of OSA or RDI index was not different between with CCVD events group and without CCVD event groups.

**Conclusion:** Additional analysis of CarACS based on airway CT scans may useful for predicting the CCVD.

## LOW-GRADE PAPILLARY SCHNEIDERIAN CARCINOMA (LGSP); RARE OR UNDER-RECOGNISED?

Mr Andrew Williamson<sup>1</sup>, Mr Rishi Sharma<sup>1</sup>, Dr Lorna Cooper<sup>2</sup>, Professor Gerald McGarry<sup>1</sup>

<sup>1</sup>Department of Head and Neck Surgery, Glasgow Royal Infirmary, Glasgow, United Kingdom, <sup>2</sup>Department of Pathology, Queen Elizabeth University Hospital, Glasgow, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Introduction:** Schneiderian inverting papillomas (IP) constitute 0.4-4.7% of all benign sinonasal tumours. IP often demonstrates local recurrence and can undergo transformation to squamous cell carcinoma (SCC). Low-Grade Papillary Schneiderian Carcinoma (LGPSC) is a rare, unique, malignant entity that shares strikingly similar morphology with IP, but demonstrates invasive patterns distinctly different from SCC.

**Methods:** We report a case of a locally highly aggressive LGPSC and review the literature.

**Results:** A 56 year old woman presented with a unilateral sinonasal tumour. Endoscopic resection of a highly vascular lesion revealed a histopathology of IP. Initial complete resection was followed by rapid and massive local recurrence within 16 months. Further endoscopic and open excisions of the lesion were required for buccal fat pad invasion. Histology showed progressively worsening cellular atypia and necrosis. Detailed review of pathology by multiple experts led to the diagnosis of Low-Grade Papillary Schneiderian Carcinoma (LGPSC). The Infratemporal and pterygopalatine involvement ultimately necessitated radical maxillectomy .

**Discussion:** LGPSC is an exceedingly rare and possibly under-reported disease with only two previous descriptions in the literature. LGPSC exhibits bland cell morphology similar to IP, but has infiltrative pushing borders and a high propensity for local recurrence. Despite the rarity of LGPSC, clinicians should consider it in cases of IP that behave aggressively without the features of SCC transformation. It is likely that some existing cases of aggressive IP are in fact unrecognised LGPSC. We recommend Skull Base or Head and Neck MDT discussion for all recurrent or unusual cases of IP.

## PEPTIDOGLYCAN INDUCES BRADYKININ RECEPTOR 1 EXPRESSION THROUGH TOLL-LIKE RECEPTOR 2 AND NF- $\kappa$ B SIGNALING PATHWAY IN HUMAN NASAL MUCOSA-DERIVED FIBROBLASTS OF CHRONIC RHINOSINUSITIS PATIENTS

**MD. PhD. Yih-Jeng Tsai<sup>1</sup>**

<sup>1</sup>*Shin Kong Wu Ho-su Memorial Hospital, Taipei City, Taiwan,* <sup>2</sup>*School of Medicine, Fu-Jen Catholic University, New Taipei City, Taiwan*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Numerous studies have demonstrated that Gram-positive microbiomes play an important role in the pathogenesis and in the way of treatment of CRS. Kinins are inflammatory mediators which have been shown to be generated in allergic individuals challenged with allergen. Interestingly, the bradykinin receptor 1 (BKR1 or B1R), being as a subtype of kinin receptors, is believed to be induced and involved in inflammation in pathophysiological conditions. Therefore, in the present study, we investigated the effect of peptidoglycan (PGN), a major cell wall component of Gram(+) bacteria, on BKR expression and its signaling pathway in nasal mucosa-derived fibroblasts from chronic rhinosinusitis without nasal polyp (CRSsNP). The PGN concentration- and time-dependently induced increases in B1R mRNA and protein production, while it had no inductive effect on B2R expression. The B1R expression was abolished by the NF- $\kappa$ B and protein kinase A inhibitor. In parallel, the PGN directly activated I $\kappa$ B/NF- $\kappa$ B signaling and CREB phosphorylation. However, PGN did not affect intracellular cAMP production and some cAMP-producing agents/analog did not cause B1R expression, suggesting not involvement of cAMP/PKA pathway in this induction. Finally, the B1R expression and I $\kappa$ B/NF- $\kappa$ B signaling pathway could be attenuated by the Toll-like receptor-2 (TLR2) blocking/neutralizing Ab but not by the TLR4 Ab. Taken together, our results revealed for the first time that PGN can increase B1R expression in human nasal mucosa stromal fibroblasts derived from CRSsNP through TLR2 activation and NF- $\kappa$ B signaling pathway, suggesting that a major component of Gram(+) may participate in B1R upregulation in nasal mucosa during CRSsNP progression.

## INTRATURBINAL VERSUS EXTRATURBINAL MICRODEBRIDER-ASSISTED INFERIOR TURBINOPLASTY: PRELIMINARY REPORT

Dr Ahmed Hesham Eldamaty<sup>1</sup>

<sup>1</sup>Magrabi Eye And Ear Hospital, Muscat, Oman, <sup>2</sup>Faculty of Medicine, Cairo University, Cairo, Egypt

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** To compare the intratubinal use of the microdebrider with the extratubinal one for inferior turbinate reduction based on subjective and objective parameters

**Methods:** Forty patients with nasal obstruction due to bilateral hypertrophied inferior turbinates were included in this study. History taking, clinical assessment and CT scan of the paranasal sinuses were done for all patients. All patients underwent microdebrider-assisted inferior turbinoplasty, the microdebrider was used intratubinally on one side of the nose and extratubinally on the other side in alternate manner. The patients were blinded to the technique used.

**Results:** The operative time and operative blood loss were less in the extratubinal group ( $p < 0.05$ ). At 1 month post operatively, the nasal obstruction VAS score showed significant improvement on the intratubinal sides only ( $p < 0.05$ ), at 3 and 6 months post operatively, the VAS score showed significant improvement on both sides with no difference between the 2 groups ( $p$  value = 0.064 and 0.728 respectively). Nasal endoscopy revealed grade 2 turbinates in 30% and grade 3 in the remaining 70% of the intratubinal group with almost similar findings in the extratubinal group. At 6 months post operatively, significant improvement of the turbinate size was detected on both sides. No complications were reported in either group.

**Conclusions:** Extratubinal microdebrider-assisted inferior turbinoplasty is as effective and safe as the intratubinal one with shorter operative time and less blood loss with similar morbidity, so we recommend the extratubinal use of the microdebrider in cases of inferior turbinate hypertrophy.

## TREATMENT OF BLOWOUT FRACTURE OF INFERIOR ORBITAL WALL IN MY DEPARTMENT

Dr. Kosuke Takabayashi<sup>1</sup>, Dr. Masayoshi Nagamine<sup>1</sup>, Dr. Taketoshi Fujita<sup>1</sup>

<sup>1</sup>*Japanese Red Cross Asahikawa Hospital, Asahikawa, Japan*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

We have performed endoscopic trans-nasal procedure without reconstruction to blowout fracture of inferior orbital wall since April, 2000. The case that recognized postoperative enophthalmos was approximately 10%. A correlation was found between postoperative enophthalmos and the blowout area.

As for the endoscopic trans-nasal procedure, we can obtain good operation field and perform complete removal of the free bone fragments easily, in addition incision is not necessary, but it is difficult to reconstruct orbit with a rigidity material. Whereas we can reconstruct orbit easily with trans-orbital procedure, but the procedure is inferior to endoscope in an operation field and operability.

We are convinced that hard plate reconstructive operation is necessary for the extensive blowout fracture.

In this study, we intend to show a hard plate reconstruction procedure that we devised.

### Methods

We will show the operation video of our procedure and some result

### Results

We were able to obtain a beautiful operation field and reconstruct orbit very safely.

### Conclusions

Blowout fracture of orbit has cases to require hard plate reconstruction. Our procedure is very suitable for the cases.

## MICRODEBRIDER-ASSISTED PARTIAL INFERIOR TURBINECTOMY ; ADVANTAGES OVER THE CONVENTIONAL METHODS

Dr Ahmed Hesham Eldamaty<sup>1</sup>

<sup>1</sup>Magrabi Eye And Ear Hospital, Muscat, Oman, <sup>2</sup>Faculty of Medicine, Cairo University, , Egypt

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** To compare the safety and efficacy of microdebrider assisted partial inferior turbinectomy with the conventional surgical turbinectomy in patients with inferior turbinate hypertrophy.

**Methods:** Sixty patients with nasal obstruction and bilateral hypertrophied inferior turbinates that was refractory to medical treatment were included. History taking, clinical assessment and CT scan of the paranasal sinuses were done for all patients. The patients were randomly assigned to receive microdebrider partial turbinectomy (n = 30) or conventional surgical turbinectomy (n = 30).

**Main outcome measures:** operative time, blood loss, subjective improvement of the patients symptoms and post operative complications

**Results:** The 2 groups were comparable in age and sex. The operative time and operative blood loss were less in the microdebrider group ( $P < 0.001$ ). Follow up visit after 3 months revealed improvement in 93.3% of the patients in the microdebrider group vs 96.7% in the surgical group ( $P > 0.05$ ). There was no difference in the incidence of post operative complications between the 2 groups.

**Conclusions:** Partial turbinectomy with the microdebrider is as effective and safe as the conventional surgical turbinectomy with shorter operative time and minimal blood loss, so we recommend the routine use of microdebriders for all partial turbinectomy procedures



## PEDIATRIC SINUS HEADACHE

Prof. Dilyana Vicheva<sup>1</sup>

<sup>1</sup>*Medical University, Plovdiv, Bulgaria*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

The Diagnostic Criteria for Pediatric Headaches are: duration from 1 to 72 hrs. Their characteristics include: bilateral or unilateral, frontal or temporal; pulsative; moderate to severe; worsens with routine activities. Their associated symptoms can be: nausea and/or vomiting, photophobia and/or phonophobia. Not all sinus pain comes from sinus problem! Migraines can only affect the sinuses; neck problems that radiate pain to the sinuses; temporo-mandibular and dental disorders; eye problems; cough headaches; cold stimulus headaches and other, rare types of headaches. Sinusitis in children is different than sinusitis in adults.

## NOSE OBSTRUCTION AND OSAS IN CHILDREN

Prof. Dilyana Vicheva<sup>1</sup>

<sup>1</sup>*Medical University, Plovdiv, Bulgaria*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Nasal obstruction be quite uncomfortable for the child and may cause a significant problem with dento-facial and cardiopulmonary abnormalities. In older children, nasal obstruction usually results in noisy breathing snoring, and/or mouth breathing. 50-60% of total airway resistance in normal respiration during wakefulness is furnished by the nose. 1/3 of this resistance by the nasal vestibule and 2/3 of this resistance by the nasal valve region. Nasal surgery can only partly treat OSAS reduces the intensity of snoring by 5 to 10 dB; maximum 12 dB.

## NASAL AIRWAY ANALYSIS: TRADITIONAL AND ADVANCED CONCEPTS

Prof. Dilyana Vicheva<sup>1</sup>

<sup>1</sup>*Medical University, Plovdiv, Bulgaria*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Inspiration generates a negative pressure, nostrils enlarge (dilators of the nose) and internal valve narrows as upper lateral cartilages approximate septum. Expiration, the internal nasal valve opens and the nostrils narrow. Rhinomanometry provides a functional measure of the nasal airway resistance or conductance. Acoustic rhinometry provides an anatomical measurement of cross-sectional area or nasal volume. The main advantages of acoustic rhinometry are that it is faster and easier to perform and does not depend on patient cooperation. Unlike rhinomanometry, it does not measure dynamic respiratory function but the cross sections of the nasal cavity at various sites, which are averaged together. We suggest to use both devices in patients, who are candidates for rhinoplasty.

## LEIOMYOSARCOMA, PRIMARY TUMOR OF THE SPHENOID SINUS. A CASE REPORT.

Dr, MD, FRCS (Ed) María Soledad Cabrera Ramírez<sup>1</sup>, Dr, MD María Sandra Domínguez Sosa<sup>1</sup>, Dr, MD Miguel Ángel Ojeda Rodríguez<sup>1</sup>, Dr, MD Ángeles Mercedes Oviedo Santos<sup>1</sup>, Dr, MD Paloma Santamaría Blanco<sup>2</sup>  
<sup>1</sup>Department of Otolaryngology, Hospital Universitario de Gran Canaria, Dr. Negrín, Spain, <sup>2</sup>Department of Pathology, Hospital Universitario de Gran Canaria, Dr. Negrín, Spain

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Introduction

Leiomyosarcoma is a malignant tumour of smooth muscle origin, which is rarely seen in the sinonasal tract. Approximately 5% of all cases of LMS occur in the head and neck. The most common sites are the sinonasal tract, skin, cervical esophagus and larynx.

### Material and methods

We report a case of a 37 year old woman presented with a severe headache for four months period and a recent complaint of diplopia. Endoscopic observation revealed no evidence of tumors in the nasal cavity. The patient was thought to have a pituitary macroadenoma base on clinical and radiographic findings and was scheduled for surgery via an endoscopic approach.

### Results

A CT scan showed that the tumor mainly occupied the right sphenoid sinus with marked bony destruction of its posterior wall. MRI revealed the involvement of the silla turcica with invasion of the clivus. The right internal carotid artery and right cavernous sinus were encased in the tumor.

Histologically, our tumor was characterized by proliferation of atipic fusiforms cells and infiltrate pattern. Immunohistochemical staining was performed, demonstrating: h-caldesmon +.

Due to the massive involvement of the skull base, the tumor was considered to be inoperable.

Postoperative quimiotherapy and radiation therapy was recommended.

### Conclusion

Tumor size at time of diagnosis and complete excision of the tumor appear to be the most significant prognostic features.

Baseline MRI with contrast enhancement is essential.

Surgical excision is the mainstay of therapy. When complete excision is not attainable, adjuvant chemotherapy with or without radiation therapy is recommended.

## PRIMARY NASOSINUSAL MUCOSAL MELANOMAS: REPORT OF 5 PATIENTS BETWEEN 2007 -2017

Phd Sandra Domínguez<sup>1</sup>, Phd M<sup>a</sup> Soledad Cabrera<sup>1</sup>, Phd Miguel Angel Ojeda<sup>1</sup>, Phd Debora Diaz<sup>1</sup>, Phd Paloma Santamaria<sup>1</sup>

<sup>1</sup>*Servicio Canario De Salud, Las Palmas De Gc, Spain*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### INTRODUCTION

Malignant neoplasms of the nasosinusal tract account for about 3% of head and neck malignant tumors. Primary nasosinusal mucosal melanoma is a rare entity, which constitutes 1.5-9% of all malignancies in this site. Usually occurs in the seventh decade of life. Epistaxis and nasal obstruction are the most frequent presenting symptoms.

### METHODS

We present a retrospective descriptive study about five patients diagnosed with primary nasosinusal mucosal melanomas, treated and followed up in Otorhinolaryngology Department of Gran Canaria University Hospital between 2007 and 2017.

The diagnosis of the cases were confirmed by the presence of melanin and Immunohistochemical profile S-100+, HMB45+.

The lesions confined to the primary site were defined as stage I, regional cervical lymph node as stage II, and distant metastasis as stage III.

### RESULTS

Median age was 70.2 years and 60% were men. Principal symptoms at presentation were epistaxis and nasal obstruction.

Nasal cavity was the most frequent primary site, followed by maxillary sinuses. Based on the common basic staging system, all five patients had stage III. A combined of excision followed by external radiotherapy was used for treat all cases. Four patients received chemotherapy. At the last follow-up 3 patients were alive with no evidence of disease and 2 patients died.

### CONCLUSION

Nasosinusal melanoma tends to have a high rate of locoregional and distant failure and poor outcome with a 5-year survival rate of 0-50%.

Complete surgical excision is the mainstay of definitive therapy. Postoperative Radiotherapy is usually considered and improves the locoregional control.

## LARGE CELL PARANASAL SINUS NEUROENDOCRINE CARCINOMA: CASE REPORT

Dr, MD, FRCS (Ed) María Soledad Cabrera Ramírez<sup>1</sup>, Dr, MD María Sandra Domínguez Sosa<sup>1</sup>, Dr, MD, PhD Ángeles Mercedes Oviedo Santos<sup>1</sup>, Dr, MD, PhD Mercedes Valido Quintana<sup>1</sup>, Dr, MD Elsa Gómez Rebordinos<sup>2</sup>  
<sup>1</sup>*Department of Otolaryngology, Hospital Universitario de Gran Canaria, Dr. Negrín. Las Palmas de Gran Canaria, Spain,*  
<sup>2</sup>*Department of Pathology, Hospital Universitario de Gran Canaria, Dr. Negrín. Las Palmas de Gran Canaria, Spain*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### INTRODUCTION

Neuroendocrine carcinoma is an epithelial neoplasm with predominant neuroendocrine differentiation. Nasal cavity and paranasal sinuses are a very rare site for neuroendocrine carcinoma. They have been reported as locally destructive.

### MATERIAL AND METHODS

We report a case of a 57 years old man with history of epistaxis from left nasal cavity and on examination, he had gross deviation of nasal septum with a mass in left nasal cavity.

### RESULTS

Computed tomography (CT) of paranasal sinuses revealed soft tissue mass occupying the ethmoidal sinus extending into nasal cavity causing erosion, and into orbit with intracranial extension into basifrontal area. MRI showed infiltrative mass in nasal cavities, ethmoid sinuses and frontal sinuses with orbital infiltration and extension to anterior cranial fossa.

Biopsy from nasal mass was reported as a malignant neoplasm with neuroendocrine differentiation. Immunohistochemistry showed that neoplastic cells were positive for synaptophysin, chromogranin and cytokeratin and negative for TTF-1, CD99 and desmin.

A diagnosis of large cell neuroendocrine carcinoma grade III was made.

Because of intracranial extension we could not offer the benefit of surgery and was treated with chemotherapy (cisplatin and etoposide) and radiotherapy with complete regression of the tumor.

### CONCLUSION

The treatment of sinonasal neuroendocrine carcinomas has not been systematically evaluated because of small number of cases. Multimodality treatment approach is needed.

As majority of patients have advanced disease at presentation with extension to the orbit, skull and brain, surgical resection is usually difficult. Chemotherapy followed by radiotherapy has shown promising results in treatment of these tumors.

## FRONTAL OSTIUM GRADE (FOG) – A NEW CT GRADING SYSTEM FOR A SAFE SURGICAL APPROACH TO THE FRONTAL SINUS

Dr Heitham Gheriani, MMSc, FRCSI, FRCSEd, FRCSC<sup>1</sup>, Al Habib<sup>1</sup>, Dr Amin Javer, MD, FRCSC, FACS<sup>1</sup>

<sup>1</sup>Otolaryngology - HNS Division, Vancouver, Canada

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

THE LOCATION AND SIZE OF THE FRONTEL SINUS OSTIUM IS CRITICAL IN DETERMING THE LEVEL OF SURGICAL DIFFICULTY. THE MORE ANTERIOR THE OSTIUM LOCATION, THE MORE DIFFICULT IS THE SURGICAL ACCESS.WE PROPOSE A NEW CT GRADING FOR THE FRONTAL SINUS THAT IS SPECIFIC TO THE ANATOMICAL POSITION OF THE FRONTAL SINUS OSTIUM.ON SAGITTAL CT, VERTICAL LINE IS DRAWN THROUGH THE FRONTAL PROCESS OF THE MAXILLA ALONG IT'S VERTICLE AXIS(R).THE SECOND LINE (S) IS PLACED AT THE POINT OF UPTURN OF THE ANTERIOR SKULL BASE.IF THE SECOND LINE(S) IS POSTERIOR TO THE REFERENCE LINE(R),THEN THE FRONTAL GRADE IS TERMED FOG POSITIVE(+VE).A POSITIVE FOG GRADE IMPLIES THAT THE FRONTAL OSTTIUM WILL BE SURGICALLY MORE ACCESIBLE AS OPPOSED TO A CT, WHERE THE S(SECOND) LINE IS ANTERIOR TO THE R LINE WHICH WILL BE TERMED AS FOG NEGATIVE(-VE) WHICH IS SURGICALLY MORE DIFFICULT.IF BOTH S AND R LINES OVERLAP,THEN THE FRONTAL SINUS OSTIUM GRADE IS TERMED FOG NEUTRAL(0). 348 CT SCANS WERE EXAMINED. 297(85.3%) CT SCANS WERE FOUND TO BE SUITABLE. 206(69.4%) ON THE LEFT AND 188(63.3%) ON THE RIGHT WERE FOUND TO BE FOG +VE COMPARE TO 27(9.1%) ON THE LEFT SIDE AND 25(8.4%) ON THE RIGHT SIDE FOUND TO BE FOG -VE . 45(15.2%) ON THE LEFT AND 58(19.5%) ON THE RIGHT WERE FOG NEUTRAL . CONCLUSION: NEW CT GRADING SYSTEM IS INTRODUCED WHICH IS DESIGNED TO HELP PLANNING AND PREDICTING FRONTAL SINUS SURGERY DIFFICULTY AND EXPERTISE REQUIRED TO SAFELY PERFORM ENDOSCOPIC FRONTAL SINUS SURGERY

## CATHETER THERAPY FOR RHINOSINUSITIS

**Catheter therapy for Rhinosinusitis Hiroki Ikeda<sup>1,2</sup>**, Catheter therapy for Rhinosinusitis Makoto Miura<sup>2</sup>, Catheter therapy for Rhinosinusitis Akihiko Nakamura<sup>3</sup>, Catheter therapy for Rhinosinusitis Shoji Matsune<sup>4</sup>, Catheter therapy for Rhinosinusitis Masamichi Iijima<sup>5</sup>, Catheter therapy for Rhinosinusitis Osamu Tsukadea<sup>6</sup>, Catheter therapy for Rhinosinusitis Masao Ikeda<sup>1</sup>

<sup>1</sup>*Ikeda-Jibika (E.N.T.clinic), Wakayama, Japan*, <sup>2</sup>*Department of Otorhinolaryngology, Japanese Red Cross Wakayama Medical Center, Wakayama, Japan*, <sup>3</sup>*NAKAMURA E.N.T. clinic, Sakai, Japan*, <sup>4</sup>*Nippon Medical School Musashikosugi Department of Otorhinolaryngology, Kanagawa, Japan*, <sup>5</sup>*Iijima E.N.T. clinic, Ueda, Japan*, <sup>6</sup>*Ueda Kidney clinic, Ueda, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Guidelines for the treatment of sinusitis in our country, recommended washing therapy with catheters. Paranasal sinus washing therapy with the YAMIK catheter began in 1991 in Japan. This therapy was an epoch-making method as a paranasal sinus washing therapy to assume Proetz substituted principle. Unfortunately, in Japan, the availability of the YAMIK catheter became difficult in 2005.

However, the ENT-DIB sinusitis therapeutic catheter released in Japan in 2014. This new catheter is expected to show a similar treatment effect to the YAMIK catheter, which is useful as a choice of conservative medical treatment for rhinosinusitis. Briefly, we would like to present the washing method with the ENT-DIB sinusitis therapeutic catheter. First, insert the catheter into the nasal cavity after intranasal gauze anesthesia. Secondly, fix by inflating the balloons around both the nostril and choana. This procedure may change both nasal cavity and sinuses into a closed cavity. Finally, wash rhinosinuses with a supine position down to affected side by adding pressurization and depressurization from another channel to rhinosinuses.

In our study there were a high improvements in acute sinusitis and paranasal mycosis cases. Chronic sinusitis and eosinophilic chronic rhinosinusitis also showed moderate improvements in several cases. This therapy, as an intermediate treatment between surgical therapy and conservative therapy, is considered to be capable of becoming a proactive choice for selected cases.

This method has the complexity of the maneuver. However, as an otorhinolaryngology specialist, it is considered as one of the procedures to be learned.



## MODIFIED CASTELNUOVO'S FLAP TECHNIQUE OF PLASTIC CLOSURE OF NASAL SEPTUM PERFORATION IN CHILDREN

Professor Yuri Rusetsky<sup>1</sup>, Olga Spiranskaya<sup>1</sup>, Elena Latysheva<sup>1</sup>, Ulyana Malyavina<sup>1</sup>

<sup>1</sup>"National Scientific And Practical Center Of Children's Health", Moscow, Russian Federation

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

In present study we evaluated the efficacy of modified Castelnuovo's flap technique of plastic closure of nasal septum perforation under endoscopic control in children.

Methods: Four children with nasal septum perforation aged from 13 to 17 years old were operated from 2016 to 2017. Patients complained with nasal obstruction, wheezing, dry nose.

All patients underwent plastic closure of nasal septum perforation using unilateral septal flap based on the anterior ethmoidal artery (Castelnuovo's flap) under general anaesthesia. We prepared the flap big enough for closing perforation on both side. After the endoscopic dissection of the flap and margins of septum perforation we performed transseptal incision just in front of anterior margin of the perforation. The flap on the suture-guide passed through the incision on the other side and moved till the posterior margin of the perforation. After careful restoration of the flap the suturing was done first on the ipsilateral, then on the contralateral side.

Results: Control examination performed after 1, 3 and 6 month postop. There was no recurrence of perforation, synechia, nasal obstruction in all patients.

Conclusions: Modified Castelnuovo's flap technique of plastic closure of nasal septum perforation in children under endoscopic control is effective and reliable method.

## NASAL POLYP WITH EPITHELIAL ATYPIA IN A WORKER EXPOSED TO NICKEL AND COPPER DUST SALT

Dr. Aleksandar Peric<sup>1</sup>, Dr. Biserka Vukomanovic-Djurdjevic<sup>2</sup>, Dr. Dejan Gacesa<sup>3</sup>

<sup>1</sup>Department of Otorhinolaryngology, Military Medical Academy School of Medicine, Belgrade, Serbia, <sup>2</sup>Institute for Pathology, Military Medical Academy School of Medicine, Belgrade, Serbia, <sup>3</sup>ENT Hospital "Dr. Zutic", Belgrade, Serbia

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims.** There is little information in the literature on the incidence of epithelial atypia in routine nasal polyp specimens. Possible aetiological factors for squamous metaplasia and dysplasia in nasal mucosa are environmental ozone, noxious chemicals such as ammonia, benzene, nitrates, and, especially, heavy metals. We present a case of a young male with histologically confirmed epithelial dysplasia in an inflammatory nasal polyp.

**Methods.** Case presentation.

**Results.** A 27-year-old man complained of an impaired nasal breathing and mild right-sided epistaxis. He was exposed to copper and nickel salt dust for six years. Endoscopic examination and computed tomography showed a polypous lesion arising from the anterior part of right middle turbinate. After the surgical excision, histopathological examination of lesion showed an inflammatory nasal polyp with oedematous stroma and high epithelium with a big area of rich cellularity. In this area, the nasal epithelium showed high grade of anisocytosis, hyperchromatosis and numerous mitotic figures. The basal membrane was preserved. The patient recovered well from the surgery and was well at least follow-up 12 months later.

**Conclusion.** We suggest that precancerous changes may occasionally be noted in inflammatory nasal polyps, especially in workers exposed to heavy metals, a fact that both rhinologists and pathologists should keep in mind.

## HIGH OCCUPANCY OF SINUS CT SCAN IS ASSOCIATED WITH NASAL POLYPS, ASPIRIN INTOLERANCE, AND SEVERE ASTHMA.

**Phd, Md José Antonio Castillo<sup>1</sup>**, PhD MD César Picado<sup>2</sup>, PhD MD Vicente Plaza<sup>3</sup>, PhD MD Gustavo Rodrigo<sup>4</sup>, PhD MD Berta Juliá<sup>5</sup>, PhD MD Cristina Fernández<sup>6</sup>, PhD MD Joaquim Mullol<sup>7</sup>

<sup>1</sup>*Servicio de Neumología. Hospital Universitario Quirón Dexeus, Barcelona, Spain,* <sup>2</sup>*Servicio de Neumología. Hospital Clínic, Barcelona, Spain,* <sup>3</sup>*Servicio de Neumología, Hospital Sta. Creu i Sant Pau, Barcelona, Spain,* <sup>4</sup>*Departamento de Emergencias, Hospital Central de las Fuerzas Armadas, Montevideo, Uruguay,* <sup>5</sup>*Departamento Médico MSD-España, Madrid, Spain,* <sup>6</sup>*Unidad Transversal Apoyo Investigación. Hospital San Carlos, Madrid, Spain,* <sup>7</sup>*Immunoal.lèrgia Respiratòria Clínica i Experimental, IDIBAPS & Unitat de Rinologia i Clínica de l'Olfacte, Servei d'ORL, Hospital Clínic, CIBERES, Barcelona, Spain*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Background:** Severe asthma is associated with chronic rhinosinusitis (CRS), nasal polyps, and aspirin intolerance.

**Objective:** to investigate the association of sinus occupancy with severe asthma.

**Methods:** In a cross-sectional study, 492 asthmatics were recruited and classified by GINA: 17.3% intermittent and 82.7% persistent (24.6% mild, 31.4% moderate, and 26.7% severe). Sinus occupancy was measure by CT scan according to Lund and Mackay score (LMS, 0-24). Data is presented as median [25-75 IQR]. Atopy was defined by a positive skin prick test to common aeroallergens. Aspirin intolerance (AIA) was defined by clinical history and/or challenge test.

**Results:** Sinus CT scan was performed in 181 asthmatics patients: intermittent (N=25, 13.8%), mild (N=39, 21.5%), moderate (N=57, 31.5%), and severe (N=60, 33.1%) persistent. LMS was significantly higher in severe asthma (8 [1-15],  $p=0.014$ ) compared with intermittent (4 [0-9]), mild (2 [0-5]) and moderate (4 [0-12]) persistent. LMS was also significantly higher in CRSwNP (10 [6-18],  $p<0.001$ ) vs. CRSsNP (5 [1-7]) and in aspirin intolerant (8 [0-17],  $p=0.027$ ) vs. aspirin tolerant (3 [0-10]) asthmatics.

**Conclusions:** The sinus occupancy in asthma patients is associated with the presence of nasal polyps, aspirin sensitivity, and severe asthma.

## LOSS OF SMELL SEVERITY IDENTIFIES SINUS OCCUPANCY IN ASTHMA PATIENTS

**Phd, Md José Antonio Castillo<sup>1</sup>**, PhD MD César Picado<sup>2</sup>, PhD MD Vicente Plaza<sup>3</sup>, PhD MD Gustavo Rodrigo<sup>4</sup>, PhD MD Berta Juliá<sup>5</sup>, PhD MD Cristina Fernández<sup>6</sup>, PhD MD Joaquim Mullol<sup>7</sup>

<sup>1</sup>*Servicio de Neumología. Hospital Universitario Quirón Dexeus, Barcelona, Spain,* <sup>2</sup>*Servicio de Neumología. Hospital Clínic, Barcelona, Spain,* <sup>3</sup>*Servicio de Neumología, Hospital Sta. Creu i Sant Pau, b, Spain,* <sup>4</sup>*Departamento de Emergencias, Hospital Central de las Fuerzas Armadas, Montevideo, Uruguay,* <sup>5</sup>*Departamento Médico MSD-España, Madrid, Spain,* <sup>6</sup>*Unidad Transversal Apoyo Investigación. Hospital San Carlos, Madrid, Spain,* <sup>7</sup>*Immunoal.lèrgia Respiratòria Clínica i Experimental, IDIBAPS & Unitat de Rinologia i Clínica de l'Olfacte, Servei d'ORL, Hospital Clínic, CIBERES, Barcelona, Spain*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Background:** Symptom-based diagnosis of CRS, with the support of nasal endoscopy and sinus CT scan, constitute the basis of international guidelines. However, an overuse of CT scan indications for CRS diagnosis and follow-up has been detected.

**Objective:** To investigate the correlation of loss of smell with sinus occupancy in asthmatic patients.

**Methods:** From a cross-sectional study in asthmatics (N=492), 181 patients with NAR (n=4, 10.5%), AR (n=19, 23.5%), CRSsNP (n=42, 23.2%), CRSwNP (n=73, 40.3%), or without sinonasal disease (n=4, 2.2%) were evaluated for: a) loss of smell severity (VAS, 0-100mm) and prevalence of anosmia (VAS >70mm); and b) sinus occupancy by CT scan according to Lund & Mackay score (LMS, 0-24, median [25-75 IQR]). A logistic model was used (OR, Odds ratio [95% CI]).

**Results:** Anosmia was more frequent in CRS than in rhinitis (28.1% vs. 3.9%, p<0.001) and in CRSwNP than in CRSsNP (40.6% vs.13.4%, p<0.001). LMS was higher in CRS than in rhinitis (8 [4-15] vs. 0 [0-0]), p<0.001) and in CRSwNP than in CRSsNP (10 [6-18] vs. 5 [1-7], p<0.001). In addition, LMS was associated with loss of smell in patients with hyposmia [OR=2.66 [1.27, 5.53], p=0.009] but mainly with anosmia [OR= 16.67 [4.43, 62.67], p<0.0001].

**Conclusions:** Sinus occupancy by CT scan showed a clear association with loss of smell, mainly with anosmia. Therefore, the routine assessment of loss of smell in daily clinical practice may help the diagnosis and follow-up of CRS in asthmatic patients while potentially reducing the overuse of CT scans.

## THE ADVANTAGES OF THE FOREHEAD FLAP IN THE RECONSTRUCTION OF THE NASAL DORSUM, SERIES OF CLINICAL CASES.

Dr. Bassel Hallak<sup>1</sup>

<sup>1</sup>*Hospital Of Sion. Switzerland., Sion, Switzerland*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

The defects of the nasal dorsum are due to a multiples reasons, such as the congenital malformations, post traumatic or after the surgery of the malignant tumors of the nose. The description and analysis of these defects are based on a different points: the size of the defect, the extension, the deep, the nature, the localisation and the relation with the different esthetic subunits of the nose.

Many surgical techniques have been described for the reconstruction of the nasal dorsum's defects and those techniques are varies from simple to more complex.

The choise making for the type of reconstruction of the nasal dorsum defects is depends on a multiples things: the diffeents anatomic points of the defects, the good knowledge of the different techniques and the surgeon's experience.

The size and the localisation of the defects are a major factors of limitation for the majority types of reconstruction.

The forehead flap is a very useful technique for the reconstruction of the nasal dorsum defets with a lot of advantages.

the quality of the skin in the forehead region and its similarity with the nasal dorsum skin, the ability of this flap to reconstruct all type of defects on the nasal dorsum and the simplicity way to harvest the flap and reconstruct the different deffects gave a lot of advantages to this flap in comparing with the another techeniques.

We present a series of a different defects of the nasal dorsum with a reconstruction by using the forehead flap.

## USE OF MEDPOR GRAFTING IN SEPTORHINOPLASTY: OUR EXPERIENCE

Miss Ngan Hong Ta<sup>1</sup>, Mr Rishi Sharma, Mr Andy Bath

<sup>1</sup>Norwich Medical School - Norfolk and Norwich University Hospital, Norwich, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS:

Patients undergoing septorhinoplasty or rhinoplasty often require augmentation as part of the surgical correction of the nose. Medpor™ is a biocompatible graft material that has been used in rhinoplasty or septorhinoplasty. Whilst short term results are usually good long term results are more variable. We aim to examine if Medpor™ is safe, well tolerated and versatile as a graft material in septorhinoplasty.

### METHODS:

A retrospective chart review of patients undergoing the procedure were collected from 2008 to 2015 and results analysed by two of the authors. All surgery was performed or supervised by the senior author. We also present our operative technique and preparation of the graft material, long term data about the outcomes, tolerance and side-effects of patients who have required augmentation septorhinoplasty or rhinoplasty using Medpor™.

### RESULTS:

Data was collected on 17 patients, all of whom had good patient reported outcome measures. One patient had graft extrusion and required revision but has subsequently had satisfactory revision surgery.

### CONCLUSION:

Using this technique, we demonstrate that Medpor is a safe well tolerated and safe long term graft material

## THE CHANGE OF NASAL THALLIUM TRANSPORT WITH MODULATION OF OLFACTORY BULB INTERNEURON

**Dr. Hideaki Shiga**<sup>1</sup>, Dr. Kohshin Washiyama<sup>2</sup>, Dr. Masami Kumai<sup>1</sup>, Prof. Takaki Miwa<sup>1</sup>

<sup>1</sup>Kanazawa Medical University, Ishikawa, Japan, <sup>2</sup>Fukushima Medical University, Fukushima, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

The radioisotope thallium-201 migrates to the olfactory bulb after nasal administration in rodents, and this migration is significantly decreased by the transection of olfactory nerve fibers in mice. Furthermore, nasally administered thallium-201 migrates to the olfactory bulb 24 h after thallium-201 administration in subjects, as has been shown in healthy volunteers. Nasal thallium-201 migration to the olfactory bulb is reduced in patients with impaired olfaction, compared with thallium-201 migration in healthy volunteers. In other side, it is not determined whether the activity of olfactory pathway is represented by the thallium-201 migration to the olfactory bulb. The nasal administration of rotenone, a mitochondrial respiration chain complex-I inhibitor is reported to decrease the inhibitory modulation for mitral cells which receive information from the axons of olfactory receptor neurons in olfactory bulb of mice. In this study, the male mice were nasally administrated with the combinations of thallium-201 and a mitochondrial respiration chain complex-I inhibitor (rotenone or piericidin A). The thallium-201 migration to olfactory bulb was assessed after the nasal administration of the solution. Both of rotenone or piericidin A accelerated thallium-201 migration to olfactory bulb in the mice. Our results suggested that the modulation of interneuron in olfactory bulb is represented by the nasal thallium-201 migration to the olfactory bulb. In the olfactory impaired patients with Parkinson's disease, the thallium-201 migration to the olfactory bulb may be reduced because the inhibitory modulation for mitral cells, dopaminergic neurons are increased in the olfactory bulb of patients with Parkinson's disease.

## A CASE OF REACTIVE LYMPHOID HYPERPLASIA WITH ACCUMULATION OF IGG4-POSITIVE PLASMA CELLS IN THE NASAL FLOOR

**Mr. Kengo Kanai**<sup>1</sup>, Professor Mitsuhiro Okano<sup>3</sup>, Mr. Takahisa Koyama<sup>2</sup>, Mr. Yuji Hirata<sup>1</sup>, Professor Kazunori Nishizaki<sup>2</sup>

<sup>1</sup>Department of Otoralyngology Head and Neck Surgery, Kagawa Prefectural Central Hospital, Takamatu, Japan,

<sup>2</sup>Department of Otoralyngology Head and Neck Surgery, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Okayama, Japan, <sup>3</sup>Department of Otoralyngology Head and Neck Surgery, International University of Health and Welfare, Narita, Japan

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Reactive lymphoid hyperplasia ( RLH ) is histologically defined as reactive hyperplasia of lymphoid follicles with germinal centers, few variants of individual lymphocytes, and polyclonal proliferation. Here, we present a case of RLH with accumulation of IgG4-positive plasma cells in the nasal floor. The patient was a 69-year-old woman who complained of a left nasal mass and right hearing loss. She did not have swelling of the salivary glands or nasal symptoms. Her serum IgG4 concentration of 45.5 mg/dl was within the normal range. Two biopsies could not rule out the possibility of malignant lymphoma; therefore, surgical resection was performed. A pathological examination revealed infiltration of abundant IgG4-positive plasma cells, but no fibrosis. The lesion was not diagnosed as IgG4-related disease based on comprehensive diagnostic criteria for this disease. There has been no recurrence in the 1 year after surgery. Prognosis of RLH is generally good, but the patient is under careful observation for recurrence and malignant conversion.



## ENDOSCOPIC GLUE SEPTOPLASTY IN CHILDREN

Professor Yuri Rusetsky<sup>1</sup>, Olga Spiranskaya<sup>1</sup>, Nataliya Sergeeva<sup>2</sup>

<sup>1</sup>"National Scientific And Practical Center Of Children's Health", Moscow, Russian Federation, <sup>2</sup> I.M. Sechenov First Moscow State Medical University, , Russian Federation

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Previously existing apprehensions concerning possible disturbances of facial skeleton growth and development in children subjected to septoplasty are now considered less and less significant. Moreover, it has been shown that avoidance of timely septoplasty may impair nasal and facial skeleton growth. Commonly, the wait-and-see strategy is beneficial up to the end of rapid growth period in adolescence. Although, if a deviated septum causes severe distress, sparing removal of the deviated parts of the septum followed by the replantation of as much viable tissues as possible must be considered.

Steady fixation of a transplant is a crucial element of a septoplasty procedure.

Currently used fixation techniques have a number of shortcomings and do not meet the requirements of modern rhinosurgery.

We assessed efficiency and safety of the biological adhesive «Sulfacrylate» use for endoscopic septoplasty in children.

**Materials and methods.** Endoscopic septoplasty using cyanoacrylic-based biological adhesive with bactericidal and hemostatic properties was performed in 12 children aged from 4 to 9 years old. Follow-up period was 6 months.

**Results.** All patients noted an improvement of nasal breathing. In 92% of subjects nasal septum turned out to be situated in the midline; in the remaining 8% a slight clinically insignificant deviation was diagnosed. No patient experienced any postoperative complications.

**Conclusion.** Endoscopic septoplasty with the use of cyanoacrylic-based biological adhesive with bactericidal and hemostatic properties is noteworthy, promising, efficient and safe for clinical use. Further studies are required for the clarification of long-term results.

## AN UNUSUAL CASE OF PERICARDITIS AS A COMPLICATION OF A FOREIGN BODY PERFORATING THE NASAL SEPTUM IN AN ADULT

Mr Alexios Vardouniotis<sup>1</sup>, **Mr Ioannis Papadakis<sup>1</sup>**, Mr Konstantinos Ballas<sup>1</sup>, Mrs Chrysoula Vasilokonstantaki<sup>1</sup>, Mrs Kanela Karampela<sup>1</sup>, Miss Theofani Matthaiopoulou<sup>1</sup>, Mr Georgios Voilas<sup>1</sup>

<sup>1</sup>*Athinaiki Mediclinic, Athens, Greece*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

The presence of foreign bodies in the nose is a relatively common entity in Otorhinolaryngology especially among children. However, there are cases where a foreign body of the nose can cause major complications in adults, apart from the frequently occurring topical inflammation and epistaxis.

We present the rare case of pericarditis as a complication of a foreign body perforating the nasal septum in a 54 years old adult, which was successfully removed with endoscopic nasal surgery.

Through this interesting case, we try to remind basic rules of clinical medicine such as the value of a thorough clinical history and of simple diagnostic tests, including plain radiography, CT scan and nasal endoscopy, in order to diagnose and when possible to prevent the cause of such life-threatening complications. Finally, we highlight the role of the Otorhinolaryngologist in the diagnostic approach and treatment of similar cases and the necessity of cooperation between medical specialties.

## A CASE OF THYROID-LIKE LOW-GRADE NASOPHARYNGEAL PAPILLARY ADENOCARCINOMA RESECTED BY TRANSNASAL ENDOSCOPIC SURGERY

Dr. Atsuhiko Yoshida<sup>1</sup>, Dr. Hisanobu Tamaki<sup>1</sup>, Dr. Shin-ichi Sato<sup>1</sup>, Dr. Hironobu Mizuta<sup>1</sup>, Dr. Takuya Miyazaki<sup>1</sup>, Dr. Ken Iwanaga<sup>1</sup>, Dr. Takashi Fujiwara<sup>1</sup>, Dr. Yasuharu Haku<sup>1</sup>, Dr. Akira Yoshizawa<sup>1</sup>

<sup>1</sup>*Kurashiki Central Hospita, Kurashiki, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

In the WHO tumor classification of 2005, nasopharyngeal carcinoma is classified into three categories: Nasopharyngeal carcinoma, Nasopharyngeal papillary adenocarcinoma, Salivary gland-type carcinoma. Most of the nasopharyngeal carcinomas are Nasopharyngeal carcinoma including Nonkeratinizing carcinoma, Keratinizing squamous cell carcinoma, Basoloid squamous cell carcinoma, and Nasopharyngeal papillary adenocarcinoma is 0.38 to 0.48% of the nasopharyngeal carcinomas. Among Nasopharyngeal papillary adenocarcinoma, those which show expression of thyroid transcription factor-1 are subdivided into thyroid-like low-grade nasopharyngeal papillary adenocarcinoma. We will present the case of a patient with Thyroid-like low-grade nasopharyngeal papillary adenocarcinoma.

A 42-year-old female presented with a 6 month history of intermittent nasal bleeding. Endoscopy indicated a mass of less than 1 cm at the junction of the nasal septum and vault in the roof of the nasopharynx, and a subsequent biopsy was performed. The biopsy specimen indicated thyroid-like low-grade nasopharyngeal papillary adenocarcinoma. Sonography of the thyroid showed a nodular lesion in the left lobe of the thyroid gland. Fine needle aspiration cytology was performed, but no malignant findings were seen in the thyroid nodule. CT, MRI, FDG-PET showed no other abnormalities. The tumor was completely excised on endoscopy with a negative surgical margin. The postoperative course was uneventful, and the patient remains free of recurrence or metastasis after 22 months follow up.

## MANAGEMENT OF INVASIVE TYPE OF FUNGAL INFECTION IN PARANASAL SINUSES

MD,PhD Hideyuki Kawauchi<sup>1</sup>, MD,PhD Noriaki Aoi<sup>1</sup>, MD, PhD Ichiro Morikura<sup>1</sup>, MD,PhD Yasuhiko Shimizu<sup>1</sup>, MD,PhD Takafumi Fuchiwaki<sup>1</sup>

<sup>1</sup>*Shimane University, Faculty Of Medicine , Izumo City , Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Invasive aspergillosis in paranasal sinuses is not a common disease, in comparison with non-invasive type aspergillosis in paranasal sinuses. This disease entity usually coincides with the immunocompromised hosts such as immunodeficiency patients, the aged patient, and patients with diabetes mellitus. Clinical outcome of these patients is not satisfactory. The prognosis varies in each case, depending on effects of multidisciplinary treatments such as medication of anti-fungal agents and/or surgical intervention. We have recently experienced 10 different cases of paranasal sinus aspergillosis invading to the orbit and skull base. Therefore, clinicopathological feature of this disease entity and clinical course are introduced herein.

To summarize my talk, invasive aspergillosis in paranasal sinuses can be often a fatal disease, so that an earliest diagnosis is warranted for aiming a better prognosis. Therefore, clinical course in each patient should be exactly considered, by employing CT scan and MRI with monitoring beta-D-glucan or CRP in sera. In immunocompromised hosts, such as an aged person, diabetes mellitus, or leukemia/lymphoma patients, a desirable radical surgical intervention is not always permitted, because of poor general condition. Taking these into consideration, very much careful attention should be paid for patient's prognosis, even though the minimally invasive surgical removal of fungal lesion under ESS can be considered to be advantageous as well as a pharmaceutical treatment with antifungal agents such as liposomal AMB(empiric therapy) or voriconazole (target therapy).

## "TREATMENT APPROACH FOR INVASIVE FUNGAL RHINOSINUSITIS AT AICHI MEDICAL UNIVERSITY HOSPITAL "

Treatment Approach For Invasive Fungal Rhinosinusitis At Aichi Medical University Hospital Kenichi Wada<sup>1</sup>

<sup>1</sup>Tajimi City Hospital, tazimi, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Subjects:** Invasive fungal rhinosinusitis (IFRS) is a rare type of fungal rhinosinusitis accounting for approximately 2% of all cases. This refractory disease causes orbital and intracranial complications and has a poor prognosis. Since April 2015, we have treated 6 cases of IFRS. Here we report the treatment approach for IFRS at our hospital, describing our treatment experience.

**Approach:** Five of the 6 cases of IFRS treated at our hospital were caused by *Aspergillus* fungi, and the other case was caused by *Mucorales* fungus. All patients had orbital invasion and 3 of the 6 had intracranial invasion. All patients had underlying diabetes. In addition to thoroughly treating the underlying disease and administering antifungal agents, we performed surgery as soon as possible. Although all patients had orbital invasion, we aimed to reduce the fungal load as much as possible by strategic selection of the surgical approach (endoscopic orbit-sinus combined approach).

**Results:** The 5 patients with *Aspergillus* infection survived without relapse or residual infection over a follow-up period of 2 to 4 years. The patient with *Mucorales* infection died after 13 months; this was a long survival time considering that the patient had fulminant disease with intracranial invasion.

**Conclusion:** The approach to IFRS at our hospital is to control the underlying disease, administer antifungal agents to which the causative fungus is sensitive, and to promptly resect fungal lesions. Despite numerous reports of poor outcomes of IFRS, 5 of our 6 patients survived without relapse, indicating that improved survival can be expected.

## ENDOSCOPIC ENDONASAL MANAGEMENT OF AN ETHMOID MUCOCELE WITH ORBIT INVASION

MD Ana Rita Lameiras<sup>1,2</sup>, MD João Pimentel<sup>1,2</sup>, MD Deodato Silva<sup>1,2</sup>, PhD Pedro Escada<sup>1,2</sup>

<sup>1</sup>Egas Moniz Hospital, Lisbon, Portugal, <sup>2</sup>NOVA Medical School, New University of Lisbon, Lisbon, Portugal

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** This study aims to describe a case of an ethmoid sinus mucocele invading the orbit, to demonstrate the technical feasibility of its endoscopic endonasal removal and to point out critical landmarks.

**Methods:** Description of a case of an ethmoid mucocele invading the orbit managed by endoscopic endonasal approach. The case was reviewed for clinical presentation, surgical procedure and outcome.

**Results:** A 60 years-old male presented with left exophthalmos accompanied with progressive decrease in visual acuity and limitation of eye movements. Computed tomographic scan and contrast-enhanced magnetic resonance imaging were suggestive of a large ethmoid sinus mucocele, with unusual thick bony walls (inferior, anterior and medial). The mucocele was invading the posteromedial portion of the orbit and compressing the medial rectus muscle and the optic nerve. A maxillary sinusotomy type III was performed to expose the inferomedial orbit angle, and the middle turbinate was partially resected to gain adequate operative space. The medial wall of the mucocele was drilled out and its content aspirated. Anterior and inferior bony walls of the mucocele were dissected from the periorbit and after that completely drilled out, allowing the periorbit and orbital contents to return to its original position. Postoperatively, the exophthalmos resolved, visual acuity improved and eye movements returned to normal.

**Conclusions:** Endoscopic endonasal procedures are safe and effective in managing pathology of sinuses with orbit invasion, even with major displacement. Leaving the periorbit undisrupted avoids the need for subsequent reconstruction.

## CASE REPORT: A CHALLENGING CASE OF INVASIVE NASOPHARYNGEAL SARCOMATOID CARCINOMA

Mr Alexander Yao<sup>1</sup>, Mr Haroon Saeed<sup>1</sup>, Mr Gavin Udall<sup>1</sup>, Mr Vivek Kaushik<sup>1</sup>

<sup>1</sup>Stockport NHS Foundation Trust, Manchester, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

- We present the first documented case report of primary nasopharyngeal sarcomatoid carcinoma invading the skull base
- We include a literature review of sarcomatoid carcinoma of the head and neck.

### Methods

- A 59 year old man presented with a 7 week history of severe progressive frontal headache and new-onset diplopia. A left abducens nerve palsy was noted.
- CT head scan performed revealed a destructive lytic lesion 3.58cm x 2.41cm involving the clivus, extending into pituitary fossa, and sphenoid sinus. This was later confirmed on MRI scan.
- Histology from a transphenoidal biopsy revealed malignant cells containing respiratory-type epithelium with spindle cells, and positive immunohistological staining for a malignant process.
- A primary site of malignancy could not be identified clinically and radiologically.
- Staging CT and PET CT were performed, but did not reveal distant primary sites or metastases. Further opinion was obtained from a tertiary oncology unit pathologist, lung multidisciplinary team (MDT), anterior skull-base MDT, head and neck MDT.

### Results

- The consensus was that the likely diagnosis was primary nasopharyngeal-origin sarcomatoid carcinoma, and should be managed with chemo-radiotherapy.
- Sarcomatoid carcinoma is a rare clinical entity, most commonly originating from urinary tract or lungs. Cases have been described in the head and neck, in which the larynx was the most common location.
- Histologically, they are biphasic, demonstrating both spindle cell components, as well as epithelial components.

### Conclusions

- Sarcomatoid carcinoma of the nasopharynx is a rare and challenging condition.
- A MDT approach to this condition is essential for diagnosis and planning further management.

## COMBINED TRANS-ORAL, TRANS-NASAL ENDOSCOPIC SURGERY WITH IMMEDIATE CRANIO-CERVICAL FUSION FOR GIANT CHORDOMAS OF THE CLIVUS AND CRANIO-CERVICAL JUNCTION – STATE OF THE ART TEAM WORK

Medical Doctor Alessandra Cataldo Russomando<sup>1</sup>

<sup>1</sup>*Hadassah Hospital, Jerusalem, Israel*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Introduction:

Chordoma is a rare aggressive, locally invasive tumor, arising from remnants of notochord. Complete surgical resection followed by radiation offers the best chance of long-term local control and survival. Treatment of clival chordomas is exceptional with emphasis on vascular protection and preservation of neurological function, typified by a concept of maximally aggressive safe surgery and advanced radiation techniques, such as proton beam. The cranio-cervical stability should be addressed during surgery of giant tumors.

### Methods:

Review of the operative technique and surgical results of giant clival chordomas requiring combined trans-oral, trans-nasal endoscopic surgery with immediate cranio-cervical fusion in the last 2 years.

### Results:

Three giant clival/cranio-cervical junction chordoma cases underwent a combined trans-oral, trans-nasal endoscopic surgery with immediate posterior cranio-cervical fusion. There were one male and 2 females in the ages of 30, 16 and 17 years. Surgery was staged as required and lasted up to a total of 30 hours in 3 days. Complete surgical excision was achieved in all with no vascular sequela. A hypoglossal nerve, involved by the tumor in 2 cases, was damaged. There were no other neurological deficits. The 6-8cm skull base defect was reconstructed using multilayer closure with one post-operative CSF leak managed conservatively. Cranio-cervical fusion was uneventful in all cases, demanding 3 months of fixation in a rigid collar. The third, most complicated and demanding case, will be presented.

### Conclusion:

Endoscopic surgery of giant clival/cranio-cervical junction chordomas is very challenging but feasible. It should be performed by an experienced endoscopic skull base team.



## A CASE SERIES: CHRONIC COUGH AND PNEUMONITIS SECONDARY TO CSF LEAK

Mr Daniel Scholfield<sup>1</sup>, Miss Catherine Rennie<sup>1</sup>, Mr Hesham Saleh<sup>1</sup>

<sup>1</sup>Charing Cross Hospital, London, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

We present the first case series of cerebrospinal fluid (CSF) leak manifesting as chronic cough and recurrent pneumonitis, resolving after endoscopic repair. We also describe the technique for endoscopic skull base repair at our supra-regional skull base centre.

### Cases

Two female patients aged 54 (Patient A) and 55 (Patient B) presented with over six months of chronic non-productive cough and dyspnoea. They had no history of head trauma or sinonasal surgery, but one had previous meningitis. Both had unremarkable flexible nasendoscopy and positive Beta-2 transferrin tests.

CT thorax of Patient A demonstrated recurrent pneumonitis and CT sinuses demonstrated an ill-defined right cribriform plate. Subsequent MRI confirmed CSF leak. CT sinuses of Patient B showed a left cribriform plate defect. Both proceeded to three-layered endoscopic anatomical skull base repair with fascia lata, septal cartilage and middle turbinate mucosa.

### Results

Both patients had complete resolution of chronic cough and pneumonitis and intact repairs 12 months post-operatively.

### Conclusion

CSF leak can lead to chemical pneumonitis, resolving after endoscopic repair. It should be considered as a potential cause of chronic cough in patients with risk factors for CSF leak. These patients should undergo nasendoscopy, paying attention to the skull base region and for any evidence of CSF in the nasopharynx. B2-transferrin tests of any nasal discharge and CT imaging of the sinuses should also be considered. Clinician awareness of the potential for CSF leak to present in this manner will reduce the significant morbidity and possible mortality associated with the condition.

## MANAGEMENT OF SINONASAL INVERTING PAPILLOMA: ARE OPEN TECHNIQUES OBSOLETE?

Mr Rishi Sharma<sup>1</sup>, Mr Christopher Slinger<sup>1</sup>, Professor Gerald McGarry<sup>1</sup>

<sup>1</sup>*Glasgow Royal Infirmary, Glasgow, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Background/Objectives:** Inverting papilloma (IP) is a rare but serious tumour of the nose and paranasal sinuses. We present the experience of our tertiary referral centre.

**Study Design/Methods:** Retrospective structured review of IP treated in a tertiary referral centre between May 2004-September 2015.

**Results:** 65 patients were identified (average age of 55.9 years). 63 cases (97%) were treated with endoscopic resection. The overall recurrence rate was 3% (maximum follow-up 10 years). The 2 cases treated with external approach originated in the nasolacrimal apparatus. Krouse stage at presentation was T1 28%, T2 31%, T3 32%, T4 6%. 3% of our series arose from the lacrimal apparatus and did not meet criteria to be staged according to Krouse criteria. No orbital complications, CSF leaks or return to theatre within 30 days were encountered. 3% (2 cases) underwent malignant transformation with one subsequent fatality (T4 at initial presentation). 93% had cross sectional imaging (CT/MRI) the remaining 4 (7%) did not as they were obviously arising from the inferior turbinate or nasal septum with endoscopic evidence of localised disease.

**Conclusions:** This series confirms that endoscopic resection is the mainstay of treatment, offers good control of disease and is safe. Tumour stage does not adversely affect recurrence or complication rates. Our experience reinforces the need for the most common sinonasal tumour that ENT surgeons encounter to be managed in a specialist setting with MDT input for complex cases. The vast majority of IP is amenable to endoscopic management; recourse to open approaches will still be required for those arising from the extra-nasal compartment.

## LONG-TERM EFFECTS OF SUBMUCOSAL INFERIOR TURBINATE RESECTION FOR ALLERGIC RHINITIS WITH SEVERE NASAL OBSTRUCTION, ON SLEEP AND PSYCHOMETRIC SYMPTOMS IN CHILDREN

Dr. Eriko Ogino-nishimura<sup>1</sup>, Dr. Yutaka Toya<sup>1</sup>, Dr. Shinya Hiroshiba<sup>1</sup>

<sup>1</sup>Kyoto Ear, Nose And Throat Surgicenter, Kyotanabe, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aim:

Severe nasal obstruction due to allergic rhinitis is a critical problem affecting the physical and mental development in children. This study aimed to investigate the long-term effects of surgery to release nasal obstruction, on sleep and psychometric symptoms.

### Methods:

Japanese children, aged 10–15 years, who underwent submucosal inferior turbinate resection for severe allergic rhinitis completed the SNOT-22 questionnaire before surgery, around 3 months after surgery, and after more than 3 years of surgery. The total SNOT-22 score, and the score of sleep and psychometric symptoms were compared at each time point.

### Results:

Seventy-one children completed the SNOT-22 questionnaire before surgery; 53 children completed it at around 3 months after surgery. Thirty-five children completed the questionnaire after more than 3 years of surgery. The total score of sleep and psychometric symptoms was  $14.8 \pm 11.1$  (mean  $\pm$  SD) before surgery,  $4.8 \pm 9.5$  around 3 months after surgery, and  $5.7 \pm 6.9$  after more than 3 years of surgery. There was no statistically significant difference between scores at approximately 3 months and after more than 3 years of surgery. The differences in scores of “difficulty falling asleep”, “reduced concentration” and “embarrassed” were highly significant.

### Conclusion:

Surgical management of severe nasal obstruction in children may contribute to long-term improvement of sleep and psychometric symptoms.

107

WITHDRAWN

## EXPRESSION AND CHARACTERIZATION OF IGG4-POSITIVE CELL IN EOSINOPHILIC CHRONIC RHINOSINUSITIS.

### Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Takahisa Koyama<sup>1</sup>

Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Mitsuhiro Okano,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Ryotaro Omichi,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Kengo Kanai,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Takenori Haruna,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Takaya Higaki,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Shin Kariya,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Yasuharu Sato,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Yori-hisa Orita,  
 Expression and Characterization of IgG4-positive cell in Eosinophilic Chronic Rhinosinusitis Kazunori Nishizaki  
<sup>1</sup>Otolaryngology-Head & Neck Surgery, 2-5-1 Shikata-Cho, Kita-Ku, Okayama 700-8558, Japan, Japan

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

#### Background:

IgG4 is the minor IgG subclass. Its production is regulated by type 2 (IL-4 and IL-13) and regulatory (IL-10) cytokines, known to participate the pathophysiology of chronic rhinosinusitis (CRS).

#### Objective:

We sought to determine the pathophysiological characteristics of IgG4-positive cells in sinonasal tissues in chronic rhinosinusitis (CRS) especially eosinophilic CRS (ECRS).

#### Methods:

IgG4-positive cells in uncinata tissues (UT) and nasal polyps (NP) were determined by immunohistochemistry. Associations between the degree of IgG4-positive cells and clinicopathological factors were analyzed. The factors include CRS phenotype, CT score, blood and tissue eosinophilia, serum total IgE levels and 1 second forced expiratory volume/forced vital capacity (FEV1/FVC) ratio.

#### Results:

IgG4 was mainly expressed in infiltrating mononuclear cells, and the number of IgG4-positive cells was significantly higher in NP, especially from severe ECRS patients, than UT. In CRS patients, the number significantly and positively correlated with blood and tissue eosinophilia, radiological severity, and serum total IgE level, but not FEV1/FVC ratio.

#### Conclusions:

Our results suggest that local expression of IgG4-positive cells associates with the pathophysiology of CRS including eosinophilia and IgE.

## MEASURING OF NASAL OBSTRUCTION WITH FLOWMETER

**Mudr. Zdeněk Knížek<sup>1</sup>**, Mudr. Jan Vodička<sup>1,2</sup>, Ing. Jiří Jelínek<sup>3</sup>, Zdeněk Režný<sup>4</sup>

<sup>1</sup>*Nemocnice Pardubického Kraje - Pardubická nemocnice, Pardubice, Czech Republic*, <sup>2</sup>*Faculty of Health Studies, University of Pardubice, Pardubice, Czech Republic*, <sup>3</sup>*Technical university of Liberec, Liberec, Czech Republic*, <sup>4</sup>*Elmet spol., Přelouč, Czech Republic*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Measuring of nasal obstruction is not applied on most of ENT departments in the Czech republic due to degree of cooperation required and time constraints. Flowmeter was developed as a simple device for measuring nasal obstruction. Aim of this study is to validate the device for use in ENT practice.

### Methods

During 6 months we collected data of healthy subjects, patients with deviated nasal septum and eventually hypertrophy of turbinates. Each side of nasal cavity was classified in accordance to endoscopy findings into one of 6 groups (partly based on Mladina classification of deviated nasal septum). Subjective perception of nasal airway was measured by VAS. Airflow in each side of nasal cavity was evaluated with flowmeter (the result is in output voltage).

### Results

54 patients and total number of 108 sides of nasal cavity was included in the study. Group with the lowest degree of obstruction based on endoscopy findings has average VAS 8,26 and 5,35 V measured by flowmeter. Group with the highest degree of obstruction based on endoscopy findings has average VAS 4,52 and 4,21 V measured by flowmeter. Correlation between VAS and voltage output was 0,28. Each patient was able to carry out the examination without problems or complications.

### Conclusion

Flowmeter appears to be quick method of nasal obstruction measurement with low degree of patient's cooperation required.

## PERIPHERAL BLOOD EOSINOPHILIA IN PATIENTS WITH CHRONIC RHINOSINUSITIS WITH NASAL POLYPS (CRSwNP): CORRELATION WITH SEVERITY OF DISEASE

**MD Ana Rita Lameiras<sup>1,2</sup>**, MD Ana Teresa Silva<sup>1</sup>, MD Deodato Silva<sup>1,2</sup>, PhD Pedro Escada<sup>1,2</sup>

<sup>1</sup>Egas Moniz Hospital, Lisbon, Portugal, <sup>2</sup>NOVA Medical School, New University of Lisbon, Lisbon, Portugal

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Eosinophils are thought to play a significant role in nasal polyposis, but the exact mechanism by which they contribute to polyp development remains unclear. This study aims to evaluate if peripheral blood eosinophilia (PBE) may be a biomarker for severity of disease in patients with chronic rhinosinusitis with nasal polyps (CRSwNP).

**Methods:** This is a retrospective, cross-sectional, longitudinal study carried out at a tertiary referral center. Nasal polyp load was assessed using the Lund-Mackay scoring system for computed tomography. ROC curve was calculated to evaluate if there was a cut-off value of PBE from which we can expect a higher nasal polyp load in patients with CRSwNP. Pearson correlation coefficient was used to correlate the PBE and Lund-Mackay score.

**Results:** The study sample consisted of 79 patients (48 males and 31 females) with a mean age of 53.5 years (range, 19-93 years). The mean PBE was 458 cell/ $\mu$ L (range, 70-1570 cell/ $\mu$ L) and the mean Lund-Mackay score was 12.6 (range, 4-24). A PBE higher than 415 cell/ $\mu$ L showed a positive correlation with the Lund-Mackay score ( $r = 0.55$ ;  $p = .001$ ). In opposition, a negative correlation was found between nasal polyp load and a PBE lower than this cut-off value ( $r = 0.25$ ;  $p = .088$ ).

**Conclusions:** These data support a link between elevated PBE and the presence of nasal polyps. PBE levels may be used as a valid biomarker for severity of disease and a practical method to follow nasal polyp load in patients with CRSwNP.

## RELATIONSHIPS BETWEEN UNILATERAL SINUSITIS, NASAL SEPTAL DEVIATION, AND CONCHA BULLOSA AND THEIR IMPACT ON UNILATERAL SINUSITIS IN PATIENTS WHO UNDERWENT FUNCTIONAL ENDOSCOPIC SINUS SURGERY.

Dr. Ayaho Yoshino<sup>1</sup>

<sup>1</sup>*Nippon Medical School, Inzai City, Chiba, Japan*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** To investigate the relationships between nasal septal deviation, concha bullosa, and unilateral sinusitis in patients who underwent functional endoscopic sinus surgery.

**Method:** Four hundred and six consecutive patients who had undergone CT scanning of the paranasal sinuses from April 2012 to March 2017 at Nippon Medical School Chiba Hokusoh Hospital, Chiba, Japan were enrolled. Those who previously underwent nasal or sinus surgery, and those with S-shaped nasal septal deviation, odontogenic sinusitis, fungal rhinosinusitis, cystic sinus disease, and malignant disease were excluded. In total, 37 patients had CT positive unilateral sinus disease and had undergone functional endoscopic sinus surgery. A group of 39 patients who underwent CT scans from April 2016 to March 2017 and were confirmed as having normal sinuses were recruited as a control group.

**Results:** Our study showed no significant differences in septal deviation at the osteomeatal complex between patients with unilateral "sinusitis" group and the control group. There was no correlation between the degree of septal deviation and Lund-Mackay score. However, there was a statistically significant difference between the study group and the control group with regard to presence of concha bullosa. ( $p < 0.05$ )

**Conclusions:** Nasal deviation at the osteomeatal complex was not a risk factor for unilateral sinus disease. Concha bullosa may be a risk factor for unilateral sinus disease.



## ENDOSCOPIC SPHENOPALATINE FORAMEN CAUTERIZATION: A NEW TECHNIQUE OF ENDOSCOPIC SPHENOPALATINE ARTERY LIGATION

Dr Wirach Chitsuthipakorn<sup>1</sup>, Associate Professor Kornkiat Snidvongs<sup>2</sup>

<sup>1</sup>Sawan Pracharak Hospital, Muang, Thailand, <sup>2</sup>Chulalongkorn University, Pratumwan, Thailand

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Background

Endoscopic sphenopalatine artery ligation (ESPAL) is acknowledged an effective treatment for posterior epistaxis. Traditionally, multiple branches of sphenopalatine artery (SPA) are identified and cauterized after they exit through sphenopalatine foramen (SPF) into nasal cavity. Anatomical variation of branching may result in long operative time and possible inadequate cauterization. We introduce Endoscopic sphenopalatine foramen cauterization (ESFC), a modification of ESPAL.

### Aim

To describe a surgical technique of ESFC and its effectiveness.

### Method

A retrospective study was conducted. Patients receiving ESFC for posterior epistaxis during 2014-2017 at a tertiary hospital were recruited. Middle meatal antrostomy was done. After crista ethmoidalis was identified and nipped, pterygopalatine fossa was entered through the SPF. The main branch of SPA was cauterized at the SPF without identification of any SPA distal branches. Patients receiving traditional ESPAL by the same surgeon were recruited, and compared as control. Success rate, operative time, and adverse events were assessed.

### Results

Twenty patients were identified. Recurrent epistaxis within one week was absent in 100% and 90% of patients receiving ESFC (10 patients) and ESPAL (10 patients) respectively,  $p=1.00$ . Mean operative time was 149 and 65 minutes, respectively,  $p<0.01$ . Palatal or anterior gum numbness were found in 2 and 1 patients, respectively. All resolved spontaneously within 2 weeks.

### Conclusion

ESFC is effective in treating posterior epistaxis. It requires significantly less amount of time while success rate is comparable to conventional ESPAL.

## ENDOSCOPIC MANAGEMENT OF FUNGAL SINUSITIS

Ass.Prof. Hristo Zlatanov<sup>1</sup>, Dr. Nadya Georgieva<sup>1</sup>

<sup>1</sup>MMA - MHAT - Sofia, Sofia, Bulgaria

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Objectives:** To present the outcomes of endoscopic management of fungal sinusitis ( FS ). Preoperative imaging and clinical findings, surgical technique and results are discussed.

**Materials and Methods:** Retrospective analysis of the management of FS in our department in the past 7 years. Demographic data, symptoms, management, microbiology, mycology and histology results, complications and outcome, patient satisfaction were recorded.

**Results:** Since 2009 we have treated endoscopically 34 patients with FS.11 of them were male and 23 female. Patient age ranged between 18 and 71 years. When fungus balls (FB) were present, they affected just one of the sinuses. Most frequently it was the maxillary (95 %) and occasionally in the sphenoid sinus (5 %). Concomitant bacterial infection was present in 30% of the sinuses with FB. Most of the patients were immunocompetent, but 5 of them were immunocompromised. In immunocompromised patients this noninvasive fungal infection may become invasive and life threatening.

**Management** involved removal of the FB through endoscopic sinus surgery. All of the removed material was sent for analysis - histology, microbiology and mycology. Treatment was successful in all patients and most of them (95 %) did not require any further treatment. No recurrences were observed.

**Conclusion:** Our experience has shown excellent results from the endoscopic management of FS and in accordance to the results published by other authors we can conclude that endoscopic surgery is a safe and effective treatment for FS. CT imaging helps in reaching the diagnosis, which is then confirmed by histology, microbiology and mycology.

## SINONASAL OUTCOME TEST-22 DOMAIN SCORES IN A NEW ZEALAND CHRONIC RHINOSINUSITIS COHORT

Dr Tary Yin<sup>1</sup>, Dr Aaron Vergeer<sup>2</sup>, Mr Subhaschandra Shetty<sup>2</sup>, Mr Salil Nair<sup>1</sup>

<sup>1</sup>Counties Manukau District Health Board, Auckland, New Zealand, <sup>2</sup>Northland District Health Board, Whangarei, New Zealand

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

5 distinct domains of the Sinonasal Outcomes Test-22 (SNOT-22) are impacted uniquely by endoscopic sinus surgery (ESS). This study aims to compare SNOT-22 domain scores, focusing on non-sinus symptoms, between patients with Chronic Rhinosinusitis (CRS) with polyps (CRSwNP) and without polyps (CRSsNP).

### Methods

A retrospective chart review was performed on 103 patients with CRS. 59 patients had CRSwNP and 44 had CRSsNP. SNOT-22 domain scores were compared between CRS subtypes pre- and post-surgery.

### Results

There were no significant differences in SNOT-22 domains between CRSwNP and CRSsNP pre-operatively. "Non-NZ European" patients had less severe rhinologic, ear and facial symptoms when compared to the rest of our study population comprising mainly of "NZ European" and "NZ Maori". When analysing all CRS patients, significant improvements in psychological scores (16.1 to 5.3,  $p < 0.001$ ) and sleep scores (14.2 to 5.1,  $p < 0.001$ ) were achieved with ESS. Improvements were similar in both CRSwNP (psychological scores 15.6 to 4.7,  $p < 0.001$ , and sleep scores 13.5 to 4.5,  $p < 0.001$ ) and CRSsNP patients (psychological scores 16.2 to 5.9,  $p < 0.001$  and sleep scores 15 to 5.7,  $p < 0.001$ ).

### Conclusion

Both CRSwNP and CRSsNP patients undergoing ESS experience improvements in psychological and sleep domain scores. Non-NZ European patients have significantly less severe rhinologic, ear and facial domain scores compared to the rest of our study population.

## ASSOCIATION BETWEEN THE GUT MICROBIOTA AND THE SENSITIZATION OF HOUSE DUST

**Dr Ayami Nomura**<sup>1</sup>, Prof. Atsushi Matsubara<sup>1</sup>, Prof. Shigeyuki Nakaji<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology, Hirosaki University Graduate School of Medicine, Hirosaki-shi, Japan, <sup>2</sup>Department of Social Medicine, Hirosaki University Graduate School of Medicine, Hirosaki-shi, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Objective:** Recently, the relationship between allergic disease and dysbiosis of gut microbiota (GM) has attracted attention. Since house dust (HD) is one of the major allergens of allergic rhinitis, it is important to clarify the relationship between the sensitization of HD and GM. In this study, we investigated this topic in a community-dwelling population in Japan.

**Methods:** Subjects were 424 volunteers (20-49 years old: 181 males and 243 females) who participated in the Iwaki Health Promotion Project in 2016. Serum specific IgE antibodies for HD1 was measured by immunoCAP system and GM composition was analyzed by 16Sr DNA sequencing from the fecal samples. GM composition of subjects sensitized for HD1 (the measurement was > 0.35 kU/L) was compared that of non-sensitized subjects.

**Results:** The number of sensitized subjects was 250 and non-sensitized subjects were 174. Although there is not any difference between these two groups in age and sex, the abundance of genus Streptococcus and Lactobacillus of sensitized group was higher than those of non-sensitized group.

**Discussion:** It is well known that dysbiosis of GM is related with many diseases, such as inflammatory bowel disease, diabetes mellitus, and allergic disease. Moreover, several reports described that lactic acid bacteria intake (probiotics) improved nasal symptoms of in patients with allergic rhinitis. Our present results suggest that lactic acid bacteria of GM might reduce the sensitization of HD. To elucidate the details of the mechanism may lead the new treatment strategy.

130

WITHDRAWN

## LONG TERM FOLLOW UP OF PATIENTS WHO HAVE UNDERGONE VIVAER INTRANASAL REMODELLING TO ENLARGE NARROW NASAL VALVES

**Prof. Dr. Med. Detlef Brehmer<sup>1</sup>**, Priv. Doz. Dr. Med. Bernhard Olzowy<sup>2</sup>

<sup>1</sup>HNO Gemeinschaftspraxis Goettingen, Göttingen, Germany, <sup>2</sup>HNO-Zentrum Landsberg am Lech, Landsberg am Lech, Germany

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

Weak and/or inward-bent cartilage of the nasal sidewall at the level of the internal nasal valve (INV) can produce stenosis and/or collapse of the nasal valve.

The Vivaer intranasal remodelling treatment is non-invasive and uses a stylus to deliver controlled and targeted radiofrequency heating to the nasal sidewall in order to gently reshape the tissues

In a previous study 20 patients underwent Vivaer treatment across 3 locations between October 2015 and February 2016 and the improvement in nasal breathing published in July 2016. A NOSE score improvement of -41% was reported after 90 days (n=20).

### METHOD

16 of the original 20 patients who had undergone Vivaer across 3 locations were contacted and asked to participate in the collection of follow up data. Of those contacted 13/16 were successfully followed up.

Follow up consisted of physical examination of the treatment site and the recording of a current NOSE score.

### RESULTS

- The average pre-treatment NOSE score of the n=13 patients was 67.7 (55-85, SD 11.0).
- The average long term improvement in NOSE score was -35.9 (-47%).
- No serious adverse events were recorded at the time of treatment. Upon follow up there were no recorded incidents of scarring or abnormal healing.
- The average age of the Vivaer treatment at re-examination was 20 months

### CONCLUSION

Vivaer intranasal remodelling can provide a durable and well tolerated non-invasive treatment for patients who are experiencing congestion due to narrowness or collapse of the internal nasal valve.

## “TURKISH DELIGHT”: TECHNIQUE, RESULTS AND COMPLICATIONS

MD. Ana Laura Cajelli<sup>1</sup>, MD. Florencia Fernandez<sup>1</sup>, MD. Matías Parreño<sup>1</sup>, MD. Agustín Martínez Font<sup>1</sup>, MD. Patricia Portillo<sup>1</sup>, MD. Federico Urquiola<sup>1</sup>

<sup>1</sup>*Hospital Italiano De Buenos Aires, Ciudad de Buenos Aires, Argentina*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aim:** To describe our experience with the use of the "Turkish delight" graft as a nasal dorsum augmentation technique.

**Methods:** We performed a descriptive, retrospective study that included patients undergoing primary or revision nasal plastic surgery in which the “Turkish Delight” graft was used to increase the nasal dorsum. This graft consist of small pieces of crushed cartilage placed inside a cylinder of temporal fascia according to Daniel’s and Calvert’s modified technique. The cartilage used for the graft was harvested from nasal septum, ear or rib.

**Results:** Thirteen (2.7%) of 468 patients undergoing functional and esthetic rhinoplasty were included. The average follow-up was 39 months. Four cases were primary surgeries and 9 (69.2%) were revision surgeries. The expected result was obtained in 9 patients (69.2%). In two patients the graft was partially reabsorbed and in two cases it shifted. Ten patients (76.9%) reported being satisfied with the result after the first intervention. Of the three patients that were not satisfied after the first surgery, two were reoperated by graft mobilization and one by reabsorption, resulting in 100% satisfaction with the final result.

**Conclusion:** The “Turkish Delight” graft proves to be a novel technique to achieve the increase of the nasal dorsum, providing a natural appearance with a soft contour and bringing no relevant postoperative complications. Although it is unpredictable to estimate the final degree of correction, this graft is considered a satisfactory aesthetic alternative in the reconstruction of iatrogenic and traumatic deformities of the nasal dorsum.

## COMPLIANCE WITH POST-OPERATIVE MEDICAL TREATMENT FOLLOWING ENDOSCOPIC SINUS SURGERY

Miss Ana Catarina Pratas<sup>1</sup>, Prof Carl Philpott<sup>1</sup>, Mr Alan Clark<sup>1</sup>, Mr Alfred Addison<sup>2</sup>, Mrs Jane Wood<sup>2</sup>, Ms Teresa Ferreira<sup>2</sup>

<sup>1</sup>Uea, Norwich, United Kingdom, <sup>2</sup>James Paget University Hospital, Gorleston, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### BACKGROUND:

Post-operative compliance might play a role in long term-results of Endoscopic Sinus Surgery (ESS). The aim of this study was to determine the percentage of patients who follow the postoperative instructions after ESS in relation to their clinical features and how it can impact patients' recovery.

### METHODS:

A cohort patients undergoing ESS with a minimum of 6 months follow-up were selected. Patients were surveyed after surgery regarding their use of post-surgical medical treatment.

### RESULTS:

A total of 87 patients (47 males, 40 females, mean age 57.4 years) returned questionnaires; 68 had CRS with nasal polyps and 8 had CRS without nasal polyps. Forty-eight patients declare to comply with the recommended topical/oral treatment prescribed. There were no statistically differences regarding smoking or allergy status ( $p>0.05$ ). Regarding the type of treatment, 17 patients reported currently taking sinus rinse and steroid nasal sprays at the time of completing the questionnaire of whom 9 patients believed their medication was helping their symptoms, 1 patients felt that medication was not helping, and also 9 declared non-compliance. Forty-five patients reported inhalant allergy with 18 taking anti-histamines. When values of SNOT-22 were available, no difference was seen among patients that complied or not with medication.

### CONCLUSION:

Adherence to post-surgical treatment is poor and does not appear to be linked to the smoking status or allergy profile.



## EVALUATION OF A DAILY USED NAVIGATION SYSTEM FOR FESS

Mr Azizbek Uzokov<sup>1</sup>

<sup>1</sup>*Tashkent Medical Academy, Tashkent, Uzbekistan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS:

The aim of this study is to proof the clinical efficiency by using a modern navigation system for Functional Endoscopic Sinus Surgery (FESS).

### MATERIAL AND METHODS:

An optical navigation system was used in clinical routine of 84 patients. Two groups with 42 patients each were examined. Group A was treated with navigation assistance (Karl Storz Navigation Panel Unit NPU), Group B was treated without navigation by conventional FESS. Examination period was limited to 6 months. Median follow-up is 12 and 18 weeks. Perioperative, intraoperative and postoperative parameters were recorded by workflow-analysis, clinical and radiological findings and standardized questionnaire.

### RESULTS:

Application of the navigation system needs 1.1 min additional perioperative time in average. Intraoperative time reduction by the navigation system was about 10 min per case (Group A 32.6 (SD 11.2) min, Gruppe B 42.7 (SD 9.5) min). Specific information by the navigation system was evaluated in all surgical areas as usefull and additional to a-priori-knowledge. Postoperatively patients from group A (10/89) show lower rate of re-polyposis then in group B (24/71). Fenestration of the sphenoid sinus were sufficient by CT-evaluation in 100% (group A) and 23% (group B).

### CONCLUSIONS:

The advantages of the examined navigation system in comparison to the gold standard of FESS are proven. Navigation assistance led to an reduced intraoperative time consumption, increased postoperative results and lowered the workload of the surgeons

## A SINGLE-CENTRE FOUR-DECADE SERIES OF 25 PATIENTS WITH A SINONASAL OR NASOPHARYNGEAL EXTRAMEDULLARY PLASMACYTOMA IN A FOUR-DECADE SINGLE-CENTRE SERIES

**MD, PhD Seija I Vento**, MD Pauli Vähämurto, MD Kaija Silventoinen, MD, PhD Marja-Liisa Karjalainen-Lindsberg, MD, PhD Susanna Mannisto, MD, PhD Sirpa Leppä, MD, PhD Antti A Mäkitie

<sup>1</sup>*Department of Otorhinolaryngology - Head and Neck Surgery, University of Helsinki and Helsinki University Hospital, Helsinki, Finland, Helsinki, Finland*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** Because the extramedullary plasmacytoma in the sinonasal tract or nasopharynx is rare we did a study in order to delineate its main clinical characteristics and the optimal management. We reviewed data on symptoms, clinical findings, treatment and follow-up of plasmacytomas in the sinonasal and nasopharyngeal regions.

**Method:** Twenty-five patients with sinonasal or nasopharyngeal plasmacytoma, diagnosed and treated at the Helsinki University Hospital during a 39-year period from 1975 to 2013 were retrospectively analysed.

**Results:** The median age was 66 years (range, 36-80) and there were 18 males and 7 females. Seventeen patients (68%) only received radiotherapy or (chemo)radiotherapy. Eight patients (47%) had a complete response to primary radiotherapy and one patient had complete response after receiving additional brachytherapy. Four patients were primarily treated only with surgery. Two of them had local recurrences but were then successfully treated with radiotherapy. Altogether four of the patients received a combination of surgery and (chemo)radiotherapy.

Forty-four percent were alive with no evidence of disease after a median follow-up time of 78 months. Forty percent died from their disease and 16% died from other causes.

**Conclusion:** Our study supports radiotherapy as a treatment of choice but for small tumours surgery alone or combined with radiotherapy may be beneficial.

## DIAGNOSE AND TREATMENT OF SINONASAL INVERTED PAPILOMA: OUR EXPERIENCE

Mr Sergey Karpishchenko<sup>1</sup>, Mrs Olga Vereshchagina<sup>1</sup>, **Ms Olga Stancheva<sup>1</sup>**, Mr Pavel Bibik<sup>1</sup>

<sup>1</sup>*Pavlov First Saint Petersburg State Medical University, Saint-petersburg, Russian Federation*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Inverted papilloma (IP) also called Schneider papilloma is a benign neoplasm of the respiratory mucosa, characterized by invasive growth in the underlying stroma and prone to local developmental growth, recurrence and malignancy.

Aims:

- to assess the frequency of occurrence of inverted papilloma among the entire pathology of the paranasal sinuses;
- to determine the methods of diagnostic of inverted papilloma;
- to evaluate the results of endoscopic endonasal approach as a method of treatment.
- to study long term results of FEES in patients with inverted papillomas

Material and methods:

A retrospective analysis of the patients who were treated in ENT Department with a diagnosis of inverted papilloma from 2008 to 2017 was conducted. In all patients the IP was diagnosed with help of CT-scan and endoscopic view of nasal cavity. The surgical treatment was carried out through the endoscopic transnasal approach under general anesthesia.

Results:

More than 3000 FEES were completed during this period. There are 44 cases of sinonasal IP, 27 men and 17 women in age from 19 to 77 years. The most pathognomonic symptoms on the CT-scan images were one-side lesions and the bone destructions. FEES can be detected as the method of choice for inverted papillomas treatment.

Conclusions:

Inverted papilloma is a rare disease. The symptoms are the same as in case of chronic polyposis. 3D CT scan is the method of choice in the diagnostics of disease and planning of surgical approach. The total removing of tumor during the FEES might prevent recurrence of the disease.

## EXTERNAL RHINOPLASTY APPROACH FOR EXCISION OF A NASAL MIDLINE DERMOID

Dr Cesar David Garcia Garza<sup>1</sup>, Dr Jose Manuel Melendez Garcia<sup>1</sup>, Dr Eduardo Morera Serna<sup>1</sup>

<sup>1</sup>Otolaryngology - Hospital Universitario Son Espases, Palma De Mallorca, Spain

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Congenital midline nasal masses are rare. The differential diagnoses includes dermoid cysts, encephaloceles, and nasal gliomas. Dermoids are the most common among them. Surgical excision is the treatment of choice. We present a case of a midline nasal dermoid excised through an open rhinoplasty approach.

**Methods:** A 20-month-old female toddler was evaluated due to a growing mass in the nasal dorsum accompanied by nasal deformity. The mass was soft, mobile and did not fluctuate in size with crying. There were no reports of pain or infection. The MRI confirmed the diagnosis of a dermoid cyst without intracranial component.

**Surgery** was performed at 3 years of age due to the ongoing growth and associated nasal deformity. An open rhinoplasty approach was performed. The mass was found pedicled at the cartilaginous vault, separating the triangular cartilages. It was resected and the dorsum camouflaged with a conchal cartilage graft.

**Results:** Recurrence has not appeared during the first 3 months after surgery.

**Conclusion:** Nasal midline dermoids arise due to entrapment of ectodermal and mesodermal tissue in the frontonasal region during embryological development. When left untreated they can lead to complications, including facial deformity. An open rhinoplasty approach offers excellent exposure for resection and reconstruction, without hampering nasal growth in children. The incision line is more cosmetically pleasing than other approaches such as lateral vertical/lateral rhinotomies or bicoronal incisions. An additional advantage is the possibility of performing osteotomies for resection of deeper lesions, including intracranial tracts.

## DIAGNOSTIC CHALLENGES OF NATURAL KILLER CELL SUBTYPE T LYMPHOMA

**Ms Anna Kaleva<sup>1</sup>**, Dr Andrew Hodson<sup>1</sup>, Dr Alfredo Vargas<sup>1</sup>, Mr Andreas Hilger<sup>1</sup>

<sup>1</sup>Ipswich Hospital, Manningtree, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

We describe the difficulty in diagnosing of natural killer cell subtype non-Hodgkin's lymphoma (extranodal NK/T-cell) affecting the sino-nasal mucosa and outline some key learning points. We present a review of the literature and comparison with two other entities which often present a diagnostic challenge: poorly differentiated squamous cell carcinoma (pdSCC) and sino-nasal undifferentiated carcinoma (SNUC).

### Methods

This report presents a case of a patient who presented with classical chronic rhinosinusitis without nasal polyposis (CRSsNP) symptoms but failed to improve with maximal medical treatment. On biopsy six months after initial presentation he was found to have extranodal NK/T-cell lymphoma, nasal type (historically referred to as lethal midline granuloma). The literature was reviewed for features in the presentation, examination findings and investigations which might have alerted the team to the correct diagnosis earlier.

### Results

In non-resolving CRSsNP, although rarely proven, malignancy should be considered, particularly in unilateral symptoms. The combination of cutaneous rashes and sinusitis can be a sign of advanced lymphoma. CT findings may help to differentiate between sinusitis and malignancy. Routine practice should involve biopsies of the mucosa in refractory cases of CRSsNP. Table 1 presents features which can be used to differentiate extranodal NK/T-cell lymphoma from pdSCC and SNUC.

### Conclusion

Differentiating between CRSsNP and extranodal NK/T-cell lymphoma can be challenging. In refractory cases, greater knowledge of red flag features may improve diagnosis. Furthermore, once malignancy is suspected, both histology but also clinical presentation and imaging can help differentiate between extranodal NK/T-cell lymphoma, pdSCC and SNUC.

## TREATMENT OF EPITHELIAL BARRIER DYSFUNCTION CAN RESOLVE CHRONIC RHINOSINUSITIS WITH NASAL POLYPOSIS: CLINICAL PROOF OF CONCEPT

Dr Abdullah Bahakim<sup>1,2</sup>, Dr Martin Desroisers<sup>1</sup>

<sup>1</sup>Centre Hospitalier de l'Université de Montréal (CHUM), Montreal, Canada, <sup>2</sup>King Abdulaziz University, Jeddah, Saudi Arabia

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**INTRODUCTION:** While the pathophysiology of CRS remains elusive, it is believed that CRS pathophysiology involves interaction between the host immune system, sinus microbiome, and epithelial barrier. To date, CRS therapy centers only on the first two elements, and not the epithelium.

Cystic fibrosis (CF) is a genetic disorder where dysfunction of the CFTR gene leads to epithelial inflammation, thickened secretions and dysfunctional epithelial regeneration and repair. New CF medications enhancing CFTR activity and function target the epithelial barrier, it would be of interest to determine whether these help resolve CRSwNP. A recent patient presentation suggests a potential.

**METHODS:** A 40 year old patient with DF508/ F508 CF was initially assessed in 9/2013 and followed annually. Pansinusitis confirmed by CT and CRSwNP endoscopically assessed at Grade I/IV R and II/IV L. These scores persisted despite continued management with budesonide irrigations.

From January-December 2016, patient participated in a trial of CFTR-enhancing medication for CF, and in Jan 2017 entered an open-label extension phase where he continued to receive the medication.

**RESULT:** Seen for the first time after study participation April 2017, nasal polyps had almost completely regressed, with no polyps detected on the right (endoscopic score 0/IV) and a single small polyp detected on the left (endoscopic scores I/IV).

**CONCLUSION:** Treatment of barrier disorder can result in CRSwNP improvement and may thus represent an novel therapeutic target. Further studies targeting epithelial dysfunction in CRS and means for correcting are warranted to better explore this exciting area.

## NASAL CYCLE DURING SLEEP

Md Shintaro Chiba<sup>1</sup>

<sup>1</sup>*Jikei University School Of Medicine/Ota Memorial Sleep Center, Tokyo, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Background and Objectives

The phenomena of periodic cycles of vascular engorgement on the nasal cavity mucosa that alternate between right and left sides are termed the “nasal cycle(NC).” We have reported that nasal cycle duration during sleep is longer than in wakefulness (Kimura et al. *Laryngoscope*, 123:2050–2055, 2013). And it is speculated that nasal cycle is influenced by postural change, change of autonomic nerve activity and sleep stage. Purpose of this study is to clarify the mechanism of nasal cycle during sleep using PSG.

Study design: case series methods

We utilized PSG and portable rhinoflowmeter (Rhinocycle, Rhinometrics, Lynge, Denmark), measuring airflow independently through each nostril during sleep on 9 healthy subjects.

### Results

- 1, NC was found in eight of nine patients during PSG, and, furthermore, NC was found during sleep in seven of nine.
- 2, In two of nine cases, NC with the postural change was found. As for one, NC with the postural change was found in awake state and another one during REM sleep.
- 3, In seven all cases which we found NC during sleep, NC was found during REM sleep, and, however, there was no case in slow wave sleep.
- 4, The NC tended to be found in REM sleep for the sleep latter half, and, furthermore, in REM sleep which duration showed longest.

### Conclusions

We speculated that the NC was associated with a function of the REM sleep. Further study needed to clarify the relationship between nasal cycle and brain function during sleep.

## PRESENT STATUS OF SUBLINGUAL IMMUNOTHERAPY FOR JAPANESE CEDAR POLLINOSIS IN JAPAN

MD Kayoko Kawashima<sup>1</sup>, MD Takahiro Sasaki<sup>1</sup>

<sup>1</sup>*Osaka Habikino Medical Center , Habikino//habikino, Japan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Purpose

Seasonal allergic rhinitis from cedar pollen is said to affect more than one-third of the Japanese population. There are large amounts of airborne cedar pollen from February through April, producing not only nasal symptoms but also eye symptoms, and sometimes leading to sleep disturbances, malaise, and decreased labor productivity. Conventional treatment has been drug therapy and surgery, but in 2014 treatment options were increased in Japan with the approval of sublingual immunotherapy for coverage under the national health insurance system. We investigated the efficacy, adherence, and problems in patients who have received sublingual immunotherapy for cedar pollinosis since 2014.

### Methods

A questionnaire survey on QOL, adherence, and sublingual immunotherapy was conducted during the cedar pollen season with patients who had started sublingual immunotherapy for cedar pollinosis since 2014.

### Results

Greater efficacy was seen in patients who received sublingual immunotherapy than in those who received drug therapy for cedar pollinosis. Also, adherence was good in patients who started in 2014, 2015, and 2016. On the questionnaire, some respondents said that disadvantages included “regular hospital visits for a long period” and “the limited number of prescribing doctors.”

### Conclusion

Sublingual immunotherapy is thought to be an effective treatment for cedar pollinosis. The number of physicians prescribing sublingual immunotherapy is still insufficient, and an environment that makes it easier for patients to receive this treatment needs to be developed.



## VITAMIN D INHIBITS TGF- $\beta$ 1-INDUCED MYOFIBROBLAST DIFFERENTIATION AND EXTRACELLULAR MATRIX PRODUCTION VIA SMAD2/3 SIGNALING PATHWAY IN NASAL POLYP-DERIVED FIBROBLASTS

**Dr Jae-min Shin**<sup>1</sup>, BS Joo-Hoo Park<sup>3</sup>, BS Hyun-Woo Yang<sup>3</sup>, Pf Heung-Man Lee<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology-Head and Neck Surgery, Korea University, College of Medicine, Seoul, South Korea,

<sup>2</sup>Institute for Medical Devices Translation Clinical Trial Support Center, Korea University Guro Hospital, Seoul, South

Korea, <sup>3</sup>Division of Brain Korea 21 Program for Biomedical Science, Korea University, College of Medicine, Seoul, South Korea

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Purpose:** Vitamin D has a wide range of antifibrotic properties, including anti-inflammation, anti-proliferation, anti-apoptosis, and anti-epithelial-mesenchymal transition properties. This study aimed to determine whether vitamin D affects the myofibroblast differentiation and extracellular matrix synthesis and to investigate the mechanism of action of vitamin D in nasal polyp-derived fibroblasts (NPDFs).

**Methods:** To investigate the potential role of vitamin D (1,25(OH)<sub>2</sub>D<sub>3</sub>) in preventing the development of nasal polyps, we examined the effect of vitamin D on myofibroblast differentiation and ECM production in TGF- $\beta$ 1-induced NPDFs and elucidated the mechanisms underlying the inhibitory effect. 1,25(OH)<sub>2</sub>D<sub>3</sub> significantly reduced the expression levels of  $\alpha$ -SMA, a myofibroblast marker, and fibronectin, a representative ECM component, in a dose-dependent manner in TGF- $\beta$ 1-NPDFs.

**Results:** 1,25(OH)<sub>2</sub>D<sub>3</sub> suppressed activated Smad2/3 in time-course. Up-regulation of  $\alpha$ -SMA, fibronectin and phosphorylation of Smad2/3 by TGF- $\beta$ 1 were unaffected by 1,25(OH)<sub>2</sub>D<sub>3</sub> in NPDFs after vitamin D receptor specific siRNA transfection. We confirmed inactivation of Smad2/3 and reduced level of  $\alpha$ -SMA and fibronectin expression by the Smad2/3 specific inhibitor, SIS3. Furthermore, acetylation of histone H3 was compromised by 1,25(OH)<sub>2</sub>D<sub>3</sub>, leading to inhibition of collagen 1A1, collagen 1A2 and  $\alpha$ -SMA gene expression. Treatment with 1,25(OH)<sub>2</sub>D<sub>3</sub> also significantly suppressed TGF- $\beta$ 1-enhanced contractility and motility in a contraction assay and Transwell migration assay. Finally, 1,25(OH)<sub>2</sub>D<sub>3</sub> had a similar effect in ex vivo organ cultures of nasal polyps.

**Conclusions:** Our results suggest that 1,25(OH)<sub>2</sub>D<sub>3</sub> might be an effective therapy for treating nasal polyps by reducing myofibroblast differentiation and ECM production mediated by Smad2/3-dependent TGF- $\beta$ 1 signaling pathways in NPDFs.

## INHIBITORY EFFECT OF GLUCOCORTICOIDS ON TGF- $\beta$ 1-MEDIATED EPITHELIAL-TO-MESENCHYMAL TRANSITION OF AIRWAY EPITHELIUM VIA MAPK AND SNAIL/SLUG SIGNALING PATHWAYS

**Pf Heung-Man Lee**<sup>2</sup>, BS Joo-Hoo Park<sup>3</sup>, BS Hyun-Woo Yang<sup>3</sup>, BS Hwee-Jin Kim<sup>3</sup>, Dr Jae-min Shin<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology-Head and Neck Surgery, Korea University, College of Medicine, Seoul, South Korea,

<sup>2</sup>Institute for Medical Devices Translation Clinical Trial Support Center, Korea University Guro Hospital, Seoul, South

Korea, <sup>3</sup>Division of Brain Korea 21 Program for Biomedical Science, Korea University, College of Medicine, Seoul, South Korea

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Purpose:** Chronic rhinosinusitis with nasal polyps (CRSwNP) is closely associated with tissue remodeling. Epithelial-to-mesenchymal transition (EMT), a process of tissue remodeling, can be a therapeutic target of CRSwNP. Glucocorticoids are a type of steroid hormone that is used primarily in medical therapy for patients with CRSwNP; however, their effects on EMT in the airway epithelium remain unknown.

**Methods:** To investigate the effects of dexamethasone and fluticasone propionate, a class of glucocorticoids, on transforming growth factor- $\beta$ 1 (TGF- $\beta$ 1) –induced EMT, we used A549 cells, human primary nasal epithelial cells (hPNECs) and ex vivo organ culture of the inferior turbinate.

**Results:** TGF- $\beta$ 1 induced changes in cell morphology, suppressed the expression of E-cadherin and enhanced the expression of  $\alpha$ -smooth muscle actin, vimentin and fibronectin in A549 cells. However, glucocorticoids inhibited EMT, migration and invasion enhancement by TGF- $\beta$ 1. We found that the induction of phosphorylated ERK, p38 and the activity of Snail and Slug transcription factors by TGF- $\beta$ 1 were suppressed by glucocorticoids. Glucocorticoids also had a similar effect in hPNECs and ex vivo organ cultures of the inferior turbinate.

**Conclusions:** These findings suggest that glucocorticoids might be a useful therapy for preventing tissue remodeling by blocking the EMT initiated by TGF- $\beta$ 1-induced MAPK and Snail/Slug signaling pathways in CRSwNP.

## ANOTHER CONCEPT FOR THE SUB- TOTAL RESECTION OF AN ENLARGED INFERIOR TURBINAT'S BONE BY USING THE MICRODEBRIDERS.

**Dr. Bassel Hallak<sup>1</sup>**, Dr. Salim Bouayed<sup>1</sup>, Dr. Sonia Von Wihl<sup>1</sup>

<sup>1</sup>*Hospital Of Sion. Switzerland., Sion, Switzerland*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

The enlarged inferior turbinate could be related to a multiples reasons such as anatomical, physiological or pathological. The hypertrophy of the inferior turbintes is the most frequent second cause of the nasal obstruction. the most frequent reason of failure after the surgery of the septal deviation is the persistence of an enlarged inferior turbinate.

Many surgical and non-surgical techniques have been describeb for the management of the inferior turbinate's hypertrophy. The different surgical techniques are varies from conservative to less or more radical in term of resection of the different structures of the inferior turbinate. The Microdebridors have an important role in the nasal and sinus surgery including the surgery of the inferior turbinate and many methodes have been described in this subject.

the aim of this presentation is to present our experience in the surgery of reduction for an enlarged inferior turbinate by using the microdebridors. this technique is essentiely indicate in case of a hypertrophy of the inferior turbinate bone and based on a sub-total resection of the bone with a total conservation of the mucosa of the medial surface of the inferior turbinate where is located the different neuroreceptors.the target of this technique is to reduce the volume of the inferior turbinate with a total conservation of the shape and functions. this surgical technique is easy and simple. we present a series of patients with an average follow-up of 1,5 years. the subjective and objective outcomes are very acceptables.

## MAGNETIC RESONANCE IMAGING OF ORBITAL PATHOLOGY AND LESIONS IN A MOUSE MODEL OF GRAVES' ORBITOPATHY

**Dr. Med. Anke Schlüter**<sup>1</sup>, Prof. Dr. rer. nat Ulrich Flögel<sup>2</sup>, Mareike Horstmann<sup>1</sup>, Dr. med. Kestin Stähr<sup>1</sup>, PD Dr. med. Stefan Mattheis<sup>1</sup>, Prof. Dr. med. Stephan Lang<sup>1</sup>, Prof. Dr. rer. nat Jasvinder Paul Banga<sup>1</sup>, Prof. Dr. med. Anja Eckstein<sup>1</sup>, PD Dr. rer. nat. Utta Berchner-Pfannschmidt<sup>1</sup>

<sup>1</sup>University Hospital Essen, Essen, Germany, <sup>2</sup>Institute of Cardiac and Circulatory Physiology, Heinrich-Heine University Düsseldorf, Düsseldorf, Germany

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aim:

Graves' orbitopathy (GO) is an extrathyroidal complication of Graves' disease due to autoimmunity to thyrotropin hormone receptor (TSHR) in orbital fibroblasts and adipocytes. A new experimental mouse model of GO based upon challenge with human TSHR A-subunit plasmid delivery, resulting in chronic orbital disease, was shown. The aim of this work was to describe the symptoms in the mouse model adequately by MRI examinations in vivo in order to define course parameters for therapy studies.

**Methods:** Experimental GO was induced in BALB / c mice by genetic immunization by electroporation with plasmids encoding human TSHR A-subunit. Mice were daily clinically examined. At the end of the experiment, a MRI examination (9.4T) was performed in vivo, followed by sacrifice for studies on blood, orbita and thyroid tissue.

**Results:** 19F MRI showed marked infiltration of PFC (Perfluorcarbon)-loaded immune cells into peri-and retro-orbital regions of GO mice, whereas only mild 19F signals were observed in healthy controls. With the T2 mapping, the edema could be detected in all diseased mice. Evidence of increased GAG production in GO mice was also achieved with the CEST signal compared to the control group. In particular, the 19F MRI-based examination correlated with the clinical severity of the mice symptoms.

### Conclusion:

A mouse model for Graves' orbitopathy has been established. The present results show that almost all symptoms of orbitopathy in the mouse model can be detected radiologically by MRI. Thus, the MR technique is very well suited for grading the pathomorphological orbitopathy in the mouse model.

## DIAGNOSIS AND TREATMENT OF ISOLATED SPHENOIDITIS, STEP –BY-STEP.

Ms Olga Stancheva<sup>1</sup>, Mr Sergey Karpishchenko

<sup>1</sup>*Pavlov First Saint Petersburg State Medical University, Saint-Petersburg, Russian Federation*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Isolated lesion of the sphenoid sinus is a rare pathology and occurs in 1-2% of cases  
Chronic sphenoid sinus hypoventilation is the cause of the violation of drainage function of the mucous membrane and as a result may contribute to chronic inflammation in the sinus.

In case of acute isolated sinusitis or decompensation of the chronic process, patients have mainly the neurological complaints

The frequent complaint that patients present is the headache, which is usually described as transient, intermittent, deep seated, localized or throbbing character and aggravated while standing, walking, bending or coughing. Also patients complain of vision problems, nosebleeds, etc.

Purpose of study: to create a step-by- of diagnosing and treating isolated sphenoid sinus pathology

Evaluation of the long-term results of endoscopic sphenotomy.

Materials and methods: A retrospective analysis of the patients who were treated in ENT Department with a diagnosis of Isolated sphenoiditis from 2010 to 2017 was made. All patients were examined by ENT-specialist and neurologist.

Based on the survey and questioning, the algorithm was determined.

Results: More than 2000 FESS were completed during the period from 2010 to 2017. Isolated sphenoiditis was found in 26 cases. CT scan is the method of choice in the diagnostics of disease and planning of surgical approach.

**SYSTEMS BASED APPROACH TO UNDERSTANDING THE ROLE OF STAPHYLOCOCCUS AUREUS IN CRS PATHOPHYSIOLOGY AND IDENTIFYING NOVEL THERAPIES**

Dr Abdullah Bahakim<sup>1,2</sup>, Dr Fabian Valera Cardoso<sup>3</sup>, Prof Jean Barbeau<sup>1</sup>, Dr Shaun Kilty<sup>4</sup>, Dr Joseph Schwartz<sup>5</sup>, Dr Emmanuelle Brochiero<sup>6</sup>, Dr Simon Rousseau<sup>5</sup>, Joaquin Madrenas<sup>7</sup>, Leandra Mfunu Endam<sup>6</sup>, **Dr Martin Desrosiers<sup>1</sup>**

<sup>1</sup>Centre Hospitalier de l'Université de Montréal (CHUM), Montreal, Canada, <sup>2</sup>King Abdulaziz University, Jeddah, Saudi Arabia, <sup>3</sup>University of Sao Paolo, Sao Paolo, Brazil, <sup>4</sup>University of Ottawa, Ottawa, Canada, <sup>5</sup>McGill University, Montreal, Canada, <sup>6</sup>Centre de Recherche de l'Université de Montréal (CRCHUM), Montreal, Canada, <sup>7</sup>LA Biomedical Institute, Los Angeles, United States

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction:** Positive culture for *Staphylococcus aureus* negatively influences outcome after endoscopic sinus surgery (ESS) (Al-Shemari, 2007; Jervis-Bardy, 2011). We wished to review implicated mechanisms in order to identify potential novel areas for therapeutic manipulation using a systems-based approach for disease modelling.

**Method:** Described pathogenic mechanisms by which *S Aureus* contributes to CRS pathophysiology were collected and categorized according to their effects on the three components of normal sinus mucosal physiology: i) Host immunity ii) Sinus Microbiome iii) Epithelial function.

**Results:** *S Aureus* is a polyvalent pathogen which negatively impacts all implicated elements of CRS pathophysiology, via interactions with the i) immune system by suppression of immune responses and superantigen-inducing exotoxin production ii) interference with the sinus microbiome by biofilm formation, small colony variant switching, and suppression of healthy bacteria iii) impairment of regeneration and repair of the sinus epithelium following injury and altered anti-protease activity.

**Conclusion:** *S Aureus* is a polyvalent pathogen which negatively impacts several elements of sinus mucosal physiology. The multiplicity of implicated mechanisms suggests its success in ensuring persistence of disease by colonizing and persisting in the sinonasal cavities. While various antibacterial therapies and immune modulating agents address two components of *S Aureus*-induced dysfunction, current therapies do not address *S Aureus*-induced dysfunction of the epithelial barrier. Regenerative and anti-protease therapies targeting the epithelial barrier thus represent potentially novel means of improving therapeutic outcomes and should be verified in appropriate models.

## ATYPICAL CASE OF ETHMOIDORBITAL ALVEOLAR RHABDOMYOSARCOMA AFTER ORBITAL ABSCESS

Dr Gabriela Simonetti<sup>1</sup>, Dr Miriam Ileana Hamdan Zavarce<sup>1</sup>, Dr Enric Cisa Lluís<sup>1</sup>, Dr Felipe L. Benjumea Flores<sup>1</sup>, Dr Marta Mesalles R<sup>1</sup>, Dr Karen L. Espítia Sierra<sup>1</sup>, Dr Isabel Granada Mendez<sup>1</sup>

<sup>1</sup>Hospital Universitari de Bellvitge, Barcelona, Spain

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims:

An atypical case study presentation and literature review of alveolar rhabdomyosarcoma in an adult.

### Methods:

A 16 year old male patient presented at our clinic with acute right exophthalmos clinic, fever and sinusitis. An orbital CT scan showed an isointense paranasal occupation with extraconal intraorbital air bubbles. Urgent drainage was decided by FESS plus subciliary external approach. He was reoperated 3 times due to a torpid evolution, with subsequent improvement of the clinic. The clinic and follow-up CT scan does not present new collections.

2 years after, he presented a new episode of acute right exophthalmos in the context of sinusitis. A new CT scan showed isointense right paranasal sinus, with extraconal orbital involvement.

A new FESS plus biopsy of an ethmoidal mass were performed.

### Results:

Biopsy resulted positive for alveolar rhabdomyosarcoma.

An MRI showed intracranial infiltration. A PET showed no distance disease.

The patient underwent chemoradiotherapy and 2 months after finishing showed complete remission of the disease.

### Conclusions:

Rhabdomyosarcoma is a malignant tumor that originates in orbital soft tissues. It is the most frequent orbital tumor in childhood.<sup>1</sup>

The characteristic presentations of rhabdomyosarcoma are rapid onset and progression of proptosis.<sup>2</sup>

The images in its early stages present very similar characteristics to those of an orbital abscess in CT Scan and in MRI.<sup>3,4</sup>

Tumor biopsy is of paramount importance.

Although its frequency is low the possibility of Rhabdomyosarcoma should be considered.

We have not found in the literature a presentation of a Rhabdomyosarcoma with similar characteristics.

## CASE REPORT: PRIMARY HYDATID CYST OF THE SPHENOID SINUS.

Dr Sharfi Ahmed<sup>1</sup>

<sup>1</sup>*Africa Ent Hospital Sudan, Khartoum, Sudan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Hydatid disease (also known as hydatidosis) is a cyclozoonotic infection caused by the cestode genus *Echinococcus*. The incidence of humans infected with hydatid disease is approximately 1.0-2.0:1,000, although it may be higher in rural areas of regions that are affected. Infection occurs via ingestion of infected meat. A hydatid cyst of the head and neck is a very rare condition, even in areas where *Echinococcus* infestation is endemic. Primary infection of the Lt sphenoid sinus is odd and very rare.

### CASE REPORT:

We report a rare case of primary hydatid cyst of the Lt sphenoid sinus in a 65-year-old Sudanese Female. The initial diagnosis of the presence of a cystic mass was the result of physical examination, computed tomography (CT) scan, MRI (magnetic resonance imaging) and Histopathology. We diagnose the cystic mass by biopsy using FESS (Functional Endoscopic Sinus Surgery). A definitive diagnosis was confirmed by postoperative histopathologic examination.

### CONCLUSION:

Hydatid cyst of the sphenoid sinus is an extremely rare presentation. However, this condition should be considered in differential diagnosis of cystic lesions of the sinuses. This article reviews a case report involving this rare condition.



## MAXILLARY SINUS BROWN TUMOR IN PRIMARY HYPERPARATHYROIDISM: A CASE REPORT.

MD ALEXANDROS LADIAS<sup>1</sup>, Mr EFKLIDIS PROIMOS<sup>1</sup>, Mrs THEOGNOSIA CHIMONA<sup>1</sup>, MD MARIA ZISOGLOU<sup>1</sup>,  
MD ASPASIA KARAVELIA<sup>1</sup>, Mr. CHIEF Dept. CHARITON PAPADAKIS<sup>1</sup>

<sup>1</sup>*Chania General Hospital ENT Dept., Chania Crete, Greece*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aim:** Present a rare case of nasal tumor (maxillary sinus brown tumor) treated in our Dept.

**Introduction:** Brown tumors are rare focal giant-cell lesions that arise as a direct result of the effect of parathyroid hormone on bone tissue in some patients with hyperparathyroidism. Brown tumors can affect the mandible, maxilla, clavicle, ribs, and pelvic bones. Therefore, diagnosis requires a systemic investigation for lesion differentiation.

**Case presentation:** A 42 years-old woman was referred to the Department of Otolaryngology of Chania General Hospital, complaining for facial pain and deformity, and a radiographic finding of a round, radiolucent, and osteolytic, bone-expanding lesion in the anterior part of the right maxillary sinus with invasion of the adjacent floor of the orbit, anterior ethmoids and nasal cavity. Under general anesthesia an excision biopsy was performed, using the Caldwell-Luc approach. The mass had a submucosal origin from the floor of the orbit, infiltrating the lateral nasal wall, with a diameter of 2 cm approximately.

Multinucleated giant cells were also found in the specimen. A giant cell lesion was diagnosed, with brown tumor among the possible causes.

**Conclusion:** Brown tumors are considered a reparative lesion of giant cells, and they represent the end stage of bone erosion and the deossification process during primary hyperparathyroidism. Differential diagnosis is important, requires a systemic investigation and it should exclude other giant cell lesions that affect the maxillae.

## CASE REPORT OF: A RARE CASE OF PRIMARY SINONASAL MENINGIOMA

Dr Sharfi Ahmed<sup>1</sup>

<sup>1</sup>*Africa Ent Hospital Sudan, Khartoum, Sudan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aim:** To report a case of Nasosinuses meningioma in Sudan

**Introduction:**

Meningiomas account for nearly 20% of all intracranial neoplasms and are the second most common tumors of the central nervous system. Primary meningiomas of the nose and paranasal sinuses are extremely rare. The clinical and radiological features of these tumors are nonspecific, and consequently an accurate diagnosis requires histologic evaluation.

**Case Report:** A 62 years old female, presented in May of 2016, complaining of Rt nasal obstruction associate with bloody nasal secretion and proptosis. Endonasal examination revealed soft mass in the Rt nasal cavity between the septum and the middle and superior turbinates posteriorly. MRI revealed the presence of a lobulated mass with soft parts density in the Rt nasal cavity (middle meatus) and the Rt ethmoid sinus and invading the Orbital contents and extended intracranially. The biopsy of the lesion revealed nodular neoplasm composed of regular cells arranged in whorled pattern. One psammoma body is noted and no evidence of pleomorphism or necrosis, the features are consistent with sinonasal meningioma. Patient was sent to oncological department because it was unresectable malignant meningioma and the surgery is not feasible and can create more complications.

**Conclusion:** Meningiomas involving the nasal cavity and paranasal sinuses are rare. The mortality is low, and its lethality is due to the complications of the surgery and injury of vital structures. Complete surgical extirpation of the sinonasal tract meningiomas has an overall good prognosis.

## OPTIMAL VS. SUBOPTIMAL MEDICAL MANAGEMENT OF CRS - COMPARING VAS AND SNOT-22 SCORE

Dr. Jure Urbancic<sup>1</sup>

<sup>1</sup>University Medical Centre Ljubljana, Slovenia, Ljubljana, Slovenia

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

Crude classification into CRSwNP, CRSsNP enables us to implement maximal medical therapy and surgery in patients with persistent symptoms. Both medical and surgical therapy should be patient and disease-oriented. Our therapy plan emphasises optimum delivery, dosage, choice of intranasal corticosteroids and salvage (CRSwNP) or immunomodulatory therapies (long-term antibiotics).

### Methods

Patients with medically treated CRS were prospectively evaluated at first and second visit in tertiary referral centre regarding previous medical therapy. Therapy groups were differentiated using the proposed treatment plan. Patients with antrochoanal polyps or clear signs of dentogenous infection were excluded. Mean VAS and SNOT-22 scores were compared. Groups with CRSwNP and CRSwNPAl were further evaluated regarding salvage therapy.

### Results

238 patients were evaluated at first visit. Mean SNOT-22 score difference was statistically significant in CRSsNP (n=77, 43.2 vs. 54.1, p=0.04). The mean duration of therapy was only different in CRSwNP (8 months optimal vs 12 months suboptimal, p=0.002). At second visit 99 patients were evaluated. The mean duration of therapy was 6.4 months (CRSsNP), 8 months (CRSwNP) The difference of mean VAS/SNOT-22 was significant in CRSwNP (n=57, 3.6 vs. 6.3 and 27.4 vs. 44.8, p=0.03/p=0.01). Salvage therapy had no influence on mean VAS/SNOT at the second visit.

### Conclusion

After implementing the maximal or baseline medical therapy for CRS, outcomes should be QoL controlled. We have confirmed a significant difference in QoL scores when comparing the optimal to suboptimal medical therapy. Even more, it seems that the complete duration of treatment plays a more significant role in CRSwNP.

## CRANIOFACIAL RESECTIONS AND ENDOSCOPIC ANTERIOR SKULL BASE TUMOR SURGERY 1985 - 2005 : HISTORY RESEARCH

Associate Professor kanit muntarbhorn<sup>1</sup>

<sup>1</sup>Ramathibodi Hospital (Faculty of Medicine, Mahidol University), Bangkok, Thailand

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### CRANIOFACIAL RESECTIONS AND ENDOSCOPIC ANTERIOR SKULL BASE TUMOR SURGERY 1985 - 2005 : HISTORY RESEARCH

Kanit Muntarbhorn, FRCS, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

#### Aims:

Search for craniofacial resections and endoscopic anterior skull base tumor surgery in Thailand during 1985 - 2005: history research

#### Methods:

Searches for cases performed 1985- 2005 AD in NIH data (USA), Thai Index Medicus, internet, and publications of Thai Rhinologic Society and by Thai physicians

#### Results:

1989,2017\* in 1986 a 21-year-old female underwent lateral rhinotomy craniotomy and craniofacial resection (LRCCFR) of ethmoid tumor (carcinoma) at Ramathibodi Hospital but this was conventional rather than endoscopic [alive in 2017]

1993,2000,2014,2017\* in 1988, an 18-year-old female with unilateral partial visual loss underwent LRCCFR of cranial schwannoma (neurilemmoma) at Ramathibodi Hospital. Later in 1989, recurrent tumor was resected via sublabial midfacial degloving approach. During 1990-1992, endoscopic examinations and/or removal of recurrent tumor were performed (endoscopic anterior skull base tumor surgery) at Ramathibodi Hospital [alive in 2015]

2000,2014,2017\* in 1993 a 14-year-old female with unilateral proptosis underwent endoscopic-adjunct / endoscopic-assisted craniofacial resection of bony tumor (working diagnosis) at Ramathibodi Hospital [histology as fibrous dysplasia]; and large skull base defect was repaired by cavalrial bone graft and lateral-based pericranial flap. No information after one postoperative month

2001\* a 19-year-old male underwent endoscopic surgery of esthesioneuroblastoma and anterior cranial fossa repair with septal graft at Chiang Mai University Hospital, Chiang Mai [authors: Tantilipikorn P, Sittitrai P]

#### Conclusions:

Three early cases of endoscopic anterior skull base surgery with craniofacial resection

\*publication(s)

## NINTEDANIB AS A NOVEL TREATMENT OPTION IN HHT - A CASE REPORT

PD Dr. Med. Michael Soyka<sup>1</sup>, Prof. Dr. med. David Holzmann, Dr. med. Evelin Kovacs-Sipos

<sup>1</sup>University And University Hosital Zurich, Zurich, Switzerland

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims:

Hereditary haemorrhagic teleangiectasia (HHT) often presents with difficult to treat epistaxis. Novel approaches include the use of VEGF antibodies that seem to have favorable effects on nose bleeds. We present a case report of a HHT patient with primary idiopathic pulmonary fibrosis, who was treated with Nintedanib a tyrosine kinase inhibitor.

### Methods

Nintedanib is a novel orally administered tyrosine kinase inhibitor that intends to stop the progression of primary idiopathic pulmonary fibrosis (IP). Nintedanib inhibits several receptors, including VEGF, by blocking fibroblasts, which are critical players in the pathophysiological mechanism of IPF. VEGF also plays a key role in the regulation of neovascularisation.

### Results

Our 70 year old HHT patient experienced drastic improvements of his disease. The epistaxis severity score dropped from 5.5 down to 0.5 and skin manifestations disappeared. There were no side effects of the treatment during the 12 months follow-up.

### Conclusions

Nintedanib could be a promising novel treatment in severe HHT, that can be administered orally. It not only targets epistaxis but also other manifestations of HHT.

## ENDONASAL CLOSURE OF NASAL SEPTAL PERFORATIONS WITH A POLYDIOXANONE PLATE AND TEMPOROPARIETAL FASCIA

Dr. med. Lorenz Epprecht<sup>1</sup>, Dr. med. Christoph Schlegel<sup>2</sup>, Prof. Dr. med. David Holzmann<sup>1</sup>, Dr. med. Thomas Kaufmann<sup>1</sup>, **PD Dr. Med. Michael Soyka<sup>1</sup>**

<sup>1</sup>University and University Hospital Zurich, Zurich, Switzerland, <sup>2</sup>Luzerner KantonsSpital, Lucerne, Switzerland

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aim

To provide the first results in patients with nasal septal perforations, who underwent septal perforation repair by both an open or a minimally invasive technique by using a sandwich graft that consisted of temporoparietal fascia and a polydioxanone (PDS) plate without mucosal flaps.

### METHODS:

The septal perforations were closed by insertion of a sandwich graft with a flexible PDS plate surrounded by temporoparietal fascia, without mobilizing mucosal flaps. The insertion of the graft was performed either via a columellar incision (open approach) or via a cosmetically advantageous hemitransfixion incision (closed approach) in an underlay technique. Silastic splints were placed and fixed to protect the grafted site for the course of 3 to 8 weeks to promote healing.

### RESULTS:

Eighteen of 20 perforations were closed by mucosa at the last follow-up. The mean follow-up was 8.7 months. Thirteen patients had surgery via the closed approach.

### CONCLUSION:

This is the first report on successful septal perforation closure using a PDS/fascia sandwich graft by a closed approach via a hemitransfixion incision. It not only proved to be feasible but also just as successful as with an open approach. We conclude that the unsightly and visible scar can be avoided.

## EFFECT THE TYPES OF NAZAL SEPTIUM DEVIATION ON EUSTACHIAN TUBE FUNCTION

Dr Remzi Doğan<sup>1</sup>

<sup>1</sup>*Bezmialem Vakıf Üniversitesi, İstanbul, Turkey*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**AIMS:** Nasal septum deviations are divided into six different subtypes in the literature. Because these types of obstruction and nasal airflows are different in the nasal passages, the effects on the eustachian tube can be different. The effect of different nasal septum deviations on eustachian tube function was investigated in our study.

**METHODS:** A total of 80 patients which the different septum types and 15 healthy volunteers were included in the study. We tested Eustachian tube function with P1, P2, and P3. P1 is the tympanometric measurement while resting. P2 is the tympanometric measurement after the Toynbee maneuver. P3 is the tympanometric testing after the Valsalva maneuver. To evaluate the functionality of the Eustachian tube, we used the P1-P2 >10 daPa or Pmax - Pmin >15 daPa criteria. Measurements are repeated before and 6 months after surgery

**RESULTS:** Preop, types 1, 2, 3, and 5 had no significant eustachian tube dysfunction compared to healthy volunteers. Preop, type 4 and 6 had significant eustachian tube dysfunction compared to healthy volunteers. Type 4 and 6 was observed significant improvement was observed in the eustachian tube functions at 6th month after operation.

**CONCLUSION:** According to the results of our study, applying septoplasty only to patients with type 4 and 6 nasal septum deviations before middle ear surgery would reduce unnecessary cost and increase the success of middle ear surgeons by preventing morbidities.

## A DETECTION DOG FOR OBSTRUCTIVE SLEEP APNEA

Dr Anni Koskinen<sup>1</sup>

<sup>1</sup>*Helsinki University Hospital, Helsinki, Finland*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

The American College of Physicians recommends conducting a sleep study for patients with suspected OSA. These can be considered relatively laborious and there is increasing interest in developing screening tools for OSA. Currently, the screening tools in use have their limitations and it remains unclear, how they perform for screening purposes in a primary care setting. The aim of our study was to assess whether a trained dog can detect obstructive sleep apnea patients from healthy controls based on olfaction.

### Methods

Urine samples were collected from 23 adult male obstructive sleep apnea patients and from 20 voluntary adult males. Three dogs were trained to detect obstructive sleep apnea patients' urine from healthy controls'.

### Results

Two of our three dogs detected correctly two-thirds of selected OSA patients with an impressive p-value ( $p < 0.000194$  and  $p < 0.000003$ ). This is well comparable with reports on different screening methods, in which the sensitivity and specificity has varied between 43.4 - 64.4% and 79.7 – 91.5%, respectively.

### Conclusion

We were able to demonstrate that dogs can be trained to distinguish OSA urine from control urine based on olfaction. Dogs could even be utilized to identify novel biomarkers for OSA.



## DATA MINING OF FREE-TEXT RESPONSES: AN INNOVATIVE APPROACH TO ANALYZING PATIENT PERCEPTIONS OF DUPILUMAB IN A PHASE 2 PROOF-OF-CONCEPT STUDY

Dr. Asif Khan<sup>1</sup>, Dr. Jingdong Chao<sup>2</sup>, Dr. Leda Mannent<sup>1</sup>, Dr. Nikhil Amin<sup>2</sup>, Dr. Laurent Eckert<sup>1</sup>

<sup>1</sup>Sanofi, Chilly-Mazarin, France, <sup>2</sup>Regeneron Pharmaceuticals, Inc., Tarrytown, USA

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**AIMS:** Patient voice is increasingly important to assessing the value of healthcare technologies, and is complimentary to clinical-outcome assessment. To gain insight into patient perspectives, we asked an open-ended question with the option to respond in free-text, without predefined choices. This enabled unguided, unstructured patient response.

**METHODS:** A patient self-assessment of treatment (SAT) question was included in a randomized, double-blind, placebo-controlled, parallel-group study in adults with CRSwNP refractory to intranasal corticosteroids (NCT01920893). Patients were randomized to dupilumab (300 mg weekly) or placebo for 16 weeks. At the end of treatment, patients were asked to respond in free-text: "What is your opinion on the treatment you had during the trial? What did you like or dislike about the treatment?" These responses were analyzed using text mining, which facilitates automated extraction and structuring of text to derive frequency and linguistic features, and identify patterns.

**RESULTS:** Of 60 patients, 43 (71.6%) completed the optional SAT. The most frequent word to follow "treatment" and "study" was "smell" for the dupilumab arm, and "staff" for the placebo arm. On co-occurrence analyses, "smell, improvement" and "better, breathing, satisfied" co-occurred in the dupilumab arm, and "hope, treatment, smell", "not, breath", and "satisfied, staff" in the placebo arm.

**CONCLUSIONS:** These analyses provide patient "bedside" feedback on the importance of smell to CRSwNP patients, and its centrality to both how patients perceive the disease burden, and the improvement by dupilumab. Patients treated with dupilumab talked about improvement of smell and breathing, while placebo patients were hopeful of improving smell.

## CHANGES IN SLEEP-DISORDERED BREATHING FOLLOWING BARIATRIC SURGERY FOR MORBID OBESITY

Dr Tengchin Wang<sup>1</sup>, Dr Chengyu Lin<sup>2</sup>

<sup>1</sup>Tainan Municipal Hospital (managed By Show Chwan Medical Care Corporation), Tainan City, Taiwan, <sup>2</sup>National Cheng Kung University Hospital, Tainan City, Taiwan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Obstructive sleep apnea (OSA) is highly prevalent in the patient received bariatric surgery. We aimed to study the impact of surgical related weight loss on the patterns of OSA and daily activity.

**Methods:** Overweight adult patients undergoing bariatric surgery in National Cheng-Kung University Hospital were recruited. Preoperatively, all these subjects received overnight polysomnography, 7-day activity evaluation (actigraphy) and complete questionnaires regarding daytime sleepiness, snoring severity. After 6-month follow-up, these assessments were repeated for each patient.

**Results:** A total of 22/43 (48.8%) patients completed the whole assessments in the preoperative and postoperative periods. The preoperative mean body mass index (BMI), mean systolic and diastolic blood pressure, Apnea Hypopnea Index (AHI), lowest O<sub>2</sub> saturation, average of daytime wake efficiency. After 6-month follow up, the reduction of BMI, blood pressure, heart rate, AHI and lowest O<sub>2</sub> saturation all were obvious ( $p < 0.05$ ). But the daytime wake efficiency was improved limitedly.

**Conclusion:** AHI showed significantly improvement in the period of 6-month. Bariatric surgery could be considered an effective therapy for OSA in the severely obese patient. But surgery is less like to improve daily activity

## RHINOSINUSAL POLYPOSIS: A SEMIQUANTITATIVE MORPHOMETRIC HISTOPATHOLOGICAL STUDY

Assosiated professor Aleksandar Trivic<sup>1</sup>, Nada Tomanovic, Sanja Krejovic Trivic, Jovica Milovanovic, Ivan Boricic, Aleksandar Ugrinovic

<sup>1</sup>*Clinic For Otorhinolaryngology And Maxillofacial Surgery, Clinical Centre Of Serbia , Belgrade, Serbia*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction:** Sinonasal inflammatory polyps are nonneoplastic proliferations of the sinonasal mucosa composed of both epithelial and stromal elements.

**Aim:** The aim of this study was to determine histopathological hallmarks of nasal polyposis via semiquantitative morphometric study.

**Material and method:** Study was designed as prospective study with semiquantitative morphometric analysis and it comprised 77 patients with chronic rhinosinusitis and nasal polyposis that underwent functional endoscopic sinonasal surgery performed by the same surgeon. Morphometric analysis included gradation of tissue edema within polyps, thickening of epithelial basal membrane, degree of inflammation, presence/absence of metaplasia within epithelium, degree of fibrosis within polyps, and percentage of inflammatory cells within inflammatory infiltrate (lymphocytes, macrophages, plasma cells, neutrophils and eosinophils).

**Results:** Samples from study group showed significantly higher degree of inflammation than samples from control group ( $\chi^2 = 35.89$  with p value less than 0.01). Degree of fibrosis in nasal polyposis is in positive correlation with duration of symptoms ( $t=0.25$ ) and with percentage of macrophages in inflammatory infiltrate ( $t=0.26$ ). Patients with NP had significantly lower number of lymphocytes ( $t=-7.66$ ), but significantly higher number of eosinophils ( $t=3.84$ ), macrophages ( $t=3.34$ ) and plasma cells ( $t=3.14$ ) than controls, with p value less than 0.01.

**Conclusion:** Samples from patients with nasal polyposis show significantly higher degree of inflammation than samples from the control group; degree of fibrosis within polyps increases with longer duration of symptoms and correlates with higher percentage of macrophages in the inflammatory infiltrate. There is also higher number of eosinophils within polyps than in tissue samples from the control group.

## EFFECTS OF LOW DOSE IRRADIATION WITH NARROWBAND-ULTRAVIOLET B ON UP-REGULATION OF HISTAMINE H1 RECEPTOR MRNA IN HELA CELLS AND RAT MODEL OF ALLERGIC RHINITIS

**Graduate Student (Ph.D. course) Seiichiro Kamimura<sup>1</sup>**, M.D., Ph.D. Yoshiaki Kitamura<sup>1</sup>, Graduate Student (Ph.D. course) Tatsuya Fujii<sup>2</sup>, Hiroyuki Mizuguchi<sup>3</sup>, Hiroyuki Fukui<sup>4</sup>, Noriaki Takeda<sup>1</sup>

<sup>1</sup>Department of Otolaryngology, Tokushima University Graduate School, Tokushima, Japan, <sup>2</sup>JA Kochi Hospital, Kochi, Japan, <sup>3</sup>Laboratory of Pharmacology, Faculty of Pharmacy, Osaka Ohtani University, Osaka, Japan, <sup>4</sup>Molecular Studies for Incurable Diseases, Tokushima University Graduate School, Tokushima, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** We examined the wavelength-specificity, dose-dependency, and reversibility of irradiation with 310 nm NB-UVB on suppressive effects of phorbol 12-myristate 13-acetate (PMA)-induced up-regulation of histamine H1 receptor (H1R) mRNA expression in HeLa cells. We then investigated the effect of intranasal irradiation with NB-UVB on toluene 2,4-diisocyanate (TDI)-induced nasal symptom and up-regulation of H1R mRNA in the nasal mucosa of TDI-sensitized rat model of allergic rhinitis.

**Methods:** Levels of mRNA of H1R were measured using real-time RT-PCR. Apoptosis were evaluated with AnnexinV/PI staining. DNA damage were evaluated with cyclobutane pyrimidine dimers (CPDs) immunostaining.

**Results:** Irradiation with NB-UVB suppressed PMA-induced up-regulation of H1R mRNA in HeLa cells dose-dependently at doses of 75-200 mJ/cm<sup>2</sup> and reversibly at a dose of 150 mJ/cm<sup>2</sup>. Irradiation with NB-UVB induced apoptosis in HeLa cells dose-dependently at doses of more than 200 mJ/cm<sup>2</sup>, while CPDs which is UV-specific DNA photoproducts were detected at doses of more than 600 mJ/cm<sup>2</sup>. Irradiation with 305 nm, but not 315 nm UVB suppressed PMA-induced up-regulation of H1R mRNA with induction of apoptosis in HeLa cells. In TDI-sensitized rats, intranasal irradiation with NB-UVB given to bilateral nostrils at an estimated dose of 100 mJ/cm<sup>2</sup> once a day for three days suppressed TDI-induced sneezes and up-regulation of H1R mRNA in nasal mucosa without induction of apoptosis.

**Conclusions:** These findings suggest that repeated intranasal irradiation with low dose of NB-UVB could be clinically used as a phototherapy for the treatment of allergic rhinitis.

## RHINOLOGIC EMERGENCIES: A PROSPECTIVE AUDIT IN A UNIVERSITY TEACHING HOSPITAL

**Dr. Florence Rogister<sup>1</sup>**, Dr. Lucas Atta<sup>1</sup>, Dr. Sophie Delrez<sup>1</sup>, Dr. Asimakis Asimakopoulos<sup>1</sup>, Dr. Guillaume Bendavid<sup>1</sup>, Dr. Amandine Delhez<sup>1</sup>, Dr. Maxime Goffinet<sup>1</sup>, Prof. Philippe Lefebvre<sup>1</sup>, Prof. Anne-Lise Poirrier<sup>1</sup>  
<sup>1</sup>*University Hospital of Liege, Liège, Belgium*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Increasing pressure to reduce healthcare cost threatens the provision of acute ENT coverage round the clock. Our goal was to audit our emergency rhinologic activity over a one-month period.

**Methods:** A prospective audit for all emergency ENT referrals was carried out from May 1st to May 31st 2017. Descriptive statistics were produced for age, sex, origin, time of arrival, diagnosis and outcome. A specific subgroup analysis was performed for rhinologic emergencies. A basic cost analysis was ran.

**Results:** Over the study period, 190 patients were referred to the ENT emergency service. Twenty percent patients presented with nose or sinus complaint (36.8% with otological or neuro-vestibular primary complaint, 43.2% with laryngeal or neck complaint). Nose and throat complaints were more likely to present at night or on weekends. Ear complaints were more likely to present during business hours. Rhinologic complaint was more likely to require technical or surgical management than ear or throat complaint. Patients with nose complaint required minor procedure in 43.2% cases (35.6% of the total minor procedures), and required surgical procedure in 13.5% cases. Among the total ENT emergency surgical procedures, 62.5% were rhinologic ones, involving the nose (50%) or the sinus (12.5%). Ear or throat initial complaint were more likely to require no treatment or ambulatory management.

**Conclusion:** The emergency rhinologic activity is justified in our hospital. An initial rhinological complaint was more likely to require specific ENT management than other complaints. ENT cover is an efficient service provision, especially for rhinologic emergencies.

## BASELINE SNOT-22 AS OUTCOME PREDICTOR: A POWERFUL TOOL JUST AT HAND

**Dr. Florence Rogister<sup>1</sup>**, Dr. Clotilde De Dorlodot<sup>2</sup>, Dr. Edward Ansari<sup>3</sup>, Dr. Mihaela Horoi<sup>4</sup>, Prof. Philippe Lefebvre<sup>1</sup>, Prof. Philippe Eloy<sup>5</sup>, Prof. Anne-Lise Poirrier<sup>1</sup>

<sup>1</sup>University Hospital of Liege, Liège, Belgium, <sup>2</sup>University Hospital of Dinant-Godinne, Namur, Belgium, <sup>3</sup>Antwerp University Hospital, Antwerp, Belgium, <sup>4</sup>University Hospital Saint-Pierre, Brussels, Belgium, <sup>5</sup>Catholic University of Louvain, Woluwe-Saint-Lambert, Belgium

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** SNOT-22 was initially designed for rhinosinusitis, but was recently validated in various nose conditions. Nose or sinus complaint is a common cause of consultation in primary care or ENT clinic. Therefore we sought to optimize the simple and versatile instrument SNOT-22. Our aim was to determine the outcome of patients and healthy volunteers solely based on the pattern of the baseline SNOT-22 in a multi-center study.

**Methods:** Sixty-six healthy volunteers and 383 patients presenting to the rhinology clinic of the ENT academic departments of Godinne, Liege and Brussels participated in this study. SNOT-22 from all participants were collected blindly prior to diagnosis. Participants were then categorized in 5 groups according to their outcome: control, medical rhinologic condition, sinus surgery, functional nose surgery. SNOT-22 items relevant to each group were determined by multinomial logistic regression.

**Results:** Control subjects showed the lowest SNOT-22 scores for all items. Medical rhinologic patients had lower scores than surgical patients. Patients requiring sinus surgery and those listed for nose surgery exhibited a specific pattern of SNOT-22 score. Most relevant items were #1 need to blow nose, #5 post-nasal discharge, #6 thick nasal discharge, #10 facial pain and #21 sense of smell.

**Conclusions:** Distinct SNOT-22 patterns were correlated to subjects outcome. SNOT-22 was able to differentiate patients from controls, to score severity, and could further provide an accurate description of pathology. Baseline SNOT-22 could localize pathology in the sinus or in the nose and predict the need for surgical treatment.

## COMPARISON OF PIEZOSURGERY AND HAMMER-CHISEL IN ENDOSCOPIC DACRYOCYSTORHINOSTOMY

M.D İbrahim Çukurova<sup>2</sup>, **M.D. Suphi Bulgurcu**<sup>1</sup>, M.D İlker Burak Arslan<sup>2</sup>

<sup>1</sup>Sultan Abhamid Han Training and Research Hospital, İstanbul, Türkiye, <sup>2</sup>Tepecik Training and Research Hospital, İzmir, Türkiye

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** In this study, we compared the advantages and disadvantages of piezosurgery and hammer-chisel used in endoscopic dacryocystorhinostomy (EDCR).

**Methods:** Between January 2012 and January 2016, 10 women and 8 men in whom piezosurgery was used (group 1) and 11 women and 7 men in whom hammer-chisel was used (group 2) during EDCR operations were compared retrospectively. Recurrence, operation time, postoperative bleeding, and operative cost were evaluated in patients who were followed for an average of 11.8 months. In addition, visual analogue scale (VAS) was used to assess pain at 6 hours postoperatively.

**Results:** No recurrence was observed in group 1, but recurrence was observed in 2 patients in group 2 (P=0.685). There was no postoperative bleeding in both groups. The mean duration of operation was 30.6+8.2 minutes in group 1 and 46.8+9.5 minutes in group 2 (P=0.038). The VAS score in group 1 was 2.7+1.4 and the VAS score in group 2 was 5.8+2.2 (P=0.01). piezosurgery causes an additional \$ 325 for each patient while the use of the hammer-chisel does not incur additional costs.

**Conclusions:** Piezosurgery causes shorter operation time, less recurrence and less pain when compared with hammer-chisel.

## THE OUTCOMES OF POSTOPERATIVE ASTAXANTHIN TREATMENT ON NASAL MUCOSA WOUND HEALING

**Dr Lavinia-Gianina Manciu<sup>1</sup>**, Dr Cristian Berce<sup>1</sup>, Dr Flaviu Tabaran<sup>2</sup>, Mr Dorin Manciu<sup>3</sup>, Prof Silviu Albu<sup>1</sup>  
*<sup>1</sup>Iuliu Hațieganu University Of Medicine And Pharmacy, Cluj-Napoca, Romania, <sup>2</sup>University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania, <sup>3</sup>Babes-Bolyai University, Faculty of Environmental Science and Engineering, Cluj-Napoca, Romania*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** This study aims to determine if the use of oral Astaxanthin in the postoperative period can improve healing of the nasal wound after FESS. Reducing oxidative stress after surgical trauma has proved beneficial, enhancing wound closure and decreasing scar formation. We studied the effects of Astaxanthin, a powerful antioxidant, on the nasal mucosa healing, in comparison to Dexamethasone or no treatment.

**Methods:** A unilateral septal mucosa incision was performed on 60 healthy Wistar rats under general anesthesia. A group of 20 rats received a dose of 0,15 mg/kg Dexamethasone through intraperitoneal injection, shortly after surgery, continued once daily until day 4; another group of 20 rats received a dose of 100mg/kg Astaxanthin through oral gavage, once daily, postoperatively until day 4; the remaining group of 20 rats received no treatment. The animals ( n=8 ) were killed on day 5, 14 and 28 and their heads were harvested for histological examination.

**Results:** The samples were analyzed after staining with Haematoxylin and Eosin, Masson's Trichrome stain and Toluidine Blue. We measured the Epithelial and Subepithelial Thickness Index, Subepithelial Fibrosis Index and calculated the Goblet Cell Index. Histologically, the Astaxanthin group showed complete mucosal regeneration by day 14, glandular regeneration by day 28, absent subepithelial fibrosis and no synechia formation.

**Conclusions:** The use of Astaxanthin appears to have positive effects on wound healing, showing less scar formation and favourable, enhanced healing of the epithelium and regeneration of the mucosal and submucosal glands.



## A RETROSPECTIVE ANALYSIS OF 538 SINONASAL FUNGUS BALL CASES TREATED AT A SINGLE TERTIARY MEDICAL CENTER IN KOREA (1996–2015)

Dr Young Hoon Yoon<sup>1</sup>, Prof. Ki Sang Rha<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology-Head and Neck Surgery, Chungnam National University, School of Medicine, Daejeon, Korea, Daejeon, South Korea*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** Sinonasal fungus ball (FB) is a type of non-invasive fungal rhinosinusitis affecting immunocompetent hosts. FB, previously considered rare, has been reported with increasing frequency. We reviewed our experience of 538 cases over the past 20 years.

**Methods:** We retrospectively examined clinical records including clinical presentations, radiological findings, management, and outcomes of FB patients who have undergone surgery for treatment. The number of FB patient who underwent endoscopic sinus surgery was calculated annually. Causal relationships between structural variations and FB were also investigated.

**Results:** The number of FB patients who underwent sinus surgery has increased. The mean age was 58.3 years, and the gender ratio was approximately 2 (female): 1 (male). While the most common presenting symptoms of maxillary sinus FB patients were nasal symptoms, such as postnasal drip and nasal obstruction, sphenoid sinus FB patients presented with headache mostly. On computed tomography (CT) scans, the most common finding was intralesional hyperdensity (77.3%). There was no significant correlation between the presence of FB and structural variations (nasal septal deviation, concha bullosa, Haller cell). Median follow-up period of the patients was 11 months. Recurrence or residual disease occurred in only 6 (1.1%) cases.

**Conclusions:** The number of FB patient who underwent surgery has increased steadily over the past 20 years. FB should be considered in patients with unilateral nasal symptoms and unexplained headaches. A preoperative CT scan is an essential tool in making diagnosis easier and faster. Endoscopic surgery is the treatment of choice, with a low morbidity and recurrence rate.

## ISOLATED SPHENOID SINUS DISEASE: ANALYSIS OF CASES BASED ON RADIOLOGISTS' DIAGNOSTIC REPORTS

**M.D. Naoki Ashida<sup>1</sup>**, M.D. Yohei Maeda<sup>2</sup>, M.D. Masaki Hayama<sup>2</sup>, M.D. Hideyuki Inohara<sup>2</sup>, M.D. Takahiro Kitamura<sup>3</sup>, M.D. Yoshifumi Yamamoto<sup>3</sup>, M.D. Atsuhiko Uno<sup>3</sup>

<sup>1</sup>Suita Municipal Hospital, Osaka-shi, Japan, <sup>2</sup>Osaka University Hospital, Suita-shi, Japan, <sup>3</sup>Osaka General Medical Center, Osaka-shi, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Isolated sphenoid sinus disease (ISSD) is defined as a disease limited to the lateral sphenoid sinus that may involve inflammation, cysts, tumors, or fungal balls/infections. ISSD is rare, but it may induce severe complications. Therefore, prompt and thorough management is recommended. Many studies have described ISSD treatments, but the frequency of ISSD diagnoses in untreated patients or those who are not referred to an otolaryngologist remains unclear. This study aims to clarify diagnoses and identify the frequency of referrals using radiologists' reports to detect ISSD patients.

**Methods:** To detect ISSD from past computed tomography (CT) scans and magnetic resonance imaging (MRI) examinations, we searched radiologists' reports made between January 2007 and March 2017 at Osaka General Medical Center. We filtered search results by using keywords, such as "sphenoid" in Japanese. We reviewed all identified cases of ISSD and made diagnoses. Lastly, we checked whether each patient was referred to the otolaryngology department.

**Results:** Based on our search results, we examined 1,115 CT and MRI images, and radiologists' reports, and decided to include 223 ISSD cases. Next, we categorized the ISSD cases according to the examination results: 116 cases involved inflammation (52%); 37 involved a fungus ball (17%); 28 involved cysts (12%); and 42 remained unclassified (19%). These results were comparable to previous reports. We also determined that 48 patients (22%) were referred to the otolaryngology department, and 172 patients (77%) were not.

**Conclusion:** This study shows that ISSD patients were not adequately referred to the otolaryngology department.

## NASOPHARYNGEAL TONSIL INFLAMMATION: REASONS.

**Professor Elena Radtsig<sup>1</sup>**, Dr Natalia Zlobina<sup>1</sup>

<sup>1</sup>*Russia National Research Medical University, Moscow, Russian Federation*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Nasopharyngeal tonsil inflammation (NTI) is not rare in children especially in common cold/flu season. The role of bacterial agents and viruses like Herpes simplex/ Epstein-Barr/Cytomegalovirus is discussed widely. There aren't a lot of data about "non-flu" viruses' (common cold reason) role in NTI.

The aim of our research was the detection of non-flu respiratory viruses in NTI patients.

**Material and methods.** 106 patients aged from 6 months to 12 years were under our observation. The routine ENT, endoscopic, tympanometry and complex microbiological examination (routine for bacteria and PCR for viruses (adeno-, parainfluenza-, RS-, rhino-, metapneumo-, boca-, corona-) were performed in all cases.

**Results/** The boys predominated (71%) in NTI patients. The chronic NP was revealed in children from 3 to 7years mostly (53,9%). The 'non-flu" viruses were revealed in 69,6% NTI swabs: in 35,3% only, in combination with bacteria in 24,5 %, with fungi in 6,9% and with bacteria and fungi in 2,9%. The "microbiological negative" NTI was revealed in 18,6 % cases.

**Conclusion/** The "non-flu" viruses' detection (in patients without common cold symptoms) indicate their colonization and continuous replication in nasopharyngeal tonsil and support the nasopharynx inflammation

## ISOLATED SPHENOID LESIONS

Dr Ali Almomen<sup>1</sup>

<sup>1</sup>*King Fahad Specialist Hospital Dammam, Dammam, Saudi Arabia*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Isolated sphenoid pathology is a relatively uncommon disease.

In this study, we present our experience in the minimal invasive navigation-assisted endoscopic approach to 50 cases(2009-2017) of different isolated pathologies affecting the sphenoid sinus.

Different pathologies like isolated bacterial sphenoiditis, symptomatic hypoplastic sphenoiditis, pediatric and adult allergic fungal sinusitis, aspergillosis of the lateral recess of the sphenoid, fungal ball, invasive fungal sinusitis, multiple csf leaks, mucopyoceles with skull base erosions, different benign and malignant tumors(osteoma, inverted papilloma, lymphoma and carcinoma invading the cavernous sinus).

The clinical presentations, the radiological findings and the minimal invasive endoscopic navigation-assisted management will be presented and discussed.

### Conclusions:

although rare, isolated sphenoid sinus pathology have a common presentation and symptom complex but a variable pathologic and prognostic range.

Headache is the most common symptom and ct scan is needed to confirm the diagnosis.

The pathology ranges from bacterial sphenoidal sinusitis to an invasive carcinoma to the cavernous sinus.

## TEAM APPROACH IN LARGE SINONASAL TUMORS

**Dr. Dragos Palade<sup>1</sup>**, Dr. Gabriel Mazilu<sup>2</sup>, Dr. Petronela Zaharia<sup>1</sup>, Prof. Mihail Dan Cobzeanu<sup>1</sup>

<sup>1</sup>"Sf. Spiridon" Clinical Emergency Hospital, ENT Department, Iasi, Romania, <sup>2</sup>"Sf. Spiridon" Clinical Emergency Hospital, Plastic and Reconstructive Surgery Department, Iasi, Romania

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Sinonasal cancers are quite rare, with a percentage of about 3% of the upper respiratory tract. They usually involve the nasal cavity and paranasal sinuses but they can extend to surrounding structures without any symptoms until late in the evolution (nasal obstruction or persistent nasal congestion, chronic sinus infections, headache, fatigue). Their proximity to vital structures (optic nerves, brain) challenge the surgeons in proceeding with the reconstructive treatment. The common extension areas for this type of tumour are the cribriform plate, crista galli and the roof of the ethmoid, the orbit and sometimes, in the facial soft tissues. The best way to check the dural invasion is MRI.

In order to control the tumor (clear margins) extensive resections are needed and that ends in large cranial and skin defects. Usually, the multidisciplinary team must cover these defects using different flaps and prosthesis.

The aim of this paper is to underline the role of the reconstructive surgery in the sinonasal cancers approach.

Methods: We selected three cases from patients treated in our department, who required complex and particular surgical approach and reconstruction.

Conclusions: Reconstructive surgery plays a major role in the treatment of sinonasal cancers and sometimes the surgeon must modify the classic approaches applying them to every particular patient.

Key words: sinonasal tumours, reconstructive approach, surgical treatment

## PEDIATRIC FESS & ENDOSCOPIC SKULL BASE SURGERY

Dr Ali Almomen<sup>1</sup>

<sup>1</sup>*King Fahad Specialist Hospital Dammam, Dammam, Saudi Arabia*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Pediatric functional endoscopic sinus surgery ( FESS) & endoscopic skull base surgery (ESBS) has changed the current management of pediatric sinonasal and skull base disorders.

The indications for endoscopic skull base surgery continue to expand as experience and technology evolve.

50 pediatric pts. With different pathologies ( revision choanal atresia,complicated sinusitis,allergic fungal sinusitis with orbital and cranial estension ,invasive fungal sinusitis(acute and chronic),isolated sphenoid lesions,mucopyoceles and benign and malignant Tumors abutting the orbit,infratemporal fossa,cavernous sinus and skull base, different sites of csf leaks and meningoencephaloceles and pituitary lesions will be presented and discussed.

## THE UNILATERAL NASAL MASS(POLYP};DIFFERENT CAUSES; DIFFERENT MANAGEMENT

Dr Ali Almomen<sup>1</sup>

<sup>1</sup>*King Fahad Specialist Hospital Dammam, Dammam, Saudi Arabia*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Objective:

The aim of the review was to analyse the varied presentations of patients with unilateral nasal mass and to identify features suggestive of neoplastic pathology.

### Methodology:

A retrospective review of all cases of unilateral nasal mass/polyp presenting at a tertiary care hospital were analysed and grouped as per their histopathological diagnosis as inflammatory and neoplastic.

### Results:

60 pts (pediatric and adults) were analyzed.

The common inflammatory causes include allergic fungal sinusitis and antrochoanal polyps.

The neoplastic polyps includes the inverted papilloma and the squamous carcinoma polyps.

### Conclusion:

The clinician should have a high index of suspicion to rule out a neoplastic aetiology in all cases of unilateral nasal mass.

## ENDOSCOPIC ENDONASAL APPROACH TO ANTERIOR SKULL BASE TUMOURS – OUR EXPERIENCE AT A SKULL BASE CENTRE IN THE UK

Mr Sandeep Mistry<sup>1</sup>, Mr Atul Tyagi<sup>1</sup>, Mr Nicholas Phillips<sup>1</sup>, Mr Paul Nix<sup>1</sup>

<sup>1</sup>Leeds Teaching Hospitals, Leeds, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Introduction

Endoscopic Endonasal Approaches (EEA) for anterior skull base tumours has gained popularity in the United Kingdom (UK) over the last decade as a viable treatment option when compared to the more traditional open transcranial approaches. There remains a learning curve for skull base surgeons utilising this technique in order to obtain successful outcomes whilst minimising complications. We discuss our experience at a skull base centre in the UK.

### Methods

Retrospective clinical record review of EEA for anterior skull base tumours (excluding pituitary adenoma) held on the Leeds General Infirmary database (2009 - 2017). Data obtained included patient demographics, tumour pathology, surgical resection, adjuvant treatments and complications (e.g. Cerebrospinal Fluid (CSF) leak, arterial injury and mortality).

### Results

A total 50 operations were identified. Pathology included Clival Cordoma (n=9), Craniopharyngoma (n=14), Meningioma (n=8), Esthesioneuroblastoma (n=3), Adenocarcinoma (n=1) and others (n=6). Age ranged from 6 to 93 years (mean 41.3 years), with 8 (19.5%) paediatric cases. Open approaches were required for 10 of the cases (20.0%), whereas 22 patients (53.6%) required some form of adjuvant non-surgical treatment. There were 31 cases (62.0%) requiring repair of CSF leak during primary surgery and 8 cases (16.0%) of secondary CSF leak. There was no incidence of intra-operative arterial injury or mortality.

### Conclusion

Our experience of EEA for selected anterior skull base tumours demonstrates favourable outcomes. As UK skull base teams begin to take on larger numbers and more challenging cases, more meaningful comparisons will be able to be made against traditional open approaches.



## MICRODEBRIDER-ASSISTED RHINOPHYMA EXCISION: A CASE SERIES

Mr Marios Stavrakas<sup>1</sup>, Mr Vinay Varadarajan<sup>1</sup>, Professor Hisham Khalil<sup>1</sup>

<sup>1</sup>*Derriford Hospital, Plymouth, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

Rhinophyma represents a progressive deformity of the nose which leads to cosmetic disfigurement and has a significant impact on the patient's quality of life. This pathological entity originates from hyperplasia of sebaceous gland tissue, connective tissue and vessels of the nose and is associated with rosacea and more specifically, stage III rosacea. Surgical treatment is the method of choice. We aim to present a novel treatment approach using microdebrider.

### Methods

We present three cases of rhinophyma that we treated with microdebrider- assisted excision. The procedure was divided in two main steps: scalpel excision of the main bulk of the rhinophyma and then further contouring with the microdebrider. All patients had weekly follow up for the first 6 weeks and long term follow up afterwards.

### Results

All patients had uneventful recovery and satisfactory cosmetic outcomes. No postoperative infections or other complications were reported in our case series. The use of the microdebrider reduces the operating time, preserves the islands of skin regeneration and allows finer manipulations than the standard scalpel techniques.

### Conclusion

Microdebrider-assisted rhinophyma excision is a safe approach, with good aesthetic results. Larger series of patients need to be examined in order to establish the value of the method.

## MUCOPYOCELE DEVELOPMENT SECONDARY TO NASAL FOREIGN BODY : A CASE PRESENTATION

Dr Fotini Ieridou<sup>2</sup>, **Mr Marios Stavrakas<sup>1,2</sup>**, Professor Petros Karkos<sup>2</sup>

<sup>1</sup>Derriford Hospital, Plymouth, United Kingdom, <sup>2</sup>AHEPA Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

Mucoceles represent slow growing, benign lesions of the paranasal sinuses that result from sinus ostia obstruction. Risk factors that are associated with mucocele formation include infection, previous sinus surgery, trauma, radiotherapy or tumours. Foreign body is a rare risk factor but can result in mucocele formation, as it is presented in our case.

### Methods

A 21-year-old lady presented to our department with a 2-month history of unilateral nasal obstruction, discharge and a feeling of pressure and headache over the maxillary sinus and the infraorbital area. There was no history of epiphora, fever, diplopia or hyposmia. She was otherwise fit and well and her past medical history included a tonsillectomy in childhood as well as dacryocystorhinostomies (DCR) when she was 8 and 15 months of age. On flexible nasendoscopy, there was a bulging towards the septum above middle turbinate. A CT scan of the sinuses was carried out and demonstrated a mass involving the left ethmoidal sinus with mucosal thickening and extension into the nasolacrimal duct.

### Results

The patient underwent FESS and intraoperatively, mucoid nasal discharge was suctioned under the left inferior turbinate that revealed a foreign body (O' Donoghue stent that was not removed postoperatively). The patient had an uneventful recovery and her symptoms disappeared completely.

### Conclusions

To conclude, CT scan is the imaging modality of choice and the preferred treatment method is endoscopic marsupialization. Our case has underlined the importance of history taking, diagnostic evaluation and the correlation of patient's surgical history with the clinical and radiological findings.

## PROGNOSTIC FACTORS OF ACUTE RHINOSINUSITIS WITH ORBITAL COMPLICATIONS

Dr. Tomoyasu Tachibana<sup>1</sup>, Dr. Shin Kariya<sup>2</sup>, Dr. Takuma Makino<sup>2</sup>, Dr. Takenori Haruna<sup>1</sup>, Dr. Yasutoshi Komatsubara<sup>1</sup>, Dr. Yuko Matsuyama<sup>1</sup>, Dr. Yuto Naoi<sup>1</sup>, Prof. Yori-hisa Orita<sup>3</sup>, Prof. Kazunori Nishizaki<sup>2</sup>  
<sup>1</sup>Japanese Red Cross Society Himeji Hospital, Himeji City, Japan, <sup>2</sup>Okayama University, Okayama, , <sup>3</sup>Kumamoto University,

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Regarding ARS with orbital complications, there are few studies on prognostic factors. To delineate prognostic factors of ARS with orbital complications, the present study retrospectively investigated the clinical features of patients.

### Methods

We conducted a retrospective analysis of medical records of 18 patients with ARS with orbital complications. The duration of recovery was defined as the time from initial diagnosis to complete resolution of local findings and all symptoms. Orbital complications due to postoperative cysts or mycosis were excluded.

### Results

The 18 patients comprised 10 males and 8 females. The mean duration between symptom onset and initial visit was 4 days. The mean WBC count and serum CRP level were 10883/ $\mu$ L and 5.00 mg/dL. Chandler score showed grade 1 in 4, grade 2 in 8, and grade 3 in 6. Three adult patients underwent surgical intervention. The average period of recovery was 7.4 days.

In univariate analysis, the duration of recovery was significantly shorter among pediatric cases ( $p = 0.0084$ ) and cases treated within 4 days from onset of symptoms ( $p = 0.0424$ ). In multivariate analysis, the duration of recovery tended to be shorter in pediatric patients than in adults ( $p = 0.0768$ ).

### Conclusions

None of 6 pediatric patients required any surgical intervention. In addition, the duration of recovery was significantly shorter in pediatric patients. The present study suggested that ARS with orbital complications may have better clinical course in pediatrics than in adults.

**FUNCTIONAL ANATOMY OF THE NASAL BONES AND ADJACENT STRUCTURES. CONSEQUENCES FOR NASAL SURGERY.**

**MD, Phd Mariola Zagor-Popko<sup>1</sup>**, Suzanne A.M.W. Verlinde-Schellekens<sup>2</sup>, Professor, MD, PhD Egbert H. Huizing<sup>3</sup>, Professor, MD, PhD Ronald L.A.W. Bleys<sup>2</sup>

<sup>1</sup>*Department of Otorhinolaryngology, Division of Dentistry, Medical University of Warsaw, Warsaw, Poland,* <sup>2</sup>*Department of Anatomy, University Medical Center Utrecht, Utrecht University, Utrecht, The Netherlands, , ,* <sup>3</sup>*University Medical Center Utrecht, Utrecht University, Utrecht, The Netherlands, ,*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

The periosteum of the nasal bones, the periosteal-perichondrial nasal envelope, and the cartilaginous support of the bony vault were studied in serial coronal sections of four human cadaver noses. To differentiate between the various tissue components, the sections were stained according to the Mallory-Cason and Verhoeff-Van Gieson methods. The results demonstrated: 1. the presence of clearly distinguishable layers of the periosteum covering the nasal bones; 2. the presence of a continuous periosteal-perichondrial covering of the bony and cartilaginous nasal vaults; 3. the way the cartilaginous support of the bony vault is constructed. The findings described in the present study may have clinical relevance in nasal surgery.

## PRESERVATION OF OLFACTION FOLLOWING ENDOSCOPIC PITUITARY SURGERY

MD Fumihiko Kuwata<sup>1</sup>, MD, PhD Masaaki Ishikawa<sup>1</sup>, MD Masahiro Tanji<sup>2</sup>, MD, PhD Tatsunori Sakamoto<sup>3</sup>, MD, PhD Masaru Yamashita<sup>1</sup>, MD Mami Matsunaga<sup>1</sup>, MD, PhD Koichi Omori<sup>1</sup>, MD, PhD Takayuki Nakagawa<sup>1</sup>  
<sup>1</sup>Kyoto University Graduate School Of Medicine, Kyoto, Japan, <sup>2</sup>Department of Neurosurgery, Kyoto University Hospital, Kyoto, Japan, <sup>3</sup>Department of Otolaryngology, Head and Neck Surgery, Kitano Hospital, Osaka, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims:

Preservation of olfaction is included in critical post-operative complications in endoscopic pituitary surgery (EPS). The aim of this study was to investigate factors for olfactory deterioration following EPS.

### Methods:

Medical records of patients who underwent EPS with binostril endonasal transsphenoidal approach at Kyoto University Hospital from January 2015 to March 2017 were reviewed. Olfactory function was assessed with T&T olfactometry before and after EPS. An effect of age, sex, management of middle and superior turbinates, use of a pedicled nasoseptal flap (NSF) or previous history of pituitary adenoma surgery on olfactory dysfunction was examined by univariate analyses.

### Results:

In total, 26 patients (male: 12 and female: 14, mean age: 53.7 years) were included in this study. Resection of middle and/or superior turbinates was performed in 13/26 patients, and a pedicled NSF was used in 11/26 patients. Revision surgery was performed in 5/26 patients. Olfactory deterioration was identified in four patients (male: 3, female: 1 and mean age: 58.8 years). Turbinate resection was done in 2/4 patients. A pedicled NSF was used in 2/4 patients. Three of the four patients underwent revision surgery. The univariate analyses revealed a significant effect for revision surgery ( $p = 0.014$ ). Other factors had no significant effect on the incidence of olfactory dysfunction.

### Conclusion:

Our results indicate that we should pay particular attention for a risk of olfactory dysfunction following EPS in revision surgery cases.

## ORBITAL SUBPERIOSTEAL HEMATOMA WITH SINUS INFECTION TREATED VIA TRANSNASAL ENDOSCOPIC SURGERY

Dr. Yohei Maeda<sup>1</sup>, Dr. Masaki Hayama<sup>1</sup>, Dr. Kazuya Takeda<sup>1</sup>, Dr. Takeshi Tsuda<sup>1</sup>, Prof. Hidenori Inohara<sup>1</sup>

<sup>1</sup>*Osaka University, Suita, Japan*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Orbital subperiosteal hematoma is not a common condition, and is normally associated with trauma. Orbital subperiosteal hematoma associated with sinus infection is rarely reported. Past reports have shown that sinus infections are most commonly treated via endoscopic sinus surgery, and subperiosteal hematoma is most commonly treated via external drainage. This study describes a case involving transnasal endoscopic surgery without external drainage and presents a review of the literature.

**Methods:** We diagnosed a patient with orbital subperiosteal hematoma through CT scan and MRI, and treated the patient via transnasal endoscopic surgery without external drainage under general anesthesia. During the operation, we performed anterior ethmoidal artery ligation and removed a subperiosteal hematoma that extended to the roof of the orbit.

**Results:** In addition to this case, there has been only one reported case involving subperiosteal hematoma with sinus infection treated with transnasal endoscopic surgery without external drainage. In the previous case, the hematoma was localized in the medial wall of the orbit; it did not extend to the roof of the orbit.

**Conclusion:** In some cases, an orbital subperiosteal hematoma that extends to the roof of the orbit may be treated with transnasal endoscopic surgery without external drainage or facial incision.

## IMMUNOMODULATORY EFFECT OF CLONORCHIS SINENSIS ON ALLERGIC RHINITIS

**Dr. Hyung Chae Yang<sup>1</sup>**, Dr. Sung Min Jin<sup>1</sup>, Prof. Kwang Il Nam<sup>2</sup>, Dr. Jong Yuap Seong<sup>1</sup>

<sup>1</sup>Chonnam National University Hospital, Gwangju, South Korea, <sup>2</sup>Chonnam National University, Gwangju, South Korea

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Introduction

Allergic rhinitis are inflammatory airway allergic diseases caused by Th2-deviated immune response. The hygiene hypothesis is a hypothesis that suggests the Th2-deviated immune response of allergic disorders are linked to the decreasing incidence of infection such as parasites. Base on this idea, we analyzed the immunomodulatory effect of *C. sinensis* on mouse model of allergic rhinitis.

### Material and Method

The OVA-induced allergic rhinitis mouse model was established using 4-week-old female BALB/C mice. *C. sinensis* were administrated orally in treatment group (Tx). RPMI medium was administrated to Positive control group (PC). Nasal symptoms, histology of nasal cavity, Th2, Th1, and Treg cytokines were measured by real-time polymerase chain reaction.

### Results

The frequencies of nasal rubbing in negative control group (NC), PC and Tx were 6, 24 and 11 times respectively. Nasal symptom was improved in *C. sinensis* treatment group. Levels of IL-4 in Tx was higher than that of PC. However, TFG-b was higher than PC. Th1 cytokines were elevated in Tx.

### Conclusion

Administration of *C. sinensis* could alleviate the allergic symptoms in allergic rhinitis mouse model. Although the results were certainly not what we expected, the results of this study showed the immunomodulation by *C. sinensis*. Considering the facts that treatment dosage and administration route are important in immunologic experiment, further dosage adjustment and treatment route change may result in better outcome.

## EMPLOYMENT OF HYDRODEBRIDER IN TREATMENT OF CHRONIC RHINOSINUSTIS AND BACTERIAL COLONISATION IN NOSE

Dr. Katarzyna Lazecka<sup>1</sup>, Dr Iwonna Gwizdalska<sup>1</sup>, Dr Edyta Witkowska<sup>1</sup>, Prof. Pawel Strek<sup>4</sup>, Sandra Wawszczyk<sup>1</sup>, Ass. Prof. Piotr Skarzynski<sup>1,2,3</sup>, Prof. Henryk Skarzynski<sup>1</sup>

<sup>1</sup>*Institute Of Physiology And Pathology of Hearing, Kajetany/ Warsaw, Poland*, <sup>2</sup>*Institute of Sensory Organs, Kajetany, Poland*, <sup>3</sup>*The Heart Failure and Cardiac Rehabilitation Department, Medical University of Warsaw, Warsaw, Poland*, <sup>4</sup>*Otolaryngology Clinic, Jagiellonian University, Collegium Medicum, Cracow, Poland*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** CRS is one of the most common health problems. According to epidemiological data, it affects 15% of Polish population. Study aims to identify bacterial cultures and existence of antibiotic resistance among patients with CRS and estimate of efficiency of Hydrodebrider in surgical treatment.

**Methods:** All patients continued full conservative consistent treatment 2012 EPOS. Demographic and clinical information was gathered from patients' medical history. Microbiological results of nasal swabs, including bacterial and fungal culture were analyzed. Hydrodebrider was used during the surgery. In follow up all patients had complete clinical examination and endoscopic cleaning of surgery site every 2 weeks. After 12 weeks the effectiveness of treatment was based on clinical status of patient and nasal swabs were removed.

**Results:** Colonisation was found in all nasal swabs. Patients had Methicillin-Sensitive Staphylococcus Aureus (coexisting Pseudomonas Aeruginosa), Haemophilus Influenzae (coexisting Streptococcus Pneumoniae), other had Streptococcus Pneumoniae. Other nasal swabs included: Proteus Mirabilis, Staphylococcus Aureus MSSA macrolides-lincosamidesstreptogramins B resistant, Enterococcus Cloace, Pseudomonas Aeruginosa and Staphylococcus Epidermidis Methicillin-Susceptible Coagu lase-Negative were detected separately. Patients also had a Methicillin-Resistant Staphylococcus Aureus. They underwent: opening of maxillary sinus, with/or ethmoidectomy, frontoethmoidectomy, sphenectomy, frontosphenoethmoidectomy, modificate Lothrop operations. In every operation Hydrodebrider was used which provided better cleaning of sinuses after surgery, faster healing of mucosa and satisfaction of patients. After 12 weeks control nasal swabs were taken. The result was negative in 94% cases. The worst results were observed in patients with MRSA colonisation.

**Conclusion:** Hydrodebrider is helpful instrument in treatment of patients with CRS and nasal bacterial colonisation.



## GIANT CUTANEOUS SQUAMOUS CELL CARCINOMA OF NOSE WITH FACIAL ADENOPATHY: A CASE REPORT

Dr Daniela Vrinceanu<sup>2</sup>, Dr Mihai Dumitru<sup>1</sup>, Dr Ana Maria Oproiu<sup>1</sup>, Dr Maria Sajin<sup>1</sup>, Dr Madalina Georgescu<sup>1</sup>, Dr Romica Cergan<sup>1</sup>

<sup>1</sup>Carol Davila University of Medicine and Pharmacy, Bucharest, Romania, <sup>2</sup>Emergency University Hospital Bucharest, Bucharest, Romania

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Although rare, patients with giant tumors at the level of the nose are challenging due to the necessity of team effort for surgical excision followed by plastic facial reconstruction. Facial cutaneous carcinomas are frequently associated with occupational exposure to the sun. Basocellular carcinomas represent the less aggressive variant, with local extension, but with no remote metastases. Squamous carcinomas represent the aggressive variant, with local-regional and remote extension.

**Methods:** We present the clinical case of an 81-year old woman, from a rural environment, therapeutically negligent with a giant tumor of the nasal pyramid, with a 2-year evolution, under repeatedly self inflicted trauma.

**Results:** The CT scan exam with IV contrast shows an intensely iodophilic tissue expansion process localized at the level of the right nasal wing of 49/17 mm, without changes in the adjacent bone structure. The tumor also associated right genial adenopathy of approximately 6 months also described on the CT scan. The patient was operated on by a team joining ENT and plastic surgeons, with further oncology treatment and with a satisfactory aesthetic and functional result.

**Conclusion:** We consider that the repeated self inflicted trauma of the tumour favoured the regional extension with the occurrence of facial adenopathy and increased the tumour degree of aggressiveness. The pathology diagnosis was ulcerated acantholytic squamous cell carcinoma with lymph nodes metastasis. We also analyse all the possible surgical solutions for the facial reconstruction during the initial resection.

**Keywords:** giant, cutaneous squamous cell carcinoma, nose, reconstruction

## APPLICATION OF BEVACIZUMAB IN DIFFUSE NASAL PAPILOMATOSIS

Dr Xavier Gonzalez-Compta<sup>1</sup>, Dr Felipe Benjumea<sup>1</sup>, Dra Marta Fulla<sup>1</sup>, Dr Ricardo Bartel<sup>1</sup>, Dr Enric Cisa<sup>1</sup>, Dr Francesc Cruellas<sup>1</sup>, Dr Manel Mañós<sup>1</sup>

<sup>1</sup>Hospital Universitari de Bellvitge, Barcelona, Spain

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

Diffuse nasal papillomatosis is a form of recurrent respiratory papillomatosis (RRP) with predominant or exclusive nasal involvement. In this work we have tried the administration of an antiangiogenic substance (Bevacizumab), used as an adjuvant treatment in the laryngeal involvement of the RRP, to reduce the rate of recurrence in the nasal location.

### Methods

An open prospective study with 6 adult patients with diffuse nasal papillomatosis has been performed. Lesions have been excised by means of microdebrider along with the sublesional injection of bevacizumab (12.5 to 25mg in 3 to 6 ml). Type of HPV, extension of and recurrence rate has been determined with a minimum follow-up of 6 months.

### Results

After a first treatment, 2 of the 6 patients have no visible papillomas. The other 4 have recurrence, two of which have been fully retreated by microdebrider and sublesional bevacizumab injection. The remaining 2 patients have small recurrences treated solely with sublesional injection of bevacizumab. Patients with HPV type 11 are those who had the most extensive recurrences. There have been no local or systemic complications attributable to the administration of bevacizumab.

### Conclusions

Bevacizumab has been shown to be partially effective and completely safe in the treatment of diffuse nasal papillomatosis in adults. More studies are needed to determine the most useful dose of this drug as adjuvant treatment in the nasal involvement of the disease, as well as to determine if the type of HPV has an incidence in the recurrence rate.

## EFFECT OF NASAL POLYP ON OLFACTORY FUNCTION IN CHRONIC RHINOSINUSITIS

MD Seung Hoon Lee<sup>1</sup>, MD Jae Woo JOO<sup>1</sup>, MD In Sik SONG<sup>1</sup>, MD Hee-Chul YUN<sup>1</sup>

<sup>1</sup>Dept of Otorhinolaryngology Head and Neck Surgery, Korea University, Ansan-si, Gyeonggi-do, South Korea

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Olfactory disturbance is the one of major sinonasal symptoms in chronic rhinosinusitis (CRS) with nasal polyps (NP). The aim of this study is to investigate the relationship between degree of nasal polyp size and olfactory dysfunction in CRS.

A total of 304 subjects (mean age =  $35.29 \pm 21.37$  years; male : female = 205 : 99) with CRS were included in the study. All participants were divided into 4 groups according to the degree of nasal polyp size: group I = no polyp (n=79); group II = both or unilateral simple polyp (n=85); group III = unilateral diffuse polyposis(n=66) and group IV = Bilateral diffuse polyposis (n=47). We examined the relationship between the degree of nasal polyp and olfactory dysfunction with Korean Version of Sniffin' Sticks Test (KVSS). Bilateral diffuse polyposis (group IV, KVSS TDI =  $15.62 \pm 13.39$ ) have significantly decreased KVSS TDI score compared to other groups (group I =  $25.04 \pm 9.67$ , p=0.000; group II =  $21.67 \pm 11.18$ , p=0.005; group III =  $21.51 \pm 10.85$ , p=0.008). However, there is no significant difference among group I, II, III in KVSS test. These results suggest that bilateral diffuse nasal polyposis are related to decreased olfactory function in chronic rhinosinusitis.

## THE EFFECT OF HOUSE DUST SENSITIZATION ON POLLEN ALLERGEN SENSITIZATION

**Dr Ryutaro Hara**<sup>1</sup>, Prof Atsushi Matsubara<sup>1</sup>, Dr Reiko Kudo<sup>1</sup>, Dr Junko Takahata<sup>1</sup>, Prof Shigeyuki Nakaji<sup>2</sup>  
<sup>1</sup>*Department of Otorhinolaryngology, Hirosaki University Graduate School of Medicine, Hirosaki-city, Japan,* <sup>2</sup>*Department of Social Medicine, Hirosaki University Graduate School of Medicine, Hirosaki-city, Japan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Major inhaled allergens are Japanese cedar (JC) pollen, house dust (HD), grass pollen, and weed pollen in Japan, and the main inhaled allergen in childhood is house dust. Therefore, it is of interest to examine how sensitization to house dust influences pollinosis.

**Methods:** Subjects were 1145 volunteers (453 males and 692 females) who participated in the Iwaki Health Promotion Project in 2016. Serum specific IgE antibodies for HD1, JC pollen, grass pollen mix, and weed pollen mix were quantified in all subjects using the immunoCAP system. A questionnaire survey according to the Allergic Rhinitis and its Impact on Asthma (ARIA) Guideline was also carried out. The subjects were divided into three groups (no, low, and high) by the serum specific IgE level of HD1, and multiple sensitization to pollen allergens and severity of symptoms according to ARIA were compared among the groups.

**Results:** Since the sensitization rate of all allergens decreases at the age of 60 and over, the effect of house dust sensitization on pollen allergen sensitization was analyzed below the age of 60. In this age group, the higher the specific IgE level of HD, the more the number of multiple sensitization was increased. According to ARIA, the proportion of moderate/severe rhinitis was higher in the HD1 high sensitization group compared to the other two groups.

**Conclusions:** These results indicate that HD1 sensitization promotes the sensitization to allergens of pollinosis, and worsen the symptoms of the allergic rhinitis.

## USE OF SINUS SURGERY NAVIGATION SYSTEMS IN TREATMENT OF RECURRENT CRS

Dr. Katarzyna Lazecka<sup>1</sup>, Dr. Iwonna Gwizdalska<sup>1</sup>, Dr. Justyna Dabrowska-Bien<sup>1</sup>, Dr. Aleksandra Mickielewicz<sup>1</sup>, Dr. Sandra Wawarczyk<sup>1</sup>, Ass. Prof. Piotr Skarzynski<sup>1,2,3</sup>, Prof. Henryk Skarzynski<sup>1</sup>

<sup>1</sup>Institute Of Physiology And Pathology Of Hearing, Kajetany/ Warsaw, Poland, <sup>2</sup>Institute of Sensory Organs, Kajetany, Poland, <sup>3</sup>The Heart Failure and Cardiac Rehabilitation Department, Medical University of Warsaw, Warsaw, Poland

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Chronic recurrent sinusitis is a complex inflammatory process of multifunctional etiology. Despite excellent knowledge of anatomy often it is hard to completely remove disease for many reasons mainly bleeding or changed nose and sinus anatomy. Aim of the study was to prove that use of the navigation system is helpful in surgery.

**Methods:** Retrospective study of 695 patients with recurrent sinus disease treated surgically with use of StealthStation Treon Plus navigation system (2009-1012)

Fusion navigation system (2012 – 2017), Medtronic, in Word Hearing Center, Poland between 2009 and 2017. Main reason of recurrent disease is Semter`s triad, incomplete previous surgery, genetic disorders, inappropriate pharmacological treatment.

65% of patients was initially operated in other hospitals which resulted in lack of their medical history. For about 30% of patients this was at least the third operation. Previous incomplete surgery in frontal recess and posterior ethmoid cells were most common reasons for reoperation.

**Results:** 61% of patients are free from disease after follow up ranging from 4 to 40 months after surgery. 19% of patients have recurrent sinus disease treated medically with good results and good access to sinuses in endoscopic view. 20% needed reoperation most of patients with Semter`s triad and mucopolysaccharidosis. The main reason for another procedure was nasal polyps formation. Average shortening of operation time was 20- 25 minutes.

**Conclusions:** Sinus surgery navigation system is a valuable tool but make no excuse from knowledge of sinuses anatomy, careful CT scan examination and good planning of procedure.

## REFRACTORY FRONTAL SINUSITIS DUE TO BONE WAX: REMOVAL BY ENDOSCOPIC MODIFIED LOTHROP PROCEDURE AND IDENTIFICATION BY GC/MS: A CASE REPORT

**M.D., Ph.D. Masaki Hayama<sup>1</sup>**, M.D. Sho Obata<sup>2</sup>, M.D. Yohei Maeda<sup>1</sup>, M.D. Kazuya Takeda<sup>1</sup>, M.D. Takeshi Tsuda<sup>1</sup>, M.D., Ph.D. Hidenori Inoharara<sup>1</sup>

<sup>1</sup>Osaka University Graduate School of Medicine, Suita-city, Osaka, Japan, <sup>2</sup>Osaka Rosai Hospital, Sakai-city, Osaka, Japan

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Introduction:** Bone wax is a useful agent for intraoperative bleeding, but it is known to induce chronic inflammation.

**Materials and methods:** We report a case of refractory frontal sinusitis that was caused by a foreign body. The foreign body was removed by endoscopic modified Lothrop procedure (EMLP) and identified as bone wax by gas chromatography and mass spectrometry (GC/MS).

**Results:** A 54-year-old male suffered from a right frontal headache and eyelid swelling. He underwent a craniotomy for arteriovenous malformation of the temporal lobe 22 years ago, but the details were unknown. CT scan showed a lesion occupying the bilateral frontal sinus. The lesion spread into the right orbit with bone destruction. The lesion produced a signal intensity void on MRI. The features were not typical of malignancy or cystic lesions. For diagnosis and treatment, EMLP surgery was done. In the frontal sinus, pus and an unidentified mass were found. After exclusion of malignancy by intraoperative histological examination, the mass was removed. The histological examination identified a multinucleated giant cell in the mucosa. However, the removed mass was dissolved in ethanol by way of paraffin embedding. These findings suggested that the foreign body caused the inflammation. For identification, GC/MS was conducted, and it showed that the mass was compatible with bone wax.

**Conclusion:** Although frontal sinusitis caused by a foreign body is rare, EMLP is useful for removal and GC/MS is suitable for identifying the foreign body.

## CYCLAMENA IN TREATMENT OF ACUTE BACTERIAL SINUSITIS

Dr Lola Zaripova<sup>1</sup>

<sup>1</sup>*Gama Hospital, Al Khobar, Saudi Arabia*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

The effect of *Cyclamen europaeum* in Treatment of Acute rhinosinusitis

### Introduction

Acute rhinosinusitis (ARS) is an inflammatory disease, triggered by viral (90%), bacterial, or fungal infection, causing symptoms for= 12 weeks. The effect of phytotherapeutic nasal spray *Cyclomena europaeum* vs. fluoroquinolones (levofloxacin) and fluoroquinolones only was investigated

### MATERIAL and METHODS.

We performed a randomized study with 20 adults patient, aged 20-55.

1st group including 10 patients ,received "Levofloxacin" 500 mg. OD for 5 days with *Cylcamen europaeum* (CE) spray once daily for 10 days

Another 10 patients took Levofloxacin 500 mg. once daily for 5 days.

The efficacy of the treatment was rely on clinical symptoms, such as rhinorrhea, nasal obstruction, postnasal drip, nasal congestion, sinus head ache, facial pain, cough, and endoscopic findings on days 3, and 5, 7.

### RESULT

There was no significant difference in most of the symptoms, revealed on the day 3 in both group.

Nevertheless, reduction of nasal congestion and improving of nasal breathing was noted on the 5th day in 1st group (CE vs. antibiotic) with almost disappear of facial and orbital pain among the bettering of endoscopic findings on day 7 with the same patients.

Meanwhile, in the second group (Levofloxacin), all above mentioned symptoms were practically reducing after 10 days of treatment.

### CONCLUSION

*Cyclamen Europaeum* treatment in combination with fluoroquinolones reducing the severity of pain after 2-3 days ,as good as major symptoms after 5 days in patients with moderate-to-severe ARS. The study demonstrated relatively safety of CE with mild nasal burning.

## CLOSURE WITH STAPLER AFTER SEPTOPLASTY IS SAFE AND REDUCES THE NEED FOR FOLLOW-UP VISITS

**Dr Marie Lundberg<sup>1,2</sup>**, Ms Sara Sainio<sup>2</sup>, Dr Karin Blomgren<sup>1,2</sup>

<sup>1</sup>Helsinki University Hospital, Helsinki, Finland, <sup>2</sup>University of Helsinki, Helsinki, Finland

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** To investigate whether stapler – a novel equipment in nasal surgery - makes a difference in the complication rate, operation time, or the number of follow up-visits in septoplasties when compared with the traditional closure or filling methods.

**Methods:** We retrospectively reviewed the patient records of performed septoplasties in 2015 and 2016. In the reference group we included similar patient data from 2014, i.e. before stapler was introduced to our clinic. Patients characteristics, smoking, ASA classifications, use of antibiotics, methods for closure, operation time, complications, and number of follow-up visits were recorded and analysed.

**Results:** The material consisted of 457 septoplasties of which stapler was used in 101. There was no difference in complication rate or operation time between the stapler and non-stapler groups. Age, smoking status, ASA classification or the use of prophylactic antibiotics had no effect of the complication rate either. The overall complication rate was 9.8% in primary septoplasties and 15.8% in re-septoplasties. There were fewer follow-up visits in stapler group ( $p < 0,001$ ).

**Conclusion:** Use of stapler in septoplasties increased neither the complication rate nor the operation time. The number of follow-up visits after septoplasties was smaller when stapler was used.



## A CASE OF VASCULAR MALFORMATIONS LOCATED IN THE ORBIT AND ADJACENT PARANASAL SINUSES TREATED WITH INTERVENTIONAL RADIOLOGY

**M.D. Shiori Otani**<sup>1</sup>, M.D. Yohei Maeda<sup>2</sup>, M.D. Masaki Hayama<sup>2</sup>, M.D. Kazuya Takeda<sup>2</sup>, M.D. Takeshi Tsuda<sup>2</sup>, M.D. Mamoru Miyaguchi<sup>1</sup>, M.D. Hidenori Inohara<sup>2</sup>

<sup>1</sup>Higashiosaka City Medical Center, Higashiosaka City, Japan, <sup>2</sup>Osaka University Graduate School of Medicine, Suita City, Japan

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** Vascular malformations in the paranasal sinuses are rarely reported, except in the case of hereditary hemorrhagic telangiectasia. Generally, surgical treatment is selected for the head and neck arteriovenous malformations (AVM) that can be resected with low risk. This study describes the case of a patient with vascular malformations located in the orbit and adjacent paranasal sinuses treated with interventional radiology (IVR) and presents a review of the literature.

**Methods:** We examined the computed tomography, magnetic resonance imaging, and magnetic resonance angiography scans; the orbital lesion was considered to constitute the orbital AVM, however, it was difficult to determine whether the paranasal lesion was connected to the orbital AVM. The angiograph revealed that the paranasal lesion was an independent vascular malformation. IVR was performed by a neurosurgeon and both the lesions were embolized.

**Results:** In our case, the paranasal lesion was an independent vascular malformation, distinct from the orbital AVM. Besides this case, there are a few reports of orbital AVM, however, paranasal vascular malformation is rare.

**Conclusion:** We report a rare case of vascular anomaly treated with IVR. We believe that treatment should be planned based on individual case specifications and after discussions among the neurosurgeons, radiologists, or other specialists. At our institute, we organize the Osaka University Vascular Anomaly Conference to discuss the treatment of patients with vascular anomalies, which is thus collectively structured by otolaryngologists, radiologists, neurosurgeons, orthopedic surgeons, plastic surgeons, pathologists, internists, and pediatricians.

## ALLERGIC FUNGAL RHINOSINUSITIS IN JAPAN: A CLINICAL ANALYSIS OF 8 CASES FROM OUR INSTITUTE AND A REVIEW OF 29 CASES REPORTED NATIONWIDE.

**M.D. Ayaka Nakatani**<sup>1</sup>, M.D. Yohei Maeda<sup>2</sup>, M.D. Masaki Hayama<sup>2</sup>, M.D. Takashi Shikina<sup>3</sup>, M.D. Sho Obata<sup>4</sup>, M.D. Kazuya Takeda<sup>2</sup>, M.D. Takeshi Tstuda<sup>2</sup>, M.D. Naoki Matsushiro<sup>1</sup>, M.D. Hidenori Inohara<sup>2</sup>  
<sup>1</sup>Osaka Police Hospital, Osaka City, Japan, <sup>2</sup>Osaka University Graduate School of Medicine, Suita City, Japan, <sup>3</sup>Ikeda Municipal Hospital, Ikeda city, Japan, <sup>4</sup>Osaka Rosai Hospital, Sakai city, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** To determine the characteristics of AFRS in the Japanese population, we analyzed 8 clinical cases encountered at our institute and reviewed 29 other cases reported nationwide.

**Methods:** We checked clinical backgrounds of the AFRS patients: such as age, sex, laterality, causative antigen, CT and MRI findings, postoperative glucocorticoid therapy. Next, we compared the recurrence rates in groups of patients that received/did not receive postoperative glucocorticoid therapy.

**Results:** Japanese patients with AFRS were 45 years of age, on average, which was lower than the average age of patients with chronic rhinosinusitis. AFRS was found to be unilateral in 69.7% of the affected Japanese patients. These results are comparable to those reported for AFRS patients in Western countries. Japanese patients with AFRS were found to be most commonly allergic to the fungus *Aspergillus*. On computed tomography (CT), hyperdensities were detected in the nasal sinus(es) in all cases. Concomitantly, T2-weighted magnetic resonance images (MRI) showed hypointense areas in the nasal sinus(es). We found similar recurrence rates in groups of patients that received/did not receive postoperative glucocorticoid therapy.

**Conclusions:** Clinical backgrounds of AFRS patients in the Japanese population were similar to Western countries. Both CT and MRI were useful for diagnosing AFRS.

## LOWER AIRWAY INFLAMMATION IN EOSINOPHILIC CHRONIC RHINOSINUSITIS AS DETERMINED BY EXHALED NITRIC OXIDE

Dr. Rumi Kambara<sup>1</sup>, Dr. Takafumi Minami<sup>2</sup>, Dr. Hitoshi Akazawa<sup>3</sup>, Dr. Fumio Tsuji<sup>2</sup>, Dr. Takanobu Sasaki<sup>4</sup>, Prof. Hidenori Inohara<sup>3</sup>, Prof. Arata Horii<sup>4</sup>

<sup>1</sup>Department of Otorhinolaryngology, Suita Municipal Hospital, Suita, Japan, <sup>2</sup>Department of Respiratory Medicine, Suita Municipal Hospital, Suita, Japan, <sup>3</sup>Department of Otorhinolaryngology, Head and Neck Surgery, Osaka University Graduate School of Medicine, Suita, Japan, <sup>4</sup>Department of Otolaryngology, Head and Neck Surgery, Niigata University Graduate School of Medical and Dental Sciences, Niigata, Japan

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Background:** Chronic rhinosinusitis (CRS) is classified into eosinophilic CRS (ECRS) and non-ECRS. The objectives of this study were to evaluate lower airway inflammation by measuring the fractional concentration of exhaled nitric oxide (FeNO) and to examine the effects of endoscopic sinus surgery (ESS) on FeNO in patients with ECRS compared to non-ECRS.

**Methods:** CRS patients with nasal polyps (23 with ECRS and 22 with non-ECRS) were enrolled into this study. ECRS was diagnosed based on the definition proposed by the Japanese Epidemiological Survey of Refractory Eosinophilic Chronic Rhinosinusitis (JESREC) study group. Several clinical markers including blood eosinophil counts, percent of eosinophils in white blood cells (WBC), number of eosinophils in nasal polyps, JESREC scores, total IgE, FeNO, and Lund-Mackay paranasal sinus CT scores were compared between ECRS and non-ECRS. These markers were also tested before and 2 months after ESS.

**Results:** FeNO was significantly higher in patients with ECRS than in non-ECRS patients. When all CRS patients were tested, a significant correlation was found between FeNO and eosinophilic markers including blood eosinophil counts, percent of eosinophils in WBC, number of eosinophils in nasal polyps, and JESREC scores.

FeNO showed a significant correlation with Lund-Mackay scores only in ECRS patients. Blood eosinophil counts, percent of eosinophils in WBC, and FeNO decreased after ESS only in ECRS patients. **Conclusions:** ECRS patients had lower airway inflammation as revealed by an elevated FeNO, which was parallel to the Lund-Mackay CT scores. ESS decreased the blood eosinophils and FeNO, leading to an improvement of the occult pulmonary dysfunction in ECRS patients.

## AN OLFACTORY NEUROBLASTOMA MIMICKING ACUTE SINUSITIS IN A 1,5-YEAR-OLD BOY – CASE STUDY

Md Katarzyna Resler<sup>1</sup>, PhD Monika Morawska-Kochman<sup>1</sup>, PhD Katarzyna Pazdro-Zastawny<sup>1</sup>, PhD Krzysztof Zub<sup>1</sup>, MD Mateusz Kolator<sup>1</sup>, Prof Tomasz Kręcicki<sup>1</sup>

<sup>1</sup>*Department of Otolaryngology, Head and Neck Surgery, Medical University, Wrocław, Poland*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Pediatric sinusitis is a common problem very often treated by primary care physicians and otolaryngologists. Children more often demonstrate low energy, and swelling around the eyes, along with a thick yellow-green nasal or post-nasal drip. Mechanical obstruction of the ostiomeatal complex from tumors can also result in acute sinus disease.

Esthesioneuroblastoma (ENB) called also olfactory neuroblastoma is an uncommon tumor of the sinonasal region deriving from olfactory neuroepithelium. It can occur at any age, most often in the second and fifth decades of life, without predilection to the gender. In pediatric population estimated frequency of ENB is 0.1 / 100,000 children up to 15 years.

Aims: Presentation of a case of a child diagnosed in acute sinusitis with orbital complications masking neoplasm changes.

Methods/Results: A 1,5-year-old boy was forwarded urgently from Ophthalmology Department to the Department of Otolaryngology with suspicion of acute sinusitis accompanied by an exophthalmia of the left eye. Before patient admission to the hospital oral antibiotic were administered. After performing imaging tests, extensive mass occupying sinuses, nasopharynx and the orbit were found. In histopathology results was found esthesioneuroblastoma. Treatment decisions of this tumours (the chemo-radiotherapy) in the paediatric age were based on the experience gained in the treatment of adults.

Conclusion: While less than 5% of the head and neck neoplasm masses of paediatric populations originate from the nasal cavity and sinuses, EBN diagnosis should be taken into consideration in the differential diagnosis of anomalous acute sinusitis.

## A STUDY TO ASSESS THE STRUCTURAL INTEGRITY OF THE NEILMED® SINUS RINSE™ BOTTLE FOLLOWING REPEATED MICROWAVE DISINFECTION CYCLES.

**Mr. Samuel Leong<sup>1</sup>**, Mr. Guo Li<sup>2</sup>, Prof. Yuyuan Zhao<sup>2</sup>

<sup>1</sup>Aintree University Hospital NHS Foundation Trust, Liverpool, United Kingdom, <sup>2</sup>Centre for Materials and Structures, School of Engineering, The University of Liverpool, Liverpool, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

To assess the changes in the structural integrity of the NeilMed® Sinus Rinse™ following repeated microwave cycles to inform on how frequently these bottles have to be changed.

### Methods

To mimic real-life conditions, the bottle was rinsed under running tap water. Excess water was shaken off before being placed in a microwave. The bottles were subjected to either 90 or 120 seconds microwave for 50, 100, 150, 200 and 250 cycles respectively. Tensile and compression testing was undertaken at the end of each prescribed microwave duration and number of cycles. Tensile testing was reported as yield strength (defined as the stress at which a material begins to deform plastically) while compression testing was reported as stiffness (defined as the extent to which a material resists deformation in response to an applied force).

### Results

Changes in yield strength was noted after 90 seconds,100 cycles and 120 seconds,50 cycles compared to a non-microwaved bottle. The stiffness of the bottle gradually decreased with incremental microwave cycles. After 250 microwave cycles at 90 seconds, stiffness was significantly lower compared to a non-microwaved bottle. At 120 seconds, stiffness was significantly lower after 200 cycles.

### Conclusion

Although changes thermoplastic properties were identified, it is unknown at what microwave cycle the bottle loses its flexibility to generate sufficient volume and pressure head. Assuming patients rinse twice daily and microwave decontaminate the bottles after each use, the data does not support any revisions in the manufacturer's recommendation to change the bottles every three months.

## GENDER DIFFERENCES AND INFLUENCES TO OLFACTORY NERVE REGENERATION BY OVARIECTOMY IN MICE

### Gender Differences And Influences To Olfactory Nerve Regeneration By Ovariectomy In Mice Kentaro

Yamada<sup>1</sup>, Masami Kumai<sup>1</sup>, Tomoko Ishikura<sup>1</sup>, Yukari Nakamura<sup>1</sup>, Takuya Noda<sup>1</sup>, Hideaki Ninomiya<sup>2</sup>, Hideaki Shiga<sup>1</sup>, Takaki Miwa<sup>1</sup>

<sup>1</sup>Kanazawa Medical University Department of Otolaryngology, Kahoku-gun, Japan, <sup>2</sup>Kanazawa Medical University Medical Research Institute, Kahoku-gun, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

#### Introduction

Post-infectious olfactory dysfunction (PIOD) is the second most frequent cause of olfactory dysfunction. Furthermore, PIOD is more frequent in middle-aged or older women than men. However, the reason why PIOD occurs in middle-aged and elderly women has not been shown. In this study, we aimed to investigate the gender differences and influence of ovariectomy (OVX) on regeneration in the mouse olfactory system.

#### Materials and methods

Balb-c male and female mice (8 weeks of age; young adult mice) were used. Female mice received bilateral OVX or a sham operation (Sham-op) at 8 weeks of age and were injected intraperitoneally with methimazole (75mg/kg) at 9 weeks to induce degeneration of olfactory neurons. The olfactory bulbs were excised respectively at 2, 4, and 6 weeks after administration of methimazole. Samples were paraffin embedded, and histological sections of the olfactory epithelium were used to determine the immunoreactivity of OMP, Ki-67 and TrkA. In addition olfactory bulb tissue samples were used to measure NGF concentration by ELISA method two weeks after methimazole injection.

#### Results

The number of OMP and Ki-67 positive cells were significantly decreased in OVX mice compared to both Sham-op and male mice at 2 weeks after administration of methimazole. However, there was no significant difference in NGF concentrations between the OVX and sham groups.

#### Conclusion

These data suggest that NGF is depleted when olfactory cells are proliferating in both the OVX and Sham-op groups.

## METABOLOMICS AND IMMUNE RESPONSE OF NASAL EPITHELIAL CELLS TO H1N1 INFLUENZA VIRUS INFECTION

M.D. Bing-Yi Lin<sup>1</sup>, M.D. Yi-Tsen Lin<sup>1</sup>, M.D. Chih-Feng Lin<sup>1</sup>, M.D., PhD Te-Huei Yeh<sup>1</sup>

<sup>1</sup>National Taiwan University Hospital, Taipei, Taiwan

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

Influenza is a highly contagious airborne disease that occurs in seasonal epidemics and pandemics. The “cytokine storms” caused by immune system is thought to be one of the factor responsible for excess mortality during influenza epidemics. As the first barriers for influenza infection, nasal epithelial cells may serve some role in its immune response. So we aimed to investigate the metabolic pathway in influenza infected epithelial cells by analysis of their metabolite production

### Methods

The nasal epithelial cells harvested from nasal polyps are collected and grown for air-liquid interface (ALI) culture. The cell lines (A459, RPMI2650) were served as control. These cells were treated with different MOI of influenza virus. Then we use cytokine array, ELISA, RT-PCR, qPCR to investigate related inflammatory cytokines and chemokines. We also used high-resolution metabolomics (HRM) followed by partial least-squares discriminant analysis (PLS-DA) to identify metabolite changes in infected nasal epithelial cells.

### Results

The infection of influenza virus to the ALI cultured nasal epithelial cells was confirmed by both morphological change under confocal microscopic images and RT-PCR. Then cytokine array revealed increased production of IL-1alpha, IL-6, CXCL10, CXCL11, CCL2 and CCL5. The gene expression was also confirmed by Q-PCR. The metabolite analysis showed that tryptophan was consumed and kynurenine level was rising over time after infection.

### Conclusions

Infection of influenza virus causes change of chemokines and cytokines level of epithelial cells. The tryptophan to kynurenine metabolic pathway might pay a significant role in related immune regulation.

## INCIDENCE OF NASAL FLOOR TILTING AND ITS RELATIONSHIP WITH NASOFACIAL STRUCTURES

Incidence Of Nasal Floor Tilting And Its Relationship With Nasofacial Structures Park Marn Joon<sup>1</sup>, Incidence Of Nasal Floor Tilting And Its Relationship With Nasofacial Structures Jang Yong Ju<sup>1</sup>

<sup>1</sup>Asan Medical Center, Seoul, South Korea

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIMS** The nasal floor tilting (NFT) created by an asymmetry in the levels of both nasal floors is an incidental finding demonstrable on the computed tomography (CT) image. The authors aimed to reveal the incidence of NFT in patients with sinonasal symptoms and find out its correlation with adjacent structures of the nasofacial skeleton.

**METHODS** From January 2008 to July 2017, patients who had taken preoperative CT as well as facial photograph were investigated. The incidence of NFT, the degree of NFT angle, asymmetries of the adjacent nasofacial skeleton and the external face were evaluated in 265 patients. Difference in the incidence of NFT in relation with adjacent nasofacial asymmetry was also analyzed.

**RESULTS** The incidence of NFT was 51 % (136 of 265 patients). The mean NFT angle in the tilted group showed 7.7°, ranging from 2.4° to 22.4°. The tilted group showed a higher incidence of nasal septal deviation, asymmetrical orbit levels, and asymmetrical maxillary sinus levels and size ( $P < .001$ ) than those of the non-tilted group. The perceived facial asymmetry and perceived horizontal facial level asymmetry were associated with a higher incidence in the tilted group ( $P < .01$ ), whereas the external nasal deviation and asymmetry in each upper, middle, and lower face showed no difference in between two groups.

**CONCLUSIONS** The results of our study may indicate that that NFT may represent the asymmetry in the developmental process of the maxilla, which can be associated with deformity of the adjacent nasofacial structures.



## COCAINE INDUCED MIDLINE DESTRUCTIVE LESIONS (CIMDL's) - A DIAGNOSTIC DILEMMA

**Edward Noon**, Miss Rachel Edmiston<sup>1</sup>, Dr Gladston Chelliah<sup>2</sup>, Mr B N Kumar<sup>2</sup>

<sup>1</sup>Royal Preston Hospital, Preston, United Kingdom, <sup>2</sup>Wigan Wrightington and Leigh NHS Foundation trust, Wigan, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Background:

Systemic vasculitic conditions can present with sino-nasal symptoms. Due to the potentially toxic medication used to treat such conditions it is vital that an accurate diagnosis is obtained prior to treatment commencing.

### Methods:

We present a series of three patients with significant nasal destruction and a diagnostic dilemma between a true vasculitic condition and a pseudovasculitis as a result of cocaine use.

### Results:

All three patients underwent similar investigative steps to ensure no systemic involvement despite known cocaine use. CT imaging revealed significant destructive changes with abnormal serological markers in all cases. All patients were managed in a MDT setting with ENT, Maxillo-facial and rheumatology involvement.

### Conclusions:

The diagnosis can be difficult but clinicians should always enquire about cocaine use in the patient presenting with nasal crusting and septal changes. We review the investigations that can help to determine a definitive diagnosis, review the multidisciplinary approach needed and discuss the treatment strategies employed in our patients.

## OROFACIAL RECONSTRUCTIVE SURGERY IN A CAMBODIAN MISSION HOSPITAL

Ms Yasmine Xuning Kanagalingam<sup>1</sup>, Dr Jeeve Kanagalingam<sup>2</sup>

<sup>1</sup>Sevenoaks School, Sevenoaks, United Kingdom, <sup>2</sup>Lee Kong Chian School of Medicine Nanyang Technological University, Singapore, Singapore

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

SmileAsia is a not for profit organisation which offers orofacial reconstructive surgery to the underprivileged in several countries in Southeast Asia. This paper provides a review of the organisation, the medical team and the various cases undertaken during a mission trip to the Soviet-Khmer Friendship Mission Hospital located in Siam Riep, Cambodia in August 2017.

### Methods

The multinational medical team comprised plastic and reconstructive surgeons and anaesthetists from China, Singapore, Malaysia, Cambodia and the United Kingdom. Allied health professionals included a team of nurses from China and Cambodia. Medical students helped with language translation, surgical assisting and intraoperative medical photography.

### Results

The pre-operative assessment of cases was done in the first few days of the week. Surgery was undertaken on thirty cases in the latter half of the week. The majority of cases were cleft palate repairs. The ages of the patients operated on ranged from 2 years to 80 years old. The average length of admission was one day. The post operative care was undertaken by the resident surgeons at the mission hospital.

### Conclusions

SmileAsia facilitates the provision of highly specialised and complex reconstructive surgery in parts of Asia where such expertise is not readily available. It helps bring together surgeons from the developed world with surgeons providing care to the underprivileged in the developing world. Mission trips such as these not only benefit the local populace but also facilitate the transfer of expertise to local doctors.

## DIAGNOSIS AND TREATMENT OF CHRONIC RHINOSINUSITIS WITH NASAL POLYPOSIS

**Associate Professor Caius Ion Doros<sup>1</sup>**, Assistant Professor Eugen Radu Boia<sup>1</sup>, ENT Specialist Marioara Dobre<sup>1</sup>, ENT Resident Doctor Octavia Murariu<sup>1</sup>, Assistant Professor Nicolae Constantin Balica<sup>1</sup>

<sup>1</sup>"Victor Babes" University of Medicine And Pharmacy Timisoara, Ro, Timisoara, Romania

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Chronic rhinosinusitis with nasal polyps (CRSwNP) is an invalidating disease of the sinonasal mucosa. Multiple symptoms are forcing the patient to consult an ENT specialist frequently generating a major economic impact and negatively, affecting the quality of life. The goal of the study is to investigate the importance of the diagnosis, prognosis and the treatment of 62 cases of CRSwNP associated with allergic rhinitis (AR).

**Methods:** The diagnosis of CRSwNP includes the presence of typical signs and symptoms, X-ray examination, CT scan, MRI of paranasal sinuses (PNS), endoscopic examination, skin-prick tests (SPT), laboratory, diagnostic biopsy. The diagnosis confirm the allergic etiology in all cases. Endoscopic sinus surgery (ESS) was performed in all 62 cases and represent an accurate and proper treatment with total removal of the polyps and paranasal lining. The surgery with intranasal antihistamines (AH) and corticosteroid (INS) postoperative is an essential and efficient association for the rehabilitation of the nasal ventilatory function.

**Results:** Purpose of ESS was to create a normal sinus cavities drainage. Recurrence of disease with no surgical complication was observed in 21 cases; recurrence rate - 33,8%. ESS associated usually with intranasal antihistamines and corticosteroid (INS) is the first choice option therapy for CRSwNP with allergic rhinitis.

**Conclusions:** CRSwNP treatment is undoubtedly a controversial subject and remains a challenge for ENT specialists. Medical treatment is often insufficient and recurrence after surgery often occurs. The presence of comorbid allergy was identified as risk factors for a poor outcome and the need for revision surgery.

## LASER SURGERY FOR NASAL AIRWAY OBSTRUCTION

**Associate Professor Caius Ion Doros<sup>1</sup>**, Assistant Professor Eugen Radu Boia<sup>1</sup>, ENT Specialist Marioara Dobre<sup>1</sup>, ENT Resident Doctor Octavia Murariu<sup>1</sup>, Assistant Professor Nicolae Constantin Balica<sup>1</sup>

<sup>1</sup>"Victor Babes" University of Medicine And Pharmacy Timisoara, Ro, Timisoara, Romania

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Nasal airway obstruction may be difficult to control. Many patients have moderate/severe disease remain symptomatic on mono- and multiple-therapies. Endonasal laser surgery is a nasal obstruction treatment modality. We evaluated the safety and effectiveness of endonasal laser surgery and a new allergic rhinitis therapy for the nasal obstruction caused by bilateral allergic and non – allergic chronic inferior turbinate hypertrophy unresponsive to current treatment.

**Methods:** A group of 76 symptomatic patients, males: 31, females: 45, age range: 18 - 66 years, age average: 28,2 years undergoing CO2 laser surgery for the chronic hypertrophic. The CO2 laser surgery can be used for reducing hyperplastic inferior turbinate, in single spots, inducing shrinkage, scarring with minimal tissue damage, excellent haemostasis. Diagnostic evaluations included nasal endoscopy, symptom questionnaire with a visual analog scale (VAS 0-100) was made preoperatively and at 3 and 6 month postoperatively. Surgery was performed in local anesthesia as outpatient treatment.

**Results:** Endonasal CO2 laser surgery provides significant symptom control (nasal obstruction - 94% cases) and excellent long-term results with the QoL improvement for all patients with the moderate/severe chronic hypertrophic rhinitis. The CO2 laser surgery offer major advantages: controllable coagulation, rapid epithelialization, no complications, no adverse effects, no pain or edema.

**Conclusions:** Endonasal CO2 laser surgery in all aspects represent a valuable and efficient alternative to the conventional procedures in treating chronic nasal airway obstruction in adults. Laser surgery in combination with a novel intranasal formula of AZE and FP provides effective and rapid symptom control.

## RHINOSINUSAL MELANOMA: RELAPSE AFTER SURGICAL EXCISION - CASE PRESENTATION

Dr. Alexandru Nicolaescu<sup>1</sup>, Dr. Luminita Agachi<sup>1</sup>

<sup>1</sup>Prof. Dr. Dimitrie Gerota Emergency Hospital Bucharest, Bucharest, Romania

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** Case presentation of a elderly woman with relapse of melanoma affecting the left ethmoid as well as the middle turbinate after prior surgery (approximately one year before).

**Methods:** After previous surgery (maxillary antrostomy with ) and histology confirmation patient was followed-up every two months endoscopically and had concomitant chemotherapy. Dermatological exam was negative for a primary tumor. CT scans raised the suspicion of a local relapse as well as a concomitant tumor on the other side - involving the left middle turbinate- which had no surgery whatsoever.

**Results:** Surgery was chosen for controlling the local recurrence and a endoscopic medial left maxillectomy was performed as well as a left anterior ethmoidectomy with subtotal middle turbinate excision which permitted macroscopic excision of the tumor. On the right side we discovered a polyp-like degeneration of the middle turbinate with islands of melanin pigment clustered. We performed a partial middle turbinate resection. Post-op follow-up was uneventful for 6 months - but 9 months post-op there were confirmation of distant metastases (bone) as well as a recurrence on the right middle turbinate stump. Chemotherapy is used with curative intent - but the outlook is somber.

**Conclusions:** Melanoma represents a rare malignancy involving the nose and sinuses. It's aggressiveness requires prompt and radical excision - and even so, the disease course is often fatal for the patient.

## USE OF ULTRASONOGRAPHY IN PEDIATRIC IMAGING OF SINUSES

Dr Mihai Dumitru<sup>1</sup>, Dr Daniela Vrinceanu<sup>2</sup>, Dr Ion Anghel<sup>1</sup>, Dr Florin Mihail Filipoiu<sup>1</sup>, Dr Romica Cergan<sup>1</sup>

<sup>1</sup>Carol Davila University of Medicine and Pharmacy, Bucharest, Romania, <sup>2</sup>Emergency University Hospital Bucharest, Bucharest, Romania

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** We implemented in an outpatient clinic the use of ultrasonography in imaging the sinus condition in pediatric patients.

**Methods:** We studied 52 consecutive children aged between 3 and 7 years old that presented for ENT consult in an outpatient clinic during 2017. The patients were submitted to standard ENT consult, and underwent ultrasonography of the sinuses along with standard plain radiography of the sinuses. We compared the results from both imaging studies at the initial consult and the ultrasound results between the initial consult and second visit.

**Results:** Ultrasound permits visualizing the content of both maxillary sinuses and frontal sinuses. By tilting the head of the patients forward one can differentiate free puss fluid from a thickened mucosa or fluid filled cysts. In our group of patients according to ultrasound exam 23 (44.23%) children had thickened mucosa reaction, 19 (36.53%) had free puss fluid and 10 (19.23%) presented fluid filled cysts. The overall correlation between ultrasound and plain radiography was of 86.53%, with major differences in cases with complex situation associating fluid filled, thickened mucosa and cysts.

**Conclusion:** Our study demonstrates the fact that ultrasound can be successfully used in screening pediatric patients for sinusitis. The main advantages for using ultrasonography is that nowadays the devices are widespread, the technique lacks irradiation and permits serial dynamic investigations of the patients for treatment response and adjustment. We endeavor a future study on a broader number of children.

**Keywords:** pediatric, ultrasound, sinuses

## UNPLANNED ADMISSIONS FOLLOWING ENDOSCOPIC SINUS SURGERY (FESS)

Mrs Anastasia Rachmanidou<sup>1</sup>, Dr Octavian Dirla<sup>1</sup>, Dr Grace Bottoni<sup>1</sup>

<sup>1</sup>Lewisham & Greenwich NHS Trust, London, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

A retrospective study of all unplanned admissions over a period of 30 months, in a busy DGH/teaching hospital.

**Aim:** The review of all failed discharges (planned day cases) or readmissions following endoscopic sinus surgery in order to identify predictable factors leading to overnight hospital stay or unpredictable factors and further complications.

**Material and methods:** Hospital electronic databases were used to obtain accurate numbers of FESS cases performed and the ones admitted as unplanned from June 2015 to November 2017. A careful review case by case in order to identify causes was followed.

**Results:** The total number of FESS cases performed over a period of 30 months in our department, was 368. All unplanned hospital admissions post FESS (16 patients) have also been identified from the departmental emergency admission database for the same period. This was a case of primary or secondary complications leading to admissions, which represented a 4.34% of all cases performed.

An analysis of all cases has been achieved by retrieving the patients' notes and referring to the different steps of surgery and perioperative management.

In detail: Primary epistaxis (8) and secondary epistaxis (1) were a significant percentage, but also infection (3), CSF leak with meningitis (operated elsewhere) and other causes (2) were recorded.

**Conclusion:** Lessons can be learned by data analysis relevant to each case of failed discharge or re-admission. Different parameters leading to the same results have a didactic role, not only for the trainees but for the senior surgeons too.

## APPLICATIONS OF NANOTECHNOLOGIES AND CHEMICAL SENSORS FOR CHRONIC SINUSITIS SUBTYPES BY RESPIRATORY SAMPLE

**Prof. A Itzhak Braverman<sup>1</sup>**, Dr. Yoav Broza<sup>2</sup>, Prof. Hossam Haick<sup>2</sup>

<sup>1</sup>Hillel Yaffe Medical Center, Hadera. Faculty of Medicine, Technion- Israel Institute of technology, Haifa, Israel, <sup>2</sup>Faculty of Chemistry, Technion- Israel Institute of technology, Haifa, Israel

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction:** Chronic rhinosinusitis (CRS) is one of the most common chronic diseases. It is increasingly recognized that CRS and nasal polyposis (NP) comprise several disease processes with varying causes. Hence, there is a great need to differentiate between subgroups of Sinusitis for screening needs consequently tailoring the best treatment.

Addressing this challenge, a cross-reactive nano-based sensor array combined with pattern recognition for analyzing breath samples is reported. Biomarkers from nose and sinuses can be detected and differentiated by the "electronic nose" (EN).

**Material and Methods:** Breath samples were taken from 71 volunteers from three groups: CRS; NP (nasal polyposis); Control. After clinical evaluation they were categorized clinically to the specific subgroup. SNOT-20 questioners and CT sinuses was done for each patient.. The collected breath samples was transferred to a sorbent tube which were kept refrigerated and transferred for analysis. We compared the performance of our EN setup to the conventional CRS diagnostic tools.

**Results:** Nanoarray results discriminated between patients with sinusitis and the control group with 87% sensitivity, 83% specificity and 85% accuracy. Furthermore, system achieved very good discrimination between the subpopulations: (i) CRS vs Control, (76% sensitivity; 90% specificity); (ii) CRS vs NP (82% sensitivity; 71% specificity); and (iii) NP vs Control (71% sensitivity; 90% specificity).

**Conclusions:** We show preliminary feasibility of a nanomaterial-based breath test for screening population for sinusitis related conditions.

Applications of Nanotechnologies and Chemical Sensors for Chronic Sinusitis Subtypes by Respiratory Sample showed that CRS, and nasal polyposis were different from control group.



## UNILATERAL NECROTIC RHINITIS 7 YEARS AFTER THE CESSATION OF NASAL HEROIN INHALATION - A CASE REPORT

Medical doctor Ivan Oreški<sup>1</sup>, Medical doctor Marko Velimir Grgić<sup>1</sup>

<sup>1</sup>*University Hospital Centre "Sisters Of Mercy", Zagreb, Croatia*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS

We present a case of a 34 year old woman with a unilateral necrotic rhinitis which occurred 7 years after intermittent nasal heroin inhalation.

### METHODS

A previously healthy 34 year old woman with a medical history of drug abuse presented in our clinic with sudden pain in her right nasal cavity and ipsilateral nasal obstruction. Endoscopy findings were remarkable, contrary to a CT scan. Patient's right nasal cavity was covered with white-grayish layers of necrotic mucosa, reaching from Cottle II area to the posterior wall of the nasopharynx. Nasal swab was taken, but the pain during endoscopy was barely tolerable. Therefore, adequate biopsy materials were obtained under general anesthesia. A sample of the patient's hair was sent to a toxicological analysis. Nasal mucosa in the left nasal cavity showed no sign of the disease and nasal septum was intact.

### RESULTS

Nasal swab showed the presence of *S.Aureus* and *Peptostreptococcus* sp. The histology findings showed necrosis, with neutrophils and macrophages, but no sign of granuloma, fungi or tumor. Immunology and TBC testing were negative. Toxicology report presented no sign of drug abuse for at least 3 months.

### CONCLUSION

Nasal mucosa necrosis can be caused by certain types of vasculitis and autoimmune diseases, infection, malignancy and drug abuse. In this case, findings excluded all mentioned causes except former drug abuse. We hypothesize that this patient suffered from a necrotizing rhinitis caused by the delayed effect of nasal heroin inhalation.

## MIGRAINE AND VISUAL LOSS FROM SPHENOIDAL CYST

Dr Gabriela Simonetti<sup>1</sup>, Dr Miriam Ileana Hamdan Zavarce<sup>1</sup>, Dr Enric Cisa Lluís<sup>1</sup>, Dr Francesc Xavier Gonzalez Compta<sup>1</sup>, Dr Francesc Cruellas Taischik<sup>1</sup>

<sup>1</sup>Hospital De Bellvitge, Barcelona, España

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims:

Symptoms referred to sphenoid sinus are more related with the anatomic structures ( II, III, IV, V1, V2 and VI cranial nerves) involving it than with a typical sinonasal presentation.

Headache is the most frequent presentation, followed by visual loss, facial pain, rhinorrhea, diplopia, fever and vertigo<sup>1,2</sup>.

We present a case of sphenoidal cyst and bacterial sinusitis presented with chronic migraine and visual loss.

### Methods:

A 41-year-old man attend at our hospital with a clinic of left peripheral visual loss, diplopia, dizziness and left migraine with several years of evolution. CT scan and MRI showed a cystic isolated lesion in the lateral wall of the left sphenoid sinus.

He underwent endoscopic sphenoidotomy with posterior septectomy and the cyst was excised, biopsied and cultivated.

Furthermore, two weeks of oral cefditoren was done as an outpatient.

### Results:

Biopsy revealed non-pathological tissue and positive culture was obtained only for Propionibacterium sp.

After a timely sphenoidotomy, the patient recovered fully, with resolution of all symptoms.

Postoperative CT scan showed injury-free sphenoid sinus.

### Conclusions:

Inflammatory or infection causes, as bacteria, fungus, mucocele, retention cysts and polyps are the most common aetiologies in producing sphenoidal sinusitis.

Other less frequent as fibroosseous lesions, benign and malignant lesions, primary or metastatic meningocoele, pseudoaneurysm and vascular should be considered<sup>2</sup>.

Endoscopic sphenoidotomy is the treatment of choice in order to prevent permanent complications and rule out malignancy.

Precise study and treatment of sphenoid lesions allow improvement of symptoms and disease.

## LAMB'S HEAD AS A NEW MODEL FOR NASAL SEPTAL PERFORATION REPAIR TRAINING

Dr. Kirill Gromov<sup>1</sup>, Dr Vladimir Kozlov<sup>1</sup>

<sup>1</sup>Central state medical academy of Department of Presidential affairs, Moscow, Russian Federation

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Background.** Currently, there are many methods of a surgical repair of nasal septal perforations (NSP). At the same time, according to research the positive results of NSP surgical treatment is fluctuating from 40% to 75%. The complexity of NSP repair is determined by the narrow nasal space for manipulating, surgeon proficiency at mucous grafting and suturing in the right way. Nowadays, there is no effective and available training model to master technical skills in NSP surgical treatment. Our aim was to investigate the possibility of using lamb's nasal septum to get practical skills in different techniques of NSP repair.

**Methods.** To succeed in this study the lamb's head was used (n=12), as the lamb's nasal septum is similar to human one. Authors used headlamp, microscope, 0° and 45°Hopkins endoscope and appropriate surgical instrumentation. In each case authors made a hole about 10 mm<sup>2</sup> to imitate NSP. The following techniques of NSP repair were used: D.N.F. Fairbanks (1980), R. Mladina (1995) and P. Castelnuovo (2011). These techniques have different graft rotation and suturing method.

**Results.** Conducted study revealed that the lamb's nasal septum allows to realize how to cut the required size grafts as well as to determine the proper method of graft rotation to NSP region and the right way of making stitches.

**Conclusion.** The lamb's nasal septum can be used to acquire practical skills in NSP repair for beginners. The large area of the lamb's nasal septum allows to simulate every stage of various surgical techniques for NSP repair.

## THE PATTERNS AND TIMELINE OF REOCCURRENCE IN ENDOSCOPICALLY MANAGED SINONASAL INVERTED PAPILOMA

**Dr. Jure Urbancic<sup>1</sup>**, Dr. Tanja Soklič Košak<sup>1</sup>

<sup>1</sup>University Medical Centre Ljubljana, Slovenia, Ljubljana, Slovenia

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

Sinonasal inverted papilloma (IP) is a benign tumour plagued with reoccurrences and a variable rate of malignant transformation. The aim of surgical resection is disease-free margin, confirmed with histopathology as well as exposure of subsites allowing follow-up endoscopy. The purpose of our study was to identify the patterns and timeline of reoccurrences.

### Methods

Single tertiary institution retrospective review of IP treated from 2008 to 2017. Demographic data, disease location and stage, intraoperative and follow-up data were collected and compared to identify patterns of reoccurrence.

### Results

110 patients were evaluated (mean age 58 y). IP was in maxillary sinus in 45.5%, 40% in ethmoid and 3.6% in frontal or sphenoid. 24.8% have had previous surgery for IP. Retrospectively reoccurrence was diagnosed in a mean period of 17 months (range 3-36). Main site was the medial wall of maxillary sinus (63%, 36% retrolacrimal angle, 64% unknown location within subsite), following the frontal recess, sinus, supraorbital cell, sphenoid sinus (29.6%) and the ethmoid (7.4%). Prospective reoccurrence rate (99.1% of cases were endoscopically managed) was 1.8% with a mean follow-up time of 42 months (range 4-72).

### Conclusion

Most observed reoccurrences are a result of over-conservative management at first attempt and were diagnosed within 36 months after the surgery. Additional data suggests there are patterns of failure regarding subsites with the a difficult approach/exposure or high-risk neighbourhood where reconstruction is not an option.

## SOCIODEMOGRAPHIC FACTORS AND SNOT-22

**Prof. Herbert Riechelmann<sup>1</sup>**, Dr. Lilja Bektic-Tadic<sup>1</sup>, Dr. David Riedl<sup>2</sup>, Dr. Aristides Giotakis<sup>1</sup>, Dr. Daniel Dejaco<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology, Head&Neck Surgery, Medical University of Innsbruck, Innsbruck, Austria,*

<sup>2</sup>*University Clinic of Medical Psychology, Medical University of Innsbruck, Innsbruck, Austria*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** To study the influence of age, sex, marital status, home environment, number of children, level of education and professional activity on 22-item sinunasal outcome test (SNOT-22). **Methods:** Between October 2015 and March 2017, patients with chronic rhinosinusitis were consecutively included. SNOT-22 and sociodemographic factors were recorded. An age- and sex- matched healthy control group was also recruited. **Results:** In 139 CRS-patients, age had a significant influence on SNOT-22 with lower scores in elder patients ( $p=0.01$ ). In univariate analysis, patients who were unemployed, unable to work or applying for early retirement had significantly higher scores ( $p<0.05$ ). Moreover, divorced/separated patients had significantly higher scores ( $p<0.05$ ). The latter factor mainly influenced the quality of life domain of SNOT-22. No influence of sociodemographic factors on SNOT-22 scores were observed in 32 controls. **Conclusion:** SNOT-22 scores in patients with CRS were influenced by age. We also observed a weak influence of marital status and professional activity, however, these factors are considered negligible.

## MIRNA-205-5P CAN BE RELATED TO TH2-POLARITY IN CRSWNP

Mariana L C Silveira<sup>1</sup>, Ane Dinarte<sup>1</sup>, Kamilla Peronni<sup>1</sup>, Ronaldo B Martins Jr<sup>1</sup>, Lilian E C M Silva<sup>1</sup>, Adriana A B Murashima<sup>1</sup>, Prof Eurico Arruda<sup>1</sup>, Prof Wilma T Anselmo-Lima<sup>1</sup>, Prof Wilson A Silva Jr<sup>1</sup>, Prof Edwin Tamashiro<sup>1</sup>, **Professor Fabiana Valera<sup>1</sup>**

<sup>1</sup>Medical School Of Ribeirão Preto - University Of São Paulo, Ribeirão Preto, Brazil

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction:** Chronic sinusitis with nasal polyps (CRSwNP) shows imbalance in various inflammatory cytokines. miRNAs (microRNA) have been implicated in several inflammatory diseases. The objective of this study was to detect which miRNA in nasal polyps were differently expressed than controls, and to associate miRNA with some inflammatory cytokines, as well as to clinical assessment.

**Methods:** Samples from nasal polyp and control mucosa were collected. miRNAs and proteins were isolated. miRNA was analysed by Affymetrix<sup>®</sup> microarray and results were verified by qRT-PCR. Cytokines at nasal polyps were assessed by Luminex. miRNA expression was then correlated to cytokines expression, and to clinical aspects, such as extension of the disease, intensity of symptoms and serum eosinophil count.

**Results:** patients with CRSwNP presented six miRNAs up-regulated when compared to the control group ( $p < 0,05$ ): miR-205-5p, miR-221-3p, miR-222-3p, miR-378a-3p, miR-449a and miR-449b-5p. miR-205-5p positively correlated to IL-5 level at nasal polyps, to serum eosinophilia and to intensity of symptoms by SNOT-22; miR-449a negatively correlated to INF- $\alpha$  levels at nasal polyps. miR-221-3p also positively correlated to intensity of symptoms, by SNOT-22.

**Conclusions:** the miRNAs highly expressed in CRSwNP mainly regulate cell cycle and apoptosis, and not inflammation per se. Even though, miR-205-5p was found especially important in our series, because it increased IL-5 levels, polarized to Th2 pattern, with consequent increase in eosinophils serum counts and in SNOT-22 levels.

## EFFECTS OF CHRONIC REM SLEEP DEPRIVATION ON LIPOCALIN-2, NOS-3, INTERLEUKIN- 6 AND CARDIOTROPHIN- 1 LEVELS: AN EXPERIMENTAL RAT MODEL

Associate Professor Güven Yıldırım<sup>1</sup>, **Professor Kursat Murat Özcan**<sup>1</sup>, Asistant Professor Özlem Keskin<sup>2</sup>  
<sup>1</sup>Giresun University, Faculty Of Medicine, ENT Department, Giresun, Turkey, <sup>2</sup>Giresun University, Faculty Of Medicine, Department of Cardiovascular Surgery, Giresun, Turkey

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** To investigate the effects of chronic REM sleep deprivation on cardiovascular system using blood levels of lipocalin- 2, NOS-3, interleukin- 6 and cardiotrophin- 1

**Methods:** Providing the approval of the local ethic committee of animal experiments, we included sixteen Wistar Albino rats of 300-350 gr weight. To create a chronic REM sleep deprivation, we used multiple modified platform model. We left 8 rats in sleep deprivation tanks and 8 rats in control tanks for 21 days. Finally, we drew 5ml. of blood from the hearts of the rats under local anesthesia, just before sacrifice of all the rats. We performed statistical comparisons of lipocalin- 2, NOS-3, interleukin- 6 and cardiotrophin- 1 levels between the study group and the control group.

**Results:** Totally 16 rats completed the study. Mean lipocalin- 2, NOS-3, interleukin- 6 and cardiotrophin- 1 levels were  $29.8 \pm 4.81$ ,  $116.99 \pm 2.13$ ,  $4.32 \pm 1.77$  and  $33.26 \pm 6.63$  in the study group respectively; and  $122.74 \pm 7.34$ ,  $85.74 \pm 5.36$ ,  $3.23 \pm 0.76$  and  $23.02 \pm 2.31$  in the control group respectively. In the study group, mean lipocalin-2 levels were significantly lower ( $p=0.003$ ) but mean cardiotrophin-1 levels were significantly higher compared with the control group ( $p=0.001$ ). Mean interleukin- 6 and NOS-3 levels were higher in the study group but did not significantly differ between the groups ( $p=0.135$  and  $p=0.157$ ).

**Conclusions:** Our study showed that chronic REM sleep deprivation might be associated with cardiovascular diseases because of elevated blood levels of cardiotrophin- 1 and with inflammatory processes.

## THE IMPACT OF OLFACTORY LOSS ON QUALITY OF LIFE : WHAT WE LEARNED FROM CONGENITAL ANOSMIA

Dr. Yun-Ting Chao<sup>1,2</sup>, Dr. Chih-Hung Shu<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology- Head and Neck Surgery, Taipei Veterans General Hospital, Taipei, Taiwan,

<sup>2</sup>Institute of Brain Science, National Yang-Ming University, Taipei, Taiwan, <sup>3</sup>Taipei Veterans General Hospital, Taoyuan branch, Taoyuan, Taiwan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Loss of smell is deemed to be the least noticeable disability among all sensory deficits. What is the world would be like if people were born without olfaction? Do acquired anosmics suffered more on daily lives than congenital ones? And do they cope with the disabilities differently? In this study, we are trying to answer these questions by looking into the impact of olfactory loss on quality of life.

### Methods

Questionnaire of olfactory disorders (QOD) was used to evaluate subjects with isolated congenital anosmia (ICA), acquired short-term (ST-OL, duration: less than 2 years) and long-term (LT-OL, duration: more than 5 years) olfactory loss. The 4-point scaled QOD consisted of 17 negative statements (QOD-NS), 2 positive statements (QOD-PS) and additional 5 visual analog scales regarding the level of disturbance (VAS 1-5). We used Mann-Whitney U test to compare the QOD results, and linear regression model to control the between-group age and sex variations.

### Results

Eighteen ICA subjects (mean age:  $35.78 \pm 16.75$  years), 36 age-matched ST-OL subjects (mean age:  $36.25 \pm 15.22$  years), and 36 LT-OL subjects (mean age:  $46.17 \pm 9.81$  years) were enrolled. Both ST-OL and LT-OL groups exhibited significantly higher scores in QOD-NS than ICA group ( $p < 0.001$ ). However, only ST-OL group showed lower QOD-PS scores than ICA group ( $p < 0.001$ ).

### Conclusions

Our data demonstrated that smell loss influenced minimally on quality of life in ICA patients. Subjects suffered from long-term anosmia may cope with the deficits as well as the ICA patients do.



## TECHNICAL SUPPORT FOR ENDOSCOPIC SINUS SURGERY IN THE KINGDOM OF CAMBODIA

**Rumi Sekine Rumi Sekine**<sup>1</sup>, Kazuhiro Omura Kazuhiro Omura<sup>1,2</sup>, Yasuhiro Tanaka Yasuhiro Tanaka<sup>2</sup>, Nobuyoshi Otori Nobuyoshi Otori<sup>1</sup>, Hiromi Kojima Hiromi Kojima<sup>1</sup>

<sup>1</sup>The Jikei University School Of Medicine, Minato-ku, Japan, <sup>2</sup>Dokkyo Medical University Koshigaya Hospital, Koshigaya, Japan

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

The Kingdom of Cambodia is located in the southern portion of the Indochina Peninsula in Southeast Asia and is known for its developing economies. The country has a 20-year history of civil war. Many intellectuals were killed under the Khmer Rouge. There were 473 physicians before 1975; only 43 remained in 1979. Many doctors have insufficient education, and there are too few doctors in Cambodia. Every year, about 200,000 Cambodian people go to other countries to get better medical care.

To improve this medical environment the rhinology department of The Jikei University School of Medicine began an investigation, cooperating with two hospitals in Phnom Penh in 2009 through NPO Unite Asia (the name has now been changed to Knot Asia). Every year since 2013, we visit these hospitals to teach Cambodian doctors reading technique of sinus image, Endoscopic Sinus surgery (ESS) technique during operation, under a memorandum of understanding (MOU). We have also invited doctors to our Jikei-Asia ESS course, Japan, since 2012. We have also provided an exchange program since 2015, and have shared our treatment strategies with Jikei University. A total of 12 Japanese doctors 3 Japanese nurses and 18 Cambodian doctors have participated in these programs. The skills and knowledge of Cambodian doctors are improved but not enough. The continuous support and improvement of medical devices are needed. We would like to present what we have accomplished, along with our future prospects.

## NASAL PERMEABILIZATION SURGERY AND ITS EFFECTS ON SLEEP FRAGMENTATION AND REM SLEEP

Assoc. Prof. Claudiu Manea<sup>1,2</sup>, Dr Ionut Tanase<sup>2</sup>, Prof Codrut Sarafoleanu<sup>1,2</sup>

<sup>1</sup>UMF Carol Davila Bucharest, *CESITO Centre Sfanta Maria Hospital, Bucharest, Romania*, <sup>2</sup>*CESITO Centre Sfanta Maria Hospital, Bucharest, Romania*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Usually, patients with sleep disorders may complain of tiredness, fatigue, daytime sleepiness, concentration difficulties, and can reach up to falling asleep in inappropriate situations. To avoid these unpleasant symptoms, a series of surgical procedures regarding the anatomical structures involved in sleep apnea syndrome were developed.

A general review regarding the sleep disorders and the influence of upper airways permeability on the quality of sleep and the sleep staging distribution.

**Aims.** To determine if permeabilization surgery of the upper airway tract may be used successfully in order to decrease the sleep fragmentation and increase the time of slow-wave sleep.

**Methods.** We present data obtained in a clinical study underwent in

CESITO Centre "Sfanta Maria" Hospital, Bucharest, involving patients with sleep pathology that had polysomnographic evaluations before and after various surgical procedures of nasal permeabilization.

**Conclusion.** 6 months after the permeabilization surgery of the upper airway tract, the polysomnography reveals that the

arousals index decreased and the sleep architecture undergoes changes that consist in decreasing the Stage 1 and Stage 2 sleep, therefore REM sleep reaches a better score.

**KEYWORDS:** sleep apnea, polysomnography, REM sleep, sleep fragmentation

## COMPARISON BETWEEN CLASSICAL SURGICAL TREATMENT OF RHINOPHYMA AND USING A SURGICAL DIODE LASER.

MD Maryana Cherkes<sup>1,2</sup>, MD Yuriy Herbish<sup>2</sup>, MD Ihor Semchyshyn<sup>2</sup>, MD Khrystyna Ivasivka<sup>3</sup>

<sup>1</sup>Lviv National Medical University, Lviv, Ukraine, <sup>2</sup>Military Medical Clinical Center of the Western Region, Lviv, Ukraine,

<sup>3</sup>Hospital named after Metropolitan A.Sheptytsky, Lviv, Ukraine

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:**To compare modern methods of surgical treatment of nasal rosacea(rinophyma) using diode laser and classical surgical intervention.

**Methods:**the patient,male,45 years old,who underwent rhinoscopic and endoscopic examination of the nose and nasal cavity,X-Ray of paranasal sinuses,histological examination of the nose skin and dermatological consultation.

**Results:** After appropriate diagnosis,-Rhinophyma,glandular form was established.Surgical treatment was performed:the left part of the nose(wing of the nose and nasal dorsum with the size of the affected tissues 20×10mm) was operated using a surgical diode laser "Lika-surgeon" in uninterrupted mode with intensity of 10-15W.Severe bleeding was not observed.The right part of the nose (the nose wing with the dimensions of the affected tissues 10×7mm) was operated classically,the hypertrophied skin was removed by a scalpel.Operation was accompanied by significant bleeding,hemostasis were performed using laser coagulation in uninterrupted mode with intensity of 3-5W.In the postoperative period,complete epidermisation in the case of using a laser occurred one week later.The cosmetic effect with both surgical methods were good.Histologically:the epidermis is thinned,the areas of the connective tissue,numerous thickened glands with cystic enlargement,around inflammatory infiltration,confirming the clinical diagnosis-Rhinophyma, glandular form.

**Conclusions:**The use of surgical diode laser "Lika-surgeon" allows surgical intervention to be bloodless and well orientated within the pathological process;Complete epidermisation of the nose skin using classical method of surgical treatment in our case came a week faster;Taking into account the good final cosmetic result, both methods can be applied equally.The choice of surgical treatment will depend on the technical possibilities of the surgeon.

## SIGNAL VOID AND PSEUDO-PNEUMATIZED SINUS IN FUNGAL RHINOSINUSITIS – CASE REPORT

Assoc. Prof. Claudiu Manea<sup>1</sup>, Dr Alexis Vuzitas<sup>1</sup>, Prof Codrut Sarafoleanu<sup>1</sup>

<sup>1</sup>UMF Carol Davila Bucharest, CESITO Centre Sfanta Maria Hospital, Bucharest, Romania

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**BACKGROUND.** Signal void, or the absence of signal on MRI sequences, in the sinonasal region may be encountered in fungal rhinosinusitis cases with the aspect of a pseudo-pneumatized sinus, leading to diagnostic errors.

**CASE REPORT.** We present the case of a 75-year-old woman referred to our clinic for complete and persistent right-sided nasal obstruction. The patient was evaluated using sinus CT and contrast-enhanced head MRI. Opacification of the right maxillary, ethmoid and frontal sinuses as well as of the right nasal fossa were seen on CT, with maxillary sinus expansion and osseous erosion. The MRI showed T2 signal void in the maxillary sinus with extension to the nasal fossa, creating the appearance of a pseudo-pneumatized sinus, and hyperintense signal in the ipsilateral anterior ethmoid and frontal sinuses. The patient underwent endoscopic sinus surgery. The dual imaging evaluation of the patient aided the preoperative differential diagnosis and choosing the surgical approach.

**KEYWORDS:** signal void, pseudo-pneumatized sinus, fungal rhinosinusitis.



## A BLOODY MESS?: WHEN SPHENOPALATINE ARTERY LIGATION IS UNSUCCESSFUL IN THE MANAGEMENT OF EPISTAXIS

Ms Rhona H Hurley<sup>1</sup>, Mr Nicholas J Calder<sup>1</sup>

<sup>1</sup>NHS Lanarkshire, Airdrie, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

To evaluate our experience of endoscopic sphenopalatine artery ligation (ESPAL) in the management of epistaxis; what happens when this is unsuccessful and if there are any risk factors that can highlight patients at risk of requiring further intervention.

### Methods

Retrospective case sheet review of all patients undergoing sphenopalatine artery ligation in NHS Lanarkshire from January 2009 - December 2017.

### Results

34 patients underwent sphenopalatine artery ligation during the study period. The mean age at presentation was 56.7 years old. 7 (20.6%) patients re-bled with 5 (14.7%) requiring a second procedure after their ESPAL. Most commonly this was a revision ESPAL on the same side (n=2), followed by ESPAL on the contralateral side (n=1), anterior ethmoid artery ligation (n=1) and embolization performed by interventional radiology (n=1). Two patients was referred for interventional radiology input but their bleeding settled and this was not required.

In terms of risk factors for further intervention, 3/6 patients drank in excess of 50 units of alcohol per week and 1/6 was on warfarin therapy. No patient requiring further surgery was on antiplatelet or novel anticoagulant therapy nor had any coagulation derangement. Mean length of stay was 5.3 days.

### Conclusion

A significant proportion of patients undergoing ESPAL require further surgical intervention in various forms. Although the numbers in this retrospective study are small, it may be that excess alcohol intake may be a risk factor for requiring further procedures to arrest epistaxis.

## ORIGIN ORIENTED MANAGEMENT OF INVERTED PAPILOMA OF THE FRONTAL SINUS

Professor Ahmed El Farouk Abdel Fattah<sup>1</sup>

<sup>1</sup>*Cairo University, Dokky, Giza, Egypt*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Background:** Despite the great progress in endoscopic management of inverted papilloma (IP), involvement of the frontal sinus (FS) remains a challenge.

**Aims:** to study the impact of exact side of origin of inverted papilloma involving the frontal sinus on the management

**Methods:** Six cases of FS IP were assessed. Extent of surgery included simple frontal recess clearance, extended frontal sinusotomy, and modified Lothrop approach. There was no need for adjuvant frontal trephination or an external osteoplastic flap.

**Results:** FS involvement was observed in 6 out of 119 cases of IP (5%). In one case, IP was originating from the FS and in four it was extending to the FS. The sixth case had a wide origin from the anterior ethmoid and FS. Complete resection of FS IP was achieved in all cases with a single incidence of CSF leak. No recurrence was identified after a follow-up period of an average of 27 months.

**Conclusions:** FS IP originating outside FS can be delivered transnasally with or without frontal ostium widening and preserving FS mucosa and bone. Inverted papillomata originating from FS proper and those with origin from inside and outside the FS can also be resected transnasally after widening of the frontal ostium with removal of surrounding mucosa and drilling or curettage of underlying bone at attachment sites.

**Key words:** inverted papilloma, frontal sinus, origin, endoscopic surgery, transnasal

## UPDATES IN THE MANAGEMENT OF CHRONIC RHINOSINUSITIS

Professor Ahmed El Farouk Abdel Fattah<sup>1</sup>

<sup>1</sup>*Cairo University, Dokky, Giza, Egypt*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Chronic rhinosinusitis is a common disorder. There is no standard management, may be because the etiology is not completely understood. Chronic rhinosinusitis is a heterogenous disease, the treatment can be medical or surgical. The medical treatment is the main treatment, and maximal trial of medical treatment should be fulfilled. Systemic treatment includes corticosteroids, antimicrobials, and the emerging strategy of immune modulating medications. Local saline, steroids, or antibiotics are used in addition to newer trends like Surfactant, Xylitol, Manuka honey, and many others. Surgery is reserved for resistant, recurrent, or refractory cases. The least invasive, safe, and effective surgery is considered. Emerging strategies in surgery include robotic surgery, drug eluting implants, image guided surgery, balloon dilatation technology, in addition to HD cameras, multi-angled endoscopes, and many new instruments. Many new advances have been demonstrated in the management of chronic rhinosinusitis, but the management should be individualized, and treatment plan should be tailored according to the case.



## JUVENILE NASOPHARYNGEAL ANGIOFIBROMA – DIAGNOSTIC AND THERAPEUTIC ASPECTS – OUR EXPERIENCE

Prof Codrut Sarafoleanu<sup>1</sup>, Dr Alexis Vuzitas<sup>1</sup>, Assoc. Prof. Claudiu Manea<sup>1</sup>

<sup>1</sup>Umf Carol Davila Bucharest, Cesito Centre Sfanta Maria Hospital, Bucharest, Romania

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Juvenile nasopharyngeal angiofibroma (JNA) is a rare vascular tumour affecting mainly adolescent males, with typical origin around the sphenopalatine foramen, histologically benign but considered malignant by location and local invasion tendency.

**Aim:** To present our experience with JNAs from a diagnostic and therapeutic standpoint.

**Material and methods:** We conducted a retrospective case series study on patients diagnosed with JNA and managed in the Otolaryngology Department of Sfanta Maria Hospital in Bucharest in the last 10 years.

**Results:** Although rare, JNAs are a particular type of nasopharyngeal mass with well-documented signs and symptoms, natural history, growth patterns and extension, imagistic aspect. Most cases in our series benefited from preoperative transarterial embolization. An endoscopic approach was used in all cases. There are discussed results in terms of complications and local recurrence.

**Conclusion:** Endoscopic and imagistic aspects are characteristic enough to mandate surgical excision in patients with suspected JNAs. If the preoperative evaluation is done correctly no misdiagnosis is revealed by histopathology. Endoscopic approach is a safe and effective technique for increasingly larger and more invasive JNAs due to rapid technical advancements, with clear benefits over open approaches in terms of visualisation and cosmetic aspects in young patients.

## THE CLINICAL PROBLEM OF ISOLATED MAXILLARY OPACIFICATION: FROM DIAGNOSIS TO TREATMENT

Doctor Guillaume De Bonnecaze<sup>1</sup>, Doctor Emmanuelle Mouchon<sup>1</sup>, Professor Sébastien Vergez<sup>1</sup>, Professor Elie Serrano<sup>1</sup>

<sup>1</sup>ENT and skull base surgery department, Toulouse, France

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**AIMS:** Unilateral maxillary sinus opacification is a relatively common finding on radiographic studies of the paranasal sinuses. There is a high rate of undiagnosed maxillary sinus pathology incidentally found on CT scans. Unilateral maxillary sinus opacity can be caused by many diseases, but an exact diagnosis is sometimes difficult to make.

**METHODS:** The aim of this presentation is to describe some of the pathological conditions and clinical features of patients presenting with unilateral isolated maxillary sinus opacity. Authors particularly highlight some difficult diagnoses.

**RESULTS:** Although unilateral maxillary sinus opacity is usually of an inflammatory origin, fungal sinusitis and benign or malignant tumors are also likely. Early identification of inverted papillomas or mucoceles may avoid delay in surgical management. Anatomic variations and lesions of the maxillary sinus are common findings in CT examinations of the maxillary sinuses required before dental implants.

**CONCLUSION:** A careful history taking, a complete head and neck examination including nasal endoscopy, CT scan and sometimes MRI are all imperative for reaching a correct diagnosis.

## BLUNT NASAL TRAUMA IN CHILDREN: A FREQUENT DIAGNOSTIC CHALLENGE

Dr. Lukas Anschuetz<sup>1</sup>, Dr. Urs Borner<sup>1</sup>, Dr. Patrick Dubach<sup>1</sup>, Prof. Marco Caversaccio<sup>1</sup>

<sup>1</sup>*Inselspital, University Hospital Bern, Bern, Switzerland*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** The clinical challenge in blunt nasal trauma in children, is to identify cases requiring specialized care among the frequently encountered banalities, whilst trying to minimize the exposure to diagnostic procedures. We aim to determine the frequency and characteristics of blunt nasal trauma in children. Moreover, we wish to evaluate the diagnostic and therapeutic pathways and its outcome during follow-up.

**Patients and Methods:** This retrospective cohort study includes children up to 16 years. All cases undergoing a radiological assessment or referral to an ENT specialist were enrolled in the present study.

**Results:** From a cohort of 1752 children a total of 459 consecutive cases over 6 years were enrolled in the present study. In total 147 (32%) patients received X-ray and 260 (57%) were send to CT scan. Trauma mechanisms differ statistically significantly between age groups. In 134 cases a surgical intervention was required. Statistically we observed significant differences between age groups with more septal hematoma or abscess in children aged 0-4 years. Moreover, the indication to closed repositions was significantly increasing with age. Statistical analysis revealed soft tissue injuries, nose fracture, septal hematoma and sinus fractures as risk factors for the need of a surgical intervention. During follow-up only two patients required a delayed septorhinoplasty.

**Conclusion:** Blunt trauma to the nose are very frequent in children. Trauma mechanisms differ significantly between age groups, whereas localization and concomitant injuries do not. Initial clinical workup by pediatricians with consecutive referral to ENT specialists appears appropriate according to our results.

## ALLERGIC FUNGAL RHINOSINUSITIS VERSUS CHRONIC RHINOSINUSITIS WITH NASAL POLYPS: QUALITY OF LIFE AND RADIOLOGICAL OUTCOMES AFTER SURGERY

Dr François Simon<sup>1</sup>, Aurelie Lecanu<sup>1</sup>, Dr Jean-baptiste Lecanu<sup>1</sup>

<sup>1</sup>Institut Arthur Vernes, Paris, France, <sup>2</sup>AP-HP, Hôpital Necker, Paris, France

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** Compare quality of life and radiological outcomes after functional endoscopic sinus surgery in patients with confirmed Allergic Fungal Rhino-sinusitis (AFRS) and other Chronic Rhino-sinusitis with nasal polyps (CRSwNP).

**Methods:** Consecutive patients operated on in our department for a comparative prospective study. Quality of life was measured with the SNOT-22 questionnaire and radiological assessment was made with the Lund-Mackay score. Initial patient characteristics of both groups as well as both initial scores were compared. Initial scores were also compared to follow-up scores to assess outcome.

**Results:** 23 patients were included, 9 AFRS and 14 CRSwNP. Follow-up was not significantly different (23.5 versus 16 months respectively,  $p=0.51$ ). No significant difference concerning age, sex, medical history (asthma, atopy or salicylate intolerance), or symptoms (sneezing, anosmia, nasal obstruction, rhinorrhea) were found. 100% of CRSwNP were bilateral compared to 67% of AFRS ( $p=0.02$ ). Initial SNOT-22 and Lund-Mackay scores were not significantly different. Follow-up scores were both better for AFRS patients with significantly lower scores ( $p=0.04$ ) and also a significantly greater difference between initial and follow-up scores: SNOT and Lund-Mackay mean decrease of  $43.4\pm 19.6$  and  $11.8\pm 4.5$  for AFRS compared to  $24.7\pm 16.9$  and  $6.9\pm 3.5$  for CRSwNP ( $p=0.03$  and  $0.02$ ). Correlation between scores was stronger in AFRS  $r^2=68\%$  vs  $30\%$  ( $p<0.001$  and  $0.003$ ).

**Conclusions:** Our results seem to show that AFRS patients have a better outcome after surgery than other CRSwNP, both using quality of life and radiological scores. Both scores had also stronger correlation in AFRS patients, we therefore would recommend surgery if AFRS is suspected.

## ROAD MAP TO THE SPHENOID SINUS IN TRANS-NASAL ENDOSCOPIC PITUITARY SURGERY

**A Professor Abdelrahman Younes Badwy<sup>1</sup>**, professor Amr AlSamman<sup>2</sup>

<sup>1</sup>Kasralainy Hospital Cairo University , Cairo, Egypt, <sup>2</sup>Kasralainy Hospital Cairo University , Cairo , Egypt

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Endoscopic surgical techniques have been applied to the treatment of cranial base pathology, most commonly cerebrospinal fluid leaks and pituitary tumors. Endoscopically “assisted” transsphenoidal microsurgery has since been reported by various authors, stressing the advantages of visualization around corners, particularly for tumors that extend beyond the sella. The endoscope, however, frequently restricts the working space and maneuverability of the instruments within the speculum when the microscope is the primary means of visualization. This limitation has led to a fully endoscopic, nonspeculum endonasal approach to the ventral cranial base . An endoscopic transnasal sphenoidotomy approach with or without a septal dissection for resection of pituitary adenomas and other sellar lesions became available. However, an endoscopic transnasal sphenoidotomy approach without a septal dissection provided excellent exposure of the sella and adequate working space. The technique produces less postoperative pain and shortens hospital stay . The sphenoidotomy approach eliminates the problems of lip numbness, septal perforations, and oronasal fistulas. The endoscopic sphenoidotomy approach has become the preferred approach to sellar lesions. The ultimate target of the surgery is the sphenoid sinus; therefore the goal of the intranasal portion of the procedure is to create a passage to the sinus that is wide enough to accommodate the endoscope and the accompanying instruments. This study demonstrates a road map for approaching the sellar lesions. It presents the best surgical approach to achieve this goal of wide and safe exposure in different situations of nasal, sphenoid, and sellar pathologies.

## ENDOSCOPIC TREATMENT OF CRISTA GALLI MUCOCOELE

Dr Qi Jia Ong<sup>1</sup>, Ms. Catherine Rennie<sup>1</sup>, Mr Hesham Saleh<sup>1</sup>, Dr Oliver Brunckhorst<sup>1</sup>

<sup>1</sup>*Imperial College Healthcare Nhs Trust, London, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims:

To enhance knowledge about the clinical manifestations, diagnostic and therapeutic approaches towards the management of crista galli mucocoeles, a rare cause of atypical headaches.

### Methods:

We present a case of a 29 year old gentleman who presented with a four week history of progressively worsening left sided headache thought to be secondary to a crista galli mucocoele. To the best of our knowledge, only three similar cases have been reported; one of which was managed by our unit in 2014 by an endoscopic surgical approach. In this case, our patient underwent incision & drainage of his crista galli mucocoele via endoscopic sinus surgery.

### Results:

Our patient then underwent an incision and drainage of his crista galli mucocoele by fine endoscopic sinus surgery with Brainlab image guidance. Incision of the mucocoele revealed a large amount of pus and the left lateral wall of the mucocoele was debrided, with samples sent for microbiological culture and sensitivity.

### Conclusions:

Of the two other known cases treated endoscopically, one of them was a 47 year old lady treated at our tertiary Otolaryngology unit in 2014.

She was treated with endoscopic O'Donahue stent insertion, endoscopic frontal sinusotomy and drainage of mucocoele. Her headaches resolved immediately after surgery with a short post-operative recovery period, and she reported being symptom free at four months of follow up.

Compared to craniotomy, endoscopic sinus surgery is minimally invasive with a shorter post-operative recovery time. Therefore we recommend that this technique be considered in the future management of such cases.

## ENDOSCOPIC MANAGEMENT OF PAEDIATRIC MENINGOENCEPHALOCELES: A CASE SERIES

Mr Marios Stavrakas<sup>1,2</sup>, Professor Petros D Karkos<sup>1</sup>, Professor Jannis Constantinidis<sup>1</sup>

<sup>1</sup>1st Academic ENT Department, AHEPA Hospital, Thessaloniki, Greece, <sup>2</sup>ENT Department, Derriford Hospital, Plymouth, UK

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Congenital meningoencephaloceles represent a rare clinical entity, with its frequency being around 1 out of 4000-5000 live births. They usually present as a midline mass and the differential diagnosis includes dermoids, encephaloceles and gliomas. Although the standard coronal approach with frontal craniotomy and pericranial flap has been considered the preferred method for several years, it is associated with risks and prolonged hospitalisation. The endoscopic approach is gaining ground and we are aiming to present our experience from 5 cases that were treated endoscopically.

### Methods

Five cases of paediatric meningoencephaloceles (age ranging from 2.5 years to 10 years) were treated in our department between the years 2003-2014. The presenting symptoms included nasal obstruction, meningitis and CSF leak. All patients had pre-operative imaging with CT and MRI scans and the preferred method of plasty was 3-layered closure. We did not use lumbar drain postoperatively and the average in-hospital stay was 5-7 days..

### Results

All our patients had uneventful recovery, without any postoperative complications. The follow up period ranges from 39 to 82 months. All five patients remain asymptomatic and recurrence-free.

### Conclusion

Endoscopic management of paediatric meningoencephaloceles is a reliable and safe approach and it is known to have no adverse effects on facial growth. It carries a good success rate, reduces the in-hospital stay and is patient-friendly. It requires multidisciplinary team setting in a tertiary centre with experienced endoscopic anterior skull base surgeons.

374



## EOSINOPHIL-DERIVED NEUROTOXIN ENHANCES AIRWAY REMODELING IN EOSINOPHILIC CHRONIC RHINOSINUSITIS AND CORRELATES WITH DISEASE SEVERITY

**Mr. Takeshi Tsuda**<sup>1</sup>, Mr. Yohei Maeda<sup>1</sup>, Dr. Masaki Hayama<sup>1</sup>, Mr. Kazuya Takeda<sup>1</sup>, Pf. Hidenori Inohara<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology-Head and Neck Surgery Osaka University Graduate School of Medicine, Suita, Japan*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Eosinophilic chronic rhinosinusitis (ECRS) is characterized by nasal polyps (NPs) with eosinophil infiltration. Eosinophil-derived neurotoxin (EDN) is an eosinophil granule protein that has anti-parasitic activity and is associated with allergic diseases. We investigated the pathological role of EDN and evaluated the utility as a biomarker of ECRS.

**Methods:** We measured serum EDN levels in 40 ECRS patients and 85 patients with other nasal diseases and evaluated their correlation with clinical findings. Nasal epithelial cells (primary cell line) were stimulated by EDN, and gene expression was examined by RNA sequencing followed by ingenuity pathway analysis for the altered genes. Finally, EDN localization in NPs was examined by immunostaining.

**Results:** Serum EDN levels were significantly higher in ECRS patients than in the other patients ( $P < 0.05$ , Kruskal-Wallis test). Furthermore, serum EDN showed positive correlation with ECRS severity. Nasal epithelial cells stimulated with EDN showed 87 genes with altered expression. The most altered canonical pathway was epithelial-mesenchymal transition (EMT) pathway. The only up-regulated gene included in this pathway was matrix metalloproteinase 9 (MMP9). Gene Expression of EMT markers in nasal epithelial cells was increased by EDN stimulation. In the immunostaining assay, EDN and MMP9 expression were both detected in NPs from the ECRS patients.

**Conclusion:** Serum EDN levels could be a useful biomarker of ECRS. EDN may play a role in the pathophysiology of nasal polyposis in ECRS by upregulating MMP9 in the nasal epithelial cells.

## TREATMENT STRATEGY OF ODONTOGENIC SINUSITIS

MD Woo Sung Park<sup>1</sup>, MD Byung Joon Yoo<sup>1</sup>, MD, PhD Kyung Rae Kim<sup>1</sup>, MD, PhD Jin Hyeok Jeong<sup>1</sup>  
<sup>1</sup>*Hanyang University College of Medicine, Guri-si, South Korea*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** The treatment options of odontogenic sinusitis are medical treatment, endoscopic sinus surgery (ESS) and dental treatment. The aim of this study is to determine whether dental treatment alone is sufficient or whether patients will eventually require ESS for odontogenic sinusitis treatment.

**Methods:** A retrospective review performed of 30 patients with odontogenic sinusitis. Multiple factors including demographic factors, symptoms, endoscopic and CT findings, clinical course and management were analyzed. The patients lost during their follow-up or whose medical records omitted until the completion of treatment were excluded.

**Results:** Among total patients of thirty, sixteen patients cured with dental treatment alone and six patients required ESS after failure of dental treatment. Eight patients cured with immediate ESS alone without dental treatment. Among 22 patients who underwent dental treatment, 16 (73%) patients cured with only dental treatment. Patients who smoke ( $p=0.013$ ) and patients with higher Lund-Mackay score on CT finding ( $p=0.035$ ) required ESS after failure of dental treatment with statistical significance.

**Conclusion:** Because odontogenic sinusitis is often improved by dental treatment alone, odontogenic sinusitis should be preceded by dental treatment and ESS should be performed after failure of dental treatment. However, if the CT findings show severe sinusitis, dental treatment alone will not improve the condition, so early ESS may be considered.

## NASALANCE CHANGES WITH AGE IN NORMAL ADULTS

MD, PhD Ki-sang Rha<sup>1</sup>, MD, PhD Jun Xu<sup>1</sup>, MD Young Hoon Yoon<sup>1</sup>, MD, PhD Yong Min Kim<sup>1</sup>

<sup>1</sup>*Chungnam National University, School Of Medicine, Daejeon, South Korea*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Objectives:** To investigate the effect of aging on nasality and the influence of age-related changes of nasal cavity volume and nasal patency on nasalance changes.

**Material and methods:** One hundred and eighty healthy Korean-speaking adult volunteers who had no nasal or voice-related complaints were enrolled in this study. Acoustic rhinometry, rhinomanometry and nasometry were performed for obtaining the measurement data of nasal cavity volume, nasal resistance, and nasalance score, respectively. The changes of those data with age were analysed.

**Results:** Nasal cavity volume increased and nasal resistance decreased significantly with the advance of age. However, the nasalance scores for nasal passage and oro-nasal passage were significantly decreased with age, while there was no age-related difference in nasalance scores for the oral passage.

**Conclusion:** Nasalance scores for the passages containing nasal consonants were decreased with age, although significant increase of nasal cavity volume and nasal patency with the advance of age. Therefore, the age-related decrease of nasalance scores may result from factors other than changes of the nasal cavity.

## CONSENT: CURRENT PRACTICE IN OTOLARYNGOLOGY AND AVENUES FOR IMPROVEMENT

Dr Miriam Fahmy, Mr Heikki Whittet

<sup>1</sup>*Ambu Health Board, Swansea, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

This Quality improvement project aims to introduce option grids as an alternative to patient information leaflets, with a secondary aim of generating a valuable shared decision making discussion.

A survey was conducted to evaluate current practice for a cohort of 14 patients, collected over 2 months. The survey was a mix of open questions and Likert-type scaling points for degree of confidence the patients felt regarding aspects of functional endoscopic sinus surgery. The survey results and literature research helped design option grids, intended easier to read, and encourage active patient involvement in shared decision making.

Initial pilot results in fact show that patients were counselled with a patient leaflet at a range from "A short while" up until 3 months before their operation date. All patients received an information leaflet and were satisfied with the service provided. 2 out of 12 patients felt they were slightly less informed about the risks and benefits prior to surgery. One patient stated, "based on the amazing staff, I didn't need time" highlighting how clinicians are perceived and may influence patient decisions without evidence.

The majority of patients appear satisfied with current practice of consent, however the survey and literature research has highlighted pitfalls. To produce standardised consent processes, option grids allow the patient to make informed decisions based on up-to-date evidence over time. It is anticipated the format will be easier to navigate. This will not take away the need for consultation and pre-assessment clinics.

## STEM CELL EXTRACELLULAR VESICLES ALTER GENE EXPRESSION

**Pf. Hwan-Jung Roh<sup>1</sup>**, Dr. Sue Jean Mun<sup>1</sup>, Pf. Kyu-Sup Cho<sup>2</sup>, Pf. Hak Sun Yu<sup>3</sup>

<sup>1</sup>Department of ORL-HNS, Pusan National University Yangsan Hospital, Yangsan, South Korea, <sup>2</sup>Department of ORL-HNS, Pusan National University Hospital, Busan, South Korea, <sup>3</sup>Department of Parasitology, Pusan National University School of Medicine, ,

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Outcome objectives:

In a previous study, we demonstrated that intravenous administration of extracellular vesicles (EV) in adipose stem cells (ASCs) could significantly reduce allergic symptoms and suppress eosinophilic inflammation. In this study, we compared the gene expression profiles in ovalbumin induced murine model to examine the impact of ASC EV.

### Methods:

In an ovalbumin-induced mouse model, we applied microarray gene expression analysis after intravenous ASC EV administration. The Affymetrix Whole transcript Expression array process was executed.

### Results:

In total, 868 genes were differentially expressed by more than a 1.5-fold change in EV-administrated groups compared with the ovalbumin-induced mouse model. Gene-Enrichment and Functional Annotation analysis for significant probe list was performed using Gene Ontology (GO). GO categories enrichment analysis of 868 differentially expressed genes in accordance with biological process; molecular function; and cellular component. GO analysis showed that these differential genes were mostly involved in immune system process, regulation of immune system process, antigen binding and catalytic activity.

### Conclusion:

Our observations suggest that an altered gene expression caused by ASC EV might be involved in the amelioration of allergic airway inflammation.



## EFFECTS OF HERBAL MEDICINE ON REGENERATION OF OLFACTORY NEURONS IN MICE.

### Effects Of Herbal Medicine On Regeneration Of Olfactory Neurons In Mice Takuya Noda<sup>1</sup>

<sup>1</sup>*Kanazawa Medical University, Kahokugun Utinadamathi, Japan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

#### Introduction

There are few generally approved ways to treat sensorineural olfactory impairments. We used herbal medicine "Tokishakuyakusan (TSS)" for patients with post-infectious olfactory dysfunction and had encouraging results. However, the mechanism of this drug is still unclear. The purpose of this research is to investigate the effects of TSS using a mouse model of olfactory damaged.

#### Materials and methods

The olfactory neurons of adult female BALB/C mice were damaged by intraperitoneally methimazole (75mg/kg) injection. TSS was compounded and fed from three days after methimazole injection. Thickness of olfactory epithelium and expression of maturation and proliferation markers were measured by histochemistry after injection at days 14, 28, and 42. In addition, the quantity of NGF (nerve growth factor) in the olfactory bulb was measured by ELISA method.

#### Results

Olfactory epithelium of TSS fed mice was significantly thicker than in control (no TSS) mice at 14 and 28 days after methimazole injection. However, there was no difference observed at 42 days. OMP and Ki-67 positive cells also increased more in TSS feed mice than in control mice and the expression of NGF was also increased in TSS feed mice.

#### Conclusion

These data show TSS is effective for promoting regeneration of olfactory neurons in olfactory lesioned mice.

## PROMOTING THE NEURON NEOGENESIS IN THE BRAIN BY NASAL ADMINISTRATION OF IGF-1

Promoting The Neuron Neogenesis In The Brain By Nasal Administration Of IGF-1 Yukari Nakamura<sup>1</sup>

<sup>1</sup>*Kanazawa Medical University, Uchinada-town, Japan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Active neurogenesis occurs in the subventricular zone (SVZ) in the adult brain of mammals. The newly developed neurons migrate to olfactory bulb via the rostral migratory stream (RMS) in approximately 3-4 days. These new neurons are regulated by neurotransmitters, hormones and growth factors. Olfactory neurons also regenerate in adult animals and grow their axons to the olfactory bulb. In previous investigations, we found that some materials put into nasal cavity are transported to the central nervous system via olfactory neurons. However, a correlation between the regeneration of olfactory neuron and neurons derived from the SVZ is not known. In our present research, we observed changes in both groups of regenerating neurons after intranasal administration of IGF-1 in adult mice. Newly developed neurons from SVZ were observed by fluorescence stain. As a result, the movement of newly developed neurons to the olfactory bulb increased with IGF-1 intra nasal administration. This result suggests that IGF-1 administered into nose may regulate survival and proliferation of neural stem cells in SVZ via olfactory neurons.



## PRESENTATION AND MANAGEMENT OF MUCOCELES WITH SKULL BASE OR ORBITAL EROSION

Dr Antonio Lima<sup>1</sup>, Dr Filipa Moreira<sup>1</sup>, Dr Diana Silva<sup>1</sup>, Dr Isabel Costa<sup>1</sup>, Dr Daniel Miranda<sup>1</sup>, Dr Luís Dias<sup>1</sup>  
<sup>1</sup>*Hospital De Braga, Braga, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Introduction:** Sinus mucoceles are benign expansile lesions, which can cause adjacent bone remodelling. Their treatment can vary between marsupialization by endoscopic sinus surgery (ESS) and/or external approaches.

**Aim:** review the management of paranasal sinus mucoceles with skull base or orbital erosion.

**Methods:** retrospective case review was performed. 18 patients were treated in Hospital de Braga between January 2011 and December 2016.

**Results:** medium age at presentation was 46,8 years old, with a male preponderance (70,6%). 58,8% of the patients had conditions that predispose to mucocele formation – history of facial trauma, previous nasal surgery and chronic rhinossinusitis with or without polyposis. The most frequent locations were frontal sinus and frontoethmoid (both represented 35,3% of cases), followed by sphenoid (17,6%) and ethmoid (11,8%) sinuses. Marsupialization by ESS was used in 70,6% of cases; external or combined approaches were used in the remaining cases. All cases of frontal/frontoethmoid mucoceles with history of facial trauma underwent external approach. Relapse occurred in 3 patients who had been first treated with ESS; 2 of them underwent ESS again, and the other one an external approach; no second relapse was registered. The medium follow-up of these patients was 45 months.

**Discussion:** there were no statistical significant correlation between relapse and the location, existing predisposing conditions or surgical approach used. The presence of certain risk factors, such as head trauma, may influence the surgeon to select open over endoscopic approaches. Nevertheless, selected mucoceles with skull base or orbital erosion can be treated with ESS with excellent results.

## LATE COMPLICATIONS AFTER EXTENSIVE CRANIOFACIAL TRAUMA

M.D. Mateusz Kolator<sup>1</sup>, M.D. PhD Krzysztof Zub<sup>1</sup>, M.D. Katarzyna Resler<sup>1</sup>, M.D. PhD Monika Morawska-Kochman<sup>1</sup>, M.D. PhD, Associate Professor Tomasz Zatoński<sup>1</sup>

<sup>1</sup>Wrocław Medical University, Department of Otolaryngology, Head and Neck Surgery, Wrocław, Poland

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

The purpose of this report is to present retrospectively a case of a patient with craniofacial trauma as a result of being hit by a falling traction column.

### Methods

26 years ago a patient with a fracture of the anterior cranial fossa and a fracture of the maxilla Le Fort II had been treated in the intensive care unit with rinsing drainage, antibiotics and maxillary binding. After having been discharged from hospital the patient was multiple times treated because of partial frontal bone loss and posttraumatic deformations of the forehead. The patient underwent multiple maxillo-facial and plastic reconstructions such as removal of foreign bodies from the frontal sinus, osteotomy and reposition of the frontal process of maxilla, septoplasty, fat tissue grafting and nasal bone reconstruction. Last year he presented to our hospital with vision impairment. MRI and CT revealed mucoceles filling up the frontal sinuses and entering both orbits through the orbital roof loss. The patient underwent plastic surgery of the frontal bone with the mucocele removal.

### Results

After the treatment, the patient has regained his vision. He has had drainage tubes inserted in the frontal sinuses for 7 weeks. The follow-up involves control visits and rinsing once a week.

### Conclusions

Patients with extensive craniofacial trauma should constantly report for control visits due to possibility of late complications.

## A CASE OF SOFT PALATE SCHWANNOMA THAT DEVELOPED WITH OBSTRUCTIVE SLEEP APNEA SYNDROME (OSAS)

A Case Of Soft Palate Schwannoma That Developed With Obstructive Sleep Apnea Syndrome (osas) Naoko Sata<sup>1</sup>, Atsunobu Tsunoda<sup>1</sup>, Ayako Inoshita<sup>1</sup>, Katsuhisa Ikeda<sup>1</sup>

<sup>1</sup>*Juntendo University, Tokyo, Japan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Obstructive sleep apnea syndrome (OSAS) is a sleep disorder presenting repeated episodes of airflow cessation or reduction due to upper airway narrowing and collapse. Snoring and daytime sleepiness are common symptoms, although some patients are asymptomatic. Various anatomical problems cause the upper airway narrowing leading to OSAS. However, OSAS caused by tumors is a relatively rare. In this report, we present a soft palate schwannoma causing latent OSAS. Schwannoma in the soft palate itself is rare and it has never been reported to cause OSA to our best knowledge.

A 62-year-old woman was referred to our hospital due to a soft palate tumor found during a health check. Both endoscopic and imaging study revealed that this mass obstructed the airway between the nasopharynx and oropharynx. Fine needle aspiration cytology suggested a neurogenic tumor. After hospitalization, loud snoring and sleep apnea were pointed out, although she had never claimed having snoring. A respiratory polygraph revealed apnea-hypopnea index (AHI) was 47.3 events per hour and she was diagnosed with severe OSAS. The cause of OSAS was considered to be narrowing of the pharyngeal space secondary to the tumor. Transoral resection was performed and the tumor was totally removed. The tumor was diagnosed as schwannoma histologically. Her AHI decreased to 22.1 events per hour. We should consider the possibility of latent OSAS in patient with tumors in the upper airway. In addition, we also should consider the possibility of latent tumors in the upper airway in OSAS patients.

## CONGENITAL NASAL PYRIFORM APERTURE STENOSIS

Dr. Sinan Dheyauldeen<sup>1</sup>

<sup>1</sup>*Oslo University Hospital-rikshospitalet, Oslo, Norway*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Introduction:

Apertura piriform stenosis is a rare cause of neonatal nasal obstruction. The condition can be difficult to distinguish from choanalatesi. The diagnosis is confirmed by a pyriform aperture width of <11 mm (measured on an axial CT at the level of the inferior meatus) in a term neonate.

### Aims:

The aim of this work is to present our experience at Oslo University Hospital-Rikshospitalet in management of this rare condition.

### Methods:

Six patients were identified with apertura piriformis stenosis in the period 2007-2017. The mean diameter of the apertura piriformis was 5.8 mm (range=4,6-7.3 mm). Only one of the six patients had the central incisor deformity. Other associated abnormalities observed were upper limb deformities, hypothyroidism and facial hypoplasia.

### Results:

Five out of six patients underwent surgical correction. The mean age at which the operations were performed was 43,3 days (Range=19-114 days). Sublabial approach was used followed by drilling the lateral and inferior border of the aperture. Nasal stent were applied for 2-6 weeks.

### Conclusions:

Congenital apertura piriformis stenosis should be suspected in newborns with clinical signs of severe nasal obstruction. Surgical correction through a sublabial approach followed by a nasal stenting is an effective treatment method.

## EPIDEMIOLOGY OF ALLERGIC RHINITIS IN CHILDREN OF UKRAINE

Profesor Oleksandr Volosovets<sup>1</sup>, S. Kryvopustov, T. Volosovets, K. Shcherbynska, M. Kryvopustova

<sup>1</sup>*O.o. Bogomolets National Medical University, Kyiv, Ukraine*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Rationale.** Allergic rhinitis (AR) in children is a common pathology that affects their quality of life.

**Results and discussion.** According to the Center of Health Statistics of the Ministry of Health of Ukraine, the prevalence of AR is 5.8 per 1,000 children, and its morbidity is 2.40 per 1,000 children. Considering up to 40 % prevalence of AR in the world (Pawankar R. et al., 2013), it is considered to be under-diagnosed in Ukraine. It is connected, in particular, with the fact that it is registered only when medical advice is sought. Dynamics concerning increase of detection of this pathology in children of Ukraine for the last 22 years was identified as follows: morbidity increased by 300 %, and prevalence increased by 427.3 % (table 1).

The most intensive prevalence of AR in children of Ukraine is in the Regions of Dnipro, Lviv, Kharkiv, Zaporizhia and Mykolaiv, which are the major industrial regions of the country. The lowest numbers are in children from the Regions of Rivne, Chernihiv, Chernivtsi and Volyn, which are mostly agrarian regions with significant recreation areas. Prevalence and morbidity increase in every age group of children with the highest levels in adolescence due to expansion of numerous comorbidities (diseases of the digestive system, obesity, dental caries etc.).

**Conclusions.** The problem of allergic rhinitis in children of Ukraine is urgent, not least because of its possible under-diagnosis.

**Keywords:** Ukraine, children, allergic rhinitis, epidemiology

## CORRECTION OF NASAL REGURGITATION AT POSTSTROKE DYSPHAGIC PATIENTS

Dr. Anton Volosovets<sup>1</sup>, Ivan Zozulya, Andriy Zozulya

<sup>1</sup>*Shupyk National Medical Academy Of Postgraduate Education, Kiev, Ukraine*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction.** Nasal regurgitation (NR) in association with dysphagia after ischemic stroke (IS) occurs in more than 50% of cases and lead to respiratory complications.

Our objective was optimization of management of stroke patients with NR as a result of neurogenic dysphagia for correction of swallowing disorders.

**Materials and methods.** We have examined 150 patients with neurogenic dysphagia after IS (average age -  $65,2 \pm 8,7$  years). Severity of NR was assessed with Swallowing Function Assessment Scale (SFAS).

**Results.** The optimized algorithm of management of these patients has included parenteral nutrition and nasogastric probe nutrition for 2 days in case of total aphagia.

After a partial restoration of oral nutrition, a modifiable diet of varying consistency (7 levels) of food was prescribed with an expanded rehabilitation exercises. First (main) group with 75 persons, who were treated with optimized scheme and 2-nd group (control) – 75 patients with standard treatment.

Starting average level of dysphagia severity and NR was comparable in both groups and equal to “average dysphagia” level. But we witnessed faster regression of dysphagic and NR symptoms on 14-n day of treatment in 1-st group ( $29,5 \pm 2,9$  points; NR level =  $4,8 \pm 0,1$  points;  $p \leq 0,05$  in comparison with starting level), while patients of 2-nd group have reached same success only on 21-st day of treatment ( $28,3 \pm 1,7$  points; NR level =  $4,6 \pm 0,2$  points,  $p \leq 0,05$  in comparison with starting level).

**Conclusion.** Such management of IS patients with NR and dysphagia lead to faster restoration of swallowing function.

**Key words:** stroke, nasal regurgitation, dysphagia, management

## PHYTONEERING IN TREATMENT OF ACUTE VIRAL RHINOSINUSITIS IN CHILDREN

Professor Vasyl Popovych<sup>1</sup>, Professor Halyna Beketova

<sup>1</sup> *Ivano-frankivsk National Medical University, Ivano-frankivsk, Ukraine*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aim

To investigate the efficacy of the phytonceering medicine Sinupret® syrup in the treatment of acute viral rhinosinusitis in children.

### Methodology.

169 children aged between 6 and 11 years old (mean 9.4) with acute viral rhinosinusitis.

The control group (n=76): saline irrigation + symptomatic therapy (antipyretics, decongestants if necessary)

The main group (n=94): saline irrigation + symptomatic therapy (antipyretics, decongestants if necessary) + Sinupret® syrup

### Severity assessment:

Severity of RS symptoms on the MSS scale (total score). By using a 5-point scale (0–4 points), the physician evaluated the following symptomatic parameters at four successive visits (days 0, 5, 10 and 14): nasal congestion, nasal discharge, post-nasal drip facial pain and headache.

### Outcomes:

% of transition of the disease into post-viral RS and bacterial RS.

### Results:

The use of Sinupret for the treatment of acute viral rhinosinusitis effectively relieves the symptoms of the disease.

- Provides a more rapid dynamics of regression of the main symptoms compared with treatment of the control group.

Reduces the frequency of transformation of the disease into post-viral rhinosinusitis by 79.5%

Reduces the need to prescribe antibiotics by 58.7%

### Conclusions:

Sinupret® is an effective treatment of acute viral rhinosinusitis in children: accelerates the relief of the main symptoms, help to reduce the disease progression to post-viral and bacterial rhinosinusitis and antibiotic prescription.

## A PARADIGM SHIFT IN TREATING NASAL TYPE NK/T CELL LYMPHOMA: A SINGLE INSTITUTIONAL EXPERIENCE

Dr. Fang-ying Lin<sup>1</sup>, Dr. Lun-Wei Chiou<sup>1</sup>

<sup>1</sup>*Koo Foundation Sun Yat-Sen Cancer Center, Taipei, Taiwan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

Extranodal natural killer/T-cell lymphoma, nasal type (ENKL) is more prevalent in Asia than in Western countries. Traditional treatment involved combined chemotherapy and radiotherapy. However, the high resistance rate of CHOP regimen led to the development of new regimen of chemotherapy since the early 2000s. In this study, we would like to share our experience in treating ENKL and to report the outcomes of different treatment strategies.

### Methods

A retrospective chart review was conducted. Before 2005, the patients were mainly treated with chemotherapy (CHOP regimen), followed by radiotherapy. After 2005, treatment strategy was shifted to concurrent chemoradiotherapy with ICE (ifosphamide, cisplatin, and etoposide) regimen. Patient characteristics, symptomology, tumor staging, and survival outcomes were collected and analyzed. We used log-rank test to compare the survival outcomes before and after 2005, and regarded  $p < 0.05$  as significant.

### Results

During June 1996 to November 2013, thirty patients with ENKL treated at our institute were enrolled. Mean follow-up time was 31.2 months. Overall 5-year and 10-year survival were 44.4% and 27.7%, respectively. Patients treated after 2005 ( $n=16$ ) exhibited better 5-year recurrence-free survival (67.4% vs. 34.6%,  $p=0.017$ ) and 5-year overall survival (64.3% vs. 21.4%,  $p=0.008$ ) comparing to those before 2005 ( $n=14$ ). No significant difference regarding presence of B symptoms, tumor stage, or international prognostic index can be identified between these two groups.

### Conclusions

ENKL is a rare disease entity among sinonasal malignancies. Contemporary treatment strategy by concurrent chemoradiotherapy with ICE regimen provide superior survival benefit comparing to the traditional one.



421

## NASAL OBSTRUCTION SECONDARY TO AN INVERTED MIDLINE SUPERNUMERARY INCISOR

Miss Louise Michelle Jones<sup>1</sup>, Mr James Heyman<sup>1</sup>, Miss Jennifer Hilton<sup>1</sup>, Mr Harish Viswanathan<sup>1</sup>, Mr Stephen Hayes<sup>1</sup>

<sup>1</sup>*Ear, Nose and Throat Department, Queen Alexandra Hospital, Portsmouth, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims:

An inverted supernumerary incisor erupting into the nasal cavity is extremely rare and the underlying aetiology remains unclear. Presenting symptoms previously described include chronic foul-smelling discharge, epistaxis, nasal crusting and local ulceration. We describe a unique case of an inverted midline supernumerary incisor buckling and deviating the nasal septum in a 36 year old male presenting with complete unilateral nasal obstruction. We describe our management of this patient including radiological assessment, multidisciplinary discussion and surgical technique including images.

### Methods:

Full surgical resection of the tooth was achieved through a minimally-invasive endoscopic septoplasty.

### Results:

Successful resection of the tooth and complete resolution of symptomatic nasal obstruction.

### Conclusion:

Inverted supernumerary incisors erupting into the nasal cavity is exceedingly rare. This case highlights the importance of a thorough clinical assessment and the use of a multidisciplinary team. There is little precedent within the literature to guide our management in this case and therefore we offer a successful surgical treatment strategy.

## SHORT INTER-STIMULUS INTERVALS CAN BE USED FOR OLFACTORY ELECTROENCEPHALOGRAPHY IN PATIENTS OF VARYING OLFACTORY FUNCTION

**Miss Katherine L Whitcroft**<sup>1</sup>, Dr Mohammed Aziz<sup>2</sup>, Jun Prof Ilona Croy<sup>3</sup>, Dr Valentin Schriever<sup>2</sup>, Prof Thomas Hummel<sup>2</sup>

<sup>1</sup>UCL (Ear Institute) and Technische Universitat Dresden, London, United Kingdom, <sup>2</sup>Technische Universitat Dresden (ENT), Dresden, Germany, <sup>3</sup>Technische Universitat Dresden (Psychotherapy and Psychosomatic Medicine), Dresden, Germany

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims:

Chemosensory electroencephalography allows for relatively objective assessment of olfactory function. However, the use of such event-related potentials (ERPs) is limited by poor signal to noise ratios (SNRs). We hypothesised that by reducing the standard inter-stimulus interval (ISI), the resultant increase in number of trial repetitions may lead to increased SNRs.

### Methods:

We performed a prospective study comparing short (randomised to mean 10s) and long (randomised to mean 30s) ISIs during chemosensory electroencephalography, in participants of varying olfactory function. We used phenylethylalcohol (PEA) as a relatively olfactory-specific stimulus and carbon dioxide as a trigeminal-specific stimulus. Olfactory function was determined using the "Sniffin' Sticks" psychophysical test battery.

### Results:

101 participants were recruited [M:F=51:50, mean age 44±18, normosmic (N=41), hyposmic (N=20), functionally anosmic (N=40)]. Using PEA, we found no significant difference in the proportion of individuals in whom ERPs were recorded using short or long ISIs ( $p>0.05$ ). This was true in normosmic, hyposmic and functionally anosmic individuals. We also demonstrated significantly increased SNR using short PEA-ISIs, in the normosmic and functionally anosmic groups.

### Conclusions:

This is the largest study to date investigating the use of short ISIs in chemosensory electroencephalography with participants of varying olfactory function. We found that olfactory ERPs can be recorded using short ISIs in all participants. Furthermore, use of short ISIs increased SNR in the normosmic and functionally anosmic groups.

## PARANASAL SINUS OSTEOMAS

Prof Dmytro Zabolotnyi<sup>1</sup>, Eldar Ismagilov, Diana Zabolotna

<sup>1</sup>STATE INSTITUTION «O. S. KOLOMIYCHENKO INSTITUTE OF OTOLARYNGOLOGY OF NATIONAL ACADEMY OF MEDICAL SCIENCES OF UKRAINE", Kiev, Ukraine

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Backgrounds.

Osteoma of the paranasal sinuses is a common benign tumor, usually found incidentally, occurring mainly frontal and ethmoid sinuses. Surgical removal is done if the osteomas extend beyond the boundaries of the sinus, continue to enlarge or if signs of chronic sinusitis are present. Progressive headaches and chronic inflammation of the adjacent mucous membrane are the most common symptoms. Surgical approaches are divided into external, endoscopic and combined endoscopic and external procedures.

### Materials and patients.

During 2012 to 2017 there were 50 operated patients with paranasal sinus osteoma. The age of patients ranged from 13 to 65 years (men-38, women – 12). The frontal sinus was the most commonly involved (40 cases, including 2 giant tumors comprising both frontal sinuses and spreading intracranial and 6 osteomas penetrating to the orbit), followed by ethmoid cells (8) and maxillary sinuses (2).

### Results.

30 open procedures were performed to remove frontal and maxillary osteomas, 15 tumors were removed under endoscopic guidance, and 5 - via combined procedures. No postoperative complications were observed. No recurrences were noted.

### Conclusions.

Resection of small and medium-sized osteomas of ethmoid and medial department of frontal sinus can be radically performed using endoscopic techniques. Frontal sinus osteomas which are rather big-sized or extended intracranial must be operated by using external approaches. If the mucous membrane is intact obliteration of the sinus is not mandatory.

## TECHNIQUE OF TRANSSPHEOIDAL APPROACH WITH SAVING OF ANTERIOR WALL MUCOSA OF SPHENOID SINUS

Prof Dmytro Zabolotnyj<sup>1</sup>, Iryna Tsvirinko, Diana Zabolotna

<sup>1</sup>STATE INSTITUTION «O. S. KOLOMIYCHENKO INSTITUTE OF OTOLARYNGOLOGY OF NATIONAL ACADEMY OF MEDICAL SCIENCES OF UKRAINE", Kiev, Ukraine

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Endonasal transsphenoidal resection of pituitary neoplasms (PNs) is a safe and effective operation method. However, common complications include nasal hemorrhage, rhinorrhea, sphenoid sinusitis, atrophic rhinitis, olfactory disorder, perforation of nasal septum, nasal adhesion. Reports of the analyses and treatments of the complications have not been documented. Endoscopic skull base surgery may lead to improvements in quality of life (QOL) since natural orifices are used to reach the pathology; sinonasal QOL may be negatively affected.

Objective of the study: To devise the method of sphenotomy during nasal phase of benign sellar tumours removal with maximal saving of intranasal structures and nasal mucosa.

Materials and methods. About 111 patients were operated and examined.

1st group (47) – surgical treatment was performed with standard methods: resection of the mucosa of the sphenoidal recess and intra-nasal structures.

2nd group (64) – the septum's posterior section was preserved, the medial nasal turbinates were medialized, the mucosa of the sphenoidal recess was preserved by forming two small flaps of the mucosa of the sphenoid sinus's anterior wall. If the patients had a deviation of the nasal septum, septoplasty was performed at the initial stage of the surgery.

Results. The effectiveness of the proposed method was evaluated during the follow-up on the 3rd, 7th and 10th days.

Conclusions. Saving intranasal structures and nasal mucosa during endoscopical transsphenoidal surgery in patients with benign sellar tumors contributes to: faster healing of the postoperative wound, restoration of nasal breathing; reduction of the number of complications in the postoperative period.

## UNUSUAL PRESENTATIONS OF DIFFUSE LARGE B CELL LYMPHOMA IN RHINOLOGY: CASE SERIES.

Professor Philippe Eloy<sup>1</sup>

<sup>1</sup>CHU Ucl Namur, Yvoir, Belgium

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Clinical case 1.

A 40 year-old man presented with a lump of the forehead and a past medical history of "rhinosinusitis". A medical treatment was initiated consisting of systemic broad spectrum antibiotics and systemic steroids as there was a suspicion of Pott's puffy tumor. The patient responded well to the therapy but the swelling relapsed at the completion of the treatment.

Multiple biopsies and samples for bacteriological examination were then taken under general anesthesia during a therapeutic window. No pus was found. The histopathological examination confirmed the diagnosis of a diffuse large B cell lymphoma.

### Clinical case 2.

A 85 year old man presented to the outpatient clinic with an history of unilateral epiphora. He noticed a swelling in the medial canthal region. The clinical examination was consistent with an obstruction of the lacrimal pathway. A sinus CT scan demonstrated an expanding process in the maxillary sinus with erosion of the anterior wall. MRI confirmed the tumoral aspect of the process. A medial endoscopic maxillectomy was performed to get histological samples. The definitive diagnosis was a DLBCL.

### Clinical case 3.

A 66 year old man was referred to the ENT consultation for epiphora and lump in the right cantus region. The clinical examination confirmed a swelling in the right canthal region. The seringing demonstrated a stenosis of the lacrymal excretory system. A sinus CT showed an expanding process adjacent to the lacrymal pathway. A FNB and a biopsy of the lesion were done. The final diagnosis was a DLBCL.

## ENDOSCOPIC TREATMENT OF BILATERAL CONGENITAL CHOANAL ATRESIA

MD Francesco Zappoli Thyron<sup>1</sup>, MD Paolo Farneti<sup>1</sup>, MD Vittorio Sciarretta<sup>1</sup>, MD Giacomo Sollini<sup>2</sup>, MD Ernesto Pasquini<sup>3</sup>

<sup>1</sup>Bologna University Medical School – DIMES - Ear, Nose and Throat Unit of Sant'Orsola-Malpighi Hospital., Bologna, Italy, <sup>2</sup>Department of Otorhinolaryngology - Head and Neck Surgery, University of Genoa., Genova, Italy, <sup>3</sup>Ear, Nose and Throat Metropolitan Unit, Surgical Department, AUSL Bologna, Bellaria Hospital., Bologna, Italy

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Objective:** this report outlines the effectiveness of the transnasal endoscopic approach for the treatment of bilateral congenital choanal atresia.

**Methods:** 14 patients (7 female and 7 male) with age between 2 days and 25.5 years (mean age 2 years) were treated using this approach by means of 0° and 30° 4 or 2.7 mm telescopes. Five cases were associated with CHARGE syndrome, 2 with trisomy 21 and 3 with non-syndromic craniofacial malformations. The surgical technique consist in covering the raw area of the lateral aspect of the neochoana with mucoperiosteal flaps detached from the anterior surface of the atretic plate.

**Results:** only one restenosis was observed in this series 4 months after the first surgical operation. This patient was affected by a trisomy 21 syndrome and had already been operated on at another institution before our surgery. A good choanal patency was achieved after two more endoscopic surgical procedures.

**Conclusion:** this technique permits a direct approach to the atretic area, with the advantage of an angled vision, good illumination and magnification of the CCA. Furthermore, the endoscopic approach can be used at any age and in cases of recurrent CCA. The authors believe that a correct repositioning of mucosal flaps after the resection of the atretic plate is of paramount importance in avoiding restenosis of the neochoana and in reducing the time and/or the use of stenting.

## USE OF INTRANASAL DOPPLER ULTRASOUND PROBE FOR NASAL ARTERIAL IDENTIFICATION

**Dr Nina Cunning**<sup>1</sup>, Mr Rishi Sharma, Prof Gerald McGarry

<sup>1</sup>NHS GG&C, Glasgow, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction:** With ligation of the sphenopalatine artery (SPA) known to be effective in epistaxis control and the rise in use of vascularized endonasal flaps, layout of the vascular anatomy is important for the endonasal surgeon. A potential difficulty for the surgeon is the variability of blood supply to the nose. Any adjunct to localization will aid in both identification of aberrant or accessory arterial supply as well as localization and confirmation of vascular pedicles for flap reconstructions. Intraoperative Doppler identification of blood vessels is an established technique for precise vascular identification within a surgical field and has been used extensively by neurosurgeons during transphenoidal pituitary surgery. Here we demonstrate its feasibility in confirming and identifying nasal vasculature.

**Methods/Technical Description:** A standard endoscopic sinus surgery or endoscopic approach to anterior skull base set up is required. A Mizuho 8Mz surgical doppler system with a sterile single use 8MHz Kelly Endonasal doppler probe was used in endonasal tumour resection cases and endoscopic transphenoidal pituitary cases to identify the sphenopalatine artery and its branches. When a Nasoseptal flap repair was required and inset, Doppler signal confirmed its viability and integrity of the vascular pedicle.

**Results:** The Doppler was used with success to identify the SPA, its branches and confirm pedicles for Nasoseptal flaps.

**Conclusions:** We have demonstrated that intraoperative Doppler scanning can accurately and easily demarcate vascular anatomy within the nose. This has several important implications for flap planning, SPA and branch identification and training for the novice endonasal surgeon.

## RHINOSINUSAL PLASMOCYTOMA WITH INTRACRANIAL INVASION

**Dr Raluca Grigore<sup>1</sup>**, Dr Mihnea Condeescu<sup>1</sup>, Dr Alexandru Nicolaescu<sup>1</sup>, Dr. Catrinel Antonie<sup>1</sup>, Dr Paula Pascu<sup>1</sup>, Dr. Gloria Munteanu<sup>1</sup>, Dr. Bogdan Popescu<sup>1,2</sup>, Dr. Serban Bertesteanu<sup>1,2</sup>

<sup>1</sup>Coltea Clinical Hospital, Bucharest, Romania, <sup>2</sup>Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** when facing a tumor of hematologic origin first treatment is hematologic treatment, but we present a case needed surgery and radiotherapy

**Material and Methods:** Authors presents a clinical case of rhinosinusal tumor with pathology result as plasmocytoma. Because of lack of expression in blood, hematologists recommended surgery. After the first surgery, when local recurrence occurred patient was referred to radiotherapy, but there was another local recurrence with intracranial invasion. Clinical signs like optic involvement, intracranial hypertension, frontal deformation were the important.

**Results:** the patient was referred to surgery, first for intracranial part of the tumor and then in the ENT clinic. We did a combined approach for a huge tumor in the ethmoid, sphenoid, maxillary sinus on the left and ethmoid sinus on the right.

**Conclusions:** although one must be tempted to send the patient to hematologist, surgeon must be prepared for big surgery because of an local aggressive tumor, which do not respond to other therapies.



## ENDONASAL SURGICAL TREATMENT OF CONGENITAL MIDLINE NASAL LESIONS

**MD Giacomo Sollini<sup>1,2</sup>**, MD Paolo Farneti<sup>3</sup>, MD Ernesto Pasquini<sup>1</sup>

<sup>1</sup>Ear, Nose and Throat Metropolitan Unit – AUSL Bologna, Bellaria Hospital, Bologna, Italy, <sup>2</sup>Department of Otorhinolaryngology-Head and Neck Surgery, University of Genoa, Genoa, Italy, <sup>3</sup>Bologna University Medical School-DIMES - Ear, Nose and Throat Unit of Sant'Orsola-Malpighi Hospital, Bologna, Italy

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** to report our experience in surgical transnasal endoscopic management of congenital midline nasal lesions (CMNL), we describe the technique used for the resection of this kind of lesions and the reconstruction of the skull base defect considering also functional and aesthetic results.

**Methods:** 13 cases of CMNL were treated in our ENT Institute between 2007 and 2017. 7 cases of nasal sinus dermoid cysts (5 with intracranial extension), 4 cases of meningoencephaloceles and 2 nasal gliomas are described. The clinical diagnosis required a radiological assessment using magnetic resonance imaging and/or computed axial tomography. All patients underwent an endonasal endoscopic resection.

**Results:** All patients underwent a complete resection without any external craniotomy. The cutaneous fistulas of the dermoid cysts were removed and sutured after the endonasal resection. The repair of the skull base defect was required in all cases of meningoencephaloceles and in 2 out 4 cases of dermoid cysts. There were no major complications and only one recurrence, treated by external approach, has been reported nowadays.

**Conclusions:** Congenital midline nasal lesions are a rare condition. The differential diagnosis of this clinical entity may be limited mainly to three specific pathologies: dermoid cysts, meningoencephaloceles and gliomas. For a correct diagnosis a CT scan and a MRI evaluation are needed. The treatment is surgical. The endoscopic approach is safe, with a very low rate of complications, quick discharge of the patient, and good aesthetic results. It is indicated for extracranial lesions and, in expert hands, also for lesions with intracranial involvement.

## SEX – SPECIFIC ANTHROPOMETRIC PARAMETERS AS THE SCREENING TESTS FOR THE OBSTRUCTIVE SLEEP APNEA IN LATVIA

Ms Lasma Grava<sup>1</sup>, Ms Anda Kivite, Mr Juris Svaza

<sup>1</sup>Riga Stradins University, Riga, Latvia

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Objective:** The aim of this study was to evaluate sensitivity and specificity of the anthropometric parameters to determine their diagnostic power of obstructive sleep apnea (OSA).

**Methods:** A retrospective study that included 141 patients (116 men, 25 women) with suspected OSA was carried out. These patients visited Institute of Stomatology Sleep Laboratory (Riga, Latvia) from January 2013 to December 2014 to evaluate presumed sleep – disordered breathing. They all underwent polysomnography and anthropometric data were evaluated.

**Results:** Totally 141 adult patients (115 cases, 26 controls) were enrolled in the study. Cut-off values in men and women were calculated and ROC curves were constructed for each anthropometric parameter. In both sexes the areas under the ROC curve for OSA were remarkable for age (AUC=0.72;  $p<0.001$ ), neck circumference (NC) (AUC=0.77;  $p<0.001$ ) and body mass index (BMI) (AUC=0.80 ; $p<0.001$ ) in increasing order.

In men the areas under the ROC curve for OSA were remarkable for age (AUC=0.73;  $p=0.001$ ), BMI (AUC=0.79;  $p<0.001$ ) and NC (AUC=0.80;  $p<0.001$ ) in increasing order.

In women the areas under the ROC curve for OSA were remarkable for age (AUC=0.85;  $p=0.03$ ), BMI (AUC=0.86;  $p=0.03$ ) and NC (AUC=0.91;  $p=0.01$ ) in increasing order.

For men 45.5 years, 30.5 for BMI and 42.25cm for NC were optimal cut-off values for OSA. In women 53.5 years, 29.5 for BMI and 37.5cm for NC were optimal cut-off values for OSA.

**Conclusions:** In both sexes age, BMI and NC were important factors as screening tests to diagnose OSA.

## RETHINKING INTERPOSITIONAL XENOGRAFTS AND LATERAL NASAL WALL TRANSPOSITION IN NASAL SEPTAL PERFORATION REPAIR

**Mr Huw Jones<sup>1</sup>**, Mr Peter Andrews<sup>1</sup>, Mr Premjit Randhawa<sup>1</sup>

<sup>1</sup>Royal National Throat Nose & Ear Hospital, London, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

Nasal septal perforation repair remains a surgical challenge. Multiple techniques have been described; open, endoscopic, local mucosal flaps, free flaps, with or without interposition grafts. No one technique is superior, and success rates remain variable. We aim to add to the surgeon's options in describing a novel combination of techniques.

### Methods

A series of four >1cm septal perforation repairs are described. The aetiologies include iatrogenic, idiopathic and suspected digital trauma. Open or endoscopic approaches can be used. Residual septal cartilage is harvested and crushed for interposition allowing three dimensional reconstruction. A unilateral nasal floor and lateral nasal wall posteriorly based transposition flap, including inferior turbinate, is mobilised to cover the defect over the crushed cartilage. A medial and superior mucosal flap including upper lateral cartilage can also be mobilised if necessary. A SurgiSIS (Cook Medical) acellular porcine xenograft is utilised on the contralateral side. Bilateral rolled sialastic splints remain in situ for 3 weeks. A Foley catheter is inflated for 3 hours at the graft site to prevent haemorrhage. Success is determined endoscopically at least 4 weeks post operatively.

### Results

After mean follow up of 5 months, all cases remain closed.

### Conclusions

The combination of unilateral lateral nasal wall transposition over an interposition of crushed cartilage and SurgiSIS provides an alternative closure method for difficult cases. Cartilage interposition allows three dimensional reconstruction. SurgiSIS allows preservation of contralateral mucosa, which can be mobilised to cover any residual defects should primary surgery fail.

## TRANSORAL ENDOSCOPIC LIGATION OF MAXILLARY ARTERY IN THE INFRATEMPORAL FOSSA

Dr. Georgiy Polev<sup>1</sup>, Dr. Nickolay Grachev<sup>1</sup>, Dr. Igor Vorozhtsov<sup>1</sup>, Dr. Dmitriy Shubin<sup>1</sup>, Dr. Denis Golbin<sup>2</sup>, Dr. Klementina Avdeeva<sup>1</sup>

<sup>1</sup>Dmitriy Rogachev National Research Center of Pediatric Hematology, Oncology and Immunology, Moscow, Russian Federation, <sup>2</sup>Burdenko Neurosurgical Institution, Moscow, Russian Federation

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims.** To develop transoral endoscopic approach to proximal part of maxillary artery for clipping and coagulation.

**Methods:** Infratemporal fossae of 6 injected cadaveric heads (12 sides) were endoscopically dissected. 13 patients has been operated with this technique.

**Results.** Second part of maxillary artery was found in the area of crossing of horizontal fibers of the lower head of lateral pterygoid muscle (LHLPM) and vertical fibers of deep belly of temporalis muscle. One patient was operated elsewhere by extended endonasal approach for chondrosarcoma and developed intraoperative bleeding from maxillary artery branches. The patient has undergone transoral endoscopic ligation of maxillary artery with no postoperative bleeding. After that all cases of Juvenile Nasopharyngeal Angiofibroma (JNA) with infratemporal fossa extension and/or filling the maxillary sinus (Fisch-Andrews IIIa and further) undergone transoral endoscopic clipping of MA as a first step of surgical procedure. Total of 12 patients operated. Transoral endoscopic clipping in this series allowed substantial reduction of blood loss. The operating time was prolonged by an average of 36 minutes initially, which reduced with the learning curve and was comparable with the time in the non-clipping group.

**Conclusion.** Endoscopic transoral approach can be used for proximal vascular control in cases where transnasal and transantral approaches are not feasible (e.g. tumor in the nasal cavity spreading into the pterygopalatine and infratemporal fossae or like in our clinical case tight packing filling nasal cavity and maxillary sinus).

## ANALYSIS OF SINONASAL AIRWAY MUCUS SECRETIONS HELPS IN PREDICTING OUTCOME AFTER ESS

**Md Stephan Vlaminc<sup>1</sup>**, MD Kato Speleman<sup>2</sup>, MD, PhD Peter W Hellings<sup>3</sup>, MD, PhD Emmanuel Prokopakis<sup>7</sup>, MD, DMSc Hideyuki Kawauchi<sup>6</sup>, MD, PhD Mark Jorissen<sup>3</sup>, MD, PhD Frederic Acke<sup>4</sup>, MD, PhD Claus Bachert<sup>4</sup>, MD, PhD Thibaut Van Zele<sup>4</sup>, MD, PhD Philippe Gevaert<sup>4</sup>

<sup>1</sup>President Belgian Rhinologic Society, Bruges, Belgium, <sup>2</sup>St-John's Hospital, Bruges, Belgium, <sup>3</sup>University Hospital, Leuven, Belgium, <sup>4</sup>Ghent University, , Belgium, <sup>5</sup>Karolinska University Hospital, Stockholm, Sweden, <sup>6</sup>Hospital University, Shimane, Japan, <sup>7</sup>Hospital University, Crete, Greece

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aim

Surgery for chronic rhinosinusitis may fail because of recurrence. The challenge is ongoing to recognize specific factors which might help in predicting outcome after functional endoscopic sinus surgery (ESS). The simple pathological analysis of available sinonasal airway mucus secretions might help in predicting outcome after ESS in CRS patients.

### Methods

Samplings of sinonasal airway mucus secretions were collected whenever possible besides the regular tissue materials gained at surgery and sent for pathology . Secretions obtained where prospectively analyzed for the density of eosinophil cells measured by HPF standards, the presence of Eosinophil Mucin (EM : consisting of layers of necrotic cells, Charcot Leyden Crystals (CLC) and the presence of Fungal Hyphae (FH) through silver staining.

### Results

In the group of chronic rhinosinusitis without nasal polyposis (CRSsNP) recurrence rate of 9% was found. When EM presence was found in sinonasal airway mucus secretions recurrence rate approaches 25 %. In the group of chronic rhinosinusitis with nasal polyposis (CRSwNP) the subgroup with EM presence showed a 50 % recurrence rate whereas the presence EM and Fungal Hyphae (FH) showed 75 % recurrence. In contrast the global group of CRSwNP only showed 45 % recurrence.

### Conclusion

The finding of tissue eosinophilia and EM in sinonasal airway mucus secretions provides valuable information regarding the increased likelihood of CRS recurrence after ESS. Consequently, every ENT surgeon should consider sending sinonasal airway mucus secretions obtained during ESS for pathological analysis, as it is an easily accessible and universal tool predicting the surgical outcome.

## DIFFICULTIES OF OLFACTOMETRIC EVALUATION IN PATIENTS ACCUSING SMELL DISORDERS AFTER HEAD TRAUMA

**Mrs Gabriela-Violeta Melinte<sup>1,2</sup>**, Mr Codrut Sarafoleanu<sup>1,2</sup>

<sup>1</sup>Centre of excellence for research of sensorial and sensitive disorders, study of infecto-inflammatory, tumoral and obstructive aero-digestive pathology (CESITO), ENT & HNS Department, „Sfanta Maria” Clinical Hospital, Bucharest, România, <sup>2</sup>University of Medicine and Pharmacy „Carol Davila”, Bucharest, Romania

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

Head trauma is considered to be the third cause of olfactory function disorders. Olfactometric assessment in patients complaining anosmia following head injury produced by car accident or aggression is important, because most of them are involved in law trials in order to obtain financial compensations from the author. It is compulsory to use both subjective and objective olfactory evaluation methods combined with a detailed anamnesis, a complete ENT examination and a proper cranio-facial imaging (computed tomography or MRI) in order to exclude malingerers and to obtain an accurate diagnosis.

### MATERIAL AND METHODS

"Sfanta Maria" ENT Department from Bucharest is the only center in Romania where the olfactory function is completely investigated. We use chemosensory (Snap and Sniff Test and n-Butanol Dynamic Olfactometry) and electrophysiological tests (electric olfactory evoked potentials of the olfactory bulb).

### RESULTS AND CONCLUSIONS

Unfortunately, we are confronting with a series of difficulties in what concerns the smell function evaluation: 1) there is scarce information in the literature regarding the olfactory electric evoked potentials; 2) the electric olfactory evoked potentials register only the electrical activity in the olfactory bulb; 3) in case of olfactory impairment medically confirmed, we can not establish a cause-effect relationship between the disturbance and the event; 3) the most accurate electrophysiological assessment method currently available in Europe is the time-frequency analysis of chemosensory event-related potentials, but we do not dispose of the necessary equipment yet; 4) sometimes patients do not give us the informed consent for a complete olfactory evaluation.

## THE «SCROLL SWING FLAP»: A NOVEL TECHNIQUE FOR CORRECTING THE NARROW LOWER CARTILAGINOUS VAULT.

**Silvia Simone**<sup>1</sup>, Iman Khodaei<sup>2</sup>, Irina Vasilenko<sup>3</sup>, Pietro Palma<sup>3,4</sup>

<sup>1</sup>Imperial College Healthcare NHS Trust, London, United Kingdom, <sup>2</sup>Chesterfield Royal Hospital, Chesterfield, UK, <sup>3</sup>The Milan Face Clinic, Milan, Italy, <sup>4</sup>Dept. ORL/HNS, University of Insubria, Varese, Italy

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** The Scroll Swing Flap is a soft-tissue cartilage composite flap created through a transcartilaginous approach, and rotated supero-medially to correct a narrow appearance of the lower cartilaginous vault.

**Methods:** 21 cases with monolateral (16 pts) or bilateral (5 pts) narrowness of the lower cartilaginous vault consented for inclusion in the study. Preoperatively, a patient's wish list, physical examination, nasendoscopy, and photoanalysis were performed. Intraoperatively, the medial-cephalic aspects of the bulging lateral crura were sculpted via an intra-cartilaginous incision. The flap was dissected from the underlying vestibular skin. A sub-SMAS pocket was created through the same incision and the flap was anchored with 4-0 Vicryl and percutaneous guiding sutures.

**Results:** The 21 patients had a mean age of 26-36 years (range 17 – 54 years). The mean post-operative follow-up was 13 months (range 6-36 months). Pre- and post-op standard photos comparison revealed that the deformity was improved in all cases. At 6-month follow up, the Rhinoplasty Outcomes Evaluation (ROE) questionnaire revealed that 93 % of the patients were satisfied with the cosmetic result. Long-term follow up showed no evident resorption of the transferred tissues.

**Conclusion:** The Scroll Swing Flap technique can be considered a useful and reliable technique to correct excessive narrowness of lower cartilaginous vault in presence of excessive tip volume.

464



## PHENOTYPING OF NON-ALLERGIC CHRONIC SINO-NASAL INFLAMMATION BASING ON INFLAMMATORY PATTERNS AND COMORBIDITIES: HOW THE BEGINNING CAN PREDICT THE END?

**Dr Eugenio De Corso**<sup>1</sup>, Dr Silvia Baroni<sup>1</sup>, Dr Carla De Vita<sup>1</sup>, Dr Daniela Lucidi<sup>1</sup>, Dr Salvati Antonio<sup>1</sup>, Dr Laura Tricarico<sup>1</sup>, Dr Giovanni Di Cintio<sup>1</sup>, Prof Jacopo Galli<sup>1</sup>, Prof Gaetano Paludetti<sup>1</sup>

<sup>1</sup>A. Gemelli Hospital Foundation, Rhinology, Head and neck surgery area, Catholic University School of Medicine and Surgery, Rome, Italy, <sup>2</sup>Department of Diagnostic and Laboratory Medicine, Institute of Biochemistry and Clinical Biochemistry, Catholic University School of Medicine and Surgery, Rome, Italy

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIM:** we evaluated prognostic value of nasal cytology and clinical factors in predicting nasal polyp (NP) development in patients with history of nonallergic chronic sinonasal inflammation.

**METHODS:** this was a retrospective case-control study of 295 patients followed at our institution for a mean of 85.70±19.41 months. According to the inclusion criteria we enrolled 84 cases with persistent eosinophilic non-allergic sinonasal inflammation (group A) and 106 cases with neutrophilic inflammation (group B), both without evidence of NPs at the baseline. We considered as controls 105 patients affected by nonallergic noninfectious vasomotor rhinitis without evidence of inflammation at nasal cytology (group C). Patients were checked every 6 months for NPs. Temporal analyses was performed by Kaplan-Mayer curves and odds ratios were evaluated by logistic regression analyses.

**RESULTS:** The percentage of patients that developed NPs was higher in group A (29/84 [34.52%]) than in group B (17/106 [16.03%]) and group C (5/104 [4.7%]) (p<0.05). Logistic regression analyses showed that eosinophilic patients had a higher risk of NP development over the years than neutrophilic patients compared to controls (odds ratio [OR], 10.55 vs 3.2). We also demonstrated that hypereosinophilia, asthma, and aspirin intolerance may increase the OR differently in eosinophilic patients.

**CONCLUSION:** our data suggest that early identification of inflammatory patterns and associated clinical factors in patients affected by chronic nonallergic sinonasal inflammation have a prognostic value that can help to identify patients with different risks of NP development. Our data confirm that detection of nasal eosinophilic inflammation represents an early marker for identification of a more aggressive inflammatory phenotype.

## PERSPECTIVES FOR USE OF THE NEW NASAL SPRAY WITH ANTI-INFLAMMATORY ACTION IN TREATMENT OF ACUTE RHINOSINUSITIS

Ms. Tetiana Zhulai<sup>1</sup>, Mr. Sergii Shebeko<sup>2</sup>, Mr. Andrei Goy<sup>3</sup>

<sup>1</sup>National University of Pharmacy, Kharkiv, Ukraine, <sup>2</sup>National University of Pharmacy, Kharkiv, Ukraine, <sup>3</sup>Farmak Joint-Stock Company, Kyiv, Ukraine

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Intranasal drug forms with anti-inflammatory (AI) action can be effective for nasal congestion relief in treatment of acute rhinosinusitis (ARS).

Aims were to determine AI activity of Enisamium iodide (EI) (Nasal spray), assess dose-dependency of effect development and base the choice of active substance concentration.

Methods. EI (Nasal spray) – «Amizon» – which is manufactured by Farmak Joint-Stock Company (Ukraine) was administered as a research object in different concentrations once daily extracutaneously. Ibuprofen –«Nurofen», film-coated tablets 200 mg – was administered as a reference object once daily intragastrically (48 mg/kg). The primary screening of EI in different concentrations was performed on carrageenan-induced acute inflammatory model (5 groups, 10 rats in each group). AI activity of 5, 10 and 20 mg/ml EI in comparison with Ibuprofen was determined three hours later.

Results. EI in all concentrations caused statistically significant AI action. The most pronounced AI activity was registered for 10 mg/ml EI and equaled 35.3%.

Conclusions. AI activity study of EI in concentration range of 5, 10 and 20 mg/ml showed nonlinear dependence between concentration and activity, as follows: 5 mg/ml < 10 mg/ml > 20 mg/ml. EI has AI action, which is most pronounced in concentration of 10 mg/ml with AI activity being 35.3%. EI 10 mg/ml is a perspective drug for further preclinical research to justify its use in treatment of ARS.

## EFFICACY AND SAFETY OF A 3-YEAR SUBLINGUAL IMMUNOTHERAPY WITH JAPANESE CEDAR POLLINOSIS

Satoko Hamada<sup>1</sup>

<sup>1</sup>*Kansai Medical University, Osaka, Japan*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Seasonal allergic rhinitis induced by Japanese cedar (JC) pollen is one of the most prevalent allergies in Japan. The standardized JC pollen allergen extract in an oral formulation for sublingual immunotherapy (SLIT) was currently developed. The aim of this study is to evaluate the efficacy and safety of a 3-year SLIT treatment for JC pollinosis. A retrospective analysis of 125 patients treated in the Kansai Medical University Hospital since 2014 to 2017 was performed. We compared the clinical efficacy in 2017, of 36 3-year treatment of SLIT, with 32 2-year treatment of SLIT, 20 1-year treatment of SLIT, and 37 primary pharmacotherapy that started therapies before pollen dispersal. The total nasal symptoms score (TNSS), total medication score (TMS), visual analogue score (VAS) and quality of life (QOL) scores, adverse events (AEs) were evaluated. Peripheral blood was obtained from all participants at three times points, preseason, season and postseason of pollen dispersing. We measured serum periostin and Japanese cedar pollen specific IgE levels in patients. Any serious side effects such as anaphylaxis was shown. We also found that the efficacy of SLIT increased with over time and the symptoms of the patients after treated more than 2 years have been well controlled.

## A CASE REPORT OF AGGRESSIVE NASAL POLYPOSIS

Assistant Professor Alexander Karatzanis<sup>1</sup>, Resident of Otorhinolaryngology Ioulia Rafailia Fothiadaki<sup>1</sup>, Attending Otorhinolaryngologist Irimi Panagiotaki<sup>1</sup>, **Attending Otorhinolaryngologist Maria Doulaptsi<sup>1</sup>**, Resident of Otorhinolaryngology Athanassia Milioni<sup>1</sup>, Assistant Professor Emmanuel Prokopakis<sup>1</sup>, Professor Georgios Velegrakis<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology, University Of Crete School Of Medicine, Heraklion, Greece

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIM:** Cases of extensive nasal polyps rarely occur, and may mimic more aggressive lesions of the nose. A case of nasal polyposis with unusually aggressive behavior is presented.

**METHODS:** A male, 27 years old patient with Crouzon syndrome phenotype, visited the emergency department of our hospital, due to recurrent episodes of epistaxis. On clinical examination, a polypoid lesion protruding from the right nostril was noted. In addition, asymmetry of the face and projection of the ipsilateral canine fossa were evident. CT scan imaging illustrated a lesion producing excessive bone remodelling of the right maxillary sinus and complete absence of its anterior wall, as well as erosion of the posterior wall and entry of the lesion in the pterygopalatine fossa. There was also erosion of the ipsilateral orbital floor and entry of the lesion in the orbital cavity. Despite its large size, the lesion seemed well defined without invasive characteristics. Biopsy under local anesthesia was performed, showing findings consistent with nonspecific inflammation.

**RESULTS:** Open surgery was undertaken via lateral rhinotomy and medial maxillectomy. The mass was readily mobilized and dissected free from surrounding tissues within the orbit and pterygopalatine fossa, as no macroscopic invasion of neighboring structures was noted. Permanent histology showed nasal polyposis. Post-operative follow up has showed no evidence of recurrence after 12 months.

**CONCLUSION:** Nasal polyps typically do not expand aggressively, producing bone resorption and invasion into neighboring spaces. However, nasal polyposis should be included in differential diagnosis of nasal tumors with such behavior.

## THE USE OF INTRATHECAL FLUORESCEIN IN ENDOSCOPIC SKULL BASE SURGERY FOR THE REPAIR OF CEREBROSPINAL FLUID LEAKS IN THE PAEDIATRIC POPULATION

**Mr Neil Giblett**<sup>1</sup>, Mr Shahzada Ahmed<sup>2</sup>, Mr Desiderio Rodrigues<sup>3</sup>, Miss AnnLouise McDermott<sup>3</sup>

<sup>1</sup>New Cross Hospital, Wolverhampton, Birmingham, United Kingdom, <sup>2</sup>University Hospitals Birmingham, Birmingham, United Kingdom, <sup>3</sup>Birmingham Childrens Hospital, Birmingham, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims:

To provide a guide for the safe use of intra-operative intrathecal fluorescein to assist the endoscopic repair of cerebrospinal fluid (CSF) leaks in children.

### Methods:

A retrospective review of the MDT approach to the management of paediatric CSF rhinorrhoea was performed in one paediatric tertiary centre. Challenges of informed consent, prescribing, accurate dosing and timing of administration are discussed in addition to a step-by-step approach of technique in successful CSF leak repairs.

### Results:

7 children with CSF rhinorrhoea were identified since 2012. Endoscopic repair was performed in each case using intrathecal fluorescein to aid the procedure. All skull base defects were clearly identified and a single stage endoscopic trans-nasal repair was successfully performed. No major complications were found as a result of fluorescein administration.

### Conclusion:

With careful consideration intrathecal fluorescein can be administered safely and reliably intra-operatively to identify the sight of CSF leak and aid endoscopic repair of the paediatric skull base defect.

We recommend that 0.05mls/kg of preservative free 5% sodium fluorescein is mixed with 10mls of CSF and slowly injected into the lumbar space 30 minutes prior to surgery.

## COMPLETE NASAL OBSTRUCTION SECONDARY TO PACEMAKER INSERTION

Dr Tom Lloyd Jones<sup>2</sup>, Mr Volkert Wreesmann<sup>2</sup>, Mr Erik Nilssen<sup>2</sup>, Miss Jenny Hilton<sup>2</sup>, **Mr Stephen Hayes<sup>2</sup>**

<sup>1</sup>University Hospital Southampton NHS Foundation Trust, Southampton, United Kingdom, <sup>2</sup>Portsmouth Hospitals NHS Trust, Portsmouth, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Pacemakers are commonly inserted for the treatment of various cardiac arrhythmias. Complications occur in 4-5% of cases and include pneumothorax, pericarditis, infection, pacemaker syndrome, air embolism and haematoma. Thrombosis of the brachiocephalic vein is an extremely rare complication and there are no reported cases of directly related head and neck symptoms in the literature. We present the unique case of a bilateral brachiocephalic vein thrombosis following pacemaker insertion in a 71 year-old male presenting with complete nasal obstruction on bending forward.

**Methods:** Complete nasal obstruction due to inferior turbinate engorgement was elicited by performing Pemberton's procedure (extension of both arms above his head) and by the patient bending over for at least 2 minutes.

**Results:** Computer Tomography angiogram demonstrated bilateral brachiocephalic vein thrombosis around the inserted pacing wires. Discussion at the vascular multidisciplinary team meeting concluded that endovascular repair of bilaterally thrombosed brachiocephalic veins was not surgically possible. Full resolution of symptoms was achieved after 6 months of anticoagulation therapy.

**Conclusion:** We describe the first case of a patient presenting with complete nasal obstruction secondary to bilateral brachiocephalic vein thrombosis as a complication of pacemaker insertion. Nasal obstruction is a common presentation in the ENT clinic. In the absence of any positive ENT findings, consideration must be made of any chest or thoracic inlet pathology.

## ANGIOLEIOMYOMA OF THE INFERIOR TURBINATE PRESENTING WITH ISOLATED FACIAL PAIN

Mr James Heyman<sup>1</sup>, Mr Harish Viswanathan<sup>1</sup>, Mr Stephen Hayes<sup>1</sup>

<sup>1</sup>Portsmouth Hospitals NHS Trust, Portsmouth, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Angioleiomyoma is a rare benign solitary tumour originating from the tunica media of vascular smooth muscle. Predominantly affecting females between 30 to 50 years old, angioleiomyomas present as painful nodules, usually within the uterine wall or in the lower extremities. Less than 1% of angioleiomyomas present in the sinonasal cavity. We describe a unique case of an angioleiomyoma of the right inferior turbinate in a 33 year old male presenting with isolated right-sided facial pain.

**Methods:** Full surgical resection of the lesion was achieved through a minimally-invasive endoscopic transnasal approach.

**Results:** Successful resection of the tumour with no endoscopic signs of residual or recurrent disease and asymptomatic at 6 months.

**Conclusion:** Angioleiomyoma within the sinonasal cavity is incredibly rare. Although angioleiomyomas have previously been described within the sinonasal cavity, we describe a unique presentation of isolated unilateral facial pain. Isolated facial pain is a very common presentation to the otorhinolaryngology clinic, but in the presence of a unilateral sinonasal lesion, consideration of an angioleiomyoma should be made as endoscopic resection provides complete symptomatic resolution.

## RARE CAUSE OF NASAL OBSTRUCTION

Dr. Diogo Tomé<sup>1</sup>, Dr. António Coimbra Henriques<sup>1</sup>, Professor Doutor Leonel Luís<sup>1</sup>

<sup>1</sup>*Centro Hospitalar Lisboa Norte, Lisboa, Portugal*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Nasal obstruction has a vast differential diagnosis. and nasal exploration is essential in its clinical work up. While skull base tumors rarely have nasal obstruction as its first presentation, we here present a clinical case of a pituitary tumor with this rare and curious presentation.

### Methods

Consultation of the clinical process and iconography of the Centro Hospitalar Lisboa Norte

### Results

The authors present a case of a 39 years old man with a progressive bilateral nasal obstruction.

Clinical examination was unremarkable except for the nasal endoscopy that revealed a medial and superior mass of the cavum, covered with healthy mucosa, occupying the totality of the nasopharynx with extension to the nasal septum.

Computed tomography and magnetic resonance described a large mass centered to the pituitary gland with the laboratory examination presenting highly elevated prolactin levels.

The patient was diagnosed with a giant prolactinoma that had an excellent response to medical therapy with carbagoline.

### Conclusion

Despite the large tumor size, these tumors usually respond well to medical therapy, leaving surgical treatment to non-responsive cases.



## VIDEOTAPE APPLICATION IN OBSTRUCTIVE SLEEP APNEA IN CHILDREN: CLINICAL USEFULNESS AND LITERATURE REVIEW

Dr. Carla Moreira<sup>1</sup>, Dr. Ivo Moura<sup>1</sup>, Dr. Inês Cunha<sup>1</sup>, Dr. Herédio Sousa<sup>1</sup>, Dr. Ezequiel Barros<sup>1</sup>

<sup>1</sup>*Centro Hospitalar De Lisboa Central, Lisbon, Portugal*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aim

The aim of this work is to review the literature about the use of videotape recordings to identify children with obstructive sleep apnea (OSA).

### Methods

The authors have evaluated the English literature on the use of videotape recordings in children suspected of having OSA. A comprehensive review of articles published from January 1996 to September 2017 listed in the MEDLINE/Pubmed and ScienceDirect databases was performed. The keywords used were: "Videotape" or "Video-Clip" or "Home Recordings" or "Audiotapes" or "Recordings" and "Obstructive Sleep Apnea" and "Children" or "Child" or "Pediatric". A total of 145 articles were found, of which four were selected.

### Results

In three studies (75%) there was a comparison of findings between polysomnography (PSG) and tape recordings. One study was a prospective single-blinded randomized controlled study in which one group underwent a standard verbally administered panel of questions and in the other group a sleep video was also recorded. The average of children evaluated was 56 (20 - 116) and mean age varied from 1.9 to 12,9 years. All studies had different time recording periods (3min. - 30min.). Three studies evaluated audio and movement features, one study (25%) only considered breathing sounds characteristics. Three studies considered that there was agreement between video and PSG results.

### Conclusions

Our review suggests that the use of this technique can be an additional tool in the diagnosis of OSA in children however, we agree that there is a need of larger and randomized controlled studies in the future to take stronger conclusions.

OUTCOMES OF ELECTIVE ENDOSCOPIC SPHENOPALATINE ARTERY LIGATION FOR RECURRENT EPISTAXIS IN ADULTS:

**A SINGLE CENTRE EXPERIENCE 2011 – 2016**

Miss Anastasia Aslanidou<sup>1</sup>, Mr Tom Beech<sup>2</sup>, Mr Shahzada Ahmed<sup>3</sup>, Miss Lisha McClelland<sup>4</sup>

<sup>1</sup>University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital, Birmingham, United Kingdom,

<sup>2</sup>University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital, Birmingham, United Kingdom,

<sup>3</sup>University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital, Birmingham, United Kingdom,

<sup>4</sup>University Hospitals Birmingham NHS Foundation Trust, Queen Elizabeth Hospital, Birmingham, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Introduction

Endoscopic sphenopalatine artery ligation (ESPAL) is recognised as an effective surgical treatment for intractable posterior epistaxis in the acute setting when medical management fails. Our study aim was to evaluate the outcome of this procedure for non-acute recurrent epistaxis.

Methods

All adult patients who underwent ESPAL for recurrent epistaxis during a 5 year period (September 2011 – August 2016) in our centre were reviewed retrospectively for the effectiveness of this procedure.

Results

11 patients were identified. All had been treated with standard treatments prior to surgery (cautery and emollients).

Of this group 1 patient had thrombocytopenia and 1 patient with a small posterior septal perforation was anticoagulated.

8 patients underwent unilateral and 3 bilateral ESPAL.

ESPAL was effective in 9 patients. 5 with no post-operative bleeding at their 6 to 12 week appointments and 4 patients had only minor recurrent epistaxis and didn't require any further treatment.

The remaining 2 of these patients went on to have a second operation for epistaxis control (1 internal maxillary artery ligation and 1 repeat ESPAL).

Conclusions

These results suggest that ESPAL should be considered in the elective management of recurrent epistaxis in patients not controlled by standard methods.

## LIMITING BLOOD LOSS IN THE ENDOSCOPIC RESECTION OF JUVENILE NASOPHARYNGEAL ANGIOFIBROMA

Dr Narinder Singh<sup>1</sup>

<sup>1</sup>University Of Sydney/ Westmead Hospital, Sydney, Australia

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS:

Juvenile nasopharyngeal angiofibroma (JNA) is a histologically benign, but locally aggressive and highly vascular tumour, the primary treatment of which is surgical excision. Bleeding in the surgical field, particularly during endoscopic endonasal resection, reduces visibility which may compromise adequacy of resection and increase the risk of complications. We review the contemporary pre-operative and intraoperative techniques and technology available to minimise blood loss during JNA resection.

### METHODS:

A PubMed and Evidence Based Medicine Reviews search identified recent (2000 - 2017) articles on measures to reduce bleeding during endoscopic JNA resection and endoscopic sinus surgery.

### RESULTS:

We discuss preoperative angiography and embolisation, anaesthetic techniques (controlled hypotension, red cell salvage, autologous transfusions, tranexamic acid, positioning and body temperature) intraoperative techniques (ligation of named vessels, use of alternate surgical technology such as Coblation and KTP/ Nd:Yag laser, topical pro-coagulants and image guidance) and their potential haemostatic role in JNA resection.

### CONCLUSION:

In view of the high vascularity of JNA tumours and the challenges of a confined operative space in endoscopic endonasal resection, a multimodality approach is needed in order to limit intraoperative blood loss and its subsequent complications.

## RHINOPLASTY: CADAVERIC DEMONSTRATION OF SPARE ROOF TECHNIQUE – A NEW APPROACH FOR THE MIDDLE THIRD

Md Mariline Santos<sup>1</sup>, MD Miguel Gonçalves Ferreira<sup>1</sup>, MD Miguel Coutinho<sup>1</sup>, MD Cecília Almeida e Sousa<sup>1</sup>

<sup>1</sup>*Centro Hospitalar Do Porto, Porto, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aim:** demonstration of Spare Roof Technique (SRT), step by step.

**Methods:** photographic exhibition of a cadaveric dissection illustrating all the procedures of SRT.

**Results:** The first step consists of longitudinal cut of the dorsal septum, from the anterior nasal angle till the perpendicular plate of the ethmoid, 1 mm below the Upper Lateral Cartilages (ULCs) separating completely the dorsal aspect of the septum and the ULCs, preserving the union among the ULCs. The second step consists of removing the remaining excess of dorsal septum to enable the hump's decrease as desired. The third step consists of releasing the junction among the nasal bones and the ULCs—undermining the nasal bones till the cephalic end of the ULCs. The cephalic portion of the ULCs always ends in the junction between the perpendicular plate of the ethmoid and the nasal bones. The fourth step consists of suturing the “roof” (ULCs) to the dorsal aspect of the remaining or reshaped septum. The final step is addressed only to dehump the bony part. This can be done with a traditional bony humpectomy with a Rubin osteotome plus lateral osteotomies or preserving the bony roof: two triangular osteotomies are done—wedge resections.

**Conclusion:** The aim of this new technique - SRT is the remodeling of the nasal dorsum by preserving a smooth natural dorsum and maintaining or improving respiratory function. Through the SRT, the surgeon isolates the entire roof of the middle third, separating the quadrangular septum from the ULCs, without splitting the ULCs among them.

## COMPUTATIONAL FLUID DYNAMICS (CFD) AND THE NOSE: USING COMPUTER MODELLING TO IMPROVE PATIENT OUTCOMES IN SURGERY OF THE UPPER AIRWAY

Dr Narinder Singh<sup>1</sup>

<sup>1</sup>*University Of Sydney/ Westmead Hospital, Sydney, Australia*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

To review the contemporary literature and our experience regarding Computational Fluid Dynamics (CFD) and the Nose.

### METHODOLOGY

A PubMed search identified recent articles discussing the use of CFD in the Nose. We review the current usage of CFD and potential future uses in individual patients and in the development of novel surgical techniques.

### RESULTS

Nasal airflow remains a critical but poorly understood area of physiology. Numerous methods for testing airflow exist, but are marred by significant variability, lack of specificity, sensitivity and reproducibility.

In order to understand the precise causes of obstruction and the effects of corrective surgery, far more qualitative information is required, including appreciation of the airflow pattern (laminar or turbulent), localised velocity and pressure (at different flow rates and in different parts of the nasal cavity) and wall shear stress.

CFD uses highly sophisticated computer algorithms to simulate the flow of air and particles through complex 3D structures in an accurate, reproducible and scientific manner. In recent years, researchers have begun to explore the use of CFD in the nose, firstly by modelling airflow patterns, then through the study of common deformities, such as septal deviation, septal perforations and inferior turbinate hypertrophy. Early attempts to model surgical procedures have been performed, including the effects of turbinate surgery and sinus surgery. Actual post-operative changes have also been modelled.

### CONCLUSIONS

Computational Fluid Dynamics represents an exciting development in upper airway surgery and promises to bring scientific rigour to the testing and surgical correction of nasal airflow.

## PAEDIATRIC ANEURYSMAL BONE CYST: NOT AS EASY AS ABC

**Mr Samit Unadkat<sup>1</sup>**, Dr Ashok Adams<sup>2</sup>, Dr Polly Richards<sup>2</sup>, Prof Yogesh Bajaj<sup>2</sup>

<sup>1</sup>Charing Cross Hospital, Imperial College Healthcare, London, United Kingdom, <sup>2</sup>The Royal London Hospital, Barts Health, London, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Aneurysmal bone cysts (ABCs) are osteolytic bony neoplasms found most commonly in the metaphyses of long bones and vertebrae but exceptionally rarely in the paranasal sinuses. Although regarded as histologically benign, their locally expansile nature poses a threat to the visual apparatus and brain when identified in the paranasal sinuses. The present report illustrates a case of a primary ABC in a six year old child and the complex surgical challenges.

**Methods:** A case review of the literature was performed and the patient followed up over an 18 month period.

**Results:** A six year old boy with a background of asthma presented in May 2016 with right eye pain, proptosis and erythema. His symptoms were in keeping with orbital cellulitis but a CT scan revealed a possible mucopyocele. Despite 2 attempts at endoscopic drainages, the lesion recurred and a review of the CT and additional MRI scanning, suggested an aneurysmal bone cyst. A joint open and endoscopic procedure was later undertaken with histology confirming the diagnosis. However, the lesion recurred with substantial erosion of the anterior cranial fossa floor requiring a bicoronal and transcranial approach and medial orbital wall reconstruction. The patient remains well as of November 2017.

**Conclusions:** ABCs are challenging lesions to manage in the head and neck. Whilst not truly malignant, the proximity of complex anatomical structures means that potential disability can be devastating. ABCs arising within the paranasal sinuses ought to be managed in a highly-specialised unit, jointly with both ENT and craniofacial surgery input.

## SYSTEMATIC REVIEW OF ANAESTHETIC INDUCTION AGENTS IN DRUG INDUCED SLEEP ENDOSCOPY (DISE)

Mr. Ryan Chin Taw Cheong<sup>1</sup>, Mr. Oliver Sanders<sup>2</sup>, Mr. Vikrant Veer<sup>2</sup>, Prof. Bhik Kotecha<sup>2</sup>

<sup>1</sup>Barking, Havering and Redbridge University Hospitals NHS Trust, London, United Kingdom, <sup>2</sup>Royal National Throat Nose and Ear Hospital, London, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Drug Induced Sedation Endoscopy (DISE) was first described in 1991 by Croft & Pringle whereby a state similar to natural sleep is induced using anaesthetic agents. One of the major criticisms DISE is that anaesthetic sedation is not representative of natural sleep. Choice of anaesthetic agent therefore is paramount, and this article systematically reviews advantages and disadvantages of the drugs used to induce a sleep-like state.

### Methods

A robust systematic literature search was conducted and each article gained was further examined for references of studies not acquired during the initial literature searches.

### Results

This initial search yielded 109 studies which following application of the inclusion and exclusion criteria reduced to a final 19 papers. The authors tabulated the summarised data relevant to this article. It was not possible to perform a meta-analysis owing to the heterogeneity of the measured outcomes from the studies.

### Conclusion

Of the agents examined dexmedetomidine and propofol have been found to be relatively safe and reliable for conducting DISE. Most agents have been shown to have a dose dependent effect on airway collapsibility, necessitating careful titration of doses.

## A RARE CASE OF SQUAMOUS CELL CARCINOMA OF SINONASAL CAVITY IN A PATIENT WITH GRANULOMATOSIS WITH POLYANGITIS

**Mr mohiemen anwar**<sup>1</sup>, MR GHASSAN ALUSI<sup>2</sup>, MR KHALID GHUFOOR<sup>2</sup>, MISS RESHMA GHEDIA<sup>1</sup>

<sup>1</sup>WEST MIDDLESEX UNIVERSITY HOSPITAL, CHELSEA AND WESTMINSTER NHS FOUNDATION TRUST - LONDON, United Kingdom, <sup>2</sup>Barts Health NHS Trust, London, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims:

Granulomatosis with polyangitis (previously Wegener's Granulomatosis) is a rare condition with skin, respiratory and renal manifestation. Patients often are treated and maintained on immunosuppressant drugs e.g. Cyclophosphamide, Methotrexate and steroids. This rare condition is commonly linked to malignancies like non-hodgkin's lymphoma and bladder cancer, mainly attributed to prolonged treatment with cytotoxic therapeutic agents. Sinonasal manifestation of this granulomatous disease is well documented but there has been no direct link or reports in the literature as a pre-disposing factor to squamous cell carcinoma of the nasal cavity. Here we report the UK first case of nasal cavity SCC on a background of prolonged manifestation of sinonasal granulomatous inflammation secondary to GPA.

### Methods:

A case report of a 56-year-old man with years' history of severe GPA of the sinonasal cavity and bronchio-tracheal tree treated with prolonged course of methotrexate and prednisolone. He presented with an expanding central nasal mass that has failed to respond to treatment. Multiple biopsies revealed evidence of infiltrative SCC with no traces of his previously proven GPA.

### Results:

Patients underwent a successful radical rhinectomy and total maxillectomy and subsequent chemoradiotherapy. Patient is 6-months on from his last treatment and currently planned for reconstructive surgery.

### Conclusion:

In the light of the chronic granulomatous inflammation of the sinonasal mucosa in GPA patients, regular reviews and biopsies are necessary whenever failure to response to treatment is evident to exclude malignancy. We present the UK first case of SCC in a background of severe sinonasal manifestation of GPA.



## ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL APPROACH FOR PEDIATRIC CRANIOPHARYNGIOMAS: A CASE SERIES

Ms Juliana Carolina Schelini<sup>1</sup>, Mr Rodrigo de Paula Santos<sup>1</sup>, Mr Élcio Roldan Hirai<sup>1</sup>, Ms Patrícia Alessandra Dastoli<sup>2</sup>, Ms Camila Atallah<sup>1</sup>, Mr Marcos Costa<sup>2</sup>, Mr Jardel Nicacio<sup>2</sup>, Ms Andrea Maria Capellano<sup>2</sup>, Ms Nasjla Silva<sup>2</sup>, Mr Samuel Zymberg<sup>2</sup>, Mr Sergio Cavalheiro<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology and Head and Neck Surgery, Federal University of São Paulo - UNIFESP, São Paulo, Brazil, <sup>2</sup>Discipline of Neurology and Neurosurgery, Federal University of São Paulo - UNIFESP, São Paulo, Brazil

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Most series of pediatric craniopharyngiomas includes only a small number of patients treated using an endoscopic endonasal transsphenoidal approach (EETA). It has been performed especially in cases of purely sellar and infradiaphragmatic lesions. The aim of this paper is to analyze our series of pediatric patients with craniopharyngiomas removed by EETA.

**Methods:** The authors retrospectively evaluated 20 craniopharyngioma pediatric patients who underwent an EETA between 2007 and 2017 at IOP/GRAACC/UNIFESP. Data regarding tumor location, imaging studies, surgical resection and endocrinological disturbances were collected.

**Results:** From the 20 patients included in this series (12 boys and 8 girls), 17 underwent transsphenoidal surgery as the primary procedure and 3 as a secondary surgery after previous craniotomy. The average age at treatment was 6.7 years (range 3–15y). Twelve tumors were sellar/suprasellar, 3 extended into third ventricle, and 5 were purely intra-sellar. Complete tumor resection was achieved in 14 patients (70%), subtotal removal in 5 (25%) and partial in 1 (5%). There were no cases of CSF leaks. After an average follow up of 5.3 years (range 2-9y), 13 patients (65%) progressed to panhypopituitarism.

**Conclusion:** EETA is a safe, feasible and an effective surgical approach to remove craniopharyngiomas in children. There was no age limit. Poorly pneumatized sphenoid sinus were not considered contraindications to EETA. Tumor location with extension from the sellar to the suprasellar compartment or to the third ventricle were not contraindications either. Panhypopituitarism occurs at same rates as those obtained after transcranial surgery.

## OUTCOMES OF PITUITARY ENDONASAL TRANSSPHENOIDAL SURGERY

MD, PhD Carlos Takahiro Chone<sup>1</sup>, MD Thiago Luís Infanger Serrano<sup>1</sup>, MD Mariana Dalbo Contrera Toro<sup>1</sup>, MD Mateus Dal Fabbro<sup>1</sup>, MD, PhD Carlos Takahiro Chone<sup>1</sup>, PhD Fernando Augusto Lima Marson<sup>1</sup>, MD, PhD Marcelo Hamilton Sampaio<sup>1</sup>, MD, PhD Eulalia Sakano<sup>1</sup>

<sup>1</sup>UNICAMP, Campinas, Brasil

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**AIM:** Transsphenoidal endonasal surgery for resection of pituitary tumors has become the standard treatment for this type of tumor. Preoperative surgical planning is essential and there is a great possibility of extension of transsphenoidal access according to tumor size. Some association could exist between access extension and type of reconstruction, as well as postoperative outcomes. So, we described pituitary tumors aspects and its correlation with transsphenoidal surgery.

**METHODS:** It was a retrospective study of 69 consecutive patients who underwent a transsphenoidal endonasal resection of hypophysis tumors from 2011 to 2017. Data collected included: tumor size, endoscopic nasal anatomic variations, intraoperative ethmoidectomy and turbinectomy, presence of fistula, total or subtotal resection, endonasal flaps, type of reconstruction, and postoperative outcomes.

**RESULTS:** Tumor volume vary from 2,73 mm<sup>3</sup> to 151632,00 mm<sup>3</sup>, with a median of 8640,00 mm<sup>3</sup>. Statistical analysis showed that total resection was most prevalent at smaller tumors, but it doesn't suggest that total resection was associated with CSF leak, both intraoperative and postoperative. Surgery access extension was divided in restricted, partially expanded and expanded, but no relation to nasal complaints or nasal synechiae was observed.

**CONCLUSION:** No association was observed between surgical access extension and postoperative complaints. Larger tumors were associated with usage of pediculated flaps, what is expected because of extended access is preferred in larger tumors.

## INTRANASAL SUPERNUMERARY TOOTH - AN UNCOMMON ENTITY

Dr. Lilia Ferraria<sup>1</sup>, Dr. Sofia Polainas<sup>1</sup>, Dr. Mariana Branco<sup>1</sup>, Dr. Carla André<sup>1</sup>, Dr. Helena Rosa<sup>1</sup>, Dr. Luis Antunes<sup>1</sup>

<sup>1</sup>Hospital Garcia De Orta, Lisboa, Portugal

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction:** Teeth exceeding the normal dental complement erupting into the nasal cavity are a rare pathological entity. The incidence of supernumerary teeth generally affects 0.1 to 1% of the population. However the identification of such teeth can be important since they have the potential to cause considerable morbidity.

**Aims:** To report a case of a child's supernumerary tooth (SNT) that erupted in the nasal cavity. To discuss the etiology, complications, differential diagnosis and management of intranasal teeth.

**Case report:** A 6-year-old girl was referred to ENT emergency service for left-sided nasal obstruction, fetid discharge and an intranasal mass. Examination of the nose revealed a 10 mm diameter white hard mass in the floor of the left nasal cavity surrounded by some mucus discharge. On palpation it was hard and not mobile. Oral cavity examination revealed intact dentition. No previous history of maxillofacial trauma or surgery was elicited. Computed tomography of paranasal sinuses revealed a radiopaque lesion consistent with an inverted supernumerary tooth situated in the anterior nasal floor and partially exposed in the left nasal cavity.

She underwent endoscopic removal of the supernumerary tooth with a Blakesley nasal forceps. The symptoms completely resolved after surgery.

**Conclusions :** An intranasal ectopic tooth is an uncommon entity. However it should be considered as a differential diagnosis when intranasal masses are identified. Rhinologists should be aware of this entity when encountering patients presenting with nasal obstruction and a nasal mass. An early extraction is advocated because SNT can cause considerable morbidity.

## PRIMARY CILIARY DYSKINESIA: A RARE CAUSE OF CHRONIC RHINOSINUSITIS

**Dr. Lilia Ferraria<sup>1</sup>**, Dr. Paula Pedro<sup>1</sup>, Dr. Henrique Teixeira<sup>1</sup>, Dr. Joana Castro<sup>1</sup>, Dr. Vitor Proença<sup>1</sup>, Dr. Helena Rosa<sup>1</sup>, Dr. Luis Antunes<sup>1</sup>

<sup>1</sup>*Hospital Garcia De Orta, Lisboa, Portugal*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction:** Primary ciliary dyskinesia (PCD) is a rare inherited autosomal-recessive disorder of motile cilia with systemic manifestation. PCD is a rare cause of chronic rhinosinusitis that can remain undetected for a long time.

**Aims:** To report a case of PCD diagnosed only at 42 years-old and to highlight the importance of a detailed clinical history and physical examination.

**Case Report:** A 42-year-old male patient presented with repeated pneumonia, acute otitis media and sinusitis since infancy, with a persistent wet cough and purulent sputum. His past medical history was remarkable for a left inferior lobectomy at the age of 37 and a cholecystectomy one year later. Otoscopy revealed bilateral otitis media with effusion and the anterior rhinoscopy revealed thick mucoid discharge in the middle meatus bilaterally. The audiogram revealed a mild bilateral conductive hearing loss. Sinonasal CT showed opacification of bilateral maxillary, ethmoid and sphenoid sinuses. Chest CT showed atelectasis and bronchodilatation in the middle lobes and no situs inversus. Electron microscopy study was performed on biopsy specimens of the nasal and bronchial mucosa and revealed a loss of dynein arms of the cilia. He underwent functional endoscopic sinus surgery that was effective for relieving both chronic rhinosinusitis and lung infection.

**Conclusion:** Diagnosis of PCD without situs inversus is a challenge. PCD must be considered in the presence of thick mucoid discharge in the nasal cavity with underlying recurrent lower respiratory tract infections. This case report highlights the rarity of this condition and its wide ranging ENT and multidisciplinary systemic findings.

## NASAL CAVITY IRRIGATION RIGID ENDOSCOPY FOR DIAGNOSIS AND TREATMENT OF CRS IN ADULTS-RURIS IN INFANTS

Dr Thuy Tran Le, Dr Trang Tran Minh

<sup>1</sup>*Thuy Tran Otolaryngology Clinic, Ha Noi City, Viet Nam*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Nasal Cavity Irrigation Rigid Endoscopy for Diagnosis and Treatment of CRS in Adults-RURIs in Infants

Thuy Tran Le Ph.D,

Trang Tran Minh MD

Thuy Tran Otolaryngology Clinic, Ha Noi, VietNam

This research demonstrates the advantages of our Nasal Cavity Irrigation Rigid Endoscopy (NCIRE) to diagnose and treat chronic rhinosinusitis (CRS) in adults and recurrent upper respiratory infections (RURIs) in infants. Study: Retrospective review. Method/Materials: NCIRE investigated at Thuy Tran Otolaryngology Clinic in Ha Noi from June 2011 to June 2016. Group A: 489 CRS from eight to 67 years old and Group B: 368 RURIs from six months to seven years. Results: Group A: By NCIRE a CRS syndrome classification (SC) identified with any recurrent symptom at throat: 405/489= 83%, nose: 377/489=77%, Headache: 252/489=52%, or Ear: 205/489=42%. Beside of CRS, fungi test positive: 195/489=40%, Gastroesophageal reflux disease (GERD):166/489= 34% happened. The results of NCIRE treatment was excellent within three weeks, each session per day, mini FESS management combined. Group B: A two minutes process of NCIRE was used to determine disease classification (DC) of RURIs: nasopharyngitis: 368/368=100%, otitis media: 297/368, adenoiditis: 279/368. GERD: 243/368 and radically treat nasopharyngitis within ten days, classical procedures with adenoiditis, otitis media. Excellent results were achieved in all of patients, 12 months later follow up. Conclusions: The NCIRE is adequate for accurate diagnosis and radical treatment of CRS in adults and RURIs in infant, without tonsillectomy, limited antibiotics use. Keywords: nasal cavity irrigation rigid endoscopy, chronic rhinosinusitis, recurrent upper respiratory infections, syndrome classification, disease classification

## ENDOSCOPIC ENDONASAL OPTIC NERVE DECOMPRESSION FOR NONTRAUMATIC OPTIC NEUROPATHY: REPORT OF 3 CASES

**professor JINHEE CHO**<sup>1</sup>, fellow DOYOUN KIM<sup>2</sup>, resident OHHYEONG LEE<sup>3</sup>, resident GYEONGCHEOL CHOI<sup>4</sup>

<sup>1</sup>The Catholic University of Korea, Seoul, South Korea, <sup>2</sup>The Catholic University of Korea, seoul, South Korea, <sup>3</sup>The Catholic University of Korea, seoul, South Korea, <sup>4</sup>The Catholic University of Korea, seoul, South Korea

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

The rate of traumatic or nontraumatic optic neuropathy has increased over past decades. High dose steroid, surgery and combined treatment could be the treatment option of optic neuropathy. Surgical intervention by endoscopic intranasal approach is thought to be a safe and effective way of optic nerve decompression. We present outcomes of 3 patients with neuropathy performed endoscopic optic nerve decompression. Of the 3 patients, 2 showed their visual improvement such as light and hand motion. However, one patient with mucocele was not improved visual disturbance after surgery. The difference between the recovered patients and the other is regarded as an initial visual acuity. Early diagnosis and prompt surgical management could optimize the chance of a recovery of visual performance considering that the patient's visual acuity is at least over light perception.

## SURGICAL STRATEGY FOR JUVENILE NASOPHARYNGEAL ANGIOFIBROMA IN ONERCI STAGE Ⅲ

**Dr. Fenghong Chen<sup>1</sup>**, Dr. Haiyu Hong<sup>2</sup>, Dr Yueqi Sun<sup>1</sup>, Dr. Yihui Wen<sup>1</sup>, Dr. Qingtai Yang<sup>3</sup>, **Dr. Jianbo Shi<sup>1</sup>**

<sup>1</sup>The first affiliated hospital of sun yat-sen university, Guangzhou, China, <sup>2</sup>The fifth affiliated hospital of sun yat-sen university, Zhuhai, China, <sup>3</sup>The third affiliated hospital of sun yat-sen university, Guangzhou, China

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Objective:** to develop a surgical strategy for Juvenile nasopharyngeal angiofibroma (JNA) in Onerci stage Ⅲ.

**Methods:** Patients diagnosed as JNA Onerci stage Ⅲ and undergoing endoscopic surgery from 2011 to 2016 was prospective enrolled.

**Results:** Fifteen patients were enrolled. All were male and the average age was 16.4 years (10-31 years). Nine patients received angiography before surgery and eight of them received embolism. The mean follow-up time was 3.5 years (15-80 months). Recurrence was found in three cases, and endoscopic endonasal approach was performed in two cases, and one was received endoscopic endonasal approach combined with Caldwell Luc approach. The surgical strategy was:

1. The inferior turbinate and the lower part of the middle turbinate were resected to expose the upper and lateral surgical field.
2. Maxillostomy was performed and enlarged till the posterior wall of the maxillary sinus was fully exposed.
3. The posterior wall of the maxillary sinus was removed to expose the tumor in the pterygopalatine fossa and intratemporal fossa.
4. The anterior wall of the sphenoid sinus was resected to fully expose the tumor in the sphenoid sinus.
5. The tumor mobilized from the attached bone and nasopharynx.
6. The major feeding artery was identified and cauterized.
7. Removal of the tumor from the nose.
8. The vidian tube and basisphenoid were drilled.

**Conclusion:** endoscopic endonasal approach is alternative for Onerci stage Ⅲ JNA. The principle of the surgery is fully exposure and mobilization of the tumor before removal it.

## A CASE OF MIXED CHORIOCARCINOMA/TERATOMA IN THE NASAL CAVITY DISCOVERED FROM NOSEBLEEDS

**Assistant Professor Yu Hosokawa<sup>1</sup>**, Senior Lecturer Kazuhiro Omura<sup>1</sup>, Resident Satoshi Aoki<sup>1</sup>, Resident Keisuke Miyashita<sup>1</sup>, Assistant Professor Utaro Anazawa<sup>1</sup>, Professor Nobuyoshi Otori<sup>2</sup>, Professor Yasuhiro Tanaka<sup>1</sup>  
<sup>1</sup>*Department of Otorhinolaryngology, Dokkyo Medical University Saitama Medical Center, Saitama, Japan,* <sup>2</sup>*Department of Otorhinolaryngology, The Jikei University School of Medicine, Tokyo, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

The patient was an 81-year-old man with a history of cerebral infarction and heart failure. His chief complain are nosebleeds and anemia. Intranasal findings were a tumor filling the right nasal cavity and bleeding from that tumor. Preoperative histopathological examination revealed adenocarcinoma in the nasal cavity, and endoscopic resection of the nasal tumor were done with the aims of controlling the bleeding and removing the tumor. The tumor was resected en bloc. The histopathological results showed a mixed malignant tumor consisting of choriocarcinoma and teratoma. The tumor base was near the cribriform plate and surgical margin was negative. In addition to a postoperative urological examination, a thorough examination was performed, including CT and positron emission tomography to identify the primary lesion. No site other than the nasal cavity could be considered the primary site, and mixed choriocarcinoma and teratoma of the nasal cavity was diagnosed.

In general, choriocarcinoma almost always occurs in relation to pregnancy. Non-gestational choriocarcinoma is rare, occurring from germ cell origins or differentiation abnormality in another cancer. In 2005, neither choriocarcinoma nor teratoma were classified as head and neck cancers by the WHO. To our knowledge, there are only two previous reports of choriocarcinoma occurring in the nasal cavity; therefore, it can be considered rare.

We report herein a case of mixed choriocarcinoma and teratoma in the nasal cavity. Nosebleeds are the first symptom of various malignant tumors in the nasal cavity. Tumor resection is performed for fundamental control of bleeding, and proactive surgical treatment is necessary.



## ENDOSCOPIC RESECTION OF A HUGE ORBITAL ETHMOIDAL MUCOCOELE MASQUERADING AS DACRYOCYSTOCOELE: CASE REPORT AND REVIEW OF THE LITERATURE

**Dr Eugene Wong<sup>1</sup>**, Dr Nicholas Leith<sup>1</sup>, Dr Geoff Wilcsek<sup>1</sup>, Dr Irene Tan<sup>1</sup>, Prof Raymond Sacks<sup>1</sup>

<sup>1</sup>*Concord Repatriation General Hospital, Concord, Australia*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Background:** Paranasal mucoceles are cystic masses lined with epithelium thought to result from chronic obstruction of an impaired sinus ostia (Devars du Mayne). They most often occur in the frontal or ethmoid sinuses, and if sufficiently large, can cause ophthalmologic sequelae including diplopia, visual acuity, globe displacement as well as the rhinological symptoms of, facial pain and headache.

**Aims and Methods:** We present the case of a 57-year-old male who presented with a one year history of epiphora and right globe prominence with associated diplopia. Imaging demonstrated a mass located within the medial aspect of the orbit, closely associated to the lamina papyracea and nasolacrimal duct consistent with a dacryocystocele. Endoscopic marsupialisation of the sac into the nose and complete resection of the cyst was undertaken. Histopathology was consistent with an ethmoid mucocele.

**Results:** The patient experienced complete resolution of his visual symptoms at five weeks postoperatively.

**Conclusions:** Our report therefore highlights the importance of in-office nasendoscopic examination as part of the diagnostic workup of any mass of the sinonasal cavities. It also suggests that management of these patients should involve a multidisciplinary approach with involvement of a rhinologist, oculoplastic surgeon and a head and neck radiologist for the most accurate provisional diagnosis, facilitating optimal symptomatic and cosmetic outcome.

## MANAGEMENT OF SINONASAL HEMANGIOPERIOCYTOMAS: CASE SERIES AND LITERATURE REVIEW

Dr Jessica Clark<sup>1</sup>, Dr Christopher Noel<sup>2</sup>, Dr Brittany Barber<sup>3</sup>, Dr Vincent Biron<sup>1</sup>, Dr Hadi Seikaly<sup>1</sup>, Dr David Cote<sup>1</sup>

<sup>1</sup>University Of Alberta, Edmonton, Canada, <sup>2</sup>University of Toronto, Toronto, Canada, <sup>3</sup>Icahn Mount Sinai School of Medicine, New York, USA

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction:** Sinonasal hemangiopericytomas (SNHs) account for approximately 1-3% of all vascular sinonasal tumors. Treatment consists of open or endoscopic surgical resection. High recurrence rates of up to 29% have been reported in the literature.

**Aims:** To determine the optimal surveillance timing for patients with SNH and to determine the role of radiotherapy (RT) to minimize recurrence.

**Methods:** All SNH patients treated in the province of Alberta from 1990-2015 were identified using data from the Alberta Cancer Board database. Data regarding patient and tumor characteristics, treatment, length of follow-up, disease-specific (DSS) and overall survival (OS) was collected. A systematic review of the literature regarding treatment and survival for patients with SNH was also performed to propose an algorithm for SNH management.

**Results:** Open or endoscopic surgical resection was performed in over 95% of patients with 13.6% patient received RT. Overall 5-year survival was greater than 80%. Adjuvant RT reduced recurrence rates in patients with incomplete surgical resection ( $p < 0.05$ ). Greater than 95% of recurrences were identified by the mean follow-up time of 33.1 months.

**Conclusions:** SNH is a rare, yet challenging disease to manage. Complete resection is essential to minimize tumor recurrence. Adjuvant RT may decrease recurrence in cases of incomplete resection; however, routine use does not appear to be warranted. With high recurrence rates and prolonged time to recurrence, patients presenting with SNH should be surveilled for a minimum of 5 years.



## REDUCTION OF ALLERGIC RHINITIS BY CONTROLLING THE TH1/TH2 CYTOKINE BALANCE OF ASTER YOMENA

Dr Kyung-A Hwang<sup>1</sup>, Dr Jin Song<sup>1</sup>, Dr Sung-Hyeon Lee<sup>1</sup>, Hwan-Hee Jang<sup>1</sup>, Dr Yu-Jin Hwang<sup>1</sup>, Dr Hyang-Rin Kang<sup>1</sup>

<sup>1</sup>National Institute Of Agricultural Sciences, Wanju, South Korea

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Recently, the incidence of allergies is increasing worldwide. Immunoglobulin E (IgE)-mediated hypersensitivity is central to the pathogenesis of asthma, and other allergic diseases. Aster yomena (AY) have been valued for their medical properties including anti-inflammation, anti-pyresis and analgesia properties. In this study, we investigated the effects of AY on ovalbumin (OVA)-induced allergic rhinitis. **Methods:** BALB/c mice were divided into four groups (5 mice in each group): (1) control group; no sensitization (2) OVA group; sensitization with OVA (3) AY group; sensitization with OVA and AY (1 g/kg) and (4) Iso group; sensitization with OVA and isoquercitrin (15 mg/kg). Briefly, they were OVA-sensitized by injection on day 7 and 21. Sensitization was followed by daily intranasal challenges for 3 days with OVA 5 days after the second injection. The anti-allergic rhinitis effects were evaluated by measuring the concentrations of IgE, histamine, Th1 and Th2 cytokines in the blood, and the ratio of Th1/Th2 cell in splenocytes.

**Results:** In mice with OVA-induced allergic rhinitis, AY reduced secretion of IgE (67% decrease) and histamine (74% decrease). AY regulated both Th1 and Th2 cytokines levels. AY significantly inhibited IL-4, one of the major Th2 cytokines. And other Th2 cytokines (IL-5, IL-13) were also clearly inhibited by the AY. Among Th1 cytokines, AY tended to increase the production of IFN- $\gamma$ , TNF- $\alpha$  and IL-12.

**Conclusions:** AY lessens inflammation in bloods and splenocytes inflammatory mediator secretion, resulting in prevention or alleviation of allergy symptoms.

## INHIBITORY EFFECTS OF ASTER YOMENA ON MAST CELL ACTIVATION AND TH2 CYTOKINE-MEDIATED ALLERGIC RESPONSE

Dr Jin Song<sup>1</sup>, Dr Kyung-A Hwang<sup>1</sup>, Dr Sung-Hyeon Lee<sup>1</sup>, Hwan-Hee Jang<sup>1</sup>, Dr Yu-Jin Hwang<sup>1</sup>, Dr Hyang-Rin Kang<sup>1</sup>

<sup>1</sup>*National Institute of Agricultural Sciences, Wanju, South Korea*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Allergies such as asthma, atopic dermatitis, and allergic rhinitis are caused by immunoglobulin E (IgE)-mediated immediate hypersensitivity reactions. Allergy is caused by allergic mediators such as inflammatory cytokines, and histamine. Recently, natural medicines are being used for treatment of various allergic diseases to maintain the natural balance of immune factors. Aster yomena (AY) is a Korean traditional herbal medicine used for the treatment of runny nose, sneezing, and congestion. In this study, we determined whether AY inhibits allergic response in RBL-2H3 cells.

**Methods:** Levels of  $\beta$ -hexosaminidase were measured using ELISA. Modifiability of RBL-2H3 mast cells' IL-4, IL-5, IL-13 and MCP-1 was analyzed by qRT-PCR. Also, the regulation effect of GATA-3, c-Maf, STAT-6, T-bet, IRF-1 and STAT-1 was observed by western blotting.

**Results:** We found that AY suppressed  $\beta$ -hexosaminidase release (a 37.9% decrease). AY also significantly inhibited Th2 cytokine levels, such as IL-4, IL-5, IL-13 and MCP-1 in RBL-2H3. In addition, the levels of p-STAT6, GATA3, and c-Maf were elevated in OVA-sensitized cells than in the control; however, the expression of p-STAT1, T-bet, and IRF1 were reduced. AY extracts inhibited the increase in expression of p-STAT6, GATA3, and c-Maf and increased the expression of p-STAT1, T-bet, and IRF1 compared to those in the OVA-sensitized cells.

**Conclusions:** Our results indicate that AY protects against allergic response and exerts an anti-inflammatory effect through the inhibition of degranulation and expression of Th2 cytokines.

## PREDICT POSTOPERATIVE SUBJECTIVE OUTCOMES IN PATIENTS WITH CHRONIC RHINOSINUSITIS USING CLUSTER ANALYSIS

MD Eun Kyu Lee<sup>1</sup>, MD Gwanghui Ryu<sup>1</sup>, Prof. Sang Duk Hong<sup>1</sup>, Prof. Hyo Yeol Kim<sup>1</sup>, Prof. Seung-Kyu Chung<sup>1</sup>, Prof. Hun-Jong Dhong<sup>1</sup>

<sup>1</sup>*Sungkyunkwan University School Of Medicine, Samsung Medical Center, Seoul, South Korea*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Numerous studies have focused on the phenotype of chronic rhinosinusitis (CRS) using cluster analysis. Although there are no studies that predicting postoperative outcomes using this methods. The aims of study was to identify phenotype of CRS and to evaluate postoperative outcomes using clustering and algorithm classifier. 397 patients who underwent a functional endoscopic sinus surgery (FESS) were enrolled and their clinical data were evaluated. Postoperative outcomes were assessed with SNOT-22 in 1/3/6 months after FESS. Ward's hierarchical method was used to perform the cluster analysis. Discriminant analysis was performed using random forest classifier. Four clusters were chosen and 98% of individuals were categorized in to the appropriate cluster using random forest classifier. Variables that used classify the algorithm were presence of nasal polyp (NP), asthma, gender, atopy, smoking, and revision surgery. Each cluster showed different characteristics. Cluster 1 was mainly CRS without NP (99%), non-asthmatic (98%) and the highest psychological symptoms in SNOT-22 subdomain. Cluster 2 was all male patients, all atopic, NP (99%) and smoker (51%) groups. Cluster 3 was female (86%), asthmatic (35%), NP (95%) and cluster 4 was all male, all NP, and revision (44%) cases. Cluster 1 and 3 had persistent symptoms after surgery though disease severity (LM score) was lower than other clusters. Cluster 2 and 4 showed gradual improvement during follow-up periods. CRS without NP with non-asthmatic patients and asthmatic female with NP patients showed poor subjective outcomes after FESS. These phenotypes of CRS patients need more careful preoperative counseling and deciding surgery discreetly.

## PREVENTION OF OLFACTORY DYSFUNCTION AFTER BRONCHOSCOPY

Dr Byung Guk Kim<sup>1</sup>, Dr Ji-sun Kim<sup>1</sup>, Dr Subin Kim<sup>1</sup>, Dr Jin Hee Cho<sup>1</sup>

<sup>1</sup>College Of Medicine, The Catholic University Of Korea, Seoul, Korea, Seoul, South Korea

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

To analyze the possible causes of olfactory dysfunction during the procedure of flexible bronchoscopy.

### Methods

From December of 2014 to October of 2015, we retrospectively analyzed 5 patients who were referred to ENT department for hyposmia or anosmia after having flexible bronchoscopy.

### Results

All of patients had no history of head trauma or previous event of olfactory dysfunction. On butanol threshold test, 4 patients had bilateral functional loss and 1 patient had only left side functional loss. On cross-cultural smell identification test(CC-SIT), 4 patients with bilateral loss got scores of 0~2 and the one with unilateral loss had score of 5. No patient showed significant abnormal findings on nasal endoscopy, paranasal sinus CT or brain MRI.

### Conclusions

To prevent neurotoxicity of local anesthetic drugs, we suggest some protocols to reduce dose and residual time of drugs.

## RE-OPERATION CASE OF NASAL SEPTAL DEVIATION

Dr Yasuhiro Suzuki<sup>1</sup>, Dr Yuichiro Inaba<sup>1</sup>, Dr Kohei Kajino<sup>1</sup>, Dr Takeshi Tsutsumi<sup>1</sup>

<sup>1</sup>*Tokyo Medical And Dental University, Tokyo, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### [Aims]

We show an important point in the septal surgery from our case.

### [Methods and Results]

The patient was 57-year-old male and he visited other hospital for a severe apnea symptom during sleep. He was provided a therapeutic device for sleep apnea syndrome (CPAP: continuous positive airway pressure). However, he could not use this device continuously because of nasal obstruction. Although he was performed submucous resection of nasal septum, his symptom did not improve.

He visited our hospital in order to seek another treatment for improving his symptom.

His nasal septum deviation still remained only in a left nasal vestibule part and was relatively corrected in other parts.

According to the examination of rhinomanometry, the right side had strong nasal congestion and the left side was immeasurable because of strong nasal obstruction.

We decided to perform another submucous resection of nasal septum only in a left nasal vestibule part.

We identified the frontal edge of nasal septal cartilage, removed the remaining cartilage, and sewed up the incision part.

After surgery, he was relieved from his symptom and the results of postsurgical rhinomanometry were also improved.

### [Conclusions]

In this kind of case, we should have selected rhinoplasty but not endoscopic surgery.

We thought about a postoperative appearance and decided to perform endoscopic surgery for this case.

When nasal septal deviation progressed to the nasal vestibule part, it is important to resect cartilage of this part completely.



## CHRONIC RHINITIS WITH ANAPHYLAXIS OF MARY THISTLE- CASE PRESENTATION

Ms. Ramona Ungureanu<sup>1</sup>, Ms. Elena Madalan<sup>1</sup>

<sup>1</sup>*Diagnostic And Treatment Center "Dr. Victor Babes", Bucharest, Romania*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Background:** In Romania has increased the use of phytotherapy. Chronic rhinitis caused by allergic reactions to pollens are becoming more common. Frequency of allergic reactions to ragweed pollen has grown up, in the same time increasing the allergic reactions to pollens from the same class, Asteraceae.

**Objective:** We present the case of a patient with chronic rhinitis, suffering of nasal obstruction and rhinorhea only seasonal. The patient has a personal history of a recently anaphylactic shock, after administration of tablets of Mary Thistle (*Silybum marianum*).

**Methods:** A 47 years-old patient, with symptoms of seasonal rhinitis, with an episode of anaphylaxis after administration of tablets of Mary Thistle (*Silybum marianum*). Tablets were administered from GP as liver protection after an antibiotic treatment. We performed ENT clinical examination, nasal endoscopy, imaging (CT scan), allergy tests, pulmonary tests, blood tests.

**Results:** After usually testing, we find a sensitization to ragweed (*Ambrosia elatior*) and Mary Thistle (*Silybum marianum*), from the same class, Asteraceae. CT showed chronic rhinitis. Pulmonary tests were normally. Total Ig E was increased.

The treatment options included topical steroids and allergen specific immunotherapy according to ARIA recommendations.

**Conclusions:** We present a case of chronic allergic rhinitis with sensitization to ragweed and mary thistle, but with symptoms of anaphylactic shock after administration of herbal tablets for liver protection.

In a period in which herbal and homeopathic alternative therapies are gaining ever more ground to allopathic medicine, allergies to pollens should be removed in order not to endanger the patient's life.

## PREVALENCE OF CLINICALLY DIAGNOSED OLFACTORY DYSFUNCTION AND ITS RELATION WITH NEURODEGENERATIVE DISEASE IN SOUTH KOREA

Prof Hyo Jin Chung<sup>1</sup>, Prof Eun Jung Lee<sup>2</sup>, Prof Jung Hyun Chang<sup>1</sup>

<sup>1</sup>Dept of Otorhinolaryngology, National Health Insurance Service Ilsan Hospital, Goyang-si, Gyeonggi-do, South Korea,

<sup>2</sup>Dept of Otorhinolaryngology, Yonsei University College of Medicine, Seoul, South Korea

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Olfactory dysfunction(OD), a reduced or complete loss of ability to smell, is getting more attention because of its substantial impact on an individual's quality of life, and the possibility of important sign for the underlying disease. However, OD is underdiagnosed in the general population for its diagnostic difficulty and unpredictable prognosis. This study aims to evaluate the incidence and prevalence of clinically diagnosed olfactory dysfunction in South Korea by using Nationwide population-based study.

### Methods

We investigated the Korean National Health Insurance Service-National Sample Cohort, a representative one million-sample of the Korean population, for patients diagnosed with olfactory dysfunction according to International Classification of Diseases. (ICD-10 ; R43(43.0, 43.1, 43.8), J34.8), Annual and overall incidence and prevalence during the study period (2003-2013) were estimated excluding chronic patients diagnosed during 2002, and sociodemographic factors and comorbidities associated with olfactory dysfunction were evaluated using Cox proportional hazard regression model.

### Results

A total of 6,296 patients were clinically diagnosed as olfactory dysfunction during study periods (524.67 patients/year). The incidence increased year by year, and was higher in female patients. Patients from Year 2003 with no history of neurodegenerative disease (n=5919) were recruited for analyzing the relation with neurodegenerative disease. Diabetes mellitus (OR=1.976, p=0.0245) and depression (OR=2.758, p=0.0069) were significantly associated with an increased incidence in the multivariate Cox model.

### Conclusions

Olfactory dysfunction is an important quality-of-life-related disorder, but still underdiagnosed in South Korea. In clinical practice, we have to consider its association with neurodegenerative diseases and possibly more various systemic conditions.

## ENDONASAL RESECTION OF FIBROUS DYSPLASIA INVOLVING PARANASAL SINUSES: OUR EXPERIENCE

Prof. Sergey Karpishchenko<sup>1</sup>, Dr. Olga Vereshchagina<sup>1</sup>, Mrs. Svetlana Baranskaya<sup>1</sup>, Mr. Artemiy Karpov<sup>1</sup>  
<sup>1</sup>*Pavlov First Saint Petersburg State Medical University, Saint Petersburg, Russian Federation*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Fibrous dysplasia (FD) is a chronic tumor-like slowly progressive bone disease. It is characterized by replacement of normal bone by fibrous tissue as a result of misuse of osteogenic mesenchyme. One or multiple bones are involved in FD. Typical symptoms are an increase in bone dysfunction, bone deformity, pathological fractures. It is about 2% of bone tumors, 20% of these cases occur in craniofacial localization. Most frequently it is located in the maxilla.

**Aims:** The aim of this study was to evaluate the need to perform surgical treatment in patients with FD involving paranasal sinuses. Classification of fibrous dysplasia based on the amount involved in the pathological process of bone.

**Methods:** The study included 9 patients with FD who were treated in the ENT department of Pavlov First Saint Petersburg State Medical University from 2011 to 2017.

**Results:** Clinical symptoms have slow development. Fibroplastic process at an early stage causes common inflammatory disease of the paranasal sinuses. The CT scan is a basic method of diagnosis of FD, which allows to determine the prevalence and localization process, and the way of surgical treatment. Endoscopic endonasal sinus surgery was performed in all patients. They were followed for a long time.

**Conclusion:** The deformation, functional impairment and progressive growth of tumors are indications for surgical treatment. The type of fibrous dysplasia influences management and surgical treatment in patients with FD.

Endoscopic endonasal approach is a minimally invasive access for histopathological examination and removal of the tumor. It can reduce risk of trauma of intact sinonasal structure.

## OUTCOMES IN REVISION SINUS SURGERY; DOES DISEASE SEVERITY ON PREOPERATIVE COMPUTERISED TOMOGRAPHY PREDICT SYMPTOM OUTCOMES POST SURGERY.

Mr Kristian Hutson<sup>1</sup>, Mr Mahmoud Salam<sup>1</sup>

<sup>1</sup>*Ipswich Hospital, Ipswich, UK*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

Approximately 20% of functional endoscopic sinus surgery (FESS) patients in the UK undergo further revision procedures within five years. Our study aimed to assess change in quality of life symptoms in revision surgery patients and determine whether disease severity on CT could predict longer term (6 month) symptom outcomes.

### Methods

Single centre prospective study looking at all FESS cases under a single consultant rhinologist over a three year period. All patients underwent pre-revision CT scanning and where requested to fill in (Sino-Nasal-Outcome-Test) SNOT22 questionnaires pre-operatively and at follow up (both six weeks and six months). CT scans were assessed and scored according to the Lund-Mackay criteria for staging chronic rhinosinusitis.

### Results

Within our total cohort of 312 FESS patients (from October 2014 to 2017), 53 were listed for revision FESS; this cohort showed a male preponderance (62% to 37% female). Our study showed statistically significant correlations between a high pre-operative SNOT22 score and clinical improvement (difference between pre and post surgery SNOT22 scores) at both six weeks and six months post surgery. Disease severity on CT (Lund-Mackay score) failed to demonstrate a correlation with both pre-operative and post-operative (six weeks and six month) SNOT22 scores.

### Conclusion

We demonstrated a highly significant correlation between pre-operative SNOT22 score and improvement in symptoms post surgery. Pre-operative Lund-Mackay scores however do not appear to correlate with pre-operative SNOT22 scores or post-operative improvements in quality of life symptoms; and thus cannot be relied on as a measure to predict outcomes following surgery.

## MULTIDIMENSIONAL NASAL EVALUATION OF PATIENTS WITH SEVERE ASTHMA: CRS IS THE MOST COMMON COMORBID FEATURE.

**Dr. Veronica Seccia**<sup>1</sup>, Dr. Lodovica Cristofani-Mencacci<sup>1</sup>, Dr. Mariella Scarano<sup>1</sup>, Dr. Iacopo Dallan<sup>1</sup>, Dr. Manuela Latorre<sup>2</sup>, Prof. Pierluigi Paggiaro<sup>2</sup>

<sup>1</sup>1st Otorhinolaryngology Unit, Pisa, Italy, <sup>2</sup>Respiratory Pathophysiology Unit, Cardio-Thoracic and Vascular Department, Azienda Ospedaliero-Universitaria Pisana, Pisa, Italy

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**AIMS:** Patients with Severe Asthma (SA) represent a minor percentage of all asthmatics (5-10%), but absorb more than 60-80% resources because of their persistent symptoms, frequent symptom exacerbations and severe airway obstruction, even under maximal therapy. Nasal diseases, in particular Chronic RhinoSinusitis (CRS), are the most important comorbidities in SA. Aim of the study is to evaluate the prevalence of nasal comorbidities and their impact on patients' Quality of Life (QoL) and SA.

**METHODS:** We studied 92 SA patients with a complete ENT evaluation (nasal fibroscopy; Lund-McKay score; nasal cytology as an indicator of local inflammation; QoL questionnaires –SNOT-22, SF-36) and respiratory evaluation (spirometry, methacholine test, sputum eosinophils percentage and exhaled nitric oxide as markers of airway inflammation; QoL questionnaires- ACT, AQLQ).

**RESULTS:** Comorbid nasal involvement is a very common feature, with the majority of SA patients (N=56; 60,8%) showing CRS. CRS' impact on QoL is relevant, with mean SNOT-22 of 37 and lower SF-36 indexes compared to general population. Nasal cytology showed significant eosinophilic-driven inflammation in 46,4% CRS patients, similarly to sputum eosinophils percentage, without a statistically significant association. Asthmatics with CRS, in particular with nasal polyposis (NP), showed similar asthma control and QoL indexes than asthmatics without NP, but worse spirometry and higher sputum eosinophilia.

**CONCLUSIONS:** In patients with SA, CRS is associated with increased eosinophilic airway inflammation and with worse lung function. Our experience confirms that CRS and SA are expression of eosinophilic activation in upper and lower airways, accordingly to the "united airway diseases" concept.

## DIFFUSE LARGE B CELL LYMPHOMA AND EXTRANODAL NK/T CELL LYMPHOMA IN NOSE: A CASE SERIES

**Dr Hirotaka Tanaka<sup>1</sup>**, Dr Eri Mori<sup>1</sup>, Dr Shota Saito<sup>1</sup>, Dr Rumi Sekine<sup>1</sup>, Dr Ryoto Mitsuyoshi<sup>1</sup>, Dr Masayoshi Tei<sup>1</sup>, Dr Jiro Iimura<sup>1</sup>, Dr Daiya Asaka<sup>1</sup>, Prof Nobuyoshi Otori<sup>1</sup>

<sup>1</sup>*The Jikei University School Of Medicine, Tokyo, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** Lymphoma of nasal cavity and paranasal sinus is a rare disease, and its epidemiology is not well known. This is a retrospective study on diffuse large B-cell lymphoma (DLBCL) and extranodal NK/T-cell lymphoma (ENKTL) arising in nasal and paranasal lesion.

**Methods:** Between January 2012 to September 2017, 54 patients were diagnosed as nasal and paranasal malignant lymphoma at our department. Twenty three DLBCL cases and 11 ENKTL cases were extracted and retrospectively studied.

**Results:** The mean age of DLBCL and ENKTL were 62.6±13.9 and 47.6±13.1 years, respectively ( $p < 0.05$ ). There were 22 males and 12 females. The more common origins were 28 nasal and nasopharyngeal cavity, and 6 paranasal sinuses were less common. The frequent presenting symptoms were nasal obstruction (41.2 %), double vision (14.7 %), nasal bleeding (11.8 %), blurred vision (2.9 %), and visual field disturbance (2.9 %). There were 10 patients with systemic symptoms. Treatment included chemotherapy alone (52.9 %) and chemoradiotherapy (41.2 %). The recurrence rate was 8.8 %. The average observation period was 759.6 days. There were no significant difference in sex ( $p = 0.928$ ), recurrence rate ( $p = 0.967$ ), systemic symptoms ( $p = 0.424$ ), origins of lymphoma ( $p = 0.094$ ) between DLBCL and ENLTL. However, there was significant difference in mean age and positive of the Epstein Barr Virus encoded small RNA in situ hybridization (EBER-ISH) ( $p < 0.05$ ) between them.

**Conclusion:** Compared with DLBCL, ENKTL has younger population and positive of EBER-ISH.

## ADENOID CYSTIC CARCINOMA OF THE NASAL CAVITY AND PARANASAL SINUSES: A RETROSPECTIVE STUDY

Alexandros Delidis, Pavlos Marangoudakis, Md Theodoros Pantazopoulos<sup>1</sup>, Md Ioannis Koulentis<sup>1</sup>, Md Ioannis Latzonis<sup>1</sup>, Md Nikolaos Papadimitriou<sup>1</sup>, Md Ioannis Jiotakis<sup>1</sup>

<sup>1</sup>*Attikon University Hospital, Xaidari, Athens, Greece*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS:

Adenoid cystic carcinomas (ACC) are rare malignant tumors arising in the major and minor salivary glands. Involvement of the nasal cavity and paranasal sinuses is rare and is associated with worse prognosis. The purpose of this study was to define the clinical and prognostic criteria and the molecular characteristics of ACC of the paranasal sinuses.

### METHODS:

Single-centre retrospective study of 7 cases of ACC of the nasal cavity and paranasal sinuses managed between 2007 and 2017, evaluating epidemiological, clinical, diagnostic and prognostic criteria. Genetic mutations and biomarkers specific for ACC have been searched.

### RESULTS:

Most patients (58%) had a locally-advanced tumor (stage T3 or T4) at diagnosis. Tumor sites, in decreasing order of frequency, were the maxillary sinus (71%), nasal cavities (28%) and ethmoid sinus (14%). The most common presenting symptoms were unilateral blocked nose, repeated epistaxis and maxillary heaviness or pain. The treatment comprised a combination of surgery and adjuvant radiotherapy. The TNM stage at diagnosis and histological subtype were significant factors of improved 5-year survival. Positive surgical margins and perineural spread were associated with poorer 5-year survival. Overexpression of Ki-67 and p63 has been found. The expression of MYB-NFIB oncogene is under investigation.

### CONCLUSIONS:

ACC are rare malignant tumors, characterized by a high recurrence rate and distant metastasis, most commonly in the lung. Recommended treatment is a combination of surgery and adjuvant radiotherapy. Survival varies as a function of TNM stage, histological subtype, tumor site and status of surgical margins.

## DISCREPANCIES BETWEEN VAS, SNOT-22 AND LUND-KENNEDY SCORES USED FOR OUTCOMES ASSESSMENT AFTER FESS FOR CRSwNP TREATMENT: PRELIMINARY DATA

MD Dionisios Klonaris<sup>1</sup>, MD, PhD Emmanuel Prokopakis<sup>1</sup>, MD Nikolaos Chatzakis<sup>1</sup>, MD Ioulia-Rafailia Fothiadaki<sup>1</sup>, **MD Maria Doulaptsi<sup>1</sup>**, MD, PhD Georgios Velegrakis<sup>1</sup>

<sup>1</sup>University Of Crete, School Of Medicine, Voutes, Heraklion, Crete, Greece

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** To test the correlation between subjective (VAS, SNOT-22) and objective (Lund-Kennedy scale) scores used for FESS outcomes assessment in patients with CRSwNP.

**Methods:** Fifty-three adult patients with CRSwNP were treated with FESS after maximal medical treatment. Exclusion criteria were history of cystic fibrosis, asthma, allergy to aspirin, mucociliary function disorders and previous nasal surgery. Preoperative, as well as postoperative measurements at 3, 6 and 12 months were obtained using the VAS & SNOT-22 instruments along with endoscopic recordings using the Lund-Kennedy scale.

**Results:** All patients had improved test results postoperatively. Mean postoperative Lund-Kennedy score improvement was 74,5%, 67,5% and 57,9% (3, 6 and 12 months respectively). Mean postoperative SNOT-22 score improvement was 49,9%, 35,4% and 19,7% (3, 6 and 12 months respectively). Mean postoperative VAS score improvement was 65%, 44,6% and 30% (3, 6 and 12 months respectively).

**Conclusion:** The preliminary data of this prospective study suggest that there is a discrepancy between the objectively assessed (endoscopic) findings and the psychometric evaluation tools when used to measure the patient with CRSwNP response to treatment with FESS. This dissociation tends to increase with time postoperatively. Early analysis of the preliminary data confirms the statistical significance of our findings. More sensitive specialized methods (either objective or subjective) should be devised to increase the reliability of our predictions concerning the long-term outcomes of surgical interventions (FESS), on patient symptom severity.



## THE IMPORTANCE OF EDUCATION FOR NASAL DOUCHING IN THE CARE OF PATIENTS WITH RHINITIS

Mrs Janette Bartle<sup>1</sup>

<sup>1</sup>*Ipswich Hospital Nhs Trust, Ipswich, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Using a nasal douche as a solo or adjunctive treatment is recognised as beneficial in reducing nasal symptoms where infection and/ or nasal allergy have been identified as a cause. Nasal douching, nasal irrigation, wash or lavage as it is sometime called is a safe and simple system of washing out the nose and can be performed in several different ways.

Nasal douching, rinses the nasal cavity with a saline solution. It is frequently advised to use approximately twenty minutes before applying a steroid nasal spray. Ear Nose and Throat surgeons routinely advise nasal douching as a post-operative cleansing treatment to aid in the healing process after surgery encouraging ciliary function. A solution can easily be made up at home for very little cost using homemade ingredients to a defined recipe. Proprietary sachets and solutions however are available and both methods are equally effective and safe for use inside the nose. The Cochrane review (2016) states that nasal saline irrigations are easy for patients to administer and are unlikely to cause severe adverse events.

The saline solution can be either a balanced isotonic solution or stronger hypertonic solution when infection is present. The solution is introduced into one nostril, cleansing the nasal cavity, and is then allowed to drain out, repeated on the other side. Patients advised to carry out this procedure require information to make a choice on the different ways of carrying out this process along with support and education to encourage concordance for its continued use.

## ISOTONIC SEAWATER SOLUTION AS DAILY NASAL IRRIGATION IN CHRONIC RHINOSINUITIS

Professor Josip Culig<sup>1</sup>, Brigita Kovacevic<sup>2</sup>, Aleksandar Momirovic<sup>3</sup>, Krunoslav Peter<sup>3</sup>

<sup>1</sup>University Of Applied Health Sciences, Zagreb, Croatia, <sup>2</sup>Zagreb General Health Center, Zagreb, Croatia, <sup>3</sup>Andrija Stampar Institute of Public Health, Zagreb, Croatia

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

Nasal obstruction, increased nasal discharge, cough and other symptoms negatively affect quality of life of chronic rhinosinusitis patients. Add on therapy with saline nasal irrigation has shown numerous benefits by improving clinical symptoms. Some clinicians prefer use of isotonic seawater solutions. It contains many minerals essential to the body fighting chronic inflammation.

The present study assessed the clinical efficacy of Sterimar isotonic seawater solution in chronic rhinosinusitis patients.

### METHODS

30 chronic rhinosinusitis patients were enrolled in the open clinical study. Inclusion criteria were presence of congestion, nasal discharge and other symptoms of chronic inflammation. As adjuvant therapy Sterimar isotonic solution was prescribed 3-6 times daily over two weeks. They visited doctor office every week, when they also filled out QoL standardized questionnaire. A Patient's Diary was filled out daily.

### RESULTS

Symptom pattern was evaluated at three points: initial, end of 1st week, end of 2nd week. Congestion, cough and headache were significantly reduced by the end of 1st week ( $p < 0.01$ ) according to doctor's and patient's data. Discharge was significantly reduced by doctor's notes ( $p < 0.01$ ) and less by patient's observations ( $p < 0.01$  after 2nd week). QoL data have shown significant improvement after 1st week of intensive seawater solution use. There were no side effects.

### CONCLUSIONS

Nasal irrigation with frequent use of seawater isotonic solution is effective alleviating chronic rhinosinusitis symptoms such as nasal congestion and discharge, cough and headache. QoL has been improved already by the end of 1st week.

There were limitations: number of patients and short study duration.

## CHOLESTEROL GRANULOMA AS A LATE POSTOPERATIVE COMPLICATION OF ENDOSCOPIC SPHENOID SINUS SURGERY

Dr Spyridon Lygeros<sup>1</sup>, Professor Vasileios Danielidis<sup>1</sup>, Professor Stephanos Naxakis<sup>1</sup>, Dr Maria Riga<sup>2</sup>, Professor Maria Melachrinou<sup>1</sup>

<sup>1</sup>University Of Patras, Greece, PATRAS, Greece, <sup>2</sup>Democritus University of Thrace, Alexandroupoli, Greece

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Purpose:** To report a case of cholesterol granuloma as a late postoperative complication in a patient who underwent endoscopic sphenoid sinus surgery.

**Methods:** Case report

**Results:** A 67 year old carpenter presented to our outpatients complaining of diplopia and frontal headaches for the past month. Imaging revealed an hyperpigmented cystic lesion in the roof and posterior wall of the left sphenoid with extension to the clivus, with bone thinning, remodeling, and bone erosion. He underwent a FESS and he was free of symptoms. Sphenoid mucocoele was diagnosed in the histopathology report. Patient came back eight months later with same symptoms and similar imaging findings. On endoscopy examination, granulation tissue was identified in the area of the anterior wall of the sphenoid, and sphenoid was wide opened from the previous procedure. During revision FESS, a yellowish discharge was noticed when we opened the cystic lesion. The new histopathology report highlighted inflammatory tissue elements with abundant cholesterol crystal deposits and granulomatous reaction, compatible with cholesterol granuloma. Mucus deposition or epithelial tissue elements were not identified.

**Conclusion:** Cholesterol granuloma should be included in the differential diagnosis of cases of sphenoid pathology. As a late postoperative complication of FESS, it can complicate revision surgery due to further bone erosion in an already complicated surgical area.

## THE ROLE OF NASOSEPTAL FLAP IN ENDOSCOPIC PITUITARY SURGERY

**Dr. Nour Ibrahim<sup>1,3</sup>**, Dr. Einat Levy<sup>1,3</sup>, Dr. Yuval Gruber<sup>2,3</sup>, Dr. Eyal Sela<sup>1,3</sup>, Dr. Tal Marshak<sup>1,3</sup>

<sup>1</sup>Department of Otolaryngology – Head and Neck Surgery, Galilee Medical Center, Nahariya, Israel, <sup>2</sup>Department of Neurosurgery, Galilee Medical Center, Nahariya, Israel, <sup>3</sup>Azrieli Faculty of Medicine, Bar-Ilan University, Safed, Israel

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Background:** Endoscopic endonasal transsphenoidal surgery (EETS) is becoming the preferred approach to treat pituitary adenomas. The endoscope's wide-angle view enables removal of more challenging tumors but the risk of cerebrospinal fluid (CSF) leak is potentially increased. Studies show that using nasoseptal flap (NSF) for reconstruction in EETS significantly decreases the rate of postoperative CSF leak.

**Aim:** To evaluate whether the use of NSF in EETS allows a high rate of gross total resection (GTR) of pituitary tumors without increasing the morbidity.

**Method:** Patients who underwent EETS with reconstruction using NSF between 2015 and 2017 and had at least 3-month follow-up, were included.

We assessed GTR, as the primary outcome, by post-operative magnetic resonance imaging and hormone levels. Secondary outcomes were post-operative morbidity including the rate of CSF leak and sinonasal function assessed by Sino-Nasal Outcome Test 22 (SNOT-22) questionnaire and nasal endoscopy. These outcomes were compared to a recent meta-analysis of 2301 patients who underwent EETS.

**Results:** 36 patients with a median follow-up of 20.3 months fulfilled the inclusion criteria. Complete GTR was achieved in 78%(28/36) of patients compared to 69% in the meta-analysis group ( $p=0.377$ ). Post-operative CSF leak rate was 0%(0/36) compared to 7% in the meta-analysis group ( $p=0.402$ ). The mean SNOT-22 score was 22.4(SD =15.5) before surgery and 18.3(SD=14.9) after surgery( $p=0.37$ ).

**Conclusion:** A high rate of pituitary tumor gross total resection, with decreased CSF leak and unimpaired sinonasal function, is achieved by EETS using a nasoseptal flap for reconstruction.

## CLINICAL FEATURES OF PATIENTS WITH INVERTED PAPILOMA

Dr. Kengo Hashimoto<sup>1</sup>, Dr. Kenzo Tsuzuki<sup>1</sup>, Dr. Ken Okazaki<sup>1</sup>, Dr. Masafumi Sakagami<sup>1</sup>

<sup>1</sup>*Hyogo College of Medicine, Nishinomiya, Japan*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Objectives:** This study aimed to investigate clinical features of patients with sinonasal inverted papilloma (SIP) and to discuss the important surgical management for the SIP.

**Subjects and Methods:** In total, between 2012 and 2017, 38 patients with SIP who underwent the endoscopic resection at our department were enrolled in this study. There were 28 men and 10 women with a mean age of 60 years (19-81). Preoperative pathological diagnosis, extensiveness of SIP on radiological imaging according to the staging system by Krouse, origin of SIP, surgical procedure, blood serum SCC antigen level, and recurrence were retrospectively analyzed.

**Results:** Preoperative pathological diagnostic rate as SIP was 61% (23/38). T1, T2, T3, and T4 according to Krouse staging system were identified in 11% (n=4), 39% (n=15), 42% (n=16), and 8% (n=3), respectively. The maxillary sinus (45%) and anterior ethmoid sinus (26%) were predominantly observed as origin of SIP. All patients underwent endoscopic sinus surgery (ESS) under general anesthesia. EMMM (endoscopic modified medial maxillectomy) and EMLP (endoscopic modified Lothrop procedure) were additionally required in 8 and 2 patients, respectively. Mean preoperative blood serum SCC antigen level (9.5 IU/mL) significantly decreased to 1.4 IU/mL after resection (n=23, p<0.001). The recurrence rate was 10.5% (4/38).

**Conclusion:** The preoperative accurate diagnosis, identification of SIP origins, selection of appropriate surgical procedures to completely resect during primary surgery, and early detection of postoperative recurrence of the SIP are suggested to be important for the management of the SIP.

## INFLAMMATORY PROFILE IN PATIENTS WITH CHRONIC RINOSINUSITIS, WITH AND WITHOUT NASAL POLYP.

**Inflammatory Profile In Patients With Chronic Rinosinusitis, With And Without Nasal Polyp. Marcelo Leite<sup>1</sup>**, Inflammatory Profile In Patients With Chronic Rinosinusitis, With And Without Nasal Polyp. Fabiana Valera<sup>1</sup>, Inflammatory Profile In Patients With Chronic Rinosinusitis, With And Without Nasal Polyp. Mirela Prates<sup>1</sup>, Inflammatory Profile In Patients With Chronic Rinosinusitis, With And Without Nasal Polyp. Eurico Arruda, Inflammatory Profile In Patients With Chronic Rinosinusitis, With And Without Nasal Polyp. Edwin Tamashiro<sup>1</sup>, Inflammatory Profile In Patients With Chronic Rinosinusitis, With And Without Nasal Polyp. Ronaldo Bragança<sup>1</sup>, Inflammatory Profile In Patients With Chronic Rinosinusitis, With And Without Nasal Polyp. Wilma Anselmo Lima<sup>1</sup>

<sup>1</sup>Fmrp-usp, Ribeirão Preto, Brazil

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction:** The chronic rhinosinusitis (CRS) is a multifactorial disease has been presented as a major challenge in the difficulty of treating uncontrolled disease. **Objectives:** The objective was to study the inflammatory TH profile in region of the Ribeirão Preto-SP, Brazil, patients and compare it with the profile of other populations. **Casuistic and Methods:** A prospective cross-sectional study was conducted to identify the inflammatory profile (Th1 / Th2 / Th17) by concentration of the following cytokines: IFN- $\beta$ 1, IFN- $\gamma$ , TGF- $\beta$ , IL-33, IL-10, IL-17A, IL-1 $\beta$ , IL-2 and IL-5 in patients with chronic rhinosinusitis with nasal polyps (CRSwNP), chronic rhinosinusitis without nasal polyps (CRSsNP) and controls. Samples of nasal tissue (medial turbinate, maxillary sinus, ethmoidal sinus and nasal polyp) were collected and analyzed by real-time PCR. **Results:** A total of 117 patients were studied, of which 67 had CRSwNP and 29 with CRSsNP and 21 controls. Patients with CRSwNP showed an increase in all cytokines compared to the control group, patients with CRSsNP showed an increased in IFN- $\beta$ 1, IFN- $\gamma$ , IL-10, IL-17A, IL-1 $\beta$ , IL-2 and IL-5. In the comparison between CRSwNP and CRSsNP we found difference in IFN- $\gamma$ , TGF- $\beta$ , IL-2, IL-1 $\beta$  and IL-10. In relation to the polyp we found an eosinophilic endotypes (70%) and relation with IL-5 and AERD (Aspirin-exacerbated respiratory disease). **Conclusions:** Our results show that there is no standard inflammatory profile of CRSwNP and CRSsNP, confirming that there is a wide diversity in the different populations, and may be associated with different factors still to be studied.

## IN SITU STUDY OF INFECTION AND REPLICATION OF RESPIRATORY RNA VIRUSES IN FIXED TISSUES OF PATIENTS WITH CHRONIC RHINOSINUSITIS

**Inflammatory Profile In Patients With Chronic Rhinosinusitis, With And Without Nasal Polyp. Mirela Prates<sup>1</sup>**, In situ study of infection and replication of respiratory RNA viruses in fixed tissues of patients with chronic rhinosinusitis Edwin Tamashiro<sup>1</sup>, In situ study of infection and replication of respiratory RNA viruses in fixed tissues of patients with chronic rhinosinusitis Fabiana Valera<sup>1</sup>, In situ study of infection and replication of respiratory RNA viruses in fixed tissues of patients with chronic rhinosinusitis Eurico Arruda<sup>1</sup>, In situ study of infection and replication of respiratory RNA viruses in fixed tissues of patients with chronic rhinosinusitis Ronaldo Bragança<sup>1</sup>, In situ study of infection and replication of respiratory RNA viruses in fixed tissues of patients with chronic rhinosinusitis Wilma Anselmo Lima<sup>1</sup>

<sup>1</sup>*Fmrp-usp, Ribeirão Preto, Brazil*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

The study aimed to detect the replication of rhinovirus, metapneumovirus and respiratory syncytial virus in the nasal polyp, middle concha and mucosa of the face surgically removed from patients with chronic rhinosinusitis. To evaluate the replicative activity, viral capsid proteins were detected by immunohistochemistry (IHC). IHC assays were performed on a total of 17 patients whose tissues were positive for qPCR. The results revealed positivity in 7 of 11 HRV, 4 of nasal polyp, 2 of the facial sinus mucosa, in cells below the epithelial region and 1 in the middle shell. Five samples had their genome detected in the real-time PCR for HMPV, 3 of them had N protein marking by IHC, a positive sample in each tissue studied. In a total of 4 samples, HRSV F protein was detected in 3 of them. As with HMPV, the HRSV showed marking in all tissues, as well as in cells of the epithelium or not, one sample in the nasal polyp, one middle concha and one in the sinus mucosa of the face. All positive and negative controls were included in all IHC reactions. After the detection of the proteins of these respiratory viruses, the samples will have their tested phenotypes, mucus producing cells and hairy epithelial, mast cells, eosinophils and lymphocytes through the SIMPLE technique. The study reveals a possible persistence of HRS, HRSV and HMPV in the tissues of patients with chronic rhinosinusitis, which can thus be reservoirs of virus in the absence of symptoms of acute infection.

## GENETIC ASSOCIATION OF THE INTERLEUKIN 22 ALPHA 1 RECEPTOR POLYMORPHISM TO CHRONIC RHINOSINUSITIS WITH AND WITHOUT NASOSINUSAL POLYPOSIS.

**Inflammatory Profile In Patients With Chronic Rhinosinusitis, With And Without Nasal Polyp.** Wilma Anselmo Lima<sup>1</sup>, Genetic association of the interleukin 22 alpha 1 receptor polymorphism to chronic rhinosinusitis with and without nasosinusual polyposis. Vanessa Dinarte<sup>1</sup>, Genetic association of the interleukin 22 alpha 1 receptor polymorphism to chronic rhinosinusitis with and without nasosinusual polyposis. Anne Dinarte<sup>1</sup>, Genetic association of the interleukin 22 alpha 1 receptor polymorphism to chronic rhinosinusitis with and without nasosinusual polyposis. Wilson Siva Junior<sup>1</sup>, Genetic association of the interleukin 22 alpha 1 receptor polymorphism to chronic rhinosinusitis with and without nasosinusual polyposis. Edwin Tamashiro<sup>1</sup>, Genetic association of the interleukin 22 alpha 1 receptor polymorphism to chronic rhinosinusitis with and without nasosinusual polyposis. Fabiana Valera<sup>1</sup>

<sup>1</sup>Fmrp-usp, Ribeirão Preto, Brazil

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

To investigate the frequency of polymorphisms in the IL22RA1 gene in patients with chronic rhinosinusitis with and without nasal polyps and in individuals without these pathologies, using the Sanger sequencing technique for mutation analysis. Methods: Patients were subdivided into three groups: 70 patients with CRSwNP, 14 cases of CRSsNP and 68 volunteers without nasal symptoms. Samples of peripheral venous blood were collected from all cases and controls, and DNA extraction was performed. Results: Sequencing indicated 10 polymorphisms in the IL22RA1 gene, exon 2 (rs10903022, c.113\_114insA / Q26Pfs \* 11, c.74T>A and c.141C>A), exon 4 (rs17852649), exon 5 (rs16829204), exon 6 (rs142356961) and exon 7 (rs17852648, rs34967816 and rs3795299). Polymorphisms in exons 2 (in homozygosis), 5 and 6 were exclusive from the analyzed pathologies group (RSC with and without NP), the latter two being considered non-synonymous variables, that is, with capacity to alter the protein structure, being able to produce impact on the pathogenesis of CRS. The exon 6 alteration was the only variant found, with the minor allele frequency (MAF) under 0.01, exclusive of the RSCcPN group. Conclusions: Three polymorphisms were detected in the IL22RA1 gene, which until now are not described in the literature, and the possibly pathogenic insert c.113\_114insA / Q26Pfs \* 11, with a higher frequency in the groups with CRS. Replication studies and larger cohorts are necessary to rule out the findings at random.



## CORRECTING THE SEQUELAE OF PAEDIATRIC NASAL BUTTON BATTERY IMPACTION

Mr Huw Jones<sup>1</sup>, Mr Peter Andrews<sup>1</sup>

<sup>1</sup>*Royal National Throat Nose & Ear Hospital, London, United Kingdom*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

To present the senior author's approach to a 6 year old child with both septal perforation and saddle nose deformity on presentation after nasal button battery impaction.

### Methods

Case report and photo documentation of a child's reconstructive pathway to repair the destructive effects of a nasal button battery.

### Results

A 6 year old boy was referred from the local Paediatric hospital after removal of a button battery from the nasal cavity. This resulted in a septal perforation and evolved into a saddle nose deformity. All conservative options had failed to help with his crusting and blockage. After appropriate counselling, he underwent an external approach perforation repair using crushed cartilage and SurgiSIS interposition, with a unilateral inferior mucoperichondral flap. In the same anaesthetic he had a limited septorhinoplasty to correct the saddle deformity. After 34 months follow up (now 9 years old), the perforation remains closed and the cosmetic appearance is much improved. There have been no obvious deleterious effects on the growth of his mid face.

### Conclusions

An external septorhinoplasty approach can provide excellent access for repair of perforations secondary to button batteries. It also allows for cosmetic saddle correction via septorhinoplasty in paediatric patients.

## MENINGIOMA IN NASAL CAVITY IN PATIENT WITH NEUROFIBROMATOSIS

Dr. Aleksandra Mickielewicz<sup>1</sup>, Dr. Iwonna Gwizdalska<sup>1</sup>, Prof. Henryk Skarzynski<sup>1</sup>

<sup>1</sup>*Institute of Physiology and Pathology of Hearing, Warsaw, Poland*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** To present a case of 25-year old woman with a pathological mass in right ethmoidal sinus. The patient checked in to Institute of Physiology and Pathology of Hearing 3 years post neurosurgical removal of meningioma of the base of anterior cranial fossa. She presented right sided nose blockage, no nasal bleeding. Additionally she presented neurofibromatosis.

**Methods:** The patient undergone MRI and CT scans. According to radiologists- mass in right ethmoid area was a residual tumour of intracranial meningioma. The patient undergone endoscopic surgery with removal of the remnant mass and supplying the CSF leakage.

**Results:** Surgery was performed endoscopically with the use of intraoperative navigation system. Recovery was good and further follow- up showed no CSF leakage.

**Conclusion:** Meningioma is a well-recognized tumour of the central nervous system, but it rarely appears as a primary extracranial tumour of the paranasal sinuses. Pathological mass, present in ethmoid sinus with additional history of intracranial meningioma removal is combined with CSF leakage and one must be prepared for that before performing endoscopic surgery.

## REOPERATIONS POST ENDOSCOPIC SINUS SURGERIES WITH THE USE OF HYDRODEBRIDER SYSTEM

Dr. Iwonna Gwzdalska<sup>1</sup>, Dr. Aleksandra Mickielewicz<sup>1</sup>, Prof. Henryk Skarzynski<sup>1</sup>

<sup>1</sup>*Institute Of Physiology And Pathology Of Hearing, Warsaw, Poland*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** To analyse use of Hydrodebrider System in patients with history of chronic sinusitis with presence of previous sinus surgery.

**Methods:** We searched medical base system Esculap used in The Institute of Physiology and Pathology of Hearing from 2009 to 2017, to find and analyse the use of Hydrodebrider System. We selected patients who had undergone previous endoscopic surgery and were reoperated with additional use of Hydrodebrider System. Among them we distinguished patients with Samter's triad, those who had undergone Draf III procedures; who had polyps removed during reoperation and who had grommets inserted due to otitis media with effusion. We checked medical histories for systemic diseases.

**Results:** We found 153 patients reoperated with additional use of Hydrodebrider System. 23 patients in 2014, 25 in 2015 and 76 in 2016 and 2017 together. 20 out of 153 (13%) had Samter's triad, 17 out of 153 (11%) had undergone Draf III procedure, 97 out of 153 (63%) had polyps removed and in 10 cases (6,5%) grommets were inserted. Among systemic diseases we found cystic fibrosis, Sjogren's syndrome, polymyalgia; rheumatoid arthritis; granulomatosis with polyangiitis, leukaemia; Churg-Strauss syndrome.

**Conclusion:** Hydrodebrider System is a very useful tool that fulfils endoscopic sinus surgery or is used separately. It can be used in most severe cases of chronic sinusitis and it can be used repeatedly if needed.

## A CASE OF GLOMANGIOPERICYTOMA AT THE NASAL SEPTUM

A Case Of Glomangiopericytoma At The Nasal Septum Miri Toh<sup>1</sup>, Takashi Anzai<sup>1</sup>, Tsuyoshi Saito<sup>2</sup>, Sho Tsuyama<sup>2</sup>, Katsuhisa Ikeda<sup>1</sup>, Shin Ito<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology Head and Neck Surgery Juntendo University School of Medicine Tokyo Japan, Tokyo, Japan, <sup>2</sup>Department of Human Pathology Juntendo University School of Medicine Tokyo Japan, Tokyo, Japan

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Glomangiopericytoma (GPC) is a rare sinonasal perivascular tumor that accounts for < 0.5–1% of all sinonasal tumors. GPC is categorized as a low-grade neoplasm with borderline malignancy and a tendency of local recurrence. GPC is a rare mesenchymal neoplasm characterized by the perivascular proliferation of tumor cells, and it requires being distinguished from solitary fibrous tumors. Here, we report a case of GPC in a 68-year-old male patient who presented at the emergency room of our hospital with a complaint of sudden epistaxis. A small, reddish, protruding tumor was observed on the right nasal septum. A biopsy revealed a possible perivascular tumor such as a GPC or solitary fibrous tumor. Thus, we performed complete resection with endoscopic surgery. The size of the resected tumor was 12 × 5 mm, and it showed a uniform proliferation of oval-to-short spindle-shaped cells with slightly branching vascular structures. The tumor cells showed minimal cytologic atypia and there were an average of 3 mitoses in 10 high power fields. Necrosis was not observed. The tumor cells showed strong and diffuse nuclear immunostaining with beta catenin and were negative with STAT6, CD34 and bcl-2. The MIB-1 labeling index was approximately 5%. Genetic testing revealed CTNNB1 mutation (p.S33C). Thus, a diagnosis of low grade GPC was made on the biopsy and the patient could be successfully treated with endoscopic resection.

## IS A DILUTED ISOTONIC SEAWATER BASED SOLUTION SAFE AND ACTIVE IN PROMOTING MUCOCILIARY CLEARANCE AND WOUND REPAIR ON HUMAN NASAL EPITHELIUM?

Dr Barbara De Servi<sup>1</sup>, Dr Marisa Meloni<sup>1</sup>, Prof.Dr. Josip Culig<sup>2</sup>, Dr AMINA SAAID<sup>3</sup>

<sup>1</sup>Vitroscreen, Milan, Italy, <sup>2</sup>University of Applied Health Sciences, Zagreb, Croatia, <sup>3</sup>Laboratoire Fumouze, Levallois-Perret, France

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

Nasal irrigation is often used to manage sinonasal conditions. This study investigated the effect of an isotonic seawater solution on nasal tissue integrity, mucociliary clearance (MCC) and wound repair. The formulation has been naturally obtained by diluting seawater; a non-invasive method by which an ion balance similar to the one observed in human plasma is achieved.

### METHODS

MucilAir™ cultures were treated with 10 µL of Stérimar Nasal Hygiene (SNH) twice daily for 4 days. Epithelium integrity was analysed by Trans-Epithelial Electrical Resistance (TEER), Lactate dehydrogenase (LDH) and Interleukin 8 (IL-8) release. For efficacy, MCC and wound repair were assessed. MCC was measured by videomicroscopy. Wound repair capacity was evaluated through MucilAir™ where an injury was generated 30 minutes after application of SNH or saline solution. Microscope images were taken immediately after the injury and 2, 6, 22 and 30 hours later.

### RESULTS

SNH showed a significant MCC increase in comparison to control ( $p < 0.001$ ). It also showed faster and greater wound closure than saline solution at 6-30 hours. Furthermore, SNH showed a similar average TEER on D1 and D4, safely above tissue integrity limit. LDH and IL-8 releases were similar for SNH and control at all times.

### CONCLUSIONS

SNH demonstrated epithelium integrity and significantly enhanced MCC. Wound repair was improved as compared to control. Obtained with SNH diluted formula, these results are consistent with prior clinical trials on SNH's benefits in various nasal conditions.

## INHALED CORTICOSTEROIDS ADMINISTERED BY PULSATING AEROSOL – A THERAPY OPTION IN SINUS FRONTALIS? A CASE REPORT

Dr. med., MHBA Catalina Messmer<sup>1</sup>, Dr. med. Mareike Haack<sup>2</sup>, Dr. med. Constantin von Kirschbaum<sup>1</sup>, Prof. Dr. med. Martin Canis<sup>1</sup>, Dr. rer. nat. Heribert Mentzel<sup>3</sup>

<sup>1</sup>Ludwig-Maximilians-Universität München, München, Germany, <sup>2</sup>HNO-Zentrum Mangfall-Inn, Rosenheim, Germany,

<sup>3</sup>PARI GmbH, Starnberg, Germany

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction:** The occurrence of sinusitis frontalis is not prevalent. Symptoms of sinusitis frontalis include eye-involvement, pain in the forehead area, purulent nasal secretion. Standard treatment is secretolytics, decongestants and pain relievers. Despite being common, treatment with corticosteroids via nasal sprays are unable to reach the paranasal sinuses.

**Aim:** Inhalation therapy with pulsating aerosols deposits drugs in the non-ventilated areas of the upper airways, the paranasal sinuses. This case report describes the treatment of sinusitis frontalis with a pulsating budesonide aerosol.

**Case report:** in December 2014 the patient (male, 48) presented with progredient swelling of the right eye, retrobulbar pain, reduced eye mobility and diplopia. On account of chronic polypoid pansinusitis, (several surgeries, latest one in 2013) patient was receiving, permanent nasonex-therapy and oral steroids 2-3 x/year.

**Methods:** CT-scans showed intraorbital, extraconal inflammation (muco-/pyocell), frontally and frontobasally thinned corticalis, sinusitis frontalis, blocked anterior and middle ethmoidal cells and mucosa-beddings in sinus maxillares and sphenoidalis. The therapy was changed post-operative to 0,5mg inhaled budesonide administered by pulsating aerosol (PARI Sinus, PARI GmbH, Germany) twice daily.

**Results:** After 2 month treatment the patient was subjectively symptom-free. CT-scans were without findings in the frontal and maxillary sinuses. Ethmoid and maxillary sinuses were free of secretions. The mucosa in the nasal and sinus cavities appeared to be normal.

**Conclusion:** Inhalation therapy with budesonide via pulsating aerosol appears to be a pain-free, non-invasive treatment option from which patients with sinusitis frontalis may benefit. Further studies on this would be appreciated.

570

## GIANT CONCHA BULLOSA

MD. Jonas Hjelm Andersen, MD Yeliz Jakobsen, MD. Knud Larsen  
<sup>1</sup>*Sydvestjysk hospital, DK, Esbjerg, Denmark*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Giant concha bullosa

Concha bullosa is a common variation of the anatomy of the concha media which typically involves concha media, but also concha inferior and superior. In this case we present a giant concha bullosa in a young girl, as a unique variation.

Furthermore we bring a systemized review of giant concha bullosa reports, to understand the origin of the pneumatization within the nasal turbinates, the association with sinusitis, the contact with the osteomeatale complex, ethmoidale bullae, onodi cells and agger nasi cells. Most important is the contact with basis crani and n. opticus which leads us to discuss the treatment and risks.

The poster will include relevant Photos.

## EVALUATION AND MANAGEMENT OF ANTROCHOANAL POLYPS IN CHILDREN

**Assoc. Prof. Gheorghe Iovanescu<sup>1,2</sup>**, Assistant Prof Roxana Vintila<sup>1,2</sup>, Dr. Alina Anglitoiu<sup>2</sup>, Dr. Iulia Lupescu<sup>2</sup>  
<sup>1</sup>University of Medicine and Pharmacy „Victor Babes,, Timisoara, Romania, Timisoara, Romania, <sup>2</sup>County Hospital, ENT Pediatric Dept, Timisoara, Romania

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Introduction

Antrochoanal polyp (ACP) was described by Gustav Killian, in 1906. Antrochoanal polyps are benign polypoid lesions arising from the maxillary antrum and they extend into the choana. ACPs are almost always unilateral, although bilateral ACPs have been reported in literature. They most commonly occur in children and young adults.

### Methods

The purpose of this study was to review the epidemiology, etiopathogenesis, clinical features, the preoperative evaluation, pathology, differential diagnosis, treatment and complications of ACPs on a trial of 15 cases admitted and treated in ENT Pediatric Department of Emergency County Hospital Timisoara in the last 4 years. The age of patients was 7-16 years, 10 (66,6%) boys, 5 (33,3%) girls. The most common presenting symptoms are unilateral nasal obstruction, rhinorrhoea, snoring, foreign body sensation, halitosis, headache. Nasal endoscopy and computed tomography (CT) represent the golden standard in the diagnosis of ACP. Only the surgery was the treatment of choice for these patients. For 12 (80%) patients we used only polypectomy and for 3 (20%) patients combined transnasal polypectomy and transcanine approach.

### Results

The success rate was 80% in the transnasal endoscopic approach (polypectomy) and 100% in the combined endoscopic and transcanine approach.

### Conclusion

For children, the treatment of choice is polypectomy and combined transnasal polypectomy and transcanine approach.



## THE ROLE OF HIGH-RESOLUTION CT THREE DIMENSIONAL RECONSTRUCTION AND CEREBROSPINAL FLUID MAGNETIC RESONANCE HYDROGRAPHY IN DIAGNOSIS OF CEREBROSPINAL RHINORRHEA

Prof. Yanjun Wang<sup>1</sup>, physician-in-charge Xia Wu<sup>1</sup>, physician-in-charge Gang Zhong<sup>1</sup>, Prof. Weijia Kong<sup>1</sup>

<sup>1</sup> Union Hospital, Tongji Medical College, Huazhong University Of Science And Technology, Wuhan , China, Wuhan, China

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Cerebrospinal rhinorrhea may be complicated with repeated intracranial infection, which can increase the risk of severe intracranial complications and requires surgical repair. Location of cerebrospinal leakage is vital for the successful surgical repair. Twenty-one patients with cerebrospinal rhinorrhea who underwent endoscopic sinus surgery successfully in our hospital were retrospectively reviewed. We aim to explore the value of high-resolution CT(HRCT) three-dimensional reconstruction and cerebrospinal fluid(CSF) magnetic resonance hydrography(MRH) in the diagnosis of cerebrospinal rhinorrhea.

**Methods:** Retrospective analysis was conducted to evaluate the effects of three-dimensional reconstruction of paranasal sinuses HRCT and the CSF MRH on determining the location and size of leak of patients with cerebrospinal rhinorrhea, by using 21 complete cases of cerebrospinal rhinorrhea patients in our hospital from October 2008 to October 2017.

**Results:** According to the surgical exploration, the preoperative diagnosis of the leak location was accurate in 15 out of 19 patients with HRCT examination. The preoperative diagnosis was accurate in 10 out of 10 patients with CSF MRH examination.

**Conclusions:** HRCT can determine the location and size of the bone defect or fracture, but it is difficult to find the leak position. CSF MRH can shows current flow of cerebrospinal fluid to identify the location of leakage, but CSF MRH is insufficient to figure out the size of the bone defect. Therefore, the combination of the two examinations is useful in determining the size of the bone defect and the position of the leakage.

## THE IMPORTANCE OF CT IMAGING IN SURGICAL DECISION IN PARANASAL SINUS OSTEOMA

**Dr. Vlad Budu<sup>1</sup>**, Dr. Tatiana Decuseara<sup>2</sup>, Dr. Mihail Tusaliu<sup>1</sup>, Dr. Lavinia Sava<sup>2</sup>

<sup>1</sup>Umf "Carol Davila", Bucharest, Bucharest, Romania, <sup>2</sup>ENT National Institute "D. Hociota", Bucharest, Romania

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

Rhinosinusal osteoma is the most frequent nasal tumor predominantly located in the frontal sinus. The authors aim to illustrate the criteria for surgical approach of nasosinusal osteoma depending on the CT-scans.

### Method

The therapeutic decision is established after studying the CT scan thoroughly. Using triplanar images for each of our cases, we illustrated the criteria for endoscopic removal of osteomas.

### Result

Depending on the dimensions, precise localization and relationship with adjacent structures of the tumoral masses in the nasal sinuses, we established three criteria for endoscopic removal for all the patients operated in our clinic.

### Conclusion

The gold standard treatment is the surgical approach. Using CT examination we can decide whether the tumoral mass could be operated on endoscopically, externally or combined approach.

Key words: Osteoma, CT scan, endoscopic sinus surgery

## METASTASIS OF PAPILLARY THYROID CARCINOMA TO THE MAXILLARY SINUS: A CASE REPORT

**Medical Doctor Hajime Shimmura<sup>1</sup>**, Medical Doctor Rumi Sekine<sup>1</sup>, Medical Doctor Masayoshi Tei<sup>2</sup>, Medical Doctor Eri Mori<sup>1</sup>, Medical Doctor Nobuyoshi Otori<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology, The Jikei University School Of Medicine, Minato-ku, Japan,* <sup>2</sup>*Department of Otorhinolaryngology, Ohta Memorial Hospital, Ohta, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### [Background]

Distant metastasis from thyroid carcinoma to the paranasal sinuses is rare. We have experienced a case of papillary thyroid carcinoma (PTC) metastasis to maxillary sinus, and we are presenting this case with some literature reviews.

### [Case presentation]

A 76-year-old female, with past medical history of PTC and its metastasis to cervical lymph nodes and spine, came to our hospital complaining of intermittent epistaxis. Contrast-enhanced CT imaging showed a mass filling the right maxillary sinus without bony destruction or calcification. MRI showed layered structure of high and low intensity on T1 and T2 weighted images, suspecting an organizing hematoma.

Endoscopic sinonasal surgery (ESS) was performed for tumor excision. There was atypical arterial bleeding during operation as an organizing hematoma. The histopathologically diagnosed was a metastatic PTC tumor to the maxillary sinus.

### [Discussion]

Distant metastasis of malignant tumors to the paranasal sinuses accounts for 1.5% of all paranasal sinus carcinomas. Common primary lesions are renal carcinoma, lung carcinoma, and breast carcinoma in descending order of frequency.

Metastasis of thyroid carcinoma to the paranasal sinuses are rarely reported worldwide; only 14 cases were found in the published literature from 1979 to 2017. Metastasis was found mainly in the sphenoid sinus, and were mostly spread to multiple sinuses. Metastasis in the maxillary sinus were reported in only 5 cases, and their tissue type were all follicular carcinomas.

### [Conclusion]

Metastasis of thyroid carcinoma to paranasal sinuses itself is very rare, and this is the first PTC metastasis to maxillary sinus reported worldwide.

## RESECTION OF A LACRIMAL SAC TUMOR AND SIMULTANEOUS ORBITAL RECONSTRUCTION

Md PhD Rafael Hijano<sup>1</sup>, MD Paula Mackers<sup>1</sup>, MD PhD Marta Calsina<sup>1</sup>

<sup>1</sup>*Hospital del Mar, Barcelona, Spain*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** To describe a surgical technique of an en bloc resection of a lacrimal sac tumor to achieve optimal tumor margin clearance.

**Methods:** a case of a basal cell carcinoma of the right lacrimal sac diagnosed during a dacryocystorhinostomy. En bloc resection of the lacrimal sac, nasolacrimal duct, partial orbital floor and lateral nasal wall was performed by a multidisciplinary team (rhinologist and oculoplastic surgeon). Once achieved clear margins intraoperatively, a reconstruction of the defect was performed with a titanium mesh.

**Results:** the patient is free of disease one year after the procedure.

**Conclusions:** The en bloc resection of lacrimal sac tumors followed by reconstruction, not only facilitates a better oncological control but also allows preserving ocular functionality with good aesthetic results.

## A RARE CASE OF BENIGN NASAL TUMOR: PLEOMORPHIC ADENOMA OF THE NASAL CAVITY.

**MD Valerio Valenzise<sup>1</sup>**, MD Luca Colombo<sup>1</sup>, MD Francesco Santoro<sup>1</sup>, MD Marco Corbetta<sup>1</sup>, MD Enrico G. Merlo<sup>1</sup>, MD Giordano Molteni<sup>1</sup>

<sup>1</sup>*Sant'anna Hospital, ASST LARIANA, Como, Italy*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** To present a rare case of pleomorphic adenoma of the nasal cavity in order to highlight an unacknowledged differential diagnostic entity.

**Method:** Case Report

**Results:** We report the case of a 66 y.o. man presented to our hospital with monolateral nasal obstruction. Nasal endoscopy showed a mass obstructing the left nasal cavity occupying the middle meatus, characterized by a smooth intact surrounding mucosa. CT scan and MRI were performed, revealing a soft tissue mass characterized by heterogeneous enhancement and with a cortical disruption of maxillary sinus medial wall. The patient underwent endoscopic biopsy of the lesion under general anesthesia; during the procedure, a piece meal excision was needed. Microscopic examination revealed a pleomorphic adenoma of the nasal cavity.

**Conclusion:** Pleomorphic adenoma is the most common benign tumor of the salivary glands, albeit the occurrence in the sinonasal tract is considered extremely rare. This entity is susceptible of infrequent but malignant transformation; due to its rarity, no significant data are available in literature and a tight follow-up is recommended.

## IN-VITRO SAFETY AND PERFORMANCE EVALUATION OF A SEAWATER SOLUTION ENRICHED WITH COPPER, HYALURONIC ACID AND EUCALYPTUS

Dr Song Huang<sup>1</sup>, Dr Samuel Constant<sup>1</sup>, Dr Barbara De Servi<sup>2</sup>, Dr Marisa Meloni<sup>2</sup>, Prof.Dr. Josip Culig<sup>3</sup>, Dr. AMINA SAAID<sup>4</sup>

<sup>1</sup>Epithelix, Geneva, Switzerland, <sup>2</sup>Vitroscreen, Milan, Italy, <sup>3</sup>University of Applied Health Sciences, Zagreb, Croatia,

<sup>4</sup>Laboratoire Fumouze, Levallois-Perret, France

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

Existing remedies for common cold focus on symptom removal and nasal irrigation is one of the well accepted methods to relieve nasal congestion and improve quality of life. In this study, the safety and efficacy of Stérimar Stop & Protect Cold and Flu (SSPCF), hypertonic seawater solution enriched with hyaluronic acids, eucalyptus oil, copper and manganese salts, have been evaluated.

### METHODS

For the in vitro evaluation, 10 µL SSPCF was applied on MucilAir™ twice daily with an interval of 8 hours for 3 or 4 days depending on the assay. The effect on tissue integrity was assessed by Trans-Epithelial-Electrical-Resistance (TEER) and Lucifer yellow (LY) permeability assay on D1 and D3, using saline solution as a control. Lactate dehydrogenase (LDH) and IL-8 assays were performed on D1 and D4. Mucociliary clearance (MCC) was evaluated by videomicroscopy on D1 and D4.

### RESULTS

SSPCF treatment significantly increased TEER on D3 ( $p < 0.001$ ) and maintained a similar LY permeability in comparison to saline treated cells, which indicated a regular paracellular transport and maintenance of intact epithelium integrity. Importantly, MCC rates were significantly enhanced at day 1 and 4 after SSPCF treatment in comparison to both untreated and isoproterenol treated cultures ( $p < 0.05$  and  $p < 0.001$  respectively). Low levels of LDH and IL-8 secretion (similar to controls) demonstrated the absence of cytotoxic or pro-inflammatory response upon SSPCF treatment.

### CONCLUSION

SSPCF is safe and well tolerated to be used in humans, and shows a potential to be used in nasal irrigation for relieving common cold symptoms.

## METASTATIC ENDOMETRIAL CANCER TO THE PARANASAL SINUS

**Mr Anthony Bashyam**<sup>1</sup>, Dr Alexandra Stewart<sup>1</sup>, Dr Izhar Bagwan<sup>1</sup>, Dr Kathleen Potter<sup>1</sup>, Mr Sankalp Sunkaraneni<sup>1</sup>

<sup>1</sup>Royal Surrey County Hospital, Guildford, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Endometrial carcinoma is the fourth most common cancer affecting women in the UK. Its most frequent sites of spread are to the pelvic and para-aortic lymph nodes, vagina and peritoneum. We report a case of a 63 year old lady with known endometrial cancer who presented with left facial swelling and eye displacement. Investigations revealed an expansile soft tissue density mass arising within the bone, centred on the left zygoma, with exophytic extension into the left maxillary antrum, infratemporal fossa and inferiorly into the orbit. Endoscopic biopsies were undertaken and histology confirmed metastatic deposits of endometrial cancer.

Clinicians should be aware that distant spread of endometrial cancer is linked with advanced disseminated disease and palliative treatments should be considered.

## CLINICOPATHOLOGIC STUDY OF SINONASAL SARCOMAS

Dr Aina Brunet-garcia<sup>1</sup>, MD Julia Cruz Mojarrieta<sup>2</sup>, MD Bosco Vendrell Marques<sup>2</sup>

<sup>1</sup>Hospital General Universitari Castelló, Castelló de la Plana, Spain, <sup>2</sup>Institut Valencia d'Oncologia, Valencia, Spain

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS

Sinonasal sarcomas are a complex and rare entity accounting for less than 1% of soft tissue sarcomas. Furthermore, they only account for less than 4% of sinonasal tumours. There are more than 50 subgroups. Its infrequency and heterogeneity poses significant challenges in diagnosis and management that often requires multimodality treatment.

### MATERIALS AND METHODS

A retrospective review of patients that underwent treatment for sinonasal sarcomas at the Instituto Valenciano de Oncología from 1997 to 2017 was collected. Sarcomas were classified histologically according to the World Health Organisation (WHO) 4th edition (2013), and the Tumour differentiation grade was established using the French FNCLCC gradation system. The American Joint Committee on Cancer (AJCC) 8th edition (2016) was used to determine the stage of the patient's tumours.

### RESULTS

5 males and 1 female were identified. Patient's median average was 45.7 years. Histopathological diagnoses were epithelioid hemangioendothelioma, mixofibrosarcoma, leiomyosarcoma and malignant peripheral nerve sheath tumour. The final diagnosis always differed from the initial histopathological diagnosis. All patients were treated with surgery and radiotherapy. Chemotherapy was administered to two patients that developed local recurrence and finally died at 7 and 10 months.

### CONCLUSIONS

Diagnosis and management of sinonasal sarcomas continues to be a major challenge for multidisciplinary cancer team. It is difficult for professionals to gain much experience in this type of tumours due to its rarity and diversity. It would be necessary to treat these patients in multidisciplinary specialized centres in order to diagnose them earlier and treat it appropriately.



## PACK TO BASICS! DEVELOPMENT OF A TECHNICAL SKILLS SIMULATOR FOR ANTERIOR AND POSTERIOR NASAL PACKING

Mr Issa Beegun<sup>1</sup>, Mr Mustafa Jaafar<sup>2</sup>, Ms Catherine Rennie<sup>2</sup>, Dr Carolina Bullido<sup>3</sup>, Dr Tesuven Naidu<sup>4</sup>, Mr Hesham Saleh<sup>1</sup>, Professor Neil Tolley<sup>2</sup>

<sup>1</sup>Barts Health, London, United Kingdom, <sup>2</sup>Imperial Health, London, United Kingdom, <sup>3</sup>Department of ENT. Galdakao Hospital. Bilbao. Spain, Galdakao, Spain, <sup>4</sup>Department of ENT. Nelson R. Mandela School of Medicine. Durban, South Africa., Durban, South Africa

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Introduction

Acute epistaxis can result in airway embarrassment and hypovolemic shock. Effective management is time sensitive and successful control of active epistaxis will be dependent upon numerous factors including staffing and training (1).

With respect to staffing and training, junior doctors rotating through ENT placements via core surgical training, general practice training or the foundation programme will routinely provide a first on-call service (2). In a survey of first-on-call doctors offering ENT night services, 68% had no prior ENT experience, and 42% did not feel confident managing acute ENT presentations including epistaxis(3).

A lack of preparedness is also a source of stress and anxiety for doctors (4,5). Previous research has revealed that a mixture of lectures and simulation to be a superior method of teaching(6,7).

Aims: Develop & deliver effective epistaxis training

### Method

A low cost easy to reproduce epistaxis simulator was developed. The model was used in combination with traditional lecture based teaching as part of departmental inductions.

Assessments comparing pre-induction and post-induction scores for confidence in managing epistaxis and anxiety levels were collected. Initial feedback resulted in the modification and development of the simulator.

### Results

A statistically significant rise in confidence for managing epistaxis and a fall in anxiety levels were consistently recorded over a 2.5 year period involving over 50 candidates across five ENT centres in three countries ( $P = \leq 0.05$ ).

### Discussion

The combination of lecture and practical skill based learning has consistently demonstrated positive results. The trainer used is low cost and easily reproducible.

## RADIOTHERAPY-INDUCED HYPOPITUITARISM IN NASOPHARYNGEAL AND SINONASAL CANCER

**Md Nelli Nepp<sup>1</sup>**, MD Zsolt Piski<sup>1</sup>, Professor Imre Gerlinger<sup>1</sup>, Professor Emese Mezősi<sup>1</sup>

<sup>1</sup>University Of Pécs, Pécs, Hungary

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aim:** Radiation-induced pituitary dysfunction is a well-known dose-dependent late sequela of pituitary irradiation. When the hypothalamic-pituitary region is within the radiation field, cranial irradiation can induce pituitary dysfunction for non-pituitary tumours – like nasopharyngeal and sinonasal cancers. Former meta-analysis suggested a high prevalence (0.55-0.76) of any form of hypopituitarism.

**Patients and Method:** Endocrine evaluations were performed between January 2016 and December 2017 in 34 patients (F/M: 10/24, age 59.3+13,8 years) suffering from nasopharyngeal (n=20) and sinonasal (n=14) cancer. The mean radiation dose was 62,7+13,1 Gy, follow-up mean time post-radiotherapy was 39 months. Pituitary function was investigated by basal hormone measurements and dynamic tests.

**Results:** Hypopituitarism was presented in 20 patients (58%), hormone replacement was required in 13 cases (38%). Gonadotroph deficiency occurred in 29% of all patients (10). Abnormal prolactin levels presented in 27% (9). Prevalence of both corticotroph and somatotroph deficiencies was 24% (8). Secondary hypothyroidism occurred in 21%. 10 patients (29%) had single axis deficiency, whereas 1 case (3%) had two axes deficiency, and panhypopituitarism occurred in 9 patients (26%).

**Conclusion:** Complaints of hypopituitarism are non-specific, while central hypoadrenalism is potentially life threatening. Endocrine surveillance programs are not routinely incorporated in adults treated with cranial radiotherapy. Radiation-induced hypopituitarism is irreversible and progressive. Since survival rates have improved by new treatment modalities, hormonal disturbances of survivors need more medical attention and active diagnostic attitude.

## THE INFLUENCE OF A COLUMELLAR STRUT GRAFT ON NASAL TIP PROJECTION AND ROTATION

Ms. Seraina Kunz<sup>1</sup>, Dr. Michael B. Soyka<sup>1</sup>, Prof. Dr. Med. David Holzmann<sup>1</sup>

<sup>1</sup>University Hospital Zurich, Zurich, Switzerland

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** The columellar strut graft (CS) is among the most commonly used tools in rhinoplasty procedures. Since tip position is crucial for the outcome of rhinoplasties, we assessed the impact of columellar strut grafts on nasal tip rotation and projection.

**Methods:** This project was designed as a retrospective study including patients that received a CS in open approach rhinoplasty at the University Hospital Zurich from 2006 to 2016. After reviewing medical and surgical records, pre- and postsurgical photographs were used for several measurements regarding tip position; such as the nasolabial angle and projection.

**Results:** 409 patients were initially reviewed, whereas 173 cases were fully documented and therefore available for analysis. Overall, the nasolabial angle did not change relevantly through the use of a CS; whether it was used alone or with additional surgical steps, such as tongue-in-groove or lateral crural overlay. Similar results were found regarding projection. If the medical record stated a clear desire for uprotation previous to the rhinoplasty, a significant change in the nasolabial angle could be achieved.

**Conclusions:** The columellar strut graft is a powerful tool with the potential to significantly increase nasal tip projection and rotation. The outcome thus mostly depends on the goals that were set prior to surgery.

## DEVELOPMENT OF A UNIVERSAL RHINOPLASTY SCREENING TOOL: RP6 PILOT STUDY

Mr Issa Beegun<sup>1</sup>, Ms Catherine Rennie<sup>2</sup>, Dr Sameer Bafaqeeh<sup>3</sup>, Mr Hesham Saleh<sup>2</sup>

<sup>1</sup>Barts Health, London, United Kingdom, <sup>2</sup>Imperial Health, London, United Kingdom, <sup>3</sup>King Saud University, Riyadh, Saudi Arabia

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Introduction

Rhinoplasty is commonly performed on patients who have a combination of complaints (1). Quality of life questionnaires and screening tools have been developed and validated to aid consultation.

Aim: we wish to present a tool which aids rhinoplasty consultations by assessing cosmetic expectation, nasal functionality, psychological distress, attitudes to treatment and suitability for surgical intervention.

### Method

Our rhinoplasty questionnaire originally consisted of 11 questions plotted along a modified Likert scale. After further review of the literature and in-depth discussion of the questions amongst senior rhinologists led to the development of a series of 9 questions. These were used to assess 10 consecutive patients, undergoing rhinoplasty by a single senior surgeon. The tool developed and tested was termed; RP9 (rhinoplasty 9)

### Results

Surgical intervention resulted in a significant fall in complaints of nasal obstruction. With respect to cosmetic expectation, RP9 identified cosmetic concerns which were addressed surgically, with reduced cosmetic concerns post operatively. Motivation for the use of medical treatment following surgical intervention also improved. Finally, surgical intervention improved psychological wellbeing in terms of personal relationships and work, as well as aiding patients move on from distressing traumatic events. The results of RP9 were reviewed at a second in-depth meeting which included rhinologists and psychiatrists. This led to the development of RP6 (rhinoplasty 6).

### Discussion

Rhinoplasty is challenging for a number of reasons. Failure to treat the patient holistically can lead to prolonged distress. We present a tool which will rapidly identify cosmetic, functional and psychological concerns.

HOW WE DO IT - SEPTOCOLUMELLOPLASTY USING A HYPODERMIC NEEDLE AS AN ADJUNCT TO ANCHOR THE CAUDAL SEPTUM TO  
**THE ANTERIOR NASAL SPINE**

**Mr Kiran Varadharajan**<sup>1</sup>, Miss Natasha Choudhury, Mr Hesham Saleh

<sup>1</sup>*Surrey & Sussex Nhs Trust, London, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aim:** Caudal dislocation of the septum typically results in nasal blockage, which can be addressed surgically by septocolumelloplasty surgery. Septal repositioning within a columella pocket is secured by suturing the caudal end of the septum to the periosteum of the anterior nasal spine. This step can be challenging as the suture needle may not be robust enough. We propose the use of a hypodermic needle as a trocar to guide placement of the needle through the periosteum.

**Methods:** A 21-gauge hypodermic needle is passed through the periosteum of the anterior nasal spine to create a tunnel. A 4-0 PDS suture is then passed through the caudal edge of the septum and then through the lumen of the hypodermic needle. The needle is then withdrawn and the suture tied.

**Results:** This technique has been used by both of the senior authors for about 10 years to facilitate surgery for columella dislocation. It allows secure anchorage of the caudal septum to the anterior nasal spine, without any complications.

**Conclusion:** We have described a simple and effective adjunct using a hypodermic needle to facilitate easier suturing of the caudal septum to the anterior nasal spine, during septocolumelloplasty.

## POSITION PAPER ON OLFACTORY DYSFUNCTION

Miss Katherine L Whitcroft<sup>1</sup>, Prof Thomas Hummel<sup>2</sup>

<sup>1</sup>*UCL (Ear Institute) and Technische Universitat Dresden, , United Kingdom and Germany,* <sup>2</sup>*Technische Universitat Dresden, Dresden, Germany*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims:

Olfactory dysfunction is an increasingly recognised condition, associated with reduced quality of life and major health outcomes such as neurodegeneration and death. However, translational research in this field is limited by heterogeneity in methodological approach, including definitions of impairment, improvement and appropriate assessment techniques. Accordingly, effective treatments are limited.

### Methods:

In an effort to encourage high quality and comparable work in this field, we compiled this position paper on olfactory dysfunction, with a total of 39 international co-authors.

### Results:

Key recommendations include:

- Patients with suspected olfactory loss should undergo a full examination of the head and neck, including nasal endoscopy.
- Subjective olfactory assessment should not be undertaken in isolation, given its poor reliability.
- Psychophysical assessment tools used in clinical and research settings should include reliable and validated tests of odour threshold, and/or one of odour identification or discrimination.
- Comprehensive chemosensory assessment should include gustatory screening.
- Smell training can be helpful in patients with olfactory loss of several aetiologies.

### Conclusions:

We hope that this work will encourage clinicians and researchers to adopt a common language, and in so doing, increase the methodological quality, consistency and generalisability of work in this field.

## SINONASAL ODONTOGENIC CARCINOSARCOMA IN THE PATIENT WITH A 20-YEAR DISEASE FREE PERIOD OF NASOPHARYNGEAL CARCINOMA, A CASE REPORT

Dr. Poj Pinyopornpanish<sup>1</sup>, Dr. Boonsam Roongpuvapaht<sup>1</sup>, Dr. Kangsadarn Tanjararak<sup>1</sup>, Dr. Navarat Tangbumrungtham<sup>1</sup>, Dr. Korrapat Aegakkatajit<sup>1</sup>, Dr. Duangkamon Wattanatrano<sup>1</sup>  
<sup>1</sup>*Ramathibodi Hospital, Bangkok, Thailand*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Odontogenic carcinosarcoma is an extremely rare disease, which has been previously reported only a few cases.

**Aim:** To present the unique case that tumor originated from sinonasal tract and extended to invade skull base which is more difficult to treat than the other areas.

**Method:** Retrospective case review.

**Result:** A 40-year-old male with a history of nasopharyngeal carcinoma who was treated with concurrent chemoradiation therapy 20 years ago. He has 8 months of nasal obstruction and right nasal mass which was biopsy from other hospital reporting malignant ameloblastoma. 4 months later, he had a complained of blurred vision and diplopia. The nasal endoscopy showed totally occluded right nasal mass.

MRI revealed heterogenous enhancing mass suspicious origin from right ethmoid sinus, right maxillary sinus, both nasal cavity and invade skull base at the crista gali and cribiform plate without nasopharyngeal involvement.

The patient has undergone twice endoscopic surgery. The histopathology reported odontogenic carcinosarcoma.

Postoperative MRI after second operation showed residual tumor at surgical bed. The tumor rapidly grew up and occluded both nasal cavities and extended to both frontal sinuses. The patient has followed up and died 6 months after the second operation from extensive intracranial invasion.

Aggressiveness of the disease and the difficulty of surgery for free margin in the skull base may contributed to poor disease control.

**Conclusion:** Odontogenic carcinosarcoma is a very aggressive type of odontogenic tumor. Surgical removal with free surgical margin is the mainstay of treatment for this disease.

## EFFICACY OF A SEAWATER SOLUTION ENRICHED WITH COPPER, HYALURONIC ACID AND EUCALYPTUS AGAINST NASAL PATHOGENS

Dr. Song Huang<sup>1</sup>, Dr. Samuel Constant<sup>1</sup>, Dr. Barbara De Servi<sup>2</sup>, Dr. Marisa Meloni<sup>2</sup>, Prof.Dr. Josip Culig<sup>3</sup>, Dr. AMINA SAAID<sup>4</sup>

<sup>1</sup>*Epithelix, Geneva, Switzerland*, <sup>2</sup>*Vitroscreen, Milan, Italy*, <sup>3</sup>*University of Applied Health Sciences, Zagreb, Croatia*,

<sup>4</sup>*Laboratoire Fumouze, Levallois-Perret, France*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

Nasal irrigation is commonly used to alleviate rhinosinusitis symptoms. In this study, the efficacy of a hypertonic seawater solution enriched with hyaluronic acid, eucalyptus oil, copper and manganese salts, Stérimar Stop & Protect Cold and Flu (SSPCF) against viral and bacterial infections was assessed in-vitro.

### METHODS

To evaluate the efficacy against rhinovirus HRV-A16, 30µL of SSPCF or 5000nM Rupintrivir (positive control) were applied to MucilAir™ 1h prior or 24h after HRV-A16 infection with 2.8x10<sup>4</sup> RNA copies/ml for 3.5h. Tissues were then rinsed and further incubated for 24h. Viral load was then assessed by RT-PCR kit. For the bacterial assay, 1% SSPCF was added to a S.aureus growing suspension for 24h. Phagocytotic ability was evaluated by phagocytosis assay kit 1h after incubation with 30µL SSPCF or saline and 100µL latex beads.

### RESULTS

Viral load was significantly decreased in both SSPCF and Rupintrivir pretreated cells compared to untreated cells, 24 hours post-infection ( $p < 0.05$ ). When SSPCF was applied 24h after virus inoculation, viral load decreased in SSPCF treated compared to untreated cells, although less than in the positive control group. SSPCF also inhibited S. aureus growth compared to control just 1h after treatment. The results of the phagocytosis assay showed a 3-fold increase of fluorescent intensity after 1h of SSPCF treatment compared to control, suggesting that SSPCF enhances phagocytosis.

### CONCLUSION

In-vitro tests suggest SSPCF has a strong positive impact on viral load, S. aureus growth and phagocytosis that could help fight viruses and bacteria involved in rhinosinusitis, including common cold.



## RHINITIS AND OSA: LITERATURE REVIEW AND CLINICAL EXPERIENCE

MD, PhD Alessandro Bucci

<sup>1</sup>*Asur Marche - Av2, Senigallia (AN), Italy*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims.** Multilevel anatomic obstruction is often present in snoring and OSA. Sleep disordered breathing (SDB) have been reported to be associated with allergic rhinitis (AR) as a potential etiologic factor. The relationship between the two disorders remains controversial.

**Methods.** We performed an analysis of medical literature performing a systematic review with the purpose to highlight fundamental aspects of OSA and rhinitis.

**Results.** The mechanism of OSA is still not well understood. Subjects with chronic nasal obstruction reported significantly higher ESS. The high nasal resistance leads to a more negative intraluminal pressure in the lower airways that may promote partial or intermittent collapse of the pharynx, increasing the risk of OSA. The link between OSA and AR has been discussed in the literature.

**Conclusions.** Multilevel anatomic obstruction is often present in snoring and OSA. As the nose is the first anatomical boundary of the upper airway nasal obstruction may contribute to SDB. The role of nasal obstruction in OSA remains controversial: there isn't a linear correlation between the degree of nasal obstruction and the severity of SDB. Rhinitis is a risk factor for OSA. Decreasing nasal congestion with nasal steroids may improve sleep, daytime fatigue, and the quality of life of patients with AR. Many pathophysiological mechanisms can potentially explain the role of nasal pathology in SDB: the Starling resistor model, the unstable oral airway, the nasal ventilatory reflex and the role of nitric oxide. Physicians should always be aware of the high risk of sleep disorders in patients with rhinitis.

## RECURRENT MAXILLARY AMELOBLASTOMA – CASE REPORT

Dr. Sever Pop<sup>1</sup>, Dr. Liliana Rogoian<sup>2</sup>

<sup>1</sup>"Iuliu Hatieganu" University Of Medicine And Pharmacy - ENT Department, Cluj-Napoca, Romania, <sup>2</sup>Cluj County Clinical Emergency Hospital - Anatomical Pathology Department, Cluj-Napoca, Romania

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### INTRODUCTION:

Ameloblastomas are histologically benign, slow-growing and locally invasive odontogenic tumors. Ameloblastomas account for nearly 1% of all tumors and cysts of the jaws, with 80% of ameloblastomas occurring in the mandible. Primarily maxillary ameloblastomas are extremely rare, with few cases reported in the medical literature.

### METHODS:

We report the case of a 76 years old male patient who presented in our department with nasal obstruction, rhinorrhoea, recurrent episodes of epistaxis, right facial deformity with proptosis of the right eye. Six years ago, the patient underwent an endoscopic excision of a right nasal cavity tumor. The histopathology was ameloblastoma.

### RESULTS:

Nasal endoscopy revealed the right nasal cavity completely obstructed by a polypoid tumor. Preoperative CT scan and MRI showed a solid mass occupying the right nasal cavity, with invasion of the maxillary sinus, the anterior and posterior ethmoidal cells, the orbit, the sphenoid sinus, the frontal sinus and the nasopharynx.

Surgical excision was performed using a combined endoscopic and degloving approach. The histopathologic diagnosis was recurrent ameloblastoma.

At the 12-month follow-up, no recurrences have been reported.

### CONCLUSIONS:

Maxillary ameloblastoma is an extremely uncommon tumor. Its rarity and clinical presentation can mislead the clinician into misdiagnosis and inappropriate treatment.

A combined endoscopic and external approach allows a safe excision.

## SINO-NASAL-OUTCOME-TEST-22 PROVIDES INFORMATIONS ABOUT RHINOSINUSITIS SPECIFIC SYMPTOMS AND QUALITY OF LIFE DOMAINS

Dr. Ljilja Tadic<sup>1</sup>, Univ.-Prof. Dr. Herbert Riechelmann<sup>1</sup>, PhD Aristeidis Giotakis<sup>1</sup>, PhD David Riedl<sup>2</sup>, Dr. Daniel Dejaco<sup>1</sup>

<sup>1</sup>Department of Otorhinolaryngology, Medical University of Innsbruck, Innsbruck, Austria, <sup>2</sup>Department of Medical Psychology, Medical University of Innsbruck, Innsbruck, Austria

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims:

The aim of the present study was to evaluate the factorial structure of the Sino-Nasal-Outcome-Test-22 (SNOT-22). We were interested to correlate the SNOT-22 total score and the symptom domains and the quality of life domains of this questionnaire with the Brief Symptom Inventory-18 (BSI-18), a symptom inventory assessing somatisation, depression and anxiety.

### Methods:

SNOT-22 symptom scores and BSI-18 were assessed in 134 adult patients with chronic rhinosinusitis and 36 controls.

A confirmatory factor analysis (CFA) was used to evaluate the factorial structure of the SNOT-22. Pearson Correlation coefficients were calculated to investigate the relationship between the SNOT-22 and BSI-18 subscales.

### Results:

The results of the CFA clearly confirmed the proposed 4-factor solution of the SNOT-22 (RMSEA=0.063; CFI=0.944; TLI=0.934). The SNOT-22 total score was positively correlated with BSI-18 scales. BSI-18 scores for depression and anxiety correlated with SNOT-22 subscales for emotional functioning and sleeping symptoms. The BSI-18 somatisation score was correlated with SNOT-22 otologic symptoms.

### Conclusions:

Good overall fit was found for the proposed 4-factor solution of the SNOT-22. Particularly the quality of life domain of SNOT-22 rather correlated with depression, anxiety and somatisation, whereas the correlation of BSI-18 with the symptom domain of the SNOT-22 was low.

## ANALYSIS OF FATTY ACID DISTRIBUTION IN TISSUE OF CHRONIC RHINOSINUSITIS BY IMAGING MASS SPECTROMETRY

Dr. Masafumi Sakashita<sup>1</sup>, Dr. Takahiro Ninomiya<sup>1</sup>, Dr. Takahiro Tokunaga<sup>1</sup>, Dr. Yoshimasa Imoto<sup>1</sup>, Dr. Tetsuji Takabayashi<sup>1</sup>, Dr. Mitsutoshi Setou<sup>2</sup>, Dr. Shigeharu Fujieda<sup>1</sup>

<sup>1</sup>Universiti of Fukui, Fukui-ken, Japan, <sup>2</sup>Hamamatsu University of Medicine, Hamamatsu-shi, Japan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

The number of patients with eosinophilic chronic rhinosinusitis (ECRS) has been increasing recently in Japan. In ECRS, nasal polyps frequently recur after functional endoscopic sinus surgery. The aims of this study were to investigate how the polyunsaturated fatty acid-containing phosphatidylcholines (PUFA-PCs) are distributed in nasal polyps with severe or less severe eosinophilic infiltration.

### Methods

Five patients with ECRS, 5 patients with non-ECRS and 2 patients without CRS were recruited in this study. Distributions of PUFA-PCs in nasal polyps or uncinata tissue were evaluated by utilizing matrix-assisted laser desorption/ionization imaging mass spectrometry, which allows visualization of lipid distribution within the polyps. Expressions of metabolizing enzymes in arachidonic acid cascade were evaluated by real-time PCR.

### Results

We found that arachidonic acid containing phosphatidylcholines was decreased in polyps with ECRS. In response to this, mRNA expressions of arachidonic acid metabolic enzymes, 5-LO and FLAP were increased 3 times and 5 times higher respectively in nasal polyps compared to uncinata tissue, suggesting higher amounts of arachidonic acid were produced in ECRS polyps.

### Conclusions

These data suggested that higher frequency of recurrent polyps might be associated with increased induction of arachidonic acid in polyps with ECRS.

## RESPIRATORY EPITHELIAL ADENOMATOID HAMARTOMA: A POORLY RECOGNIZED ENTITY

M.D. Catarina Rato<sup>1</sup>, M.D. Pedro Carneiro de Sousa<sup>1</sup>, M.D. Joana Borges Costa<sup>1</sup>, M.D. Delfim Duarte<sup>1</sup>, M.D. Marta Neves<sup>1</sup>

<sup>1</sup>*Hospital Pedro Hispano, Matosinhos, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction/Aims:** Respiratory epithelial adenomatoid hamartoma (REAH) is a rare benign upper airway lesion that is characterized by abnormal glandular proliferation. It still remains to be determined whether it is of neoplastic or non-neoplastic nature, although the presence of an increased fractional allelic loss in REAH supports the hypothesis of a benign neoplasm.

This entity occurs most frequently in patients in their sixth decade of life. Clinically the lesion presents as a polypoid mass, often in one or both nasal cavities, having an indolent progression. Diagnosis is made with a histological examination. The preferred treatment is surgical excision usually with an excellent prognosis.

**Methods and Results:** The authors present a case of 66 year old woman with complaints of insidious and progressive right nasal obstruction. On physical examination a polypoid masse occupying the right nasal cavity was found. The computerized tomography revealed a soft tissue mass in the right nasal cavity. Patient underwent functional sinus surgery with lesion excision. The histological examination was consistent with a respiratory epithelial adenomatoid hamartoma.

**Conclusions:** Symptoms of REAH include hyposmia, nasal obstruction, rhinorrhea, epistaxis, headaches, facial pain, and facial pressure. This non-specific presentation accounts for the underdiagnosis of this entity. While REAH is benign, awareness and recognition of this lesion is important because it can be easily confused clinically and microscopically with more threatening tumors such as inverted papilloma and sinonasal carcinoma. The correct diagnosis of this entity is crucial to avoid an aggressive surgical intervention.

## THE ROLE OF CHRONIC RHINOSINUSITIS IN SLEEP DISORDERS

Dr Grigore Raluca<sup>1</sup>, Dr CONDEESCU Mihnea<sup>1</sup>, dr ANTONIE Catrinel<sup>1</sup>, Dr PASCU Paula<sup>1</sup>, DR Gloria MUNTEANU<sup>1</sup>, Dr Oana PAUN<sup>1</sup>, DR NITU Liliana<sup>1</sup>, Dr Bogdan POPESCU<sup>1</sup>, Dr Denisa MITRAN<sup>1</sup>, Dr Alexandru NICOLAESCU<sup>1</sup>, Dr Serban BERTESTEANU<sup>1</sup>

<sup>1</sup>*Spitalul Clinic Coltea, Bucharest, Romania*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**AIMS:**Chronic rhinosinusitis is one of the commonest conditions found in patients in the ENT department .This condition interferes with the drainage of the nasal sinuses causing a mucus buildup . Lately studies have linked this condition to poor sleep quality and even sleep disorders.

**Methods:** Patients admitted for surgical treatment of chronic rhinosinusitis were asked to complete the Epworth Sleepiness scale before surgical treatment . They were asked to complete the scale again when they came for the 1 month follow up .

**RESULTS:** The scores of the questionnaires showed improvement in subjective sleep quality in most of the patients showing there is a possible relationship between sleep disorders and chronic rhinosinusitis.

**Conclusions:** Sleep disorders are found in the majority of patients with chronic rhinosinusitis and treating this condition can improve the quality of sleep .

## AN ISOTONIC SULPHUR AND HYALURONIC ACID ENRICHED SEAWATER SOLUTION ENHANCES WOUND REPAIR IN AN IN VITRO MODEL OF HUMAN NASAL EPITHELIUM

Dr. Barbara De Servi<sup>1</sup>, Dr. Marisa Meloni<sup>1</sup>, Prof.Dr. Josip Culig<sup>2</sup>, Dr. AMINA SAAID<sup>3</sup>

<sup>1</sup>Vitroscreen, Milan, Italy, <sup>2</sup>University of Applied Health Sciences, Zagreb, Croatia, <sup>3</sup>Laboratoire Fumouze, Levallois-Perret, France

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### AIMS

Nasal irrigation is one of the main approaches for managing dry nose. This study evaluated the effect of a seawater-based solution enriched with sodium thiosulphate and hyaluronic acids in an in-vitro reconstituted human model.

### METHODS

Stérimar Stop&Protect Irritation et Secheresse (SSPIS) was tested on MucilAir™, by applying 10 µL twice daily for 4 days. Using this model, the impact of SSPIS on tissue integrity was assessed by Trans-Epithelial-Electrical-Resistance (TEER) and Lucifer yellow (LY) permeability on D3 and release of lactate dehydrogenase (LDH) and IL-8 for 4 days. MCC was evaluated by videomicroscopy on D1 and D4 and wound repair was followed by microscope image acquisition every 2h for 32h, following a 30 minute SSPIS treatment prior to generation of an injury.

### RESULTS

SSPIS treatment increased TEER values and decreased LY permeability compared to saline treatment on D3, indicating a film-forming ability of the formulation which contributes to strengthening of the epithelium integrity. Moreover, SSPIS enhanced wound healing by causing a complete wound reepithelization in 24 hours. This effect is most probably promoted by the hyaluronic acid and Sulphur present in the formulation and could be mediated by stimulation of OCLN and ITGB1 gene expression upon SSPIS treatment. Additionally, MCC rate of SSPIS treated cells was significantly higher than that of controls at both D1 and D4 ( $p < 0.001$ ). Low levels of LDH and IL-8 secretion (similar to controls) indicated no cytotoxicity or pro-inflammation upon SSPIS treatment.

### CONCLUSION

SSPIS is well tolerated and can be effective for dry nose symptom alleviation.

## PHYSIOLOGICAL FEATURES OF THE NASAL MUCOSA IN PATIENTS WITH CHRONIC POLYPOID RHINOSINUSITIS

Mr. Doston Sultonov<sup>1</sup>, Dr. Ulugbek Vokhidov<sup>1</sup>

<sup>1</sup>Tashkent Medical Academy, Tashkent, Uzbekistan

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Functional changes in nasal mucosa and paranasal sinuses may be a cause of irreversible changes, such as metaplasia, more common in chronic polypoid rhinosinusitis.

The aim of the study was to study the functional features of the nasal mucosa in different types of chronic polypoid rhinosinusitis.

**Materials and methods.** The study was carried out in the 3rd clinic of Tashkent Medical Academy from 2013 to 2017. There are 120 patients were examined between 15-80 years old who were hospitalized in the ENT department with the diagnosis of chronic polypoid rhinosinusitis. All patients underwent clinical and functional examination of the nose, including pH determination using by a special indicator, a saccharin test to determine the transport function, determination of the suction function with 1% atropine and excretory function using cotton swab.

**Results.** In patients with "eosinophilic" polypoid rhinosinusitis, mucociliary transport was  $35.2 \pm 0.80$  min, pH  $7.4 \pm 0.01$ , suction -  $88.6 \pm 6.5$  min, excretory -  $57.9 \pm 0.9$  ml and in patients with "neutrophilic" polypous rhinosinusitis, mucociliary transport was  $34.5 \pm 0.65$  min, pH  $7.3 \pm 0.01$ , suction -  $76.2 \pm 5.0$  min, excretory -  $54.9 \pm 0.8$  ml. The study showed that disruption of the transport function, changing the concentration of hydrogen ions (pH), reduction the absorption function and an increase the nasal excretory function.

**Conclusion.** Identification of the functional changes of nasal mucosa can contribute to determine the process of polypoid rhinosinusitis and choosing treatment tactics of chronic polypoid rhinosinusitis.



## A RHINO-MAXILLARY MUCORMYCOSIS CASE REPORT IN AN IMMUNOCOMPETENT PATIENT

**Dra. Joana Costa<sup>1</sup>**, Dra. Catarina Rato<sup>1</sup>, Dr. Delfim Duarte<sup>1</sup>, Dr. Miguel Viana<sup>1</sup>

<sup>1</sup>*Hospital De Pedro Hispano, Matosinhos, Portugal*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction:** Mucormycosis (MM) is an uncommon, oportunistic and life-threatening infection that primarily affects diabetic or immunocompromised patients. It's usually caused by fungi's order Mucorales and Rhizopus or Mucor species are the most frequent offending organisms. It's a systemic disease manifested by a variety of syndromes and rhino-orbital-cerebral form is one of the most common presentations.

**Case report:** We report a case of rhino-maxillary MM in a 67-year-old healthy female that present with left nasal stuffiness and anterior mucopurulent drainage of one-month evolution, without improvement after antibiotic treatment. Anterior rhinoscopy revealed a swollen nasal mucosa with purulent drainage from left middle meatus; a paranasal sinus CT scan showed a left maxillary sinus mass, involving nasal fossa and ethmoidal cells, an erosion of the left medial maxillary sinus wall, middle concha and ethmoidal cells. The patient underwent a surgical debridement and histopathology and histochemistry exams showed the presence of non-septated, 90° angle branched hyphae compatible with Mucor. The patient was treated with amphotericin B and posaconazole, with a complete infection cure.

**Conclusion:** MM is a rare infection that requires a high index of suspicion due to atypical presentations. Moreover, it's usually a fatal disease, specially in immunocompromised patients, with an overall mortality ranging from 25 to 62%. One of the most important poor outcome factors is a delayed diagnosis and treatment and because MM has been increasingly reported in healthy individuals for the last decade, it's important to consider this possibility in healthy patients with resistant symptoms not explained by others causes.

## EPISTAXIS – WHEN IT GETS HARD

Epistaxis – When It Gets Hard Laura Mäkinen<sup>1</sup>, Epistaxis – When It Gets Hard Karin Blomgren<sup>1</sup>

<sup>1</sup>Helsinki University Hospital, Helsinki, Finland

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

To remind colleagues of the possibility of anterior source of bleeding in complicated epistaxis cases and provide a simple, novel off-label tool for treatment.

### Methods

Two epistaxis patients with multiple risk factors and several treatment attempts before a novel, simple, and successful treatment are presented.

### Results

Both patients were elderly male with anticoagulant medication. They experienced several episodes of nasal bleeds with multiple non-successful treatment attempts. Both told that they could feel the bleeding beginning from the anterior part of the nose and it could be temporarily stopped by pressing the nostrils together. Although the bleeding point was suspected to be in the anterior part of the nose, local coagulation was not successful. In addition, nasal tamponades, ligation of sphenopalatine artery, and bilateral embolisation of the maxillary/sphenopalatine artery were performed. Several experienced rhinologists failed to identify the bleeding source endoscopically probably because it was located so anteriorly and inferiorly just behind the skin/mucosa border. In the first patient the bleeding was finally stopped after local, submucosal infiltration of sclerosing agent lauromacrogol to the suspected area of bleeding. In the other patient, an identical infiltration was performed in addition to identifying and coagulating the alveolar artery sublabially.

### Conclusion

If the bleeding source is really anterior, traditional treatment modalities may be unsuccessful and additional treatment options are needed. Patient's opinion about the bleeding point should be asked and valued. Local lauromacrogol infiltration was simple and effective treatment in our two patients with extremely complicated epistaxis.

## TRANSORBITAL ENDOSCOPIC APPROACH TO SPHENOID WING FIBROUS DYSPLASIA FOR MANAGEMENT OF EXOPHTALMUS

**Dr Hazan Basak<sup>1</sup>**, Dr Hasay Guliyev<sup>1</sup>, Ass. Prof Suha Beton<sup>1</sup>, Prof Dr Ahmet Kaan Gunduz<sup>2</sup>, Prof Dr Cem Mecoc<sup>3</sup>  
<sup>1</sup>Ankara University Department of ORL HNS, Ankara, Turkey, <sup>2</sup>Ankara University Department of Ophthalmology, Ankara, Turkey, <sup>3</sup>Salzburg Paracelsus Medical University Department of ORL HNS, Salzburg, Austria

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Objective:

The aim of the study is to evaluate efficacy of transorbital endoscopic approach in management of retroorbital fibrous lesions causing exophthalmus.

### Methods

#### Case 1:

A 26-year-old female patient with complaints of progressive left proptosis and blurred vision was referred to our clinic after detecting an expansive bony lesion in Computed Tomography (CT) which was located on the left sphenoid wing pushing orbital content anteriorly.

#### Case 2:

A 17-year-old female patient with the complaints of left sided severe headaches and proptosis in the last two years had CT imaging which revealed expansive bone lesion on the left posterior orbit, involving the greater wing and partially the small wing of the sphenoid bone and its base, the left pterygoid process, and the left half of the sphenoidal sinus.

### Results:

Through a blepharoplasty incision, transorbital endoscopic approach with neuronavigation was performed to both patients with prediagnosis of fibrous dysplasia. Up to the cortical bony boundaries the lesion was drilled out until reaching the dura of the anterior and middle cranial fossa while keeping periorbita intact. Subtotal resection of fibrous dysplasia was achieved in both cases. No intraoperative complications were encountered. Postoperative controls revealed correction of exophthalmus with no other complaints in the follow-ups of 18 months.

**Conclusion:** The transorbital endoscopic approach is a minimally invasive procedure for selected skull base lesions supero-lateral to the orbit. It enables the surgeons to obtain an overview of the region superior and lateral to the orbit in the vicinity of the anterior and middle cranial fossa.

## ONODI CELL MUCOCELE CAUSING UNILATERAL VISUAL LOSS

**Mr Yuanpei Zhang<sup>2</sup>**, Mr Samit Unadkat<sup>1</sup>, Miss Catherine Rennie<sup>1</sup>, Mr Aman Khanna<sup>1</sup>, Mr Hesham Saleh<sup>1</sup>

<sup>1</sup>Charing Cross Hospital, Imperial College Healthcare, London, United Kingdom, <sup>2</sup>Imperial College School of Medicine, London, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Onodi cells (sphenoidal cells) are anatomical variants of the posterior most ethmoid air cells which pneumatise superiorly or laterally to the sphenoid sinus. They can be intimately related to the optic nerve and so thorough pre-operative evaluation of the anatomy is essential to avoid potentially devastating complications. Although usually asymptomatic, rarely they can be complicated by sinus disease causing optic neuropathy.

**Methods:** The authors report a rare such case of an Onodi cell mucocele and its ensuing complications and surgical challenge.

**Results:** An otherwise fit and well 62 year old woman presented elsewhere with sudden, painless right sided visual loss. Pre-operative CT and MRI scanning demonstrated a mucocele abutting the optic nerve. She was taken to theatre on two occasions with unsuccessful drainage of the mucocele, which was further complicated by an intra-operative CSF leak. This was repaired immediately. A second opinion was sought from our tertiary unit and after further imaging demonstrating persistence of the mucocele a third procedure was carried out under image guidance to successfully drain the mucocele, which was infected. Regrettably, there was no improvement to her vision.

**Conclusions:** Mucoceles within Onodi cells remain a rare cause of painless visual loss. A thorough systematic pre-operative evaluation of the anatomy must be carried out to identify anatomical variants. The authors advocate early intervention with the aid of image guidance.

## MASSIVE NASAL OLFACTIVE NEUROFIBROMA WITH ANTERIOR CRANIAL FOSSA INVASION - CASE REPORT

**MD. Vitor Oliveira<sup>1</sup>**, MD. Catarina Duarte<sup>1</sup>, MD. Cesar Silva<sup>1</sup>, MD. Pedro Rodrigues<sup>1</sup>, PhD. Leonel Luis<sup>1</sup>

<sup>1</sup>*Santa Maria Hospital, Lisboa, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Neurofibroma (NF) is a benign peripheral nerve sheath tumour uncommonly found in the nasal tract. Despite benign in nature, depending from which nerve is affected, the tumour may have a local aggressive behaviour, acquire extreme volume in size with intracranial invasion, compromise the orbit and result in life-threatening situations.

**Methods:** Case report of a patient admitted to a tertiary center with a history of 5-month history of nasal obstruction, anosmia, and episodic nasal bleeding. On presentation the patient had a spontaneous CSF leak and was diagnosed with an ongoing meningitis. Imaging studies revealed a extensive mass centred in the anterior cranial fossa occupying all ethmoidal and sphenoid compartments, compressing the left orbit and extending into the nasopharynx. Biopsy was taken prior to surgery which revealed the diagnosis of sinonasal NF.

**Results:** We highlight the nuances of the sinonasal endoscopic tumour resection technique directed to the anterior skull base to access the intracranial part of the olfactive NF.

**Conclusions:** Extreme size sinonasal tumours display a foremost shift from the abnormal anatomy commonly found in sinonasal tumours. Resection can be challenging to manage especially in tumours involving the orbit, extending into or invading the skull base. The tumour size, local behaviour and vascular supply should prompt to special concerns concerning early tumour devascularisation and bleeding control to ensure a safe and complete resection. Resulting large skull base defects and extensive resection must comply with advanced skull base reconstructive techniques which should include a careful selection of vascular flap grafts.

## ROLE OF MRI IN THE INVESTIGATION OF UNILATERAL MAXILLARY SINUS OPACIFICATION ON CT

Mr Annakan Navaratnam<sup>1</sup>, Ms Caroline Anderson<sup>1</sup>, Dr Ravi Lingam<sup>1</sup>, Mr Joe Marais<sup>1</sup>

<sup>1</sup>Northwick Park Hospital, London, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aim

The radiological finding on computed tomography (CT) of unilateral maxillary sinus opacification can be due to several diagnoses. These patients often require further intervention in the form of endoscopic sinus surgery (ESS) to confirm the diagnosis. Magnetic resonance imaging (MRI) provides superior soft tissue resolution to CT and can better characterise unilateral maxillary opacification. The aim of this study was to assess the diagnostic application of MRI in patients with unilateral maxillary sinus opacification.

### Methods

In this retrospective single centre study in university teaching hospital, between 1.1.2014 and 1.1.2016, eight patients with unilateral maxillary sinus opacification on CT with complimentary MRI were identified. Demographic variables, presenting symptoms, examination findings, radiological (CT and MRI) findings, operative management and pathology were analysed.

### Results

Eight patients (5 female, 3 male, mean age: 43 years) patients were included. Diagnoses included: inverted papilloma (n=3), inflammatory polyp (n=2), sarcoma (n=1), adenocarcinoma (n=1) and fibrous dysplasia (n=1). MRI interpretation identified the diagnosis in six cases which correlated with histopathology. MRI identified the difference between fluid and tumour in the maxillary sinus in all eight cases which was not possible on CT. Surgical planning was determined on results of MRI in all cases: endoscopic medial maxillectomy (n=3), tumour debulking/biopsy (n=3) and limited ESS (n=2).

### Conclusion

MRI provides superior soft tissue characterisation and can delineate between tumour and fluid accurately on MRI therefore guiding surgical planning. We recommended that, where feasible, patients with unilateral maxillary sinus opacification on CT undergo complimentary MRI.

## AN AGGRESSIVE CASE OF MIDLINE DESTRUCTIVE DISEASE

Dr. António Nicolau Fernandes<sup>1</sup>, Dr. Tiago Eça<sup>1</sup>, Dr. Ana Rita Santos<sup>1</sup>, Prof. Leonel Luís<sup>1</sup>

<sup>1</sup>*Centro Hospitalar Lisboa Norte, Lisbon, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** To demonstrate a clinical case of an extranodal nasal type NK/T-cell lymphoma, a rare type of non-Hodgkin's lymphoma characterized by a destructive lesion of the midline structures of the nasal cavity.

**Methods:** Clinical case report.

**Results:** A 24-year-old man presented to the emergency room evacuated from Guinea-Bissau with a several months history of an extensive destructive lesion of the right hemiface. Physical examination revealed a non-hemorrhagic, ulcerated and necrotic lesion with loss of substance of the nasal cartilage, skin and muscle, with right proptosis. On the CT scan an expansive and infiltrative lesion with destruction of the hard palate, nasal septum, right maxillary sinus, ethmoid labyrinth and sphenoid and skull base. Orbital and intracranial extension was also observed. Serologies were positive for EBV IgG with negative VCA IgM, active hepatitis B and negative for syphilis, HIV, HCV, CMV and HTLV-1/2. Biopsies of the maxillary sinus revealed extranodal nasal type NK/T-cell lymphoma. The patient died shortly after the histopathological diagnosis.

**Conclusion:** This rare condition may present with very aggressive destruction of the midline structures of the nasal cavity. Early diagnosis is mandatory for initiating targeted therapy and curbing the extent of these destructive lesions.

## DOES OBSTRUCTIVE SLEEP APNEA AFFECT OLFACTION AND TASTE SENSATION?

Dr Nada Alshaikh<sup>1</sup>

<sup>1</sup>MOH- Dammam Medical Complex, Dammam, Saudi Arabia

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Background/ Aim:** OSA is a serious medical condition. Untreated OSA may lead to, or worsen, hypertension, heart failure, stroke, and arrhythmias. However, whether OSA is associated with reduced olfaction & taste has not been investigated in the literature and yet to be determined.

The aim of this study is to investigate the potential effects of obstructive sleep apnoea on olfaction.

**Method:** A prospective cross sectional study. It involved assessment of olfaction & taste in patients with confirmed obstructive sleep apnoea using 10-point visual analogue scale (VAS) and Sniffin' Sticks extended test battery. The correlating the smell and taste scores to the patients' weight, body mass index (BMI), and degree of OSA.

**Results:** 17 patients with OSA have been enrolled in the study. Weight ranged between 61kg and 93kg with a mean of 75.1kg. BMI ranged between 21kg/m<sup>2</sup> and 33 kg/m<sup>2</sup> with a mean of 26.7 kg/m<sup>2</sup>. The mean subjective smell and taste scores using VAS were 7.7 and 9.7 respectively. TDI smell score using Sniffin' Sticks test ranged between 16.25 and 32 with a mean of 25.9. Only 6 patients had a base line normal TDI scores. As for the remaining 11 patients, one had anosmia and 10 had hyposmia. The overall reduction in the sense of smell in all the studied patients is statistically insignificant ( $P>0.05$ ).

**Conclusion:** The study suggested reduced olfaction in OSA patients, however there is insufficient data to make a solid conclusion of whether this reduction is significant or not.



## RHINOENTOMOPHTHORAMYCOSIS - A DIAGNOSTIC AND THERAPEUTIC CHALLENGE

Dr. Raquel Bento<sup>1</sup>, Dr. Catarina Duarte, Dr. Tiago Marques, Dr. Ana Rita Santos, PhD, MD Rosa Roque Farinha, PhD, MD Leonel Luís

<sup>1</sup>*Centro Hospitalar Lisboa Norte, Lisbon, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**AIMS:** Case report of a 24-year-old men from Guinea-Bissau, presenting with a 7 month grotesque painless facial swelling. The imaging study showed no bone erosion. Histopathological examination revealed multiple inflammatory cells granulomas with eosinophils prevalence. Cultures were negative. After 6 months of oral itraconazole there was significant clinical improvement with marked reduction of the swelling.

**METHODS:** Case report.

**RESULTS:** Rhinoentomophthoramycosis is a rare subcutaneous mycosis caused by *Conidiobolus coronatus*. It affects predominantly immunocompetent men in tropical countries. There is infection of the nasal and facial tissue, causing the characteristic painless midface swelling. Although rarely, it may spread or be locally invasive.

Correct diagnosis of entomophthoromycoses is a challenge as biopsies rarely reveal the characteristic fungal hyphae, the mycological cultures are positive in only half of the cases and the clinical presentation mimics malignancy or granulomatous diseases, which are much more common in non-tropical countries. Although antifungal therapy is the mainstay of treatment, there is a lack of established guidelines. Also, the differentiation between persistent fungal infection and cure with sequelae is another challenge.

**CONCLUSION:** Rhinoentomophthoramycosis is largely unknown but should be considered in the differential diagnosis of rhinofacial swellings in patients from tropical countries. The delay in the diagnosis and treatment may lead to a poorer outcome.

## MULTIPLE EXTENSIVE SINONASAL MUCOCELES :AN UNUSUAL OTOLARYNGOLOGIC MANIFESTATION OF WEGENER'S GRANULOMATOSIS

Doctor Donia Alredha<sup>1</sup>

<sup>1</sup>Ministry Of Health, Dammam, Saudi Arabia

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### ABSTRACT:

**BACKGROUND:** Wegener's granulomatosis (WG) is an idiopathic systemic disease primarily characterized by vasculitis of small vessels and infiltrations of giant cells that produces necrotizing granulomas. It commonly involves pulmonary system, renal system, and head and neck region which is the most consistent of all systemic manifestations. Head and neck manifestations include involvement of the nose, paranasal sinuses, ears, throat, larynx, salivary glands, cranial nerves, and orbit. Sinonasal involvement is the most common of the head and neck and is seen in 64%-80% of patients. Clinical findings may include crusting, and/or ulceration of the nasal mucosa, septal perforation, saddle nose deformity, and sinusitis. Sinonasal mucoceles have never been reported as a head and neck complication of WG

**METHOD:** Case report and discussion

**RESULTS:** A 51-year-old gentleman referred by an Ophthalmologist to our ENT department because of bilateral proptosis with worsening of vision in the right eye and headache of few weeks duration. He is known to have Wegener's granulomatosis and was on long term low dose oral steroid therapy. Clinical and radiological evaluation revealed bilateral multiple extensive sinonasal mucoceles which were managed by endonasal endoscopic marsupialization. Patient's vision improved post operatively and there is no evidence of recurrence up to date

**CONCLUSION:** clinical presentations of WG are variable and fall in a wide range of otologic, sinonasal, laryngeal, neurological, and orbital manifestations. Mucoceles of the paranasal sinuses should be considered in evaluation for sinonasal involvement. Early detection and treatment is essential in order to avoid potential intracranial and intraorbital complications

## DOES UPPP AFFECT OLFACTION & TASTE SENSATION? A PILOT STUDY.

Dr Nada Alshaikh<sup>1</sup>

<sup>1</sup>MOH- Dammam Medical Complex, Dammam, Saudi Arabia

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Background:

The goal of UPPP is to reduce snoring and obstruction through elimination of redundant pharyngeal mucosal folds, obstructing tonsils, and excess soft palate. Alteration of taste has been reported, but effect on olfaction has yet to be determined.

### Aim:

The aim of this study is to investigate the effects of UPPP on olfaction and taste.

Method: A prospective clinical study was conducted in post UPPP patients. Assessment of olfaction and taste was conducted pre-operatively and 1- and 12-weeks post-operatively using 10-point Visual Analogue Scale (VAS), Sniffins' Sticks extended test battery, and the four basic tastes sprays.

Results: 15 patients enrolled in the study (1 woman, 14 men; mean age 62 years). Nine patients (60%) had abnormally low smell scores pre-operatively while the rest have normal scores. Six patients (40%) showed improvement in olfaction at one- and 12-weeks after surgery, 4 (26.7%) had decreased smell score at both visits after surgery although subjectively denied any alteration in their ability to smell, and 5 (33.3%) defaulted from last follow up visit although 3 of them (60%) showed improved smell scores at one-week visit. Improvement in smell one- and 12-weeks after surgery was statistically insignificant with a p value of 0.12 and 0.26 respectively ( $p > 0.05$ ). As for taste, 3 showed no change and another 3 showed improvement of taste score which was statistically insignificant ( $p < 0.05$ ).

### Conclusion:

This pilot study suggests that UPPP has no effect on olfaction & taste sensation. Further studies are warranted.

## ADENOID CYSTIC CARCINOMA MIMICKING A MEDICATION-RELATED OSTEONECROSIS OF THE JAW - TWO COMPARATIVE CASES REPORTS

Dr. Raquel Bento<sup>1</sup>, Dr. Catarina Duarte<sup>1</sup>, Dr. Ana Rita Santos<sup>1</sup>, PhD, Dr. Rosa Roque Farinha<sup>1</sup>, PhD, Dr. Leonel Luís<sup>1</sup>

<sup>1</sup>*Centro Hospitalar Lisboa Norte, Lisbon, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**AIMS:** Report of two clinical cases of maxillary osteonecrosis on patients after biphosphonates therapy, in which the diagnosis revealed two distinctive pathologies: a Medication Related Osteonecrosis of the Jaw (MROJ) and an Adenoid Cystic Carcinoma (ACC).

**METHODS:** The first case is a typical case of MROJ while the second one, an ACC in a patient with a long history of biphosphonates therapy and teeth extraction mimicked a MROJ.

**RESULTS:** ACC is a relatively rare tumor most commonly arising from major salivary glands, but especially rare when located in the nasal cavity, with few cases reported in the literature. ACC of the maxillary sinus can be asymptomatic or produce symptoms mimicking inflammatory diseases, leading to a delay in diagnosis.

Diagnosis and treatment of ACC represents a challenge due to the slow growth, high tendency of local recurrence, and perineural invasion.

**CONCLUSION:** The reported cases showed a similar presentation, but very distinctive etiology, treatment and prognosis. Although rare, ACC should be included in the differential diagnosis to allow for an early diagnosis and treatment.

## BALLOON SINUPLASTY: A NOVEL APPROACH TO PAEDIATRIC ACUTE FRONTAL SINUSITIS AND ITS COMPLICATIONS

Miss Abigail Walker<sup>1</sup>, Dr Deirdre Fitzgerald<sup>2</sup>, Mr Abbad Toma<sup>2</sup>, Miss Sarah Little<sup>2</sup>

<sup>1</sup>*Guy's Hospital, London, United Kingdom*, <sup>2</sup>*St George's Hospital, London, UK*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### OBJECTIVES

Balloon sinuplasty has been licensed for paediatric chronic sinusitis since 2006, with its use in acute sinusitis only more recently coming to the fore. We wish to present our small case series of balloon sinuplasty in the setting of complicated acute frontal sinusitis, in the paediatric population. Cases included are frontal lobe abscess secondary to acute frontal sinusitis.

### METHODS

This case series reviews three children with a diagnosis of acute frontal sinusitis that had become complicated or failed to respond to conventional antibiotic therapy. Following review of relevant imaging and acquisition of informed consent, cannulation of the frontal sinus was achieved and balloon sinuplasty completed.

### RESULTS

All children had resolution of their frontal sinusitis and associated symptoms. There have been no complications noted to date.

### CONCLUSIONS

Paediatric frontal balloon sinuplasty is a safe alternative to functional endoscopic and external approaches to drainage in the acute setting. It permits drainage of the collection, and more importantly, manages the likely primary anatomical abnormality contributing to acute sinus abscess formation.

## REGIONAL INVASION IN NASAL PLEOMORPHIC ADENOMA IS NOT A SIGN OF MALIGNANT TRANSFORMATION :CASE REPORT AND LITERATURE REVIEW

Doctor Donia Alredha<sup>1</sup>

<sup>1</sup>Ministry Of Health, Dammam, Saudi Arabia

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### ABSTRACT:

Eleven cases of transnasal endoscopic resection of unilaterally occurring pleomorphic adenomas have thus far been reported. This in part is due to the rarity of the disease, but could also reflect the technical challenge required for wide en bloc excision of such tumors from a relatively small & narrow nasal cavity. We report a case of a large pleomorphic adenoma of the nose, occupying both nasal cavities with destruction of the cartilaginous nasal septum, removed completely through an endoscopic transnasal approach. To our knowledge, this is the first reported case of endoscopic resection of a pleomorphic adenoma arising from both sides of nasal septum.

**KEY WORDS:** Pleomorphic adenoma, transnasal, endoscopic approach.

### INTRODUCTION:

Although it is the most common benign tumor of the major salivary glands, pleomorphic adenoma (PA) accounts for only 8% of all minor salivary gland tumors. Intranasal PA is extremely rare and usually arises from the nasal septum. Surgical resection is the modality of choice for management.

### CONCLUSION:

Pleomorphic adenoma of the nose is rare but remains a differential diagnosis for benign nasal tumors. The recommended management is wide surgical excision with clear margins. Many surgeons prefer a transnasal endoscopic approach as this allows resection under direct vision with complete control of margins, rapid postoperative recovery, and short hospital stay. A larger series of endoscopically resected tumors with a longer follow-up is required to establish if recurrence rates in these cases match or improve upon that of open approach resections.

## ADULT SINONASAL ALVEOLAR RHABDOMYOSARCOMA: CASE REPORT

Dr. Raquel Bento<sup>1</sup>, Dr. Catarina Duarte<sup>1</sup>, Dr. Ana Rita Santos<sup>1</sup>, PhD, Dr. Rosa Roque Farinha<sup>1</sup>, PhD, Dr. Leonel Luís<sup>1</sup>

<sup>1</sup>*Centro Hospitalar Lisboa Norte, Lisbon, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**AIMS:** Report the case of an alveolar SNRMS in a 56-year old woman, presenting with a right proptosis as the sole symptom. The patient was treated with neoadjuvant chemotherapy followed by surgical resection, showing no recurrence in the following two years.

**METHODS:** Case report

**RESULTS:**

Sinonasal rhabdomyosarcoma (SNRMS) is a rare highly aggressive tumor, frequently occurring in children and uncommon in adults. SNRMS may present as painless, asymptomatic mass or with nonspecific nasal symptoms. There is a tendency towards early and extensive local invasion and metastatic dissemination. Poor prognostic factors include age >10 years, gross residual disease after treatment and alveolar histology. Managing SNRMS remains challenging due to its rarity, the largely unknown biological behavior and poor outcomes. Although no consensus has been reached on the optimal therapeutic strategy, multimodal therapy has been the recommended therapy. With recent advancements in reconstructive surgery, surgical excision is possible without excessive morbidity in terms of function and appearance.

**CONCLUSION:** Early diagnosis and treatment is crucial to improve the patient's prognosis. Although adult SNRMS has a very poor prognosis, a combined therapy with surgical excision is an appropriate therapeutic strategy for surgically resectable disease.

## EXTRAMEDULLARY NASAL PLASMACYTOMA PRESENTING AS AN ISOLATED NASAL CAVITY LESION - REPORT OF A RARE CASE

Dr. César Silva<sup>1</sup>, Dr. Vítor Oliveira<sup>1</sup>, Dr. João Levy<sup>1</sup>, Dr. Tiago Eça<sup>1</sup>, Dr. Ana Rita Santos<sup>1</sup>, Dr. Leonel Luís<sup>1</sup>  
<sup>1</sup>*Centro Hospitalar Lisboa Norte, Lisboa, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS

Extramedullary plasmacytoma (EMP) is an extremely rare presentation of plasma cell tumours that may grow within soft tissues and frequently arise in the nasal cavity and paranasal sinuses. EMP are locally aggressive and present high recurrence rates. The core treatment is endoscopic surgical resection with adjuvant external beam radiotherapy.

### METHODS

Description of a clinical case of an EMP, surgical endoscopic approach and literature review.

### RESULTS

Clinical case of 67-year-old female patient presenting with unilateral chronic rhinosinusitis. An infiltrating left nasal mass with extension into the maxillary sinus and nasopharynx was identified on endoscopic examination. The pathologic exam was compatible with plasmacytoma. After a complete diagnostic staging the patient was admitted to surgery. An endoscopic transnasal resection was performed to achieve free tumour margins. The synchronous metastatic adenopathy located in the retropharynx was resected by an endoscopic transoral approach. Despite extended resection, the frozen sections taken weren't tumour free, and the patient received external beam radiotherapy. Within 5 months follow-up the patient is symptom free and without any signs of tumour recurrence.

### CONCLUSIONS

Localized lesions can be managed with surgery which achieves high local control rates with minimal morbidity. With locally extended lesions, total surgical excision can be challenging due to the size and infiltration of the tumour. Transnasal endoscopic approach is feasible in approaching these tumours, allowing in some cases the total resection. Since the tumour is radiosensitive, surgery followed by adjuvant radiotherapy achieves better outcomes. The possibility of a systemic myeloma justifies the initial assessment and regular monitoring.



## THE USE OF SHORT ACTING OPIOIDS IN DAY CASE RHINOLOGY PRACTICE - A DAY CASE OUTCOME STUDY

Dr. Amr Abdullah<sup>1</sup>, Dr. Keith Johnston<sup>1</sup>, Dr. Hiba Al-Reefy<sup>1</sup>

<sup>1</sup>King Hamad University Hospital, Muharraq, Bahrain

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIMS:** The use of the short acting opioid Remifentanil is well established in otorhinolaryngology in general and in rhinology practice in particular. The aim of this study is to evaluate the use of Remifentanil in adult rhinology cases to establish a clear protocol for adult rhinology services.

**METHODS:** The outcomes of this study were conducted in an Ear, Nose and Throat department of a tertiary referral center in the Kingdom of Bahrain. Adult rhinology procedures received titred doses of Remifentanil intra-operatively along with monitoring of blood pressure and heart rate levels. Patients were assessed post-operatively for any complications, which resulted in the need for admission, or achievement of day case discharge criteria, resulting in discharge. All procedures were done by a senior rhinologist in the department and a consultant anaesthetist, the senior author of this paper.

**RESULTS:** The results of this day case study illustrates that the use of titred Remifentanil leads to targeted blood pressure and heart rate levels allowing for optimum surgical field intra-operatively and minimized risk of post-operative bleeding, allowing for day case discharge criteria to be met.

**CONCLUSION:** The outcomes show that the use of Remifentanil leads to increased surgeon satisfaction with field of view as well as optimising patient satisfaction and quality of life, leading to successful day case discharge.

## MASSIVE SINONASAL MYXOMA INVOLVING THE MAXILLA AND ORBIT: REPORT OF A RARE CASE

Dr. César Silva<sup>1</sup>, Dr. Vítor Oliveira<sup>1</sup>, Dr. João Levy<sup>1</sup>, Dr. Mariana Calha<sup>1</sup>, Dr. António Fernandes<sup>1</sup>, Prof. Dr. Leonel Luís<sup>1</sup>

<sup>1</sup>*Hospital Santa Maria, Lisboa, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### AIMS

Myxomas are rare benign tumours composed of connective tissue and mesenchymal mucosal stroma. They are usually found in heart and muscle, but rarely in the nasal cavity. Complete surgical resection is the primary treatment for these tumors. Despite benign in nature, they have a local aggressive and invasive behavior. This makes the surgery highly demanding in achieving a complete resection and explains their high recurrence rate.

### METHODS

Case report of a massive paranasal sinus myxoma involving the maxilla and orbit with extrasinusal extension. Description of the combined endoscopic-external surgical approach and literature review.

### RESULTS

Clinical case of a 25-year-old male patient presenting with a 2-year unilateral nasal obstruction, recurrent epistaxis, diplopia, right eye proptosis and mid-facial asymmetry. The expansion of the right mid-third hemiface resulted from a massive intranasal mass eroding the anterior and lateral maxillary wall, extending into the pterygoid and infra temporal fossa and compressing the right eye. After imaging a biopsy was taken, establishing the diagnosis of sinonasal myxoma. A total excision was achieved through a combined endoscopic and external surgical approach. At 8 months follow-up, the patient is symptom free without signs of local tumour recurrence.

### CONCLUSION

The endoscopic endonasal approach may be feasible for small lesions but a combined endoscopic-external approach must be tailored for massive lesions with extrasinusal extension. Endoscopic surgery is a cornerstone in approaching high-risk areas during dissection of tumours and confirming disease free margins. A proper timely diagnosis and surgical approach can avoid more extensive surgery and early recurrence.

## GRANULOMATOSIS WITH POLYANGIITIS (WEGENER'S) - CASE REPORT

MD RALUCA GRIGORE<sup>1</sup>, MD PAULA PASCU<sup>1</sup>, MD BOGDAN POPESCU<sup>1</sup>, MD CATRINEL ANTONIE<sup>1</sup>, MD LILIANA NITU<sup>1</sup>, MD MIHNEA CONDEESCU<sup>1</sup>, MD GLORIA MUNTEANU<sup>1</sup>, MD MITRAN DENISA<sup>1</sup>, MD ALEXANDRU NICOLAESCU<sup>1</sup>, MD OANA PAUN<sup>1</sup>, MD SERBAN BERTESTEANU<sup>1</sup>

<sup>1</sup>"COLTEA" CLINICAL HOSPITAL, BUCHAREST, ROMANIA

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Granulomatosis with polyangiitis (GPA- formerly known as Wegener's granulomatosis) is a primary systemic vasculitis that affects medium to small sized vessels. Often, as a first presentation will be with clinical involvement in ENT area. The aim of this study is to raise awareness about this disease and the importance of an early diagnosis. The authors present a case of a 67 years old, male, with sinusonasal clinical signs as a first presentation, but with multiple sites involved at the moment of the diagnosis and pneumological complications. A 67 years old male, without any medical history, presented in ENT Clinic with bilateral nasal obstruction and anterior rhinorrhea, starting from a month. The clinical examination described left palpebral oedema, a mild left facial pain, a large ulceration on the left hard palate, purulent secretion in both nostrils and a sinusonasal left tumour. IRM and CT of the head confirmed the diagnosis of a left sinusosal tumor, with regional invasion and chronic, left rhinosinusitis. Chest radiography, blood and sputum samples showed the following: perihilar adenopathy and right pneumonia, with H. influenzae. A nasal biopsy, under LA and endoscopic control, was preformed –differential diagnosis was between non Hodgkin lymphoma and granulomatosis with polyangiitis. The patient was quickly referred to a rheumatology center, but the pneumological disease evolved and with onset of renal failure. Despite therapies, exitus appeared. Although, it is common that patients with GPA have a first presentation at a ENT specialist, is vital the assessment of the degree of organ system involvement.

## THE PNEUMATISED NASAL SEPTUM - REVIEWING A CENTURY'S WORTH OF SPORADIC REPORTING

Dr. Thorarinn Olafsson<sup>1,2</sup>, Dr. Gregor Bachmann<sup>1,2</sup>

<sup>1</sup>Akershus University Hospital, , Norway, <sup>2</sup>University of Oslo , , Norway

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction:** This is a review of the literature regarding pneumatisation of the anterior septum and the septal recess of the sphenoid sinus. Both anatomical variants have been known since the early twentieth century, yet they are reported in comparatively few studies that map anatomical variance of the nose.

**Case report:** A case is presented that illustrates hyperpneumatisation of the nasal septum.

**Methods of review:** A search was conducted on the Medline database and in the Directory of Open Access Journals. Any original article reporting a pneumatisation of nasal septum was included in the review.

**Results:** 24 reports were found describing pneumatisation of the nasal septum, published between 1911 and 2016. Reported rates of septum pneumatisation varied from "insignificant" to 76%. Only 5 papers reported pneumatisation of the anterior septum, while 13 reported pneumatisation of the posterior septum. A further 9 articles reported cases of pneumatisation without discussing anatomical location.

**Discussion:** The definition of what comprises a pneumatised septum is unclear and nomenclature describing different variants of septum pneumatisation is not standardised as a range of terms has been used describing them. The review confirms that pneumatisation of the anterior septum is rare, while a septal recess of the sphenoid sinus is more common, if not always deemed worthy of reporting.

## CONTRALATERAL SINUS INVOLVEMENT OF SURGICALLY TREATED UNILATERAL ALLERGIC FUNGAL RHINOSINUSITIS.

**Dr Nada Alshaikh<sup>1</sup>**, DR ABDULAZIZ ALQAHTANI<sup>2</sup>, DR ALI ALZAREI<sup>2</sup>, DR ABDULLA MUSLEH<sup>2</sup>, DR ALI ALAMRI<sup>3</sup>, DR A. ALQAHTANI<sup>4</sup>, DR FAHAD ALFAWAZ<sup>5</sup>, DR FAHAD ALSHEMMARY<sup>6</sup>, DR MOHAMMED ALOULAH<sup>7</sup>, DR OSAMAM MARGLANI<sup>2</sup>, DR SAAD ALSALEH<sup>7</sup>, DR TALAL ALANDEJANI<sup>8</sup>, DR HADI MOKARBESH<sup>9</sup>

<sup>1</sup>MOH- Dammam Medical Complex, Dammam, Saudi Arabia, <sup>2</sup>PRINCE SULTAN MILITARY MEDICAL CITY, RIYADH, KSA, <sup>3</sup>KING SALMAN HOSPITAL, RIYADH, KSA, <sup>4</sup>KHAMIS MUSHAIT GENERAL HOSPITAL, KHAMIS MESHAIT, KSA, <sup>5</sup>KING FAHAD MEDICAL CITY, RIYADH, KSA, <sup>6</sup>KING KHALID HOSPITAL, HAIL, KSA, <sup>7</sup>KING SAUD UNIVERSITY MEDICAL CITY, RIYADH, KSA, <sup>8</sup>KING SAUD BIN ABDULAZIZ MEDICAL CITY, JEDDAH, KSA, <sup>9</sup>PRINCE MOHAMMED BIN NASSER HOSPITAL, JAZAN, KSA

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Background:** Recurrence of allergic fungal rhinosinusitis (AFRS) is well recognized. However, there is scarcity in the literature describing involvement of the non-diseased sinuses.

**Aim:** We aimed to evaluate the recurrence forms of unilateral AFRS as well as to study the possible predictor factors of developing the disease in the contralateral side.

**Materials & Methods:** Patients with exclusive unilateral AFRS from (2010 to 2015) were enrolled in multi-institutional case-control study. All patients were evaluated after endoscopic sinus surgery for recurrence. Patient's records were reviewed for

demographics, medical treatment, and clinical, radiological, and surgical data.

**Results:** A total of 68 patients were identified. Delayed contralateral involvement after the initial surgery was found in 30.8% with mean duration of recurrence

16.9 months. A significant association was found with the presence of pre-operative contralateral symptoms and signs of inflammation (OR 3.49, 95% CI 1.19–10.22, p value 0.02). Post-operative use of budesonide irrigation was associated with less contralateral involvement (OR 0.11, 95% CI 0.01–0.87, p value 0.01). Association of other variables like: comorbidities, perioperative use of systemic steroid, radiological signs, extent of surgery, additional

surgery to the contralateral side, and post-operative use of systemic steroids did not show statistical significance. Involvement of the contralateral sinuses in 30% of unilateral AFRS cases is considered significant. The non-diseased sinuses should be involved in the routine endoscopic examination and post-operative treatment. Further studies are necessary to investigate the possibility of prophylactic surgical intervention of the non-diseased sinuses.

## A SIMPLE TOOL TO ENHANCE TRAINING: DEVELOPMENT A LOW COST SIMULATION MODEL FOR SKILLS TRAINING IN OPEN APPROACH RHINOPLASTY.

Mr Saleh Okhovat<sup>1</sup>, Mr Natarajan Balaji<sup>1</sup>

<sup>1</sup>*Monklands Hospital, Glasgow, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims:

Open septorhinoplasty (OSRP) approach is technically challenging and requires extensive experience to achieve competency. Trainees often have limited exposure to this procedure and certain technical aspects of this approach maybe difficult to master. Simulation training in rhinoplasty is limited to cadaveric tissue or expensive simulators preventing wide spread access for trainees.

We aim to design a low cost, low fidelity simulator for teaching OSRP principles and techniques using materials that are readily available in all ENT departments.

### Methods:

We used Otoform-KC silicone commonly used for making hearing aid moulds to take impressions of the external nose and the nasal vestibule. The Bony vault was made using layers of plaster of Paris. The two components were combined to create a single model. Feasibility of performing specific steps in OSRP was qualitatively assessed by an experienced senior surgeon supervising a trainee.

### Results:

The simulator was created in 30 minutes at a cost of £5. It successfully accommodated the following steps in OSRP: Assessment, demarcation of relevant anatomy, transcollumellar incision, elevation of the soft tissue envelop external osteotomies. Limitation of the model included low fidelity, absent tip cartilages and cartilaginous septum.

### Conclusion:

This simulator was designed and made from readily available material. It created a practical learning environment for teaching trainees core principles in particular economy of movement, correct use of instruments and appropriate sequence of steps for performing OSRP.

677

WITHDRAWN

## THE IMPACT OF SINUS MANAGEMENT ON PAEDIATRIC CYSTIC FIBROSIS

Mr Afroze Khan<sup>1</sup>, Mr Steven Frampton<sup>1</sup>, Mrs Andrea Burgess<sup>1,2</sup>, Mrs Hasnaa Ismail-Koch<sup>1</sup>, Mr Philip Harries<sup>1</sup>, Associate Professor Rami Salib<sup>1,3</sup>, Dr Gary Connett<sup>1</sup>

<sup>1</sup>University Hospital Southampton, Southampton, United Kingdom, <sup>2</sup>Royal Hampshire County Hospital, Winchester, United Kingdom, <sup>3</sup>University of Southampton, Southampton, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aim

To review the role of sinus disease within the multidisciplinary care of the cystic fibrosis (CF) patient.

### Methods

Non-systematic literature review

### Results

The heelprick screening test is imperfect at identifying milder cases of CF, therefore awareness of ENT manifestations is diagnostically important. Furthermore, patients presenting with respiratory manifestations require specific enquiry concerning ENT symptoms as these are under-reported. Nasal polyps are identified in 20-45% of paediatric CF cases. Evidence of the effect of polyps on lung disease is mixed, with positive correlations identified with both pseudomonas infection and pulmonary function. However, genotyping often reveals identical organisms in the sinuses and lower airway, raising the possibility that nasal biofilms may seed pathogenic organisms.

While only a modest proportion of CF patients report ENT symptoms, centres pursuing more aggressive FESS strategies report delayed onset of gram-negative lower respiratory tract infections and longer maintenance of lung function but this approach is not universally supported by the literature. If surgery is planned, pulmonary function should be optimized perioperatively with physiotherapy +/- antibiotics, and clotting screens performed to exclude derangement. Saline douching is important in medical and post-surgical management, preventing microbial accumulation in the sinuses, while intranasal steroids and systemic, nebulized, or irrigated antibiotics are also used. New therapies including corrector drugs altering protein expression and function also show promise, improving upper airway disease.

### Conclusions

Although a fully evidenced treatment algorithm for the sinuses in cystic fibrosis has yet to be developed they have an important role in both diagnosis and long-term management.



## THE RELATION BETWEEN NASAL OBSTRUCTION AND SLEEP - RELATED BREATHING DISORDERS

**Professor Ion Anghel<sup>1</sup>**, Dr Patricia Delia Ene<sup>1</sup>, Dr Mihai Dumitru<sup>1</sup>, Dr Rodica Urs<sup>1</sup>, Dr Alina Georgiana Anghel<sup>1</sup>  
<sup>1</sup>*University of Medicine "Carol Davila "Bucharest, Bucharest, Romania*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** We review regional etiology factors for the appearance of sleep apnea syndrome in south eastern European patients.

**Methods:** We review the clinical and surgical data gathered from 36 consecutive patients with OSAS presented in a tertiary ENT Clinic.

**Results:** We present all clinical data statistically relevant in our study group for triggering sleep apnea. Surprisingly in our study group we have a major number of cases without pulmonary etiology factors. According to Ferris et al. nasal airway resistance is responsible for approximately two thirds of the total airway resistance in wakefulness. The treatment options for reducing nasal resistance and improving sleep parameters in SRBD available in our unit are: medication, nasal dilators and surgical procedures - radiofrequency, pillar implants and coblation.

**Conclusions:** The management of sleep apnea needs a complex team reuniting specialists from ENT, endocrinology and pneumology, nasal obstruction being the dominant trigger factor. There are many common characteristics with literature data, but also explicit specific aspects as ethnicity in our study group.

**Keywords:** apnea, sleep, ethnicity, obstruction, nasal

## EUSTACHIAN TUBE COMMUNICATING WITH SPHENOID SINUS: REPORT OF A NOVEL ANATOMICAL VARIANT

**Mr Afroze Khan**<sup>1</sup>, Mr Yannis Pilavakis<sup>1</sup>, Vincent Vincent Batty<sup>2</sup>, Mr Phillip Harries<sup>1</sup>, Mr Rami Salib<sup>1</sup>

<sup>1</sup>*Department of Otolaryngology-Head and Neck Surgery, University Hospital Southampton, Southampton, United Kingdom,* <sup>2</sup>*Department of Radiology, University Hospital Southampton, Southampton, UK*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Reports of congenital anomalies of the Eustachian Tube (ET) are scarce, and often associated with chromosomal abnormalities. We report a unique case of a completely bony left Eustachian tube which communicated with the sphenoid sinus. This report details these findings and discusses the potential embryological basis and implications of such an unusual anatomy, in the context of a comprehensive literature review.

## NASAL IRRIGATION AFTER SEPTOPLASTY: LOW VOLUME LOW PRESSURE VERSUS LOW VOLUME HIGH-PRESSURE IRRIGATION – A PROSPECTIVE STUDY DESIGN.

Dr. Anze Jerman<sup>1</sup>, Dr. Jure Urbancic<sup>1</sup>

<sup>1</sup>University Medical Centre Ljubljana, Slovenia, Ljubljana, Slovenia

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** We aim to assess two different methods of nasal irrigation after septoplasty. Standard postoperative topical treatment in ENT department of University Medical Centre Ljubljana consists of several weeks of nasal irrigation with drops of isotonic saline solution five to ten times per day. New proposed method of irrigation consists of one week of standard irrigation with isotonic saline drops following with three weeks of irrigation with high-pressure low volume hypertonic solution (HPLW hypertonic solution).

**Methods:** Septal surgery patients will be randomly divided into two groups; the control group will use standard postoperative irrigation and group B will use the new regimen with nasal saline drops several times per day and then two times per day HPLW isotonic saline solution irrigation. Both groups will be asked to evaluate their condition with validated Slovenian version of quality of life (QoL) NOSE questionnaire in the preoperative period and six months after the procedure. Other factors (septal deviation, type of surgery, allergies) will be considered as well.

**Results:** We anticipate better QoL score in patients with HPLW hypertonic solution in first evaluation due to better immediate postoperative nasal care. On the other hand, we are reluctant to predict results for six months after surgery.

**Conclusion:** Several studies have been conducted so far using different irrigation solutions with varying results. The majority of studies conclude that nasal irrigation is an effective treatment to improve nasal breathing and prevent nasal crusting, drying of nasal mucosa, the infections and synechia formation.

## JUVENILE NASOPHARYNGEAL ANGIOFIBROMA IN A YOUNG FEMALE:A RARE CASE PRESENTATION

Mr Dillan Kumar Shetty Kadri<sup>1</sup>, Mr Rajesh AnmolSingh<sup>1</sup>, Miss Kristina Lee<sup>1</sup>, Mr Christopher Lobo<sup>1</sup>

<sup>1</sup>Royal Bolton Hospital NHS Trust, Bolton, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Introduction:**Juvenile Nasopharyngeal Angiofibroma (JNA) is a fibrovascular tumor.It occurs almost exclusively in adolescent males however can occur in young children, elderly and pregnant women. We report an unusual case of JNA in a 6 year old female.

**Case History:**Patient underwent adenotonsillectomy in September 2012 for obstructive sleep apnoea.She returned to the theatre for bleeding from adenoidectomy site.Three years later she returned with left nasal polyp with intermittent bleed.MR scan showed cystic mass extending from the nasal cavity into posterior nasopharynx.The exact origin of mass was unclear.CT scan ruled out bony involvement.She underwent endoscopic excision in August 2015.Intraoperatively and with histology,findings confirmed a large antrochoanal polyp.She was re-referred in March 2016 with recurrence of left nasal obstruction and examination revealed polypoidal mass in left nasal cavity.CT scan revealed recurrence.A revision endoscopic surgery in June 2016 showed a large antrochoanal polyp arising from anterolateral wall of left maxilla without intraoperative bleeding and histology was proven as angiofibroma.She was regularly followed up with last review in September 2017 with MR scan showing no recurrence.

**Discussion:**Relevant radiological and histological findings are presented.Investigations required in a clinically suspected angiofibroma are CT and angiography.However there was no clinical suspicion of angiofibroma in this female patient. Androgen receptors are present in at least 75% of tumours.In this case, it is unclear whether the histological diagnosis or the actual lesion was missed during the first surgical procedure.

**Conclusion:**This case has been presented due to its rarity and to highlight the importance to histological investigations in all unsuspecting cases.

## COMPUTATIONAL FLUID DYNAMICS SIMULATION OF NASAL AIRFLOW WITH LES (LARGE EDDY SIMULATION) MODEL

**Medical Doctor Luca Castellani<sup>1</sup>**, Professor Maurizio Quadrio<sup>2</sup>, Professor Giovanni Felisati<sup>1</sup>, Medical doctor Alberto Maria Saibene<sup>1</sup>, Doctor Vanessa Covello<sup>2</sup>, Medical doctor Giorgia Carlotta Pipolo<sup>1</sup>

<sup>1</sup>Università degli Studi di Milano, Ospedale San Paolo, Milan, Italy, <sup>2</sup>Politecnico di Milano, Milan, Italy

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Nasal surgery procedures performed in cases of nasal respiratory stenosis represent a considerable number of all the interventions in the ENT field. Nevertheless, the indications and modalities of these interventions (septoplasty, turbinoplasty/turbinectomy, nasal valve plastic) are based more on the experience of the surgeon than on scientifically measurable objective data. With new investigation techniques based on three-dimensional reconstructions of patients' CTs and computer simulations of nasal fluid dynamics it is possible to produce faithful models of the nasal air flow on the individual patient. Nevertheless there are currently no validated models of the healthy nasal flow. Our team has been working with the department of Aerospace Engineering of the Politecnico of Milan with the aim of developing rapid and accurate CFD-procedures (computation fluid dynamics) with a LES (Large Eddy Simulation) approach using a fully accessible open-source system. For this preliminary study we analyzed data from CT scans of healthy patients and obtained numerous parameters such as flow lines, speed, turbulence, resistance and pressure of a normal physiological nasal flux in the complex anatomy of the nasal cavities. We then compared these results with the current gold standard for nasal airflow evaluation, aka rhinomanometry, for a validation of global airflow. In the future these data may be used as reference model to achieve the best possible results based on individual patients in nasal surgery.

## PERIORBITAL CELULITIS AS A COMPLICATION OF ACUTE RHINOSINUSITIS

Ass. Professor Raluca Grigore<sup>1</sup>, Dr. Catrinel Antonie<sup>1</sup>, Ass. Professor Bogdan Popescu<sup>1</sup>, Dr. Gloria Munteanu<sup>1</sup>, Dr. Mihnea Condeescu<sup>1</sup>, Dr. Oana Paun<sup>1</sup>, Dr. Alexandru Nicolaescu<sup>1</sup>, Dr. Denisa Mitran<sup>1</sup>, Dr. Liliana Nitu<sup>1</sup>, Prof. Cristian Popescu<sup>1</sup>, Assoc. Professor Serban Bertesteanu<sup>1</sup>

<sup>1</sup>*Coltea Clinical Hospital, Bucharest, Romania*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Introduction:** Orbital involvement in sino-nasal disease is an uncommon but severe complication that mostly affects the immunocompromised patients, however it can be found in previously healthy patients.

**Aims:** In our clinic, during the last year, we admitted twenty cases of acute rhino sinusitis with orbital complications, both pre-septal and post-septal. A rapid evaluation of the patient is mandatory for a quick and efficient differential diagnosis due to the fact that the rapid evolution of the disease can be function or life threatening.

**Methods:** All these patients were included in a retrospective study so that we were able to establish the optimal therapy. Imaging studies were performed for all the cases. Diagnosis was completed by an ophthalmology examination. Exclusion criteria included the absence of orbital involvement.

**Results:** A minority of patients had diabetes mellitus, B and C hepatitis viruses infection and leukemia. In 70% of the cases the histopathological examination revealed a fungal rhino-sinusitis. The most common orbital symptom was blepharedema.

**Conclusions:** Orbital involvement in acute rhino sinusitis indicates the extensive and aggressive nature of the pathology and is often difficult to treat. An early diagnosis and surgical therapy are necessary in the management of the disease.

## MANAGEMENT OF IDIOPATHIC/TRAUMATIC NASAL SEPTAL ULCERATION WITH THE USE OF PORCINE SMALL INTESTINAL SUBMUCOSA EXTRACELLULAR MATRIX GRAFT.

Mr Dimitrios Ioannidis<sup>1</sup>, Mr Ashok Rokade<sup>1</sup>

<sup>1</sup>*Hampshire Hospitals NHS Foundation Trust, Winchester, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

Nasal septal ulceration can be associated with infection (tuberculosis, leprosy, leishmaniasis), vasculitis (Wegener's granulomatosis, Churg-Strauss syndrome), lupus erythematosus and malignancy. In the vast majority of cases, however, its cause is traumatic or idiopathic with negative workup and non-specific histology. Patients can be completely asymptomatic or present crusting, obstruction and epistaxis which can prove difficult to treat.

The aim of the study was to assess the potential benefits in healing and symptom control in patients with septal ulceration using a nasal septoplasty technique using porcine small intestinal submucosa (SIS) extracellular matrix.

### Methods

Three patients presenting with nasal septal ulceration, negative investigations and non-specific findings on histology and symptoms of crusting, obstruction and recurring epistaxis not responding to conservative management with Naseptin and nasal douching for more than six months were surgically managed. After caudal hemitransfixion incision, sub-perichondrial dissection and an upper and lower ipsilateral tunnel creation the septal ulceration was resected leaving a small upper and lower mucosa flap. A synthetic SIS graft (Surgisis Biodesign) was placed as a scaffold on the cartilage, leaving it covered by the upper and lower mucosa flaps, secured with an absorbable suture and then covered with Surgicel.

### Results

During subsequent controls, adequate epithelization of the graft was noted in 4-6 weeks along with symptom resolution in all three patients.

### Conclusion

The use of SIS Biodesign graft in an underlay septoplasty technique can facilitate healing and symptom control in patients with idiopathic or traumatic septal ulceration not responding to conservative measures.

## EXTRANODAL NK/T-CELL LYMPHOMA, NASAL TYPE: ABOUT 2 CLINICAL CASES

Dr. Angelo Carvalho<sup>1</sup>, Dr. Francisco Patrão<sup>1</sup>, Dr. Filipe Rodrigues<sup>1</sup>, Dra. Vera Soares<sup>1</sup>, Dr. Gabriel Pereira<sup>1</sup>, Dr. Raúl Amaral<sup>1</sup>, Dr. José Marques dos Santos<sup>1</sup>

<sup>1</sup>*Centro Hospitalar Tondela-Viseu, Viseu, Portugal*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS

Nose and paranasal sinus lymphomas are rare entities with heterogenous clinical and pathological presentations. Extranodal NK / T-cell lymphoma nasal type are aggressive, locally destructive midfacial necrotizing lesions characterized by extranodal involvement, particularly the nasal and paranasal area. We describe two patients with extra nodal NK/ T cell lymphoma nasal type in the nose and paranasal sinus diagnosed between 2016 and 2017.

### METHODS

Case reports and literature review.

### RESULTS

Case 1 - We present the case of a 54yo Portuguese caucasian male who presented with a 2 month progressive tumefaction on the right nasal cavity associated with foul-smell purulent rinorrhea. On physical examination septal and hard palate necrotic lesions became evident. After appropriate imagiologic investigation, multiple biopsies were obtained, which confirmed the diagnosis. Following referral to the Hematology Department, the patient began RT+CT treatment. Despite treatment, the patient deceased 10 months after initial presentation.

Case 2 - We present the case of a 51yo caucasian Portuguese male presenting with nasal obstruction, discharge and a 2-month progressive tumefaction on the left nasal nostril. After appropriate imagiologic investigation, multiple biopsies were obtained but were insufficient to provide a specific diagnosis. A second attempt was diagnostic. The patient deceased 2,5 months after initial presentation.

### CONCLUSION

Diagnosis of extra nodal NK/ T cell lymphoma nasal type is usually late and often delayed by non-specific complaints and difficulties in identifying the correct nosological entity through biopsy. A high index of suspicion for this entity cannot be overstated.



## SURGICAL MANAGEMENT OF THE NASAL VAULT DEFECTS IN RHINOPLASTY

Professor Ion Anghel<sup>1</sup>, Dr Patricia Delia Ene<sup>1</sup>, Dr Mihai Dumitru<sup>1</sup>, Dr Rodica Urs<sup>1</sup>, Dr Alina Georgiana Anghel<sup>1</sup>, Dr Adriana Oana Anghel<sup>1</sup>

<sup>1</sup>University of Medicine "Carol Davila" Bucharest, Th.Sperantuia 51, Bucharest, Romania

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** We present our experience in solving complex cases with nasal vault defects underlining various techniques with advantages and disadvantages on short and long term outcome of rhinoplasty procedures.

**Methods:** We review the experience from a tertiary ENT clinic on a series of 52 patients undergoing rhinoplasty procedures.

**Results:** Crookedness of the dorsal septum in addition to airway obstruction lead to contour deformities of the middle third of the nose. Overresection of the antero-caudal septum can lead to loss of tip support as the anterior L-strut of the septum is vital for structural nasal integrity. Destabilisation of the junction of the quadrangular cartilage and nasal bones (keystone area) can lead to undesired saddle nose deformity. Understanding nasal anatomy is the main prerequisite for preserving and improving the physiologic nasal airflow. Structural rhinoplasty techniques reinforce, rebuild or maintain anatomic support and improve physiologic functional airflow of the nose in modern rhinoplasty.

**Conclusions:** Functional rhinoplasty techniques improve nasal airflow while maintaining anatomic and aesthetic support of the nose. Successful functional rhinoplasty requires a complex management team reuniting ENT specialists and plastic surgeons. We propose a learning curve beginning with open techniques and afterwards continuing with closed rhinoplasty techniques.

**Keywords:** nasal, vault, rhinoplasty

## MASSIVE EPISTAXIS ORIGINATING IN INTERNAL CAROTID ARTERY: REPORT OF TWO CLINICAL CASES

Dra. Rita Sousa<sup>1</sup>, Dr. Filipe Correia<sup>1</sup>, Dr. Gustavo Almeida<sup>1</sup>, Dra. Silvia Pereira<sup>1</sup>, Professor Pedro Escada<sup>1</sup>

<sup>1</sup>Hospital De Egas Moniz, Lisboa, Portugal

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Epistaxis is one of the leading emergencies in otorhinolaryngology and in most cases can be easily managed. Massive epistaxis is a potential life-threatening condition and vascular injury must be suspected. Our purpose is to highlight the importance of correct diagnosis when in presence of massive epistaxis potentially fatal and discussion of treatment approaches.

**Methods:** Presentation of two unique clinical cases occurred at a tertiary care hospital. We describe gender, age of onset and clinical presentation. We highlight the complementary and imagiologic diagnostic methods, treatment options and course of treatment.

**Results:**

**Case 1:** 41 year old female with massive recurrent epistaxis. Digital subtraction angiography identified a carotid artery aneurysm at C4-C5 segment extending into the sphenoid sinus. Endovascular intervention with placement of stent leading to complete occlusion of the carotid siphon was necessary. No neurologic damage was noticed.

**Case 2:** 66 year old male presenting with recurrent epistaxis and otorrhagia. Angio-CT revealed osteomyelitis of the skull base with pseudoaneurysm of the carotid artery extending into the sphenoid sinus. Endovascular intervention with placement of stent was also performed with preservation of the carotid artery patency.

**Conclusion:**

Epistaxis originating in carotid artery injury are rare, but must be considered in the differential diagnosis of massive epistaxis. Surgical intervention at the cranial base in this location is difficult and endovascular approach with occlusion of the aneurysm sac and preservation of the carotid artery is ideal. Definitive occlusion of the internal carotid artery may be necessary once is assured proper collateral circulation.

## NASAL VOLUMETRIC CHANGES IN MUCOSAL CONGESTION: AN OBJECTIVE FINDING

Dr. Esam Albawardi<sup>1</sup>

<sup>1</sup>King Faisal Specialist Hospital, Riyadh, Saudi Arabia

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Objectives:** (1) Study positional changes in acoustic rhinometry (AR) (2) Analyze postural changes in patients with deviated nasal septum (DNS) and compare it to healthy participants.

**Methods:** Prospective comparative study, studying body posture effect on nasal patency. AR was performed under the following conditions before and after decongestion: (1) baseline seated. (2) right lateral decubitus. (3) left lateral decubitus. The minimal cross-sectional area (MCA) and nasal volume (NV) were used to analyze the results.

**Results:** Sixty-three participants have been studied using AR, and they were divided into 31 healthy participants and 32 participants with DNS. MCA measurements was smaller on the dependent side, but didn't reach

statistical significance (P value < .5). This difference disappeared after decongestion. A similar effect of posture was noted on NV measurements; however, the difference was statistically significant (P value < .001).

MCA measurements on the larger airway in volunteers with DNS before decongestion showed significant statistical difference of posture in the larger airway only.

**Conclusions:**

(1) Body position is an important factor that can affect AR result.

NV is a more sensitive indicator in detecting mucosal swelling than MCA.

(3) Inferior turbinate is more responsive to postural changes in the larger airway in patients with DNS.

(4) Results can provide explanation of 2 clinical entities (paradoxical nasal obstruction and posture-induced nasal obstruction).

705

WITHDRAWN

## SEPTAL SPLINT SUTURING IN THE TREATMENT OF HEREDITARY HEMORRHAGIC TELANGIECTASIA

Dr. Eliza Brożek-Mądry<sup>1</sup>, Dr. Marek Kulig<sup>1</sup>, Prof. Antoni Krzeski<sup>1</sup>

<sup>1</sup>*Warsaw Medical University, Warsaw, Poland*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Background:** Nosebleeds are the most common manifestation and affliction of Hereditary Hemorrhagic Telangiectasia (HHT). The reduction of nosebleeds improves the quality of life in HHT patients, diminishes the risk of life-threatening anemia, requiring blood transfusion, improves the level of hemoglobin and erythrocytes and reduces the total number of blood transfusions in long-term observation.

**Aims:** The main objective of this study is a comparison of severity of nosebleeds and quality of life before and after the septal splints suturing in the group of HHT patients.

**Methods:** A group of seven patients with HHT was examined by ENT physician, before undertaking the treatment. Questionnaire included Curacao criteria, EuroQol 5D, Visual Analogue Scale score and Epistaxis Severity coreS. After the surgical procedure, patients have been examined again (questionnaires), the examination included also olfactory tests (threshold, discrimination) after introducing the septal splints.

**Results:** The majority of the HHT patients reported the improvement of symptoms: decreased number of nosebleeds (VAS score and ESS questionnaire) and achieved better results in EuroQol questionnaire.

**Conclusion:** The transseptal splits suturing in most cases reduces nosebleeds and improves quality of life. The procedure does not eliminate nosebleeds and requires additional treatment.

## A NOVEL TECHNIQUE FOR ATRAUMATIC REMOVAL (HYDRODISSECTION) OF MAXILLARY NASAL POLYPS

Miss Elinor Warner<sup>1</sup>, Mr Anurag Jain<sup>2</sup>

<sup>1</sup>Queen's, Romford, Essex, United Kingdom, <sup>2</sup>Queen's, Romford, Essex, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

Maxillary sinus polyps were traditionally removed through an open Caldwell Luc's approach. Since the 1980s endoscopic sinus surgery (ESS) has offered a less morbid option for those patients failing maximal medical management of Chronic rhinosinusitis (CRS). The advantages of endoscopic techniques are day-case surgery that preserves nasociliary function. However, endoscopic techniques via the nares can limit access, leaving a single hand for instrumentation.

The senior author presents a novel, simple method for removing challenging maxillary polyp disease which are otherwise difficult to reach using traditional methods and instruments.

### Methods

A middle meatal antrostomy is performed. A saline filled syringe with suction tip is directed into the maxillary sinus ostium (laterally and anteriorly) and flushed under pressure. Polypoidal tissue will be relocated into the maxillary antrum or nasal cavity via hydrodissection. Polyps can then easily be removed with Blakesley forceps.

### Results

Using instruments out of the direct line of vision in nasal polyposis can increase trauma and surgical complications. The technique presented offers an alternative method to improve the surgeon's ability to safely remove polyposis disease without additional cost.

### Conclusions

Endoscopic sinus surgery is a common procedure to treat nasal polyposis refractory to medical therapy. Access is limited in endoscopic surgery due to the need to operate through the nostrils, with only one hand available for instrumentation. This technique requires no additional equipment and allows polypoid disease from the sinuses to be relocated into the nasal cavity enabling easy and safe removal in the direct line of sight.

## PATIENT ACCEPTABILITY OF HILOTHERAPY IMMEDIATELY POST SEPTORHINOPLASTY

Miss Alison Carter<sup>1</sup>, Mr Sam Jayaraj<sup>1</sup>

<sup>1</sup>*Whipps Cross Hospital, Barts Health NHS Trust, London, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

Septorhinoplasty patients often experience significant facial swelling, ecchymosis, and epistaxis following their operation, which can traditionally be improved with the use of cooling methods such as ice. Hilotherapy is a water circulating cooling device that acts to deliver a continuous temperature via a mask or cuff to a specific area. It is currently used in maxillofacial, orthodontic, and orthopaedic procedures and has been shown to decrease pain and swelling post operatively. We tested the 'nose cuff' in the direct post operative phase of septorhinoplasty to see if the equipment was well tolerated and acceptable to patients prior to considering wider use and investigation into the potential benefits in our patient cohort.

### Method

Patients undergoing septorhinoplasty were asked if they would be amenable to using the hilotherm 'nose cuff' postoperatively in recovery and were asked afterwards about their experience and acceptability of the device.

### Results

100% of patients felt that the Hilotherm nose cuff was acceptable in the post operative period and all patients said that if they had been offered the equipment to take home that they would have used it upon discharge. One patient initially found the 'nose cuff' uncomfortable upon waking in recovery, but after swift readjustment felt that it was comfortable.

### Conclusion

Hilotherapy has been shown in other facial operations to decrease pain and swelling and thereby hypothesised to promote healing. Our study indicates the 'nose cuff' is well tolerated immediately post septorhinoplasty and supports further use and studies into the potential benefits after septorhinoplasty surgery.

## ARE PROPHYLACTIC ANTIBIOTICS REQUIRED FOR COMPLEX RHINOPLASTY WITH USE OF AUTOGENOUS CARTILAGE GRAFTS?

Miss Laura Jackson<sup>1</sup>, Miss Nina Mistry<sup>1</sup>, Mr James Barraclough<sup>1</sup>

<sup>1</sup>New Cross Hospital, Wolverhampton, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Infection post- rhinoplasty can cause significant morbidity and poor surgical outcomes. Infection rates after simple rhinoplasty range from 0% to 20% in the literature, rising as high as 27% in complex cases (revision, nasal graft, septal defect repair).

Cartilage harvested from the nasal septum, auricle or rib is widely used in reconstructive septorhinoplasty. The literature reports antibiotic prophylaxis unnecessary in primary rhinoplasty without grafting, although there are no studies to support the use of antibiotics in these more complex cases.

Data was collected for all Septorhinoplasty/ Open Septoplasty cases performed under the care of the senior author, over 1 year. The operative technique was determined, noting the use of cartilage grafts from either the nasal septum, or the auricle. Case notes were reviewed to determine provision of antibiotic prophylaxis, and the incidence of infection within the cohort.

35 consecutive cases (1/1/2017 and 1/1/2018) were reviewed, comprising 7 closed septorhinoplasties, 4 open/extracorporeal septoplasties and 24 open septorhinoplasties. 12 cases required cartilaginous grafts, of which 6 were from the nasal septum and 6 from the auricle. No patients received intra, or post-operative antibiotic prophylaxis. Only one case required treatment with oral antibiotics, this case had involved the grafting of auricular cartilage.

Although the benefits of prophylactic antibiotics for complex septorhinoplasty are uncertain, many authors continue to recommend their use. Data in this series is difficult to extrapolate due to the small sample size to date. A larger, multi-centre study would be warranted however variations in local practice may make interpretation difficult



## SYNDROMES THAT PREDISPOSE TO EPISTAXIS: A CONCISE SUMMARY

Dr. Anasuya Guha<sup>1</sup>, Dr. Petr Schalek<sup>1</sup>

<sup>1</sup>*University Hospital Královské Vinohrady, Charles University in Prague, Prague, Czech Republic*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** To evaluate if epistaxis is directly associated to the etiology or pathophysiological mechanism which results in the syndrome itself or arises as a secondary effect.

**Materials and methods:** We performed an extensive literature review of the web-based PubMed database from the National Library of Medicine to ascertain syndromes related to this condition. Etiology, pathophysiological mechanisms, occurrence and associated clinical features were noted for each of these syndromes.

**Results:** Epistaxis is commonly seen in syndromes that are usually directly related to vascular abnormalities or coagulation defects. However, in some cases, it is not.

**Conclusions:** Since a number of these syndromes are rare and elaborate tests are not carried out in the absence of a positive family history or until other specific clinical features appear, a risk of underdiagnosis and the dilemma of whether epistaxis is a primary or secondary effect still remains.

## EFFECT OF RHINOPLASTY ON NASAL FUNCTION

**Mr Basim Wahba<sup>1</sup>**, Professor Nabil Zeid<sup>1</sup>, Dr Mahmoud El Fouly<sup>1</sup>, Dr Mohamed Abou-Zeid<sup>1</sup>  
<sup>1</sup>*Cairo University, Cairo, Egypt*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

Septorhinoplasty is the most commonly performed facial plastic surgery procedure, which aims to correct nasal shape and nasal function. Following the septorhinoplasty procedure, there is a potential risk of postoperative nasal obstruction. Aim: to evaluate the effect of rhinoplasty on the nasal function, To assess the nasal function both subjectively and objectively in healthy individuals undergoing rhinoplasty. Material and Method: twenty subjects who underwent rhinoplasty were subjected to preoperative and postoperative evaluation of nasal function both objectively and subjectively. Follow up assessment was done two weeks and three months postoperatively. Subjective evaluation was done by the NOSE score technique and objective evaluation by active anterior Rhinomanometry to measure the nasal airway resistance. Results: Analysis of the NOSE scale showed highly significant improvement in the postoperative functional state compared with the preoperative state after 3 months ( $P < 0.01$ ). Active anterior rhinomanometry showed that the mean nasal resistance preoperatively decreased from 0.62 Pa/mL/sec to 0.3 Pa/mL/sec during inspiration and from 0.58 Pa/mL/sec to 0.37 Pa/mL/sec during expiration. these results showed highly significant difference. Conclusion: This study showed rhinoplasty positively affects the nasal function subjectively and objectively at three months follow up

## SQUAMOUS CELL CARCINOMA OF THE NASAL SEPTUM IN A YOUNG PATIENT WITH NO RISK FACTORS.

**Assist. Prof. Bogdan Popescu<sup>1</sup>**, Assoc. Prof. Serban Bertesteanu<sup>1</sup>, Assist. Prof. Raluca Grigore<sup>1</sup>, MD Catrinel Antonie<sup>1</sup>, MD Paula Pascu<sup>1</sup>, MD Oana Alexandra Paun<sup>1</sup>, MD Gloria Munteanu<sup>1</sup>, MD Mihnea Condeescu<sup>1</sup>, MD Denisa Mitran<sup>1</sup>, MD Liliana Nitu<sup>1</sup>

<sup>1</sup>Coltea Clinical Hospital, Bucharest, Romania

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** The aim of this presentation is to draw attention on the fact that there are very few cases of squamous cell carcinoma of the nasal septum, thus there is no clear TNM classification or therapy management. On top of this the youngest patient that the authors found in the specialty literature in of 39 years of age. Our patient was 37 years of age at the moment of the diagnosis and had no personal pathology or morbidities.

**Methods:** The authors make a comprehensive case presentation of a young patient with squamous cell carcinoma of the nasal septum starting with the symptoms of the disease, clinical examination, imaging studies, tumor board discussion, therapy and follow-up.

**Results:** The results are taken into consideration for drawing some conclusions and raise some questions about the staging of nasal septum tumors and optimal therapy.

**Conclusions:** This case presentation is meant to draw the attention on the fact that TNM classification and oncology therapy are not yet standardised.

## WHEN BACTROBAN BITES BACK

Miss Ana Bernic<sup>1</sup>, Dr Ian Proctor<sup>2</sup>, Professor Claire Hopkins<sup>1</sup>

<sup>1</sup>*Guy's And St Thomas' NHS Foundation Trust, London, United Kingdom,* <sup>2</sup>*University College London Hospital, London, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

We want to present a case of a thirty year old patient with aspirin exacerbated respiratory disease and severe allergic rhinitis with severe nasal obstruction. Clinical findings were of grossly hypertrophied turbinates. The patient reported a history of prior nasal surgery. Eosinophilic granulomatosis with polyangiitis was considered the likely diagnosis, but antineutrophil cytoplasmic antibodies were negative, and erythrocyte sedimentation rate and C-reactive protein only slightly elevated. Eosinophil levels were mildly elevated.

### Methods

Computed tomography confirmed turbinate hypertrophy with unusual osteitic changes in both the middle and inferior turbinate bones, but relative sparing of the paranasal sinuses. Surgical excision of middle and inferior turbinates was undertaken, with further division of adhesions.

### Results

Histopathology showed no evidence of vasculitis, but instead demonstrated a picture of histiocytes and multinuclear giant cells, thought likely to be a reaction to a lipophilic foreign body. The original operation notes were requested, following bilateral turbinate reduction absorbable packs were placed at the time and had been covered with Bactroban<sup>®</sup> ointment. This contains polyethylene glycol, which is reported to cause a foreign body reaction when injected.

### Conclusions

Use of coated packing material post-operatively may allow penetration into turbinate submucosal tissue same as when injected. This could be likely cause of the intense foreign body reaction seen. Topical antibiotics are frequently used in endoscopic sinus surgery although the value of coating absorbable packs with topical antibiotics is uncertain. Water-based cream may be preferable to ointment formulations. Possible unwanted reactions need to be considered.

## ENDOSCOPIC REPAIR OF MEDIUM TO LARGE ANTERIOR SKULL BASE DEFECTS USING A POSTERIOR SEPTAL PEDICLED FLAP- 4 YEARS EXPERIENCE AT A JOINT SKULL BASE UNIT

Miss Reshma Ghedia<sup>1</sup>, Mr Mohieman Anwar<sup>1</sup>, Mr Ghassan Alusi<sup>1</sup>

<sup>1</sup>Barts Health Trust, London, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

A CSF leak in the anterior skull base can result in life-threatening infections. Endoscopic repair of a CSF leak is necessary at the time of anterior skull base surgery or to repair CSF leaks and prevent a life-threatening complications, and it replaces the previously practiced open repair via craniotomy approaches that is associated with higher morbidity and extended hospital stay. Techniques vary according to the size and location of the defect, the grafts available and the preference of the surgical centre. In more recent years, anterior skull base units around the world have opted for endoscopic repair using pedicled septal flap. We present the 4 - year experience of a tertiary skull base centre for procedures performed jointly by ENT and neurosurgical surgeon with interest in anterior skull base surgery at Bart's Health.

### Methods

A retrospective review of case notes for patients who had endoscopic repair of dural defects. We collected data on site and size of the defect, surgical technique, complications, length of stay and failure of primary repair.

### Results

We reviewed 20 cases of CSF leak repairs over 4 years. Medium to large defects were repaired by a septal flap with whiteheads varnish nasal packing. This was removed under general anaesthetic 1 week post-operatively. Our documented success rate exceeded 95%. Average patient stay post repair was 48 hours.

### Conclusions

Our findings support the use of endoscopic sinus surgery to allow for minimally invasive repair of a CSF leak with a high rate of success.

## TRAINING IN ANTERIOR SKULL BASE IN A JOINT ENT AND NEUROSURGERY ANTERIOR SKULL BASE TERTIARY REFERRAL CENTRE- TRAINEES' PERSEPECTIVE

Miss Reshma Ghedia<sup>1</sup>, **Mr Mohieman Anwar<sup>1</sup>**, Mr Ghassan Alusi<sup>1</sup>  
<sup>1</sup>*Barts Health Trust , London, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Introduction

Endoscopic surgery has revolutionised sino-nasal and anterior skull base surgery and is the prevailing technique for sinus surgery and beyond. An otorhinolaryngologist is expected to be proficient at endoscopic surgery to be able to not only operate on simple sino-nasal pathology, but also repair of intraoperative complications such as dural defects and CSF leak repair. We present a survey questionnaire into the experience of 5 trainees who underwent one-year training in endoscopic anterior skull base surgery at a tertiary anterior skull base surgery level.

### Method

We recruited 5 trainees that have worked in a tertiary anterior skull base firm in London. We reviewed their surgical logbooks to identify the endoscopic operations performed and compared this to the expectations of the training programme. We also asked the trainees via a questionnaire regarding their surgical ability before and after their attachment.

### Results

The trainees had participated in a high number of complex endoscopic sino-nasal procedures. The trainees felt a significant improvement in their endoscopic skills and ability to manage post-operative complications and unanticipated alteration in normal anatomy. Their learning curve in endoscopic sinus surgery and level of competency have showed a significant superiority when compared to their peers whom were unable to benefit from such focused training.

### Conclusions

A one-year attachment in an anterior skull base form is useful to improve trainees' ability to perform endoscopic sinus surgery to manage both simple and more complicated rhinological procedures.

## QUALITY AND READABILITY ASSESSMENTS OF WEBSITES RELATED TO INVERTING PAPILOMA. IS AN INTERNET SEARCH HELPFUL?

Mr Rishi Sharma<sup>1</sup>, Mr Vikas Acharya<sup>2</sup>, Mr Matthew Haywood<sup>3</sup>

<sup>1</sup>Glasgow Royal Infirmary, Edinburgh, United Kingdom, <sup>2</sup>West Middlesex University Hospital, Isleworth, United Kingdom,

<sup>3</sup>Leeds General Infirmary, Leeds, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Background/Objectives:** Sinonasal inverting papilloma (IP) is a rare and serious diagnosis, however there is a lack of high quality, patient-centered information regarding this disease. The Internet is increasingly being used as the main reference point for patients and ideally should convey accurate and easily understood information. The aim of this study was to investigate the quality and readability of English language websites on IP.

**Methods:** The search term IP and 7 of its synonyms were applied to the three most commonly used search engines in the English-speaking world (Google, Yahoo and Bing). The first 20 results returned for each search term were screened using specific criteria. Following exclusion of inappropriate websites, remaining sources were assessed for the quality of their consumer-targeted content on IP treatment options using the DISCERN instrument. Readability was assessed using the Flesch Reading Ease Score (FRES) and average grade level (AGL).

**Results:** Of the 480 websites returned using our search strategy, 408 were excluded using our screening criteria. Duplicate removal from the remaining 73 websites left 15 for inclusion in the final analysis. Among these suitable resources, mean FRES score was 25.25 (min 9.6 / max 48.1); the mean AGL score was 13.39 (min 9.2 / max 16.1), corresponding to an average age of 18.34 years; the mean DISCERN score was 33.8 (min 16 / max 48).

**Conclusion:** The quality and readability of commonly accessed websites on IP is of poor quality. Doctors should direct patients to appropriate websites or patient information leaflets, or consider producing new material that provides more accurate, balanced and accessible information to IP patients.

## FUNGAL RHINOSINUSITIS - COMPLEX CASES - MY EXPERIENCE

Dr Alina Georgiana Anghel<sup>1</sup>, Dr Patricia Delia Ene<sup>1</sup>, Dr Mihai Dumitru<sup>1</sup>, Dr Rodica Urs<sup>1</sup>, Dr Ion Anghel<sup>1</sup>

<sup>1</sup>*Carol Davila University Of Medicine And Pharmacy, Bucharest, Romania*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** We review current state of the art literature data regarding fungal rhinosinusitis and apply it in our daily practice.

**Methods:** We present a series of 11 complex cases with fungal rhinosinusitis requiring various treatment modalities and thorough followup.

**Results:** Recently the incidence of mycotic infections has a growing trend in south eastern Europe. This is due mainly to the fact that the number and diversity of pathogenic fungi have increased. Fungal rhinosinusitis presents invasive and non-invasive manifestations in our cases the latter being prominent. Host immunity status is very important because in order to cause an infection the pathogenic fungus must gain access to the host. Fungal rhinosinusitis is characterized by colonisation, invasion and allergic response in the host. There are various treatment regimens, but the most broadly accepted and used includes amphotericin B, systemic steroids and surgical debridement.

**Conclusions:** The final long term outcome depends mainly on the ability to correctly surgically remove the fungus ball. Moreover the patient must have an improved immune system response in order to prevent relapse.

**Keywords:** fungus, rhinosinusitis, treatment



## ISOLATED SPHENOID SINUSITIS: REPORT OF FOUR CASES

**Dr Catarina Tinoco**<sup>1</sup>, Dr Paula Campelo<sup>1</sup>, Dr Bernardo Araújo<sup>2</sup>, Dr Ana Campos<sup>1</sup>, Dr Luis Marques Pinto<sup>1</sup>, Professor Cristina Carocha<sup>1</sup>, Dr Deodato Rego Silva<sup>3</sup>, Dr Diogo Oliveira e Carmo<sup>1</sup>, Professor João Paço<sup>1</sup>  
<sup>1</sup>Hospital CUF Infante Santo, Lisboa, Portugal, <sup>2</sup>Centro Hospitalar Lisboa Central - Hospital São José, Lisboa, Portugal, <sup>3</sup>Centro Hospitalar Lisboa Central - Hospital Egas Moniz, Lisboa, Portugal

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Isolated sphenoid sinusitis is relatively rare, seen in fewer than 3% of all cases of sinusitis. The diagnosis is frequently delayed because of its nonspecific symptoms and the paucity of clinical findings. Because of the proximity of the sphenoid sinus to important and vulnerable structures of the skull base, delay in diagnosis and treatment can lead to the development of serious intracranial and/or orbital complications.

The authors report 4 cases of isolated sphenoid sinusitis and review the current literature on isolated disease of sphenoid sinus.

All four patients, 3 females and 1 male, with ages between 13 and 78 presented with complains of intermittent headache for more than 3 weeks. The CT scans of the paranasal sinus revealed only opacification of sphenoid sinus, without bone erosion. They were all submitted to endonasal endoscopic sphenoidotomy by a transnasal approach, after a trial of systemic therapeutic. Sphenoid sinus was opened and fungal debris was seen inside in 3 of them, and a purulent discharge was seen in the other case. All the patients fully recovered, with resolution of symptoms, and they are now in routinely follow-up.

Sphenoid sinusitis usually presents with subtle and nonspecific symptoms and physical findings, so a high index of suspicion is necessary. Hence imaging studies like CT and MRI is necessary when the disease is suspected for prompt diagnosis. Endoscopic transnasal sphenoidotomy is a safe and effective procedure, allowing complete removal of the disease and avoiding major morbidity and complications.

## THE APPLICATION OF A DOUBLE MINI TREPHINATION APPROACH IN THE MANAGEMENT OF A FRONTAL SINUS POSTERIOR TABLE DEFECT DUE TO A MUCOCELE: A CASE REPORT.

**Mrs Ioanna Petrou**<sup>1</sup>, Dr Zinovia Tsinaslanidou<sup>1</sup>, Mrs Ioanna Xanthou<sup>1</sup>, Mrs Aikaterini Rizou<sup>1</sup>, Dr Jannis Constantinidis<sup>1</sup>

<sup>1</sup>*1st Academic ORL Department, Aristotle University of Thessaloniki, Thessaloniki, Greece*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** The description of a modification of the mini trephination approach and its application in the management of a laterally located frontal sinus posterior table defect.

**Methods:** A 70 year old woman underwent CT and MRI scans due to two episodes of status epilepticus. These revealed a mucocele eroding the right frontal sinus posterior table laterally and a type III Kuhn cell obstructing the frontal recess. Under general anesthesia, a Draf IIb drainage was performed to remove the Kuhn cell but provided poor visualization of the defect. With the use of the navigation system, the defect was marked and two horizontal incisions, 1-2cm long, were made under the right eyebrow (posteriorly and anteriorly of the supratrocheal nerve). In both sites the anterior table of the frontal bone was exposed and drilled making two openings large enough for endoscope and instruments insertion. Complete visualization of the defect was achieved, the mucocele was marsupialized and the skull base defect was restored with an inferior concha mucoperichondrium graft and a galea-periosteum flap fixed with fibrin glue. The underlying dura was intact.

**Results:** In the 6 months follow up appointment the patient is in good condition and symptom free, while the CT scan showed complete healing of the defect.

**Conclusion:** A double mini trephination approach may be an alternative in the management of laterally located frontal sinus posterior table defects. It is a minimally invasive technique that preserves the sinus function and ensures a good aesthetic result. However, a very careful patient selection is a prerequisite for success.

## DOG BITE INJURY: TAILORED NASAL RECONSTRUCTION IN A YOUNG WOMAN

**Dr Milena Ferraro<sup>1</sup>**, Md, Full professor Mario Bussi<sup>1</sup>

<sup>1</sup>*San Raffaele Hospital, Milan, Italy*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**AIMS:**

The nose holds an outstanding position on the face, acquiring great importance within the context of facial aesthetics. Therefore, trauma may cause not only functional and psychological but also social related damages. In a society increasingly demanding about aesthetics, therapeutic choice has to reduce, as accurate as possible, the sequelae that hinder social integration.

**METHODS:**

Case report.

**RESULTS:**

A 28-year-old patient was victim of dog bite with avulsion of the right nasal ala and part of the ipsilateral nasal tip. She was treated with immediate nasal reconstruction with auricular composite graft. The defect was remodeled using a rotation flap with upper zip derived from the preauricular skin. In alar reconstructions, the skin grafts without the underlying support cartilage are usually not sufficient. In this case, the main concern was the return of the aesthetic contour of the reconstructed area which included alar margin of the nasal ala, a structure with cartilaginous support.

At one year-follow up, the shape of nasal ala was stable and the color was consistent with the surrounding tissue. At clinical examination the two nasal sides exhibited satisfactory symmetry as well as ideal result was achieved in the aesthetic at the donor site.

**CONCLUSION:**

We report the case of composite graft derived from the auricular helix in a young woman. Based on the successful outcome at one year-follow up we believe this treatment is a safe option for reconstruction of nasal ala defects with compromised margins.

## ENDOSCOPIC SKULL BASE RECONSTRUCTION SURGERY IN THE MANAGEMENT OF CEREBROSPINAL FLUID LEAKS AFTER TRANSNASAL PERFORATING TRAUMA

Dr. Pedro Correia-Rodrigues<sup>1</sup>, Dr. Mariana Calha<sup>1</sup>, Dr. António Fernandes<sup>1</sup>, Dr. Vítor Oliveira<sup>1</sup>, Dr. Paulo Martins<sup>1</sup>, Dr. Borges Dinis<sup>1</sup>, Professor Leonel Luís<sup>1</sup>

<sup>1</sup>*CHLN - Hospital de Santa Maria, Lisboa, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Background

Skull base fractures comprise one of the most challenging lesions in Traumatology since they can be associated with meningeal disruption, cerebrospinal fluid (CSF) leakage and even brain injury. The main cause of traumatic CSF leaks is accidental blunt cranial trauma; other mechanisms, such as transnasal perforating trauma, are rare and sometimes bizarre.

### Aims

To demonstrate the successful endoscopic endonasal surgical approach in the management of traumatic CSF leak.

### Methods

Literature review and clinical case report.

### Results

A 10-year-old female patient was admitted after a fall from her own height resulting in cranioencephalic trauma with violent penetration of a bamboo stick directly in her left nasal vestibule. She presented with depressed level of consciousness, high volume epistaxis and CSF rhinorrhea. Pre-operative imaging revealed left sphenoidal hemosinus, planum sphenoidal skull base fracture with CSF leak, pneumocephalus and intraventricular haemorrhage without brain herniation. The patient was submitted to endoscopic endonasal sinus surgery for reconstruction of the skull base osteodural defect. CSF leak was sealed using a combined multi-layered technique - an underlay allograft with collagen matrix (DuraGen<sup>®</sup>) and fibrin glue sealant and an overlay autograft with septal bone and free middle turbinate mucosa. Long-term patient follow-up was uneventful and the patient fully recovered.

### Conclusion

Transnasal endoscopic skull base defects reconstruction is the preferred modality in most cases of traumatic CSF leaks requiring surgery. This approach ensured good exposure with identification of the defect, allowed for adequate graft design and contributed to the excellent outcome reported.

## INVERTED PAPILOMA OF THE NASAL CAVITY AND PARANASAL SINUSES: REVIEW OF 16 YEARS OF PRACTICE IN A UNIVERSITY HOSPITAL

Dr. Pedro Correia-Rodrigues<sup>1</sup>, Dr. Mariana Calha<sup>1</sup>, Dr. António Fernandes<sup>1</sup>, Dr. Vítor Oliveira<sup>1</sup>, Dr. Paulo Martins<sup>1</sup>, Professor Leonel Luís<sup>1</sup>

<sup>1</sup>CHLN - Hospital de Santa Maria, Lisboa, Portugal

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Background

Nasossinus inverted papillomas (NIPs) are benign neoplasms representing 0,5-4% of the nasal tumours. NIPs are characterised by their locally aggressive behaviour, expansive growth and bone destruction, presenting high recurrence rates with malignant transformation potential. Tailored endoscopic sinus surgery is the gold-standard surgical approach for NIPs treatment, allowing for complete excision and implantation area control; combined techniques using external approaches may be necessary in some extensive lesions and/or specific locations.

### Aims

The authors aim to review the experience of a university hospital in the diagnosis, surgical treatment, outcome and follow-up of NIPs in the last 16 years, compare it to the literature and identify predictive risk factors for disease recurrence.

### Methods

Observational retrospective descriptive study of patients with NIP diagnosis surgically approached from January 2000 until December 2016, with a minimum follow-up time of 12 months.

### Results

The following variables will be described: total number of cases; mean age at diagnosis; gender distribution; smoking status; presenting symptoms; mean time with symptoms; laterality; pre-operative biopsy result; imagiologic findings in CT and MRI scans, including suspicious implantation area and Krouse classification staging; surgical treatment (% of patients submitted to endoscopic resection, % of patients submitted to combined approaches, sequelae); recurrence rate, number of recurrences per patient and mean time until first recurrence; and finally malignant transformation rate. Statistical analysis regarding this results are currently under development.

### Conclusion

NIPs follow-up after surgery demands a precise systematic lifelong endoscopic and/or imaging surveillance, allowing for earlier recurrences and even malignant transformation detection.

## MASSIVE ETHMOIDAL OSTEOSARCOMA WITH SKULL BASE AND INTRACRANIAL INVASION

Dr. Pedro Correia-Rodrigues<sup>1</sup>, Dr. António Fernandes<sup>1</sup>, Dr. Ana Rita Santos<sup>1</sup>, Dr. Vítor Oliveira<sup>1</sup>, Dr. Paulo Martins<sup>1</sup>, Professor Leonel Luís<sup>1</sup>

<sup>1</sup>CHLN - Hospital de Santa Maria, Lisboa, Portugal

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Background

Osteosarcoma is rare in the head and neck, representing less than 0,5% of all malignancies in this region. The ethmoid sinus is an uncommon primary site for this aggressive tumour with less than 20 cases reported in literature. Nearly all ethmoidal osteosarcomas are high-grade malignancies frequently extending to the neighbouring bones and anatomical structures including the nasopharynx, orbit and cranium.

### Aims

To report the clinical presentation, diagnosis and management of a patient with extensive ethmoidal osteosarcoma.

### Methods

Literature review and clinical case report.

### Results

A 59-year-old female patient presented with fronto-temporal headache, epistaxis, exophthalmos and bilateral vision loss for six months. On physical examination, anterior rhinoscopy revealed a friable mass occupying the entire right nasal fossa; ophthalmologic evaluation was compatible with rapidly progressive bilateral amaurosis. Computerized tomography and magnetic resonance showed a massive destructive tumor centred in the left ethmoidal sinus, extending to the sphenoid bone and invading the anterior and middle cranial fossae. Further endoscopic biopsy was compatible with an osteogenic sarcoma. The patient received palliative chemoradiotherapy due to its locally advanced staging.

### Conclusion

Ethmoidal osteosarcomas are rare but very aggressive tumours and the prognostic is poor. Resection surgery with curative intention was impracticable but multidisciplinary palliative support allowed for symptoms control and patient comfort measures with survival improvement.

## GIANT FRONTO-ETHMOIDAL OSTEOMA WITH ENDONASAL ANATOMICAL DISTORTION: A CASE REPORT

Dr. Gustavo Antunes de Almeida<sup>1</sup>, Dr. Nelson Gilberto<sup>1</sup>, Dr. João C. Pimentel<sup>1</sup>, Prof. Dr. Pedro Escada<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology - Centro Hospitalar De Lisboa Ocidental - Egas Moniz Hospital, Lisbon, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIMS** – Fronto-ethmoidal osteomas (FEO) are osseous lesions with slow and asymptomatic growth. They are the most common benign neoplasm of the paranasal sinuses but only need treatment in case of sinonasal drainage compromise or aesthetic problems.

The authors describe a case of a giant FEO highlighting the surgical challenges of its endoscopic endonasal removal.

**METHODS** – A 38-year-old female was referred to our ENT department because of a history of exophthalmia of the right eye, complete nasal obstruction, and swelling of the right cheek.

She had complete nasal obstruction, exophthalmia of the right eye and swelling of the right cheek.

Investigation with computer tomography revealed a mixed calcified sclerotic and inflammatory lesion that occupied almost completely all the right nasal fossa, from inside the frontal sinus to the nostril, extending to the maxillary sinus and anterior ethmoidal cells with associated maxillary and frontal mucoceles.

Although its size the lesion was amenable to a fully endoscopic endonasal approach.

A medial maxillectomy and Draf 3 procedures were performed to approach the lesion which was completely drilled out.

**RESULTS** – There were no complications in the perioperative period.

**CONCLUSIONS** – Giant FEO can significantly distort sinonasal anatomy, nevertheless current endoscopic endonasal approaches allow for the removal of the great majority of FEO.

## AN AUDIT OF TWO PERI-OPERATIVE ANTIBIOTIC REGIMENS IN SEPTORHINOPLASTY AT ST GEORGE'S UNIVERSITY HOSPITALS FOUNDATION TRUST

**Mr Raj Lakhani**<sup>1</sup>, Miss Deidre Fitzgerald<sup>1</sup>, Dr Matthew Laundry<sup>1</sup>, Mr Abbad Toma<sup>1</sup>, Miss Sarah Little<sup>1</sup>  
<sup>1</sup>St George's University Hospitals NHS Foundation Trust, London, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

We aimed to evaluate the use of peri-operative antibiotics and post-operative complication rates including infection rates with 2 peri-operative antibiotic regimens.

1. One IV dose on induction with a 7 day oral antibiotic course post-operatively
2. One IV dose on induction with 3 further oral doses

### Standards audited

- NICE guidance 2013 - Surgical site infections: prevention and treatment
- Antibiotic Prophylaxis for Preventing Surgical- Site Infection in Plastic Surgery: An Evidence-Based Consensus Conference Statement from the American Association of Plastic Surgeons (AAPS 2015)
- Infection rates Public Health England Report of SSI's 2015
- Specific septorhinoplasty infection rates from best available evidence
- Diagnosis of SSI – US Centers for Disease Control and Prevention (CDC) and the Public Health England (PHE) definition.

### Methods

Twelve month retrospective review of patients undergoing septorhinoplasty.

### Results

42 septorhinoplasty procedures were included

- NICE & AAPS results – 100% compliance
- Infection rate – 0% with both antibiotic regimens, 2 revision open septorhinoplasty patients with redness alone at the columella (nasal) incision site. This is lower than PHE reported rate 2015 and best available data (Toia 2012 & Ariyan 2015)
- Regimen rates – No significant difference was seen with either regimen which is comparable to similar studies (Andrews 2006, Rajan 1995, Ricci 2012)

### Conclusion

Both antibiotic regimens returned similar infection and complication rates. We have adopted the shorter regimen (One IV dose on induction with 3 further oral doses) long-term in view of possible adverse events and patient tolerance of longer regimens.



## SURGICAL ENDONASAL ENDOSCOPIC ANATOMY OF THE SPHENOID SINUS

Dr. Gustavo Antunes de Almeida<sup>1</sup>, Dr. João C. Pimentel<sup>1</sup>, Dr. Rita Sousa<sup>1</sup>, Dr. Mariana Donato<sup>1</sup>, Prof. Dr. Pedro Escada<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology - Centro Hospitalar De Lisboa Ocidental - Egas Moniz Hospital, Lisbon, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIMS** – With the expansion of the endonasal endoscopic approaches (EES) beyond the paranasal sinuses, a thorough anatomical knowledge is essential. The sphenoid sinus (SS), in particular, is a complex area in close relation with the cranial fossa and several neurovascular structures. The aim of this study is to present detailed surgical anatomy of the sphenoid and its adjacent structures.

**METHODS** – We present the surgical endoscopic anatomy of the sphenoid based on cadaveric dissection and 3D model reconstruction. This anatomy is further illustrated with a case of surgical treatment of an inverted Schneiderian papilloma of the right SS wall. The imaging evaluation (CT and MRI) revealed extension of the tumor to the nasal fossa, nasopharynx, pterigo-palatine and infra temporal fossa. The tumor conditioned erosion of the right sellar floor and dorsum, clivus, carotid canal and pterygoid process. The lesion was surgically removed via transpterygoid-transphenoidal EES.

**RESULTS** – There were no complications in the perioperative period. The patient is disease free after 18 months.

**CONCLUSIONS** – The knowledge of the paranasal sinuses anatomy and adjacent structures is imperative for the surgeon who desires to expand its EES approaches. This is particularly relevant in the sphenoid region due to its complexity and neurovascular relationships.

## OBSTRUCTIVE SLEEP APNOEA CAUSED BY PLEOMORPHIC ADENOMA: A CASE REPORT

Ms Amanda Bartolo<sup>1</sup>, Ms Marija Agius Spiteri<sup>1</sup>, Dr Gabriella Grech<sup>1</sup>, Dr Sinisa Lalicevic<sup>1</sup>, Mr Eric J Farrugia<sup>1</sup>  
<sup>1</sup>*Mater Dei Hospital, Msida, Malta*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Background:

Sleep apnoea syndrome is a condition characterised by excessive daytime somnolence, hypnagogic hallucinations, personality and sexual behaviour changes and hypertension. Most commonly, sleep apnoea syndrome is secondary to upper airway obstruction as a result of intermittent hypotonia of the soft palate and tongue musculature. In rare occasions, obstructive sleep apnoea can result from anatomical abnormalities such as a mass in the upper aerodigestive tract.

### Case Summary:

A 40 year old gentleman was referred in view of obstructive sleep apnoea symptoms. On examination, a large right sided lesion was seen in the oropharynx. Further investigations with flexible nasoendoscopy, computed tomography (CT) and magnetic resonance imaging (MRI) of the neck were carried out which confirmed a large mass most likely arising from the right tonsillar bed. Surgical excision was carried out via a transoral approach. Histology was reported as pleomorphic adenoma.

### Conclusion:

It is widely accepted that management for obstructive sleep apnoea involves treating the underlying cause together with conservative and lifestyle measures are adopted initially. The majority of patients do not require surgery but a thorough assessment, including the upper aerodigestive tract, should be carried out to exclude rare causes of obstructive sleep apnoea.

## PERIAPICAL CYST MIMICKING A MAXILLARY SINUS MUCCOCELE: A CASE REPORT

Dr. Gustavo Antunes de Almeida<sup>1</sup>, Dr. João C. Pimentel<sup>1</sup>, Dr. Rita Sousa<sup>1</sup>, Dr. Mariana Donato<sup>1</sup>, Dr. Ricardo Santos<sup>1</sup>, Prof. Dr. Pedro Escada<sup>1</sup>

<sup>1</sup>*Department of Otorhinolaryngology - Centro Hospitalar De Lisboa Ocidental - Egas Moniz Hospital, Lisbon, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIMS**—Periapical cysts (PC) are the most common odontogenic cysts. Usually asymptomatic they can cause secondary sinus infection when in relation with the maxillary sinus. On computed tomography (CT) they appear as round-shaped hypodense lesions in periapical region bordered by a thin rim of cortical bone. Just like paranasal sinus mucoceles (MSM) they can cause bony erosion as they grown in size.

The authors present a case of a PC misdiagnosed as MSM, highlighting imaging features that may be overlooked leading to incorrect diagnosis.

**METHODS**—A 41-year-old female was referred to our ENT department for revision surgery of chronic rhinosinusitis with nasal polyps (CRSwNP). She had previous surgery in another institution which included a bilateral Caldwell-Luc procedure. Preoperative CT showed findings of CRSwNP and an image suggestive of a right MSM with remodeling of the sinus walls.

Complete sphenoidectomy with wide middle antrostomy was performed.

**RESULTS**—There were no perioperative complications. Six months after surgery the patient developed acute exacerbation of right maxillary sinusitis accompanied by spontaneous purulent oral discharge posterior to the last molar.

Revision of the preoperative CT showed a thin rim of cortical bone, that was not previously identified probably due to complete filling of the MS itself, leading to the misdiagnosis of MSM instead of PC with concomitant maxillary sinusitis.

Patient was proposed for removal of the periapical cyst through a pre-lacrimal endoscopic approach.

**CONCLUSIONS**—MS expansion lesions can have overlapping presentation and imaging features. Special care should be taken in soft-tissue expansion with remodeling of the sinus walls.

756

## TOTAL REPLACEMENT OF THE LOWER LATERAL CARTILAGE

Mr Atef El-kholy<sup>1</sup>

<sup>1</sup>*Manchester University Foundation Trust, Manchester, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

this presentation discuss the anatomy and causes of damage of the lower lateral nasal cartilage  
i use ear cartilage to replace the damaged LLC i will demonstrate the technique and show a video

## ISOLATED SPHENOID SINUS DISEASE: DIFFERENTIAL DIAGNOSIS AND TREATMENT STRATEGIES

Dra. Rita Sousa<sup>1</sup>, Dr. Gustavo Almeida<sup>1</sup>, Dr. Filipe Correia<sup>1</sup>, Dr. João Pimentel<sup>1</sup>, Dra. Silvia Pereira<sup>1</sup>, Professor Pedro Escada<sup>1</sup>

<sup>1</sup>Hospital De Egas Moniz, Lisboa, Portugal

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Isolated sphenoid sinus disease are rare and can have multiple etiologies. Frequently the symptoms do not arise in the early stage and are non-specific leading to late diagnosis. Due to its location at the skull base and close relation with vital anatomical structures, misdiagnosis can have dramatic consequences. The aim of this study was to identify the most common etiologies of isolated sphenoid sinus pathologies with highlight on differential diagnosis, and treatment options such as surgical approaches to the sphenoid sinus. **Methods:** Review of literature and illustration with our own clinical cases occurred at a tertiary care Hospital. **Results:** Inflammatory and infectious conditions are the main etiologies. Headache is the most frequent clinical feature and frequently nasal symptoms are also present. Imaging techniques such as computed tomography (CT) allows diagnosis in most cases and magnetic resonance imaging (MRI) can be helpful if there is involvement of intracranial structures. Most frequently there can be involvement of cavernous sinus and adjacent cranial nerves III, IV, V and VI. Sometimes there can be involvement of optic nerve and less frequently there can be involvement of dura mater, pituitary gland or carotid artery. Endoscopic sinus surgery is the most common approach and prove to be effective in most cases. **Conclusion:** The occult character of the disease and the lack of severe and specific symptoms lead to delayed diagnosis and treatment. CT is the most common imaging technique and MRI can be useful in selected patients. Endoscopic sinus surgery is the treatment of choice..

## CLINICAL USEFULNESS OF THE EPOS CHRONIC RHINOSINUSITIS CONTROL TEST FOR THE ASSESSMENT OF DISEASE CONTROL

Drs. Evelijn Lourijsen<sup>1</sup>, Dr. Corianne de Borgie<sup>1</sup>, Prof. dr. Wytske Fokkens<sup>1</sup>

<sup>1</sup>*Academic Medical Centre, Amsterdam, Netherlands*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aims:** Appropriate management of patients with chronic rhinosinusitis (CRS) is important for stable disease control. The European Position Paper on Rhinosinusitis and Nasal Polyps (EPOS) 2012 proposed a control test to assess disease control in the clinic, which is paramount for guidance on patient management. Disease control is classified as 'controlled', 'partially controlled' or 'uncontrolled' based on the combinations of the following measurements of control (a) presence/absence of five nasal symptoms, (b) nasal endoscopy findings and (c) need of systemic medication to control disease. Here, we evaluate the usefulness of this control test and the agreement between ENT-specialists and control test in determining disease control. **Methods:** Theoretical CRS cases were created, based on the literal descriptions of the measurements of control used in the control test. Individual Dutch ENT-specialists classified cases as 'controlled', 'partially controlled' or 'uncontrolled' based on the presented information. Initial cases comprised all possible combinations of descriptions (186 cases). Cases were subsequently narrowed, reflecting a clinically relevant spectrum.

**Results:** Classification on the basis of measurements of control is not unambiguously made. There is a discrepancy in the classification and importance of the distinct measurements of control that lead to a classification. Nasendoscopic findings seem to play a large role, in contrast to recent use of systemic medication.

**Conclusion:** Currently the classification of CRS control by ENT-specialists is not in concordance with the classification of the control test. We will address the need to improve agreement on disease control, since it is of most importance for clinical management.

## THE FIRST CASE OF SCLEROSING-TYPE SINONASAL IGG4- RELATED DISEASE IN A YOUNG FEMALE IN THE U.K.

Miss Nora Haloob<sup>1</sup>, Mr Mohiemen Anwar<sup>2</sup>, Mr Joseph Marais<sup>1</sup>

<sup>1</sup>Northwick Park Hospital, LONDON, United Kingdom, <sup>2</sup>West Middlesex Hospital, London, United Kingdom

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**AIMS:** Sclerosing-type IgG4-related disease affecting the sinonasal cavity is extremely rare, with just 10 reported cases worldwide. This is only the second of its kind to be reported from the UK, the first of which in a young female.

**METHODS:** A 31-year-old woman presented to the Otolaryngology clinic with a history of left facial swelling, epistaxis, and progressive diplopia on medial gaze. Examination revealed a left-sided nasal mass lesion on fiberoptic nasendoscopy and a palpable premaxillary mass. Computed Tomography and contrast Magnetic Resonance Imaging demonstrated an enhancing soft tissue mass completely occupying the maxillary sinus with irregular destruction of the orbital floor, lateral, medial and anterior antral walls and extending almost to the orbital apex.

**RESULTS:** After initial endoscopic biopsy ruled out a sinonasal malignancy, the patient underwent urgent tumour debulking via hybrid endoscopic and Caldwell-Luc approach. Histology revealed respiratory mucosa demonstrating a fibrosclerosing inflammatory process with focally elevated IgG4 subclass plasma cells on immunostaining. The patient was subsequently managed together with expert Rheumatologists as part of a multidisciplinary approach, and systemic methylprednisolone was initiated as first-line medical therapy.

**CONCLUSION:** The locally destructive behaviour of this chronic inflammatory condition makes it easy to mistake for a sinonasal malignancy. Although very rare, it is important that IgG4- related disease is considered in the differential diagnosis of an aggressively erosive sinonasal process, to enable early systemic steroid therapy and prevent further invasion into vital surrounding structures.

## WHEN THE CLINICAL PICTURE CHANGES, QUESTION THE UNDERLYING DIAGNOSIS: TRANSFORMATION ON A BACKGROUND OF VASCULITIS

Miss Ana Bernic<sup>1</sup>, Mr Roland Hettige<sup>1</sup>, Professor Claire Hopkins<sup>1</sup>

<sup>1</sup>*Guy's And St Thomas' NHS Foundation Trust, London, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

We want to present a case of a 57 year old male that had been diagnosed and the diagnosis histologically confirmed with localized granulomatosis with polyangiitis(GPA) 10 years earlier. He re-presented under a different team with presumed flare-up of disease and was found to have crusting, periorbital swelling and extensive tissue destruction with large septal perforation. A biopsy of perforation showed on-going GPA. 6 months of increased topical and systemic treatment, including oral prednisolone and rituximab, failed to improve clinical picture. Multiple courses of antibiotics were prescribed for progressive orbital cellulitis. Patient underwent regular debridement in clinic.

### Methods

Repeated scans demonstrated no infective collection, but presumed orbital pseudotumour with erosion of lamina and of medial wall of maxillary sinus. After re-referral to original team, expansion of nasolacrimal duct and sac was noted and he was listed for urgent biopsy.

### Results

Histological findings confirmed Nasal-type extranodal NK/T-cell lymphoma. Retrospective review of the biopsy taken 6 months earlier confirmed features consistent with GPA, however, it also showed evidence of lymphoma.

### Conclusions

Localized vasculitis is not uncommon, but almost certainly under-diagnosed and easily overlooked. Nasolacrimal tumours are very rare but diagnosis is also often delayed and the condition mistaken for an infective process. When there is a clear change in presenting features it is important to consider alternative diagnoses. Key to finding the right answers is in asking the right questions.



## ABSENT LOWER LATERAL ALAR CARTILAGE – A CASE REPORT

Dr Emma Watts<sup>1</sup>, Mr Peter Deutsch<sup>1</sup>, Ms Nina Mistry<sup>1</sup>, Mr James Barraclough<sup>1</sup>

<sup>1</sup>Russells Hall Hospital, Dudley, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

We present a case of a 15-year-old girl found to have near complete absence of one of the lower lateral alar cartilages. We review the existing literature on alar cartilage abnormalities, including absent alar cartilages. With the aid of pre-operative, intra-operative and post-operative clinical photography we discuss our assessment and management, including reconstruction with the use of an auricular cartilage graft.

### Methods

A literature review for cases of abnormalities of the alar cartilages was undertaken alongside a thorough case review.

### Results

A 15-year-old patient presented to the rhinology clinic with a history of progressive functional and cosmetic nasal deformity since birth. The predominant symptoms were of alar collapse on inspiration and nasal asymmetry. The patient's history included being born prematurely and required extensive use of nasal cannulae for oxygen delivery as a neonate. Intraoperatively she was found to have near complete absence of the right lower lateral cartilage. Reconstruction was undertaken with the use of an auricular cartilage graft. The patient had a good cosmetic and functional outcome.

### Conclusion

Acquired and congenital abnormalities of the alar cartilages are uncommon but recognised by surgeons experienced in rhinoplasty. Acquired deficiencies in segments of the lower lateral cartilages is often attributed to trauma or pressure necrosis from nasogastric tubes. Near complete absence of the lower lateral alar cartilages appears much more uncommon and no similar cases to ours were found. With more premature babies, that have required longterm oxygen, surviving to adulthood this is likely to be an increasingly encountered situation.

## ENDOSCOPIC REPAIR OF SPHENOID SINUS CEREBROSPINAL FLUID LEAKAGE AFTER SUICIDAL GUN SHOT:CASE REPORT

Catarina Duarte<sup>1</sup>, Vitor Oliveira<sup>1</sup>, César Silva, Raquel Bento<sup>1</sup>, Tiago Eça<sup>1</sup>, Rosa Roque Farinha<sup>1</sup>, Leonel Luís<sup>1</sup>  
<sup>1</sup>*Centro Hospitalar Lisboa Norte- Hospital de Santa Maria, Lisbon, Portugal*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Aims

The authors describe the case of a 26-years old patient that presented a self-inflicted gunshot wound with a point of entry in the submentonian area. The bullet went through the sphenoid sinus planum next to the left optic canal, crossed the frontal lobe and became lodged in the left ventricle. Due to a persistent CSF leak the patient was admitted to surgery to resolve the skull base effraction. An endoscopic transnasal approach was performed and a multilayered reconstruction achieved using a vascular pedicle septal flap, after removal of the bone chip fragments. The follow-up was uneventful.

### Methods

Case Report

### Results

Anterior skull base cerebrospinal fluid (CSF) leaks are direct communications between the subarachnoid space and the sinonasal cavities. They can result of traumatic or non traumatic lesions. Their treatment may be conservative or surgical, through transcranial techniques or endoscopic approaches. Surgical treatment is indicated when they persist more than 1 or 2 weeks, specially in patients with high risk of infectious complications or concern for developing meningoencephalocele. Endoscopic closure of CSF leaks is recognized as the treatment of choice for most situations, because of its high success rate. In those cases resulting from firearm injuries, endoscopic skull base reconstruction can be challenging.

### Conclusions

This case demonstrates that large CSF leaks caused by a self-inflicted gunshot wound can be managed safely and effectively by an endoscopic approach in selected patients in whom the primary concern is to achieve a watertight repair and there is no need to address intracranial injuries.

## AWAKE ENDOSCOPIC SINUS SURGERY. HOW FAR CAN WE GO?

Mr David Whitehead<sup>1</sup>

<sup>1</sup>*South Tees Hospitals NHS Foundation Trust, Middlesbrough, United Kingdom*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

To present the techniques and emerging technologies available when undertaking awake sinus surgery

### Methods

A systematic review of the literature regarding endoscopic sinus surgery under local anaesthesia & in-office sinus surgery and the use of hybrid techniques with an associated multimedia presentation of techniques employed by the author.

### Results

The qualitative finding of the review will be presented with emerging trends.

### Conclusion

The use of in-office sinus surgery has recently been popularised with the introduction of balloon sinus dilation technologies. In addition a number of other technologies can be combined with balloon sinuplasty in a hybrid procedure to further extend the potential of awake sinus surgery.

## AN UNUSUAL CASE OF NASAL PLEOMORPHIC ADENOMA

Dr Emma Watts<sup>1</sup>, Ms Nina Mistry<sup>1</sup>, Mr Peter Deutsch<sup>1</sup>, Mr James Barraclough<sup>1</sup>

<sup>1</sup>*Department of Otolaryngology, Russell's Hall Hospital, Dudley,, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

**Aims:** Pleomorphic adenomas are the most common benign neoplasm affecting the major salivary glands. Their occurrence within the nasal cavity is infrequent, with the majority of reported cases arising from the nasal septum. Here we present an unusual case of a nasal pleomorphic adenoma arising from the right middle meatus.

**Methods:** The presentation, investigation and management of the case are discussed in detail with supporting radiological and histological evidence. A comprehensive review of the literature was also undertaken.

**Results:** A 61 year old male patient presented with a 6 month history of progressive right sided nasal obstruction, hyposmia, dysgeusia and offensive nasal discharge. Examination revealed a polypoidal mass arising from the right middle meatus and lateral nasal wall. Computed tomography confirmed a polypoidal abnormality in the anterior right nasal passage arising from the right middle meatus, measuring 2.3 cm in maximum diameter. The patient underwent right sided FESS with excision of the mass. Histological analysis revealed the presence of a completely excised pleomorphic adenoma. At six months follow up the patient was found to be asymptomatic apart from persisting hyposmia with no evidence of tumour recurrence.

**Conclusions:** This unusual case of pleomorphic adenoma arising from the middle meatus alerts clinicians to be mindful of the fact that these tumours, although rare, do exist and should be considered as a differential diagnosis when evaluating nasal masses.

## THE USE OF MONOCLONAL ANTIBODIES IN THE TREATMENT OF NASAL POLYPS

Mr Eyal Schechter<sup>1</sup>, Miss Tamina Weda<sup>1</sup>, Mr Martyn Barnes<sup>1</sup>

<sup>1</sup>*Southend University Hospital, London, United Kingdom*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aim

Nasal polyps are a manifestation of chronic rhinosinusitis consisting of nasal lining overgrowth secondary to chronic inflammation. An association with allergic response and eosinophils has been well documented for almost 100 years. It has become increasingly evident that the pathophysiology of chronic rhinosinusitis and asthma are the same, or very similar, and research is being directed toward asthma treatments for nasal polyps. Use of humanised monoclonal antibodies in their role as anti-interleukins or anti-IgE therapy is one area of interest and we aimed to assess the evidence of their efficacy.

### Methods

A literature search of Pubmed was undertaken for articles containing reference to "monoclonal antibody" or "monoclonal antibodies" along with "nasal polyps". 35 English language papers were identified of which 6 primarily dealt with use of monoclonal antibodies as treatment. Clinical significance in the treatment of polyps was the primary outcome measure. Secondary measure was type of treatment.

### Results

Our literature review identified 1 systematic review, 3 randomised control trials (RCT) and an observational prospective study. RCTs included between 24 and 105 patients and all were double blinded. All papers showed a significant improvement in polyps using either patient recorded outcome measures or clinical assessment. 5 papers dealt with anti-interleukins and 2 with anti-IgE treatment.

### Conclusions

Although the randomised control trials are few and relatively new they show promise in the use of monoclonal antibodies in chronic rhinosinusitis with polyps. Given the prevalence of nasal polyps within the asthma cohort, there should be ample opportunity for further studies.

## ANTERIOR ETHMOID ARTERY SEPTAL FLAP FOR THE CLOSURE OF SEPTAL PERFORATIONS AND LONG TERM OUTCOMES

Dr Jacopo Zocchi<sup>2</sup>, **Mr Hassan Elhassan**<sup>1,2</sup>, Dr Francesco Russo<sup>2</sup>, Dr G Pietrobon<sup>2</sup>, Dr Apostolos Karligkiotis<sup>2</sup>, Dr Mario Turri-Zanoni<sup>2</sup>, Dr Paolo Battaglia<sup>2</sup>, Professor Maurizio Bignami<sup>2</sup>, Professor Paolo Castelnuovo<sup>2</sup>  
<sup>1</sup>Department of Otorhinolaryngology, University Hospital Lewisham, London, United Kingdom, <sup>2</sup>Department of Otorhinolaryngology, University of Insubria, Ospedale di Circolo e Fondazione Macchi, Varese, Italy

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Aims

Anterior septal perforations are often iatrogenic and associated with nasal crusting and obstructive symptoms. We utilise a novel anterior ethmoid artery based septal flap (AEASF) to achieve long-term closure of nasal perforations.

### Methods

A retrospective case series of septal perforation repair between 2003 and 2017. Flap design: Perforation edges are 'freshened'. The anterior vertical incision is made superiorly at the posterior border of the perforation and extended to the nasal floor. The posterior vertical incision is made 1 cm posterior to the projection of the axilla of the middle turbinate on the septum and extended to the nasal floor. The two incisions are joined by an incision, parallel to the septum, along the nasal floor. The anterior ethmoid artery flap is then elevated, rotated to cover the perforation and secured with vicryl and silastic splints.

### Results

32 patients were identified, 16 females and 16 males, with average age of 46 years (14-71). Symptoms included nasal obstruction (78%), epistaxis (28%), crusting (22%) and whistling (6%). Etiology included iatrogenic (18/32), idiopathic (9/32), traumatic (2), cocaine (2) or chemical agents (1). Average perforation size was 1.4 cm (0.4-3 cm), 8 <1cm perforation, 16 with 1-2 cm and 8 > 3cm. Successful repair in 26 patients (81.25%). Of 6 that did not close 4 had residual perforation with improved symptoms and two had flap necrosis.

### Conclusion

Closure of a perforated nasal septum through an endonasal technique can be achieved with a unilateral mucosal flap based on the anterior ethmoid artery.

## SUBPERIOSTEAL AND ORBITAL COLLECTIONS SECONDARY TO ACUTE SINUSITIS: DO WE NEED TO OPERATE ON THE PARANASAL SINUSES IN THE ACUTE SITUATION?

Mr Stefan Linton<sup>1</sup>, Mr Okechukwo Okonkwo

<sup>1</sup>Manchester Foundation Hospital Trust, Manchester, United Kingdom

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

**Aim:** In patients with radiologically confirmed subperiosteal and orbital collections secondary to acute sinusitis does additional surgical intervention to the sinuses improve outcomes versus surgical treatment to the collection alone.

**Method:** Patients admitted to a tertiary teaching hospital between 2012-2017 with a radiological confirmed subperiosteal/orbital collection were identified via clinical coding. They were included in the study if symptoms were sinogenic in origin and they had undergone surgical intervention to treat the collection. Primary outcome measures were length of hospital stay, return to theatre and readmission rate.

**Results:** 84 patients were identified by clinical coding but only 16 patients met the inclusion criteria. Ages ranged between 5-75 with 75% (12) patients aged under 18. Male to female ratio of 11:5.

12 patients were found to have a subperiosteal collections while 4 had orbital collections.

7 patients underwent external orbital drainage alone while 9 patients had combined orbital and sinus drainage.

The average stay in hospital was 25% shorter( 6 days) for patients who underwent orbital drainage only compared to patients who underwent combined procedures (8 days).

There were no readmissions in either group. However, 2 patients undergoing orbital drainage alone required revision surgery.

**Conclusion:** The benefit of acute sinus surgery in patients with confirmed orbital collections is unclear and this study suggests that it does not improve outcomes but larger study is required to prove the null hypothesis.

## IMAGE GUIDED SINUS SURGERY. SHOULD WE ALL BE USING NAVIGATION?

Mr David Whitehead<sup>1</sup>

<sup>1</sup>*South Tees Hospitals NHS Foundation Trust, Middlesbrough, United Kingdom*

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

### Aims

To review and present the latest advanced in intraoperative navigation system for endoscopic sinus surgery.

### Method

Critical analysis of current commercial navigational technologies and future developments

### Results

There is a plethora of navigational systems currently available. The author will present a comparison of current commercial systems and their benefits

### Conclusion

The use of intraoperative navigation during endoscopic sinus surgery is becoming more widely available although its day to day use is variable across ENT departments. The author will outline the benefits of the routine use of navigation during endoscopic sinus surgery.



## USE OF ALLOGRAFTS IN SKULL BASE RECONSTRUCTION

Miss Rebecca Dawson<sup>1</sup>, Mr Rajiv Bhalla<sup>1</sup>, Mr Omar Pathmanaban<sup>1</sup>, Mr Kanna Gnanalingham<sup>1</sup>

<sup>1</sup>*Endoscopic Skull Base Service, Manchester Skull Base Unit, Salford Royal Hospital, Manchester, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Objective:

To describe our increasing use of allograft materials in repair of skull base defects as our experience with these products has grown, to allow other skull base teams to benefit from our experience.

### Setting:

The Endoscopic Skull Base Service, Manchester Skull Base Unit, Salford Royal Hospital, UK.

### Methods:

Retrospective review of all cases of skull base reconstruction in the Manchester Endoscopic Skull Base Service since its development 11 years ago, with attention to components used within each multilayer repair and rates of post-operative CSF leak and complications with and without the use of allograft material.

### Results:

We have used allografts – Tutoplast fascia lata, and in one instance Tutopatch bovine pericardium – with increasing frequency. As part of a multilayer reconstruction with pedicled vascularised flaps and tissue adhesive, this material has been invaluable in difficult skull base repairs. We have had no significant complications arising from the use of allograft material, and postoperative CSF leak has been rare.

### Conclusion:

The increasing range of lesions tackled endoscopically in Manchester over the past 11 years, as the Endoscopic Skull Base Service has evolved, has led to ever greater reconstructive challenges. As departmental skills and confidence have increased, extended endoscopic approaches for large lesions have created massive defects. Thanks initially to increasing familiarity with allograft material in the Consultant ENT Surgeon's rhinoplasty practice, the use of Tutoplast fascia lata has become an increasingly frequent component in a multi-layered skull base reconstruction, preventing the patient morbidity associated with autograft harvest.

## ENDOSCOPIC NASAL POLYP SCORING SYSTEMS: CROSS VALIDATION

Mr Hassan Elhassan<sup>1,2</sup>, Mr Ammar Mohd Ammar Mohd Amin<sup>2</sup>, Mr Robert McLeod<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology, University Hospital Lewisham, London, United Kingdom, <sup>2</sup>Cardiff University, Cardiff, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

**Aims:** Endoscopic nasal polyp scoring systems assess the extent of the polyps and are used to communicate information between clinicians and guide management. We aim to review the different endoscopic nasal polyp scoring systems and use these to cross-validate a new system, the NUPO.

**Method:** Design: Systematic review and prospective validation study.

**Search strategy:** MedLine, PubMed and the Cochrane library and references were searched according to Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. Articles published in English which assessed nasal polyp scoring systems were evaluated for inter-observer reliability, intra-observer reliability and correlation with symptom scores. 13 observers scored 15 nasal polyp images using 4 systems, the Lund-Mackay (LM), the Johansen, the Meltzer and the NUPO in the validation study.

**Results:** Ten articles were included with 9 systems identified. Discharge, inflammation and Polyp/edema (DIP), the E-score, the Johansen staging (JS) and the University of Miami Chronic Rhinosinusitis (UMCRS) showed high inter-observer reliability. POSE, 3-D system and LM showed poor inter-observer reliability. Endoscopic scores had poor correlation with symptom measures such as VAS score and SNOT-22. Observer scoring of nasal polyp images was reliable in all systems tested with NUPO having highest consistency compared to established systems (Cronbach's alpha of 0.971).

**Conclusions:** The information currently available is currently inadequate to determine which system is the most reliable in terms of reproducibility and usefulness in the clinical setting. The NUPO show a high consistency among observers and a high consistency with other existing system.

## ALLERGIC FUNGAL RHINOSINUSITIS WITH EXTENSIVE CLIVUS EROSION AND CEREBROSPINAL FLUID LEAK & SIXTH NERVE PALSY .

Dr Tariq Tatwani<sup>1</sup>

<sup>1</sup>*Psmmc, Riyadh, Saudi Arabia*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

Allergic fungal rhinosinusitis (AFRS) is a rare disease. It was first described in 1983 by Katzenstein et al. [2], who identified AFRS as a newly recognized form of allergic sinusitis. The condition has been increasingly diagnosed in the last two decades, with many published reports of AFRS with clivus erosion. To our knowledge, however, no author has reported AFRS with cerebrospinal fluid (CSF) leak. Here, we describe a case of AFRS associated with extensive clivus erosion and CSF leak and sixth nerve palsy in a 22-year-old female and review of literature.

## NASOPHARYNGEAL FINDINGS BEFORE AND AFTER TONSILLECTOMY STEROID-PULSE THERAPY FOR IgA NEPHROPATHY

Dr Hirokazu Sakamoto<sup>1</sup>, Dr Hiroyoshi Iguchi<sup>1</sup>

<sup>1</sup>*Osaka city university, Osaka, Japan*

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### Introduction

IgA nephropathy accounts for more than 30% of chronic glomerulonephritis cases. In the early 2000s, the efficacy of faucial tonsil enucleation plus steroid therapy for the treatment of IgA nephropathy was reported, which led to its wide spread use in Japan. However, treatment does not always lead to remission, possibly due to the presence of chronic postnasal catarrh. In the present study we observed the nasopharyngeal findings of patients with IgA nephropathy using electronic endoscopy.

### Subjects and Methods

Twenty-eight subjects (11 men and 17 women) with IgA nephropathy confirmed by renal biopsy between 2007 and 2017 were chosen for the study based on having undergone tonsillectomy steroid-pulse therapy, and having nasopharyngeal endoscopy data for both before and after treatment. The age of patients ranged from 17 to 63 years, and the average age was 38 years. The nasopharyngeal endoscopy findings were evaluated by scoring the narrowband light observations. Nasopharyngitis was evaluated by patient questionnaire.

### Results

The only difference observed by endoscopy in non-remission versus remission cases was increased petechiae in the non-remission cases. For the nasopharyngitis questionnaire the score ranged from 2 to 28 points, with the mean score being 11.96.

### Discussion

Nasopharyngeal endoscopic findings before the treatment showed that patients suffered from severe chronic nasopharyngitis. We also found a positive association between the nasopharyngitis questionnaire and the nasopharyngeal endoscopic score. Future studies, including evaluation the validity of our nasopharynx score, are necessary.

## OUR FIRST EXPERIENCE WITH DRUG-INDUCED SLEEP ENDOSCOPY (DISE) IN SINGAPORE

Dr. Shirish Johari<sup>1</sup>

<sup>1</sup>Tan Tock Seng Hospital, Singapore, Singapore, Singapore

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

The objective of our study is to review the DISE cases performed in our centre, compare DISE findings with awake nasoendoscopy with Müller's manoeuvre and examine for advantages and pitfalls of DISE.

### Materials and methods:

We carried out a retrospective review of our first 38 cases of DISE performed for pre-operative assessment of OSA patients. DISE examination findings were collected in a standard format using the VOTE classification. This data was then compared with findings of awake nasoendoscopy with Müller's maneuver (MM) and analyzed. Surgical notes, clinical follow up were reviewed to evaluate the impact DISE had on our clinical practice.

### Results:

The patients in our study ranged from 21 to 60 years old (Average 47). The racial profile of our patients was 89% Chinese, 5% Indian, 3% Malay and 3% Caucasian. Average AHI and BMI were 43.7 (11.1 - 108.9) and 25.9 respectively.

We found that DISE was more sensitive in picking up surgically important airway obstruction as compared to awake nasoendoscopy with Müller's maneuver.

A review of our DISE data revealed that the commonest site of Grade 2 (75-100%) airway collapse was at the level of velum (up to 89%), followed by tongue base (50%), epiglottis (up to 39%) and oropharynx (13%). These findings on DISE contributed to surgical planning for the patients in our centre.

### Conclusions:

In our study, DISE recorded substantially higher levels of airway collapse as compared to assessment using awake nasoendoscopy with Müller's manoeuvre. DISE enhanced our practice by guiding surgery and clinical outcomes.

816

WITHDRAWN

## RHINOMANOMETRIC ASSESSMENT OF NASAL AIRFLOW IN DEVIATED NASAL SEPTOPLASTY AND COBLATION TURBINATE REDUCTION

Phan Chung Thủy Trần

<sup>1</sup>*Ho Chi Minh City ENT Hospital, Viet Nam*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Objective

The present study was carried out to study rhinomanometrically the nasal airflow in cases of deviated nasal septum along with inferior turbinate hypertrophy and to compare rhinomanometric improvement following surgery of nasal septoplasty and coblation inferior turbinate reduction.

### Materials and methods

Descriptive cross-sectional study from January 2017 to September 2017 at ENT Hospital of HCM City. The study included 42 patients who were performed nasal septoplasty and coblation inferior turbinate reduction. The patients were interviewed and noted down for SNOT-22 questionnaire. Preoperative and postoperative assessment of nasal airflow were also performed by rhinomanometry.

### Results

Preoperative assessment: The SNOT-22 mean score was  $6,38 \pm 3,10$ . Nasal airflow value was  $461,17 \pm 110,84$  cm<sup>3</sup>/s. Nasal airflow resistance value was  $0,35 \pm 0,07$  Pa/cm<sup>3</sup>/s.

Postoperative assessment: The SNOT-22 mean score was  $1,78 \pm 1,66$ . Nasal airflow value was  $977,26 \pm 155,84$  cm<sup>3</sup>/s. Nasal airflow resistance value  $0,16 \pm 0,03$  Pa/cm<sup>3</sup>/s.

Nasal airflow and nasal resistance improve 2,12 and 2,18 times, respectively.

### Conclusion

Rhinomanometry is an objective, reliable and useful method to evaluate preoperative and postoperative nasal obstruction condition of patients. It should be used as a routine assessment in patients who are selected for operation.

## RHINOLOGY AND OLFACTOLOGY; FOR BETTER PRACTICE IN SAUDI ARABIA

Dr. Naif H. Alotaibi<sup>1</sup>, Dr. Saad Alsaleh<sup>2</sup>, Dr. Muhammed Ayman<sup>1</sup>

<sup>1</sup>Alfaisal University, Riyadh, Saudi Arabia, <sup>2</sup>King Saud University, Riyadh, Saudi Arabia

Poster Session Day 2 - Tuesday 24 April 2018, Pickwick - First Floor

Olfaction function is considered as one of the major diagnostic and prognostic factor in Rhinology and general otolaryngology practice. It is believed that olfaction has impact on quality of life and play an innate role of safety by warns of dangers of environmental and occupational hazard.

In recent years, different quantitative olfaction measurements were implemented, including the university of Pennsylvania Smell Identification Test (UPSIT), Sniffin' Sticks and Smell diskettes. The main objective of these tests include: preoperative olfaction assessment especially in rhinology cases, differentiation between temporary from permanent anosmia, avoid potential post-surgical recrimination and support disability compensations claims (Briner, 2003; Doty 2006 ;2015).

For better management, a combined efforts to implement olfaction assessment were taken in Saudi Arabia. Collaborative work between Rhinologists and other health care practitioner resulted in establishment of smell and taste clinic as the first regional initiative.

Feedback from patients who profited from olfaction assessment were positive and constructive. Such practice generated interests among colleagues and provoked better rhinology practice.

Seventy patients underwent olfaction objective assessment (Arabic version) at King Saud University( King Abdulaziz University Hospital) in collaboration with Alfaisal university, Riyadh, Kingdom of Saudi Arabia. The majority of patients gave favorable feedback. This study conducted during 2017. Most of the patients involved were suffering chronic rhinosinusitis. measurements were taken pre and post operatively.

Resources allocation, health care practitioners training and challenges to overcome to make this project successful is reproducible example to initiate such practice else where.



## BALLOON SINUSPLASTY COMBINED WITH FESS FOR FRONTAL SINUS SURGERY

**Li Yong**<sup>1</sup>, Ma Zhiqi<sup>1</sup>, Mo Jiangwei<sup>1</sup>, Zhang Junkun<sup>2</sup>

<sup>1</sup>Department of Otorhinolaryngology and Head-neck surgery, Hangzhou First People's Hospital, , China, <sup>2</sup>Department of Otorhinolaryngolog, Chunan Chinese Traditional Medicine, , China

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**Objective:** Transnasal endoscopic techniques of the frontal sinus is most difficult to ENT surgeon, especially the young . Our objective was to evaluate whether the balloon sinusplasty combined with endoscopic sinus surgery would improve the outcome for frontal sinus, even for refractory cases.

**Method:** Retrospective 565 patients with frontal sinusitis who underwent FESS or combined with balloon sinuplasty between 2013 and 2017 in our centre. Among them, the youngest patient was 7 years old and the oldest was 83 years old (mean 48 years).135 patients who underwent traditional FESS techniques only for frontal sinus drainage pathway. And 430 patients underwent FESS, combined with balloon sinuplasty for frontal sinusitis. Preoperative CT scans as well as pre- and postoperative sinus symptoms were compared by Lund Mackay scoring and SNOT-22.

**Results:** All patients followed up at least 6 months. Both groups had similar presurgical Lund Mackay scores ( $p > 0.05$ ). 91.3% frontal sinus ostia ( $n = 375$ ) remained patent in hybrid group, and 112 frontal sinus ostia (78.4.0%) remained patent in traditional group (Fisher's exact test,  $p = 0.02$ ). Analyses identified posttreatment differences in symptom reduction between the 2 groups. Postoperatively patients who underwent hybrid surgery reported fewer headache ( $t = 2.02$ ,  $P = 0.01$ ).

**Conclusion:** Our study demonstrates that balloon sinusplasty appears to be a minimally invasive procedure to treat frontal sinusitis. Balloon Sinusplasty is safer and easier operation, and allows for a shorter learning curve as opposed to the traditional surgery. So balloon dilation in hybrid technique surgery for frontal sinus is a routine tool regardless to the price.

## A LITERATURE REVIEW TO DETERMINE WHETHER MAXILLARY SINUS FINDINGS SEEN BY CONE BEAM CT IMAGING AFFECT DENTAL IMPLANTS

Kishan Parekh<sup>1</sup>, Fiona Ting<sup>1</sup>, Florian Bast<sup>1</sup>, Pavol Surda<sup>1</sup>, David Roberts<sup>1</sup>, Claire Hopkins<sup>1</sup>

<sup>1</sup>*Guy's and St Thomas' Hospitals, London, United Kingdom*

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### Introduction

An increasing number of patients requesting dental implants are being referred to the NHS to investigate incidental maxillary sinus findings seen by cone beam CT imaging. These findings, primarily mucosal thickening, are seen in a significant number of patients (68.2%) and therefore it is important to explore whether ENT NHS referral is necessary.

### Method

A PubMed literature search was undertaken, using the terms “(mucosal thickening OR maxillary sinusitis OR maxillary polyp) AND (dental implant OR dental implantation). References in relevant papers were hand searched. Papers were included in the review if they contained relevant content relating to the management of incident maxillary findings and any relationship to outcome of implantation

### Results

The combination of search terms identified 221 papers, however after screening, only 1 paper was of particular relevance. This study, though small, showed that the outcome of dental implants and grafts are unaffected by large variations in maxillary sinus mucosal thickening.

### Conclusion

The referrals due to this incidental finding cause a large and unnecessary burden on the NHS. This is not only in the form of resources and additional imaging, but also in wasted time for both the ENT department and the patient. If dental practitioners were to be made better aware of this issue, this could alleviate the associated burden on the NHS and improve patient satisfaction due to a greater efficiency of patient care. Further studies on outcome of implantation with associated maxillary findings to inform clear guidelines are required.

## HPV INCIDENCE IN THE SINONASAL TRACT: ARE THERE HPV RELATED AND NON-RELATED SINONASAL LESIONS?

Dr ANASTASIA PINIARA<sup>1</sup>, Dimitrios Kotzampasakis<sup>1</sup>, Elpida Tsimplaki<sup>2</sup>, Elena Argyri<sup>2</sup>, Sotirios Themelis<sup>1</sup>, Efthimios Kyrodimos<sup>3</sup>, Efstathia Panotopoulou<sup>2</sup>, Nikos Maroudias<sup>1</sup>

<sup>1</sup>Department of Otolaryngology, Head and Neck Surgery, "Agia Olga- Konstantopouleio" General Hospital N. Ionia-Patisia, Athens, Greece, <sup>2</sup>Department of Virology, "St. Savvas" Regional Anticancer Oncology Hospital of Athens, Athens, Gabon, <sup>3</sup>A' University Department of Otolaryngology, Head and Neck Surgery, "Hippokration" General Hospital, National University of Athens, Athens, Greece

Poster Session Day 1 - Monday 23 April 2018, Pickwick - First Floor

### AIMS

HPV human papillomavirus has been associated with the development of various benign and malignant head and neck diseases, namely low risk HPV 6 and 11 found in benign lesions such as papillomas, whereas high risk HPV 18 and mainly 16 are accused as oncogenic. The coexistence of two different epithelia creates transitional zones in nasal mucosa, the squamo-columnar junctions, which are a prerequisite for HPV infection transmission. The discrepancies reported by several studies, provide heterogeneous data that indicate the presence of HPV-DNA in nasal polyps varying from 0-40% , while 33.3% of nasal papillomas carry the virus and attempts are made to establish whether this may lead to a possible precursor lesion (e.g. inverted papilloma) with possible further clinical manifestations (metaplasia, malignant transformation). Moreover high-risk HPV has been established as an etiologically and clinically important factor for squamous cell carcinoma (SCC) of the oropharynx and more recently of the larynx. Few studies demonstrate that - although unusual site for SCC - 21.7% of these sinonasal tumors harbor high risk HPV and are associated with non-keratinizing type and better prognosis. The purpose of this study was to investigate the incidence of HPV human papillomavirus in the nasal mucosa and evaluate the correlation between HPV infection and the development of benign and malignant sinonasal lesions.

### MATERIALS AND METHODS

This was a prospective case-control study in the period 07/2016- 07/2017 including two groups of patients. Group A involved patients who underwent a biopsy of nasal treatment site, either benign type (nasal polyps, papilloma etc.), or malignant (SCC arising from IP or not related, adenocarcinoma, undifferentiated carcinoma etc.), while group B consisted of control cases that had a biopsy of inferior turbinate's nasal mucosa. Cytological or tissue specimens collected in specific vials (Thin-Prep PreservCyt Solution) were analyzed for HPV-DNA detection and genotyping by PCR and hybridization using a microarray-based assay.

### RESULTS

A total of 76 histological specimens were collected, 51 from nasal-paranasal pathological sites and 25 from healthy controls respectively. All samples were processed by the specialized for HPV testing laboratory of Virology using QIAamp DNA mini kit and PapilloCheck HPV genotyping assay kit.

### CONCLUSIONS

HPV DNA was not detected in any tested sample. The present study did not demonstrate an association between HPV and nasal-paranasal lesions, as it did not show an incidence of HPV in the healthy control cases as well. However, the limited number of cases can only be suggesting rather than confirming of this present negative correlation, that will have to be further defined in future studies.

## ENDOSCOPIC - ASSISTED TRAINING IN SEPTAL SURGERY - HOW WE DO IT

Ioannis Polymerou<sup>1</sup>, M Stavrakas<sup>1</sup>, H Khalil<sup>1</sup>

<sup>1</sup>ENT Department, Derriford Hospital, Plymouth, United Kingdom

Poster Session Day 3 - Wednesday 25 April 2018, Pickwick - First Floor

### AIMS

There are a number of challenges encountered during the instruction in septal surgery. These include poor visualisation by the trainer, lack of effective feedback to the trainee and inability to assess the final outcome of the surgery. Endoscopic-assisted septoplasty is a well-established method with equally good surgical outcomes compared to the standard septoplasty. More specifically, it is proven to be a better method when it comes to posterior septal spurs. We present our approach to using the nasal endoscope to assist in septal surgery training.

### METHODS

The trainee follows the standard steps of a septoplasty while an assistant or the trainer uses a 0° scope to supervise each surgical step. We start with an evaluation of the nasal cavity and the septal deviation, followed by planning of the intervention. The endoscope is also useful during the chondrotomies and bony spur reduction. Finally, the trainer assesses endoscopically the surgical outcome, paying attention at the nasal valve area and the integrity of the flaps.

### RESULTS

We have interviewed the trainees of the South West region who highlighted the importance of direct visualisation during septoplasty. Traditional training does not allow continuous observation and often results in limited understanding of the surgical technique. This teaching method was well accepted by the ENT trainees in our unit and they reported satisfactory compliance.

### CONCLUSIONS

Endoscopic-assisted septoplasty is a reliable training tool with excellent feedback from the trainees. Larger series are needed in order to establish its value in training.

## INTRASPHEOIDAL MENINGOCELE IN PATIENT WITH BENIGN INTRACRANIAL HYPERTENSION WITHOUT PAPILLEDEMA

Akshaya Rajangam<sup>1</sup>, Pavol Surda<sup>2</sup>, Claire Hopkins<sup>2</sup>

<sup>1</sup>King's College London, , <sup>2</sup>Department of Otolaryngology, Guy's and St Thomas' Hospital, ,

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Meningoceles are rare disorders featuring herniation of the meninges through a bony defect or foramen that can occur in patients with benign intracranial hypertension (BIH) and can be associated with CSF rhinorrhoea. In diagnostic workup, we are looking for clinical symptoms and signs of BIH including papilledema and headaches. However, those are often not present suggesting that the CSF leak may act to decompress the elevated ICP and conversely, symptoms may develop after successful CSF leak repair. Therefore, it is advisable to perform lumbar puncture following the surgery.

We present a case of intrasphenoidal meningocele that was referred to our unit with cerebrospinal fluid rhinorrhoea. Radiological investigations consisted of computed tomography and magnetic resonance scan showing herniated meninges of the temporal lobe through a bony defect in the lateral recess of the sphenoid sinus. Subsequently, the patient underwent investigations for BIH. Interestingly, there was no papilledema on fundoscopy. Patient underwent endoscopic endonasal repair using novel dural sealant (Hemopatch). Following the surgery, lumbar puncture showed increased intracranial pressure (opening pressure 34cm) and the diagnosis of BIH was made. Patient was prescribed Acetazolamide to decrease the ICP pressure and advised to lose weight. There was no complication related to the surgical procedure and no recurrence of CSF leakage within 4 months after surgery.



## CONTENT

*Author/Co-Author – with abstract ID* 2 - 32

*Orals by ID* 34 - 393

*Posters by ID* 395 – 748