

Endoscopic and histopathological observations of chronic maxillary sinusitis

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SUMMARY

111 patients are studied in order to find possible relations between the endoscopic images and histopathological findings in the chronic maxillary sinusitis. The classification of the different types of sinusitis is based on the aspect of the mucosa (normoplastic, hypoplastic, polypous, polypoido-polypous) and on the histological features (lymphoplasmocytic, eosinophilic, eosino-lymphoplasmocytic infiltration, low cellularity). The confrontation of the sinusoscopic and histopathological observations give interesting information, such as differenciation between stabilized and evolutive sinusitis; infected and allergic sinusitis, simple and complicated inflammation. This information facilitates our therapeutic choice.

The sinusal endoscopy has developed a lot more in the nineteen seventies thanks to the excellent quality of modern optics. The luminosity and the extent of their visual field allows now, a detailed and panoramical observation of the maxillary antrum. The investigation may be followed by microscopical analysis of mucosal fragments. The biopsy forceps is introduced like the optic through the punction cannula previously pushed into the inferior meatus. This technique is valuable in establishing the diagnostic of a tumor and it is useful too in the cases of infection or allergy.

The knowledge concerning the normal and pathological structure of the human sinusal mucosa dates from the beginning of the century. The classical works of Zuckerkandl, Oppikofer, Manasse and others are well known. Nevertheless all this recherche has been done with a monomorphical material coming exclusively from postmortems or from radical operations for irreversible chronic infections.

In 1960 for the first time, (Bauer, 1958) of Vienna studied the histology of the maxillary sinus mucosa obtained by endoscopic biopsy. He noticed a good concordance between his macroscopic and microscopic observations. More recently in 1974, Moessner, Illum and Jeppesen became interested in the same subject but concluded differently. They determined by sinusoscopy clinical categories of sinusitis but they did not find characteristic histological types which squared with the groups they constituted.

We also did searche systematically on a small group of patients to find the possible relations between the sinusoscopic and histopathological constatations. We have 111 biopsies examined, they were obtained by practising endoscopies of 107 cases of chronic sinusitis clinically and radiologically authenticated or suspected on 40 children from 3 to 15 years old and 67 adults from 15 to 79 years old.

CLASSIFICATION OF THE CASES

Our endoscopic observations made us classify the sinusitis in 4 groups, according to the aspect of the antral mucosa:

The first group is characterized by a normo-plastic mucosa. It appears light rose or even whitish, thin and transparent. The subjacent vessels draw a capillary net red bright and salient, particularly well contrasted on the pictures. The ostium is easily visible in an ovale fossula finely recovered and consequently wide open. The biopsy is difficult in this cases because of the thinness of the mucosa directly applied on the osseous surface: The jaws of the forceps do not penetrate, scrape the bone and take little material.

The second group is defined by an hyperplastic mucosa. It is opaque and velvety. The vascular drawing disappears in the congestive and diffuse redness of the walls. When the thickness gets more marked, the mucosa becomes oedematous and swollen and turns into a pavement and globular aspect called polypoid as long as it stays sessile. The ovale fossula fills up and the ostium is hidden by an obstructive congestion which spreads to the whole sinus and shortens the lumen.

The third group concerns only an exclusively polypous mucosa. The oedematous tumefaction is localized and pediculated on a normoplastic area. The polyp is unique or multiple, ostial or parietal.

The fourth group is mixed or polypoido-polypous. It represents a diffuse hyperplastic mucosa, associated to one or several polypous elements.

Beside these, a subdivision of groups was established according to the mucosal production which can be dry, exsudative or purulent.

Moreover to obtain a histological classification we extracted from the histological records of each biopsy the state of the epithelium, the stroma, and also the kind of cellular infiltration. We retained only the elements characterized by their considerable or massive presence (++ or +++). They were divided into four categories according to the predominance of the cellular infiltration:

1o the lymphoplasmocytic sinusitis

2o the eosinophilic sinusitis

3o the mixt or eosino-lymphoplasmocytic sinusitis

4o the low cellular sinusitis characterized by a slight infiltration.

These categories were also subdivided according to the state of the stroma. It is appreciated by its congestive and oedematous aspect, by its propensity towards fibrosis with eventually a fibroblastic proliferation and lastly by its neutrophil leucocytic infiltration.

We are conscious of the imperfections of these histological estimations, obtained

without any numbered quantitative methods and depending for an important part of the histologist's comparative judgement. More precise parameters are being studied. We also think that the evaluation would be better assured if the biopsies could be repeated and dispersed particularly when the infections focus are scattered or cyclic. We think meanwhile that our observations contain enough informative elements to justify a first approximation and the realization of the following analytic table:

	Eosino-lympho- plasmocytosis			Eosinophilia			Lymphoplasmocytosis			Minor infil- tration	Total
	+Oe	+Fi	+Ne	+Oe	+Fi	+Ne	+Oe	+Fi	+Ne		
Dry normoplasia	2	9	1							18	30
Exsudative normoplasia	1	3					1				5
Dry hyperplasia		1		1			3	2		1	8
Exsudative hyperplasia	3	6				1	2		3	1	16
Purulent hyperplasia	1	6	11				1	1	8		28
Dry polyposis and normoplasia	1	1						1			3
Dry polyposis and hyperplasia	2	4									6
Exsudative polyposis and hyperplasia	1		1							2	4
Purulent polyposis and hyperplasia	1	4	2							4	11
Total	12	34	15	1		1	7	4	11	26	111

Table. Repartition of the cases according to their classification.

Oe = oedema; Fi = fibrosis; Ne = neutrophilia.

COMMENTS

In the cases normoplastic mucosa, the problem in practice is first to distinguish the healthy mucosa and the stabilized sinusitis from the evolutive sinusitis despite their calm endoscopic aspect. This category contains a large proportion (18/30) of histological observations which does not mention any important cellular infiltration. Here we find most of our patients who are examined for headache, search for infectious focus of contro-lateral sinusitis. Their sinus can be considered as normal. This group also concerns patients on which the endoscopy revealed sequelae of sinusitis as mucous cysts by purulent retention or drainage accessory ostiums. On these patients, the sinusitis was present and now cured or stabilized. We have observed these signs with an important lymphoplasmocytosis sometimes associated with a congestive rhinitis. In this situation we considered that the sinusitis although not hyperplastic remained still active.

In the cases of hyperplastic mucosa it is useful to know if we are dealing with

a chronic infectious sinusitis, simple, or complicated by allergization or exacerbation. We found the tissular eosinophilia very increased in many samples of this group (22/54) and we considered it as an indication for an anti-allergic therapy. The neutrophil infiltration, symptom of an acute inflammatory exacerbation, appeared especially in the purulent hyperplastic forms. It is added as well to a lymphoplasmocytic sinusitis as to an eosinophil sinusitis (8/28). We prescribed in this case an antibiotic treatment combined eventually with an antrum drainage.

Finally in the cases of polypous or polypoido-polypous mucosa we found a large lymphoplasmocytic infiltration much more frequent than an eosinophilia which did not often appear in this category.

CONCLUSION

The results from the confrontation of our endoscopic and anatomic-pathological observations do not show characteristics for all the considered groups because of the dispersion of the results and of the little number of our cases. However, this preliminary study demonstrates that histology of the sinus mucosa is likely to bring useful information for the differentiation between stabilized or evolutive sinusitis, simple or complicated sinusitis. The biopsy associated with the sinusoscopy completes the clinical, radiological, and bacteriological investigations. Its results may be taken into consideration for the choice of the adequate and rational therapy for chronic affection of the maxillary sinus.

RÉSUMÉ

Une étude systématique des relations possibles entre les images endoscopiques et les constatations histopathologiques dans les sinusites maxillaires chroniques est effectuée sur un lot de 111 patients. Les sinusites sont classées d'une part selon l'aspect de la muqueuse, en normoplasiques, hyperplasiques, polypeuses, polypoido-polypeuses, et d'autre part, selon l'analyse histologique, en lymphoplasmocytaires, éosinophiliques éosino-lymphoplasmocytaires et paucicellulaires. La confrontation des observations sinusoscopiques et histopathologiques apporte des informations intéressantes pour une différenciation entre sinusite stabilisée ou évolutive, infectieuse ou allergique, simple ou compliquée, et par conséquent, pour le choix d'une thérapeutique.

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