Concha Bullosa Pyocele – undiagnosed for 3 years*

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SUMMARY *We report a rare case of post-traumatic concha bullosa pyocele in a diabetic teenager that has gone undiagnosed for 3 years. The clinical findings, radiological features and management are discussed. The literature is reviewed.*

Key words: pyocele, concha bullosa, trauma, diabetes

INTRODUCTION

Concha bullosa pyocele is used synonymously with pyocele of the middle turbinate and empyema of the concha bullosa in the English literature.The first report of pyocele of the middle turbinate in a 60-year-old female appeared in 1983 by Hertzanu et al. A month later Irwin (1983) reported the condition in a 62 year-old-female. Jorissen et al. (1990) reported an empyema of a concha bullosa in an 8-year-old girl with cystic fibrosis. Lidov and Som (1990) reported a case of conchal mucocele in a 32-year-old female. Yelin et al. (1994) reported a massive infected concha bullosa in a 13-year-old boy. Badia et al. (1994) reported a pyocele of the middle turbinate in an 82-year male diabetic 10 years following nasal polypectomy, and Samir and Masoud (1996) reported the first case of isolated fungal sinusitis in a concha bullosa in a 10-year-old male.

We report the clinical presentation, radiological findings and management of a concha bullosa pyocele in a 17-year-old male diabetic. His condition has gone undiagnosed for 3 years during which the control of his blood sugar was very poor.

CASE REPORT

A 17-year-old male who lives 160 miles away was seen in September 1995 complaining of right nasal obstruction for 3 years following trauma to his nose. Radiology at his local hospital at the time showed no nasal fracture and he was discharged. A few weeks later he developed progressive right nasal obstruction, which became complete 3 months later. He had no facial pain or headache and no other nasal symptoms. He was obese with a body mass index of 30.8 (weight 87 kg and height 1.68 m). Examination showed a firm fleshy mass completely filling the right nasal cavity and pushing the nasal septum across the midline, extending from the anterior nares to the postnasal space. The right tympanic membrane was retracted, but audiometry and tympanometry were normal. Occipito-mental view showed a mass filling the right nasal cavity and extending into the post-nasal space (Figure 1).

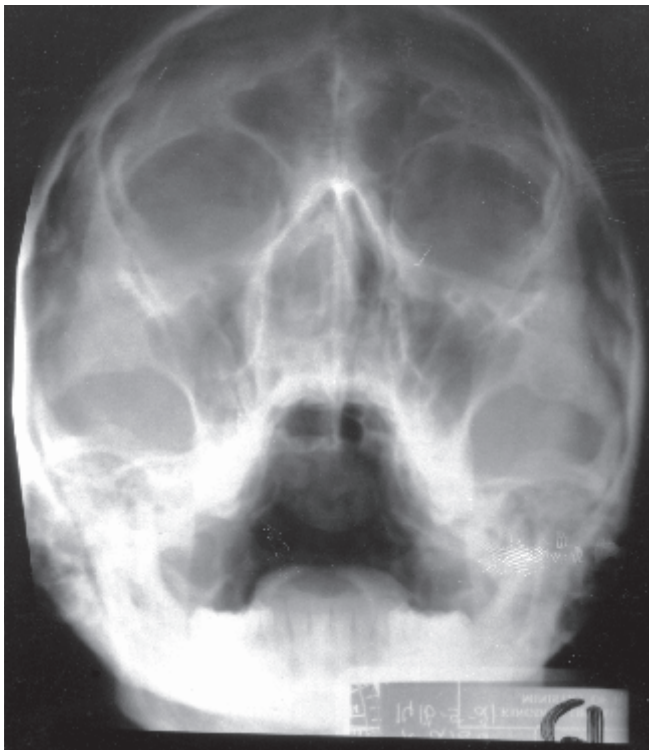

Figure 1: Water's view of patient showing opacification of the right nasal fossa and extension of the mass into the postnasal space.

On admission 6 weeks later his haemoglobin was 153 g/l with normal indices. His leukocyte count was 9.5 × 109/l with 64%

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Table 1. Reported cases of concha bullosa pyocele in the world literature.

Author(s)	Year	Age	Sex	Duration of symptoms	Associated/preceding conditions
Hertzanu et al	1983	60	F	3 weeks	maxillary sinusitis
Irwin BC	1983	62	F	8 months	epistaxis & cautery I year earlier
Jorissen et al	1990	8	F	not known	cystic fibrosis, pansinusits and nasal polyps
Lidov & Som	1990	32	F	not known	chronic sinusitis
Yelin et al	1994	13	M	4 years	none known
Badia et al	1994	82	M	1 year	diabetes and nasal polypectomy 10 years earlier

neutrophils and 30% lymphocytes. The discovery of sugar in his urine prompted a random blood sugar measurement, which came at 33 mmol./l. Blood chemistry, renal function and blood gases were normal. There was no ketonuria. The patient admitted to being a diabetic on oral hypoglycaemic since the age of 12. His mother and uncle were also diabetics for as long as he could remember. His attendance at his local diabetic clinic was erratic and he was not regular with his medication. The physicians got his blood sugar level down to near normal levels within 48 hours of starting him on insulin. Computed Tomography (CT) scan of the sinuses in the axial plane (Figure 2) showed a mass with a thin shell extending from the anterior nares to the postnasal space touching the Eustachian cushion, which explains his retracted right tympanic membrane. Coronal plane CT (Figure 3) showed the mass with its thin shell filling the right nasal fossa and pushing the septum to the other side. There was no bone destruction or resorption in any CT images. Biopsy under local anaesthesia gave a gritty sensation of the mass. The histological report showed inflammatory infiltrate and surface squamous epithelium, raising the possibility of a squamous papilloma. A week later the nose was examined under general anaesthesia. As soon as the mass was stabbed pus gushed under pressure to reveal a huge shell of very thin bone. This was widely excised, leaving a thin sliver of middle turbinate superiority. Culture grew Klebsiella pneumoniae sensitive to tetracycline and trimethoprim/sulpha. Histology showed grossly inflamed mucosa with chronic inflammatory infiltrate. The patient had an uneventful recovery and he was back on oral hypoglycaemic before discharge. He remained without symptoms with a clean patent nasal cavity and was discharged back to his local diabetic clinic after a follow-up of 6 months.

DISCUSSION

The discovery of a unilateral mass in the nose pushing the septum to the other side prompts a sense of urgency to exclude neoplasia. Irwin's (1983) clinical suspicion of osteoma or fibroma prompted a lateral rhinotomy approach; and Badia et al. (1994) suspected neoplasia in their 82-year-old patient. In our patient his sex and age necessitated the exclusion of nasal angiofibroma. The accurate history relating the nasal obstruction to trauma, the absence of any nosebleeds since the injury, and the absence of bone destruction pointed against angiofibroma. The biopsy

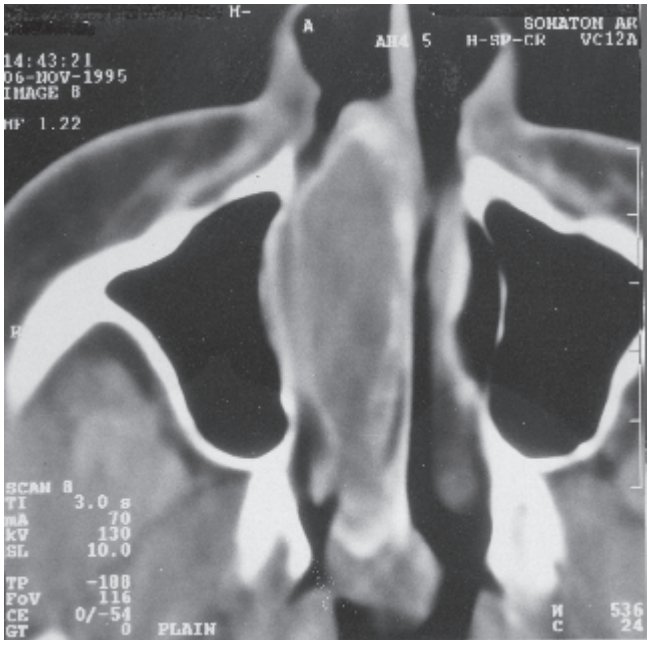

Figure 2: Axial CT showing a mass with a thin shell extending from the anterior nares to the postnasal space touching the Eustachian tubes.

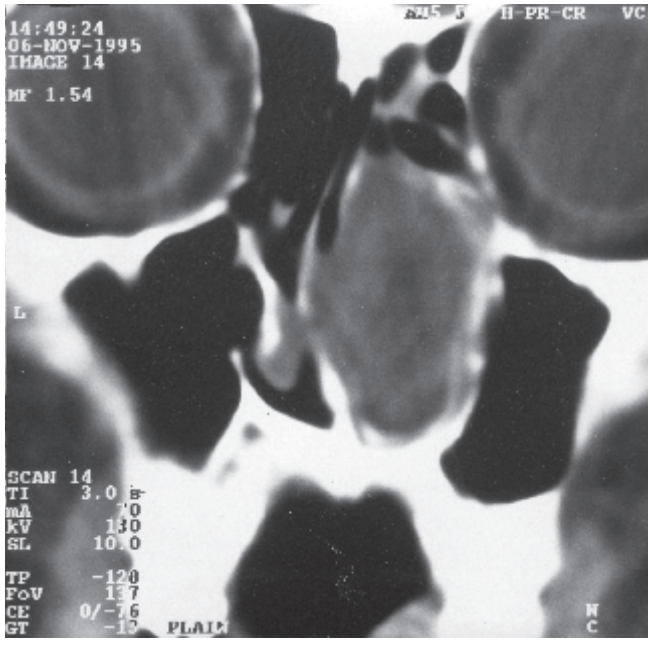

Figure 3: Coronal CT showing the mass completely filling the right nasal fossa and pushing the nasal septum to the left side.

under local anaesthesia was however taken after blood grouping. The minimal bleeding encountered during biopsy, and the histological report, practically ruled out angiofibroma.

Of the 6 cases of concha bullosa pyocele reported in the world literature 4 are females and 2 are males. Our male patient brings the sex ratio closer to unity. The duration of symptoms prior to presentation varied between 3 weeks and 4 years. Our patient shares the tolerance to nasal obstruction shown by the 13-year-old boy reported by Yelin et al. (1994). No predisposing factor is known in Yelin et al.'s patient, although minor nasal trauma that has gone unreported could not be ruled out in a boy of 9. There is a history of epistaxis and nasal cautery in 1, and chronic sinusitis in 2 patients (Table 1). One girl with cystic fibrosis had her concha bullosa pyocele associated with pansinusitis and nasal polyps – a common occurrence in children with cystic fibrosis. One patient was diabetic with a history of nasal polypectomy 10 years earlier. One of the reported patients grew Klebsiella (Irwin, 1983), and another grew Staph. aureus (Yelin et al., 1994). Our patient shares some characteristics with most of the reported patients. He has a history of trauma to his nose and he is diabetic (Badia et al., 1994) He is a teenager and his pyocele has gone undiagnosed for over 3 years (Yelin et al., 1994). Culture from the pyocele grew Klebsiella pneumoniae (Irwin, 1983).

The pathogenesis of concha bullosa pyocele following external or surgical trauma could be secondary to obstruction of the natural drainage of the air cell with secondary infection in the accumulated secretions; or infection developing in a haematoma that has collected as a result of the trauma. These possibilities raise concern regarding the practice of compressing an air-containing concha bullosa to reduce its size. This practice should now be replaced by endoscopic excision of any large concha bullosa causing obstruction or other symptoms.

The absence of pain related to the pyocele, and the way he tolerated his nasal obstruction is remarkable. The strong family history of diabetes at a young age controlled by oral hypoglycaemics, the patient's obesity and the absence of keto-acidosis in spite of his very high blood sugar is suggestive of Maturity Onset Diabetes of the Young. It appears that the chronic infection in his nose has played havoc with his blood sugar and, at the tender age of 14, prompted his rebellious indifference towards his medication. When this was explained to him he gave an undertaking to make more effort to control his blood sugar, and to visit his local diabetic clinic regularly.

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REFERENCES

1. Badia L, Parikh A and Brookes GB (1994) Pyocele of the middle turbinate. J Laryngol Otol 108: 783-784.
2. Hertzanu Y, Mendelsohn DB and Scott N (1983) Pyocele of the middle turbinate. S Afr Med J 63: 337-338.
3. Irwin BC (1983) Pyocele of the middle turbinate. J Laryngol Otol 97: 271-274.
4. Jorissen M, De Boeck C, Van Damme B,, Lemahieu S and Ostyn F (1990) Empyema of a concha bullosa in a child with cystic fibrosis. Acta Otorhinolaryngol Belg 44: 33-36.
5. Lidov M and Som PM (1990) Inflammatory disease involving a concha bullosa (Enlarged pneumatized middle nasal turbinate): MR and CT Appearance. Am J Neuroradiol 11: 999-1001.
6. Samir M and Masoud AR (1996) Sinus aspergillosis and allergic fungal sinusitis. Ann Saudi Med 16 (4): 395-399.
7. Yelin SA, Weiss MH, O'Malley B and Weingarten K (1994) Massive concha bullosa masquerading as an intranasal tumor. Ann Otorhinolaryngol 103: 658-659.

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