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Cystic lesions of the nasal cavity and the paranasal sinuses: report of two unusual cases

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Abstract
The clinicopathological features of two unusual cystic lesions, one arising in the nose, a calcified mucocoele or a calcified retention cyst and the other in the maxillary sinus, a dentigerous cyst originating in a supernumerary tooth, are described. The literature on these two rare lesions is briefly reviewed.

Key words: Cysts; Nasal cavity; Maxillary sinus; Dentigerous cyst; Mucocoele

Introduction

Cysts are relatively common and maybe encountered in virtually any organ or tissue within the body (Wilson and Shear, 1992). The head and neck region, and the jaws in particular, collectively comprise one of the more common sites of occurrence of cysts (Wilson and Shear, 1992).

In this paper we illustrate two cystic lesions, one a calcified mucocoele or retention cyst of the nasal cavity and the other, a rare dentigerous cyst around a supernumerary tooth in the maxillary antrum which created difficulties in the diagnosis. The interesting features are described and the relevant literature is briefly reviewed.

Case reports

Case 1

A 26-year-old housewife referred to the Ear, Nose and Throat Clinic at the Port Moresby General Hospital with the complaints of gradually increasing left-sided nasal obstruction for two years and occasional blood-stained nasal discharge from the same side for one year. There was no history of trauma to the nose in recent and distant past. There was a polypoidal mucosa covered mass in the left nasal cavity with deviation of the septum to the right side. The mass was hard on probe palpation and the probe could be passed all round it except in the superolateral direction. Finger palpation elicited eggshell crackling from the mass. Rest of the ENT examination as well as systemic examination were within normal limits. X-ray of the paranasal sinus (occipitomental view) showed uniform opacity in both nasal cavities (Figure 1). The lateral view of the nose revealed a globular mass with thin peripheral bony lining.

A mucosa-covered, globular mass of 4 cm diameter, that was felt to be attached to the lateral nasal wall near the middle turbinate but free from the rest of the nasal cavity, was removed by the lateral rhinotomy approach. After complete removal of the bony lining no definite site of attachment was seen along the lateral nasal wall. The patient's post-operative recovery was uneventful. Naked eye examination of the post-operative specimen showed that the cyst was lined with a paper-thin bony covering all round the inner lining mucosa. The creamy content of the cyst was sterile on aerobic culture and contained a large amount of protein and cholesterol. Histology revealed a cystic lesion with the luminal wall showing thick vascular connective tissue, collagen, fibroblasts and chronic inflammatory cells. The wall also showed calcification and osseous metaplasia (Figure 2).

FIG. 1
Photograph of X-ray of paranasal sinuses (occipitomental view) showing uniform opacity in the nasal cavities.

Case 2

A 17-year-old male presented to the Ear, Nose and Throat Clinic of Port Moresby General Hospital with complaints of blockage of the right nasal cavity and gradual swelling of the right cheek for eight months. Ear, nose and throat examination revealed a polypoidal mass in the right nasal cavity with bulging of the right half of the hard palate, alveolar margin and with a non-tender generalised swelling of the right cheek. There was no loose or missing tooth, and he denied any history of chronic infections or any trauma. Systemic as well as haematological examinations were within normal limits.

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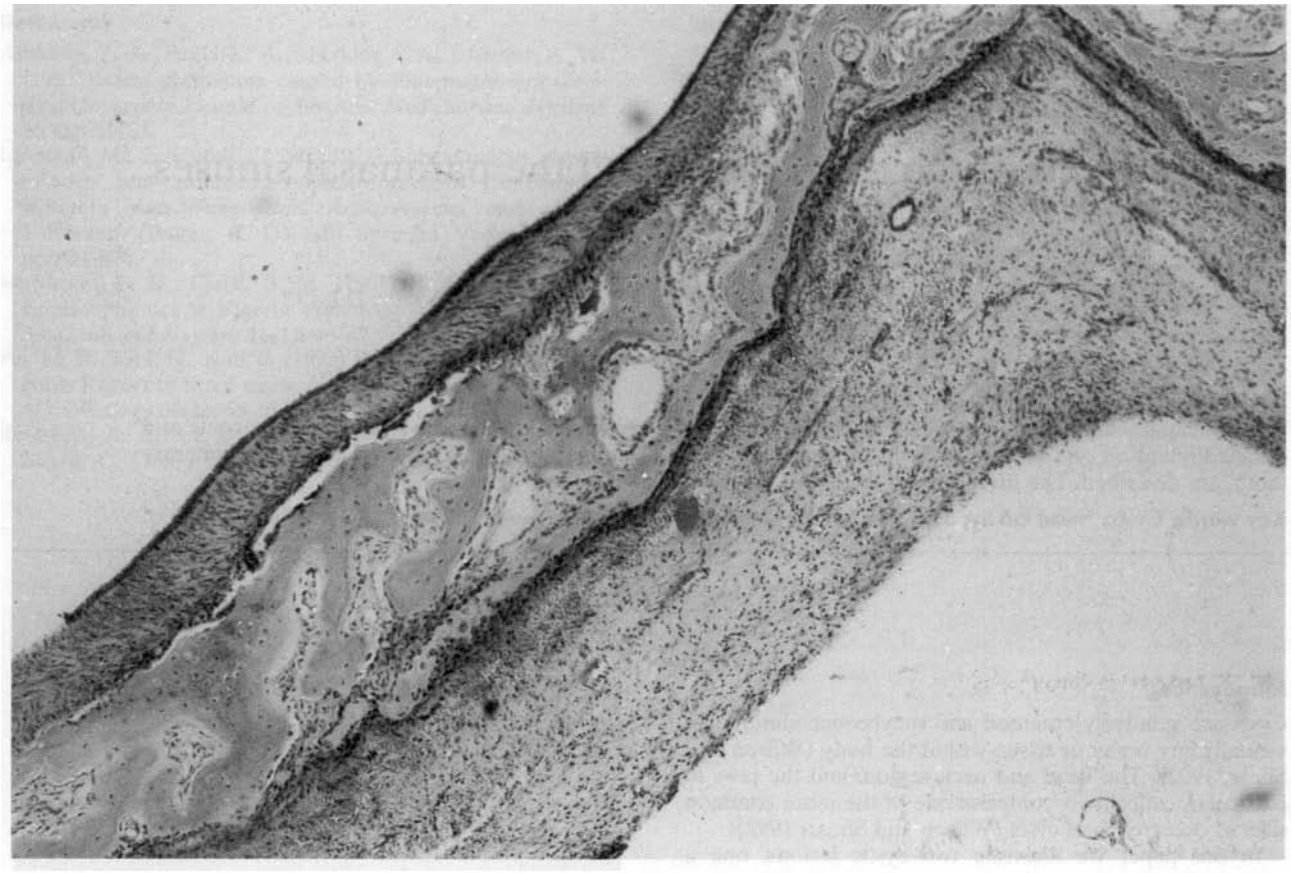

FIG. 2
Microphotograph from the cyst wall with thick fibrovascular connective tissue, chronic inflammatory cells, calcification and osseous metaplasia. (H & E; × 10)

A conventional radiograph of the paranasal sinuses (occipitomental view) showed uniform opacity of the right maxillary sinus and right nasal cavity and a tooth projecting into the right maxillary antrum from the right zygomatic bone (Figure 3).

The thin anterior maxillary wall was removed, whitish milky fluid aspirated from the cyst and the whole sac of the cyst was carefully dissected out by a right Caldwell-Luc operation. A fully developed tooth, which was found to be firmly attached to the body of the right zygomatic bone, was removed. The remainder of the walls of the maxillary sinus were found to be intact. The polyp in the right nasal cavity was removed.

Histology showed a cyst lined by stratified squamous epithelium without keratinization. The wall was composed of thick collagenous connective tissue. There were also ulceration, inflammation, lymphocytic infiltration and macrophages. Correlating with the clinico-radiological features a diagnosis of dentigerous cyst was established (Figure 4). The polypoidal mass in the right nasal cavity showed the features of an inflammatory polyp.

Discussion

Mucocoeles are most commonly encountered in the frontal sinus, and this is followed by anterior ethmoid, maxillary and posterior ethmoid sinuses in decreasing order of frequency (Natvig and Larsen, 1978). Nasal mucocoeles are extremely rare. A mucus retention cyst, the expansile, usually asymptomatic lesion, can develop within the paranasal sinuses. But its development in the nasal cavity is a rare occurrence. On the basis of clinical features and radiological findings, four pre-operative provisional diagnoses were thought of in the first case. These were calcified mucocoele or retention cyst, developmental or odontogenic cyst, dermoid cyst or parasitic cysts. With the exception of the calcified mucocoele or retention cyst, which looked indistinguishable pathologically, all others were ruled out by histological examination of the operated specimen.

In our case, the wall of the cyst felt hard because of extensive calcification. Only five per cent of the mucocoeles may have macroscopic calcifications which occur primarily in the wall (Zizmor and Noyek, 1973; Lidov *et al.*, 1990). Multiple gross calcifications within the substance of mucocoele are extremely rare. Sometimes it may be dense enough to simulate an osteoma (Zizmor and Noyek, 1973). Cavernous haemangioma and fibrous dysplasia may also show calcification and should be considered in the differential diagnosis.

Dentigerous cysts account for 15–17 per cent of all cysts of the jaws and are second in frequency only to periodontal cysts which occur more often in the ratio of at least four to one (Cawson, 1991). The significant radiological difference between the dentigerous cyst and the primordial cyst is the presence of a tooth at the periphery of the dentigerous cyst.

Pathologic examination of the uncomplicated dentigerous cyst shows a cystic cavity lined by squamous epithelium. This examination is important to rule out the

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FIG. 3

Photograph of X-ray of paranasal sinus showing uniform opacity of the right maxillary sinus with the supernumerary tooth embedded in the right zygomatic bone.

presence of ameloblastoma or carcinoma which are well described in association with dentigerous cysts (Tobin, 1980). Almost invariably dentigerous cysts are found in association with an unerupted permanent tooth. On occasion, a dentigerous cyst may be found in association with an unerupted supernumerary tooth (Cawson, 1991; Wilson and Shear, 1992). Our second case falls into this rare category. Maxillary supernumerary teeth (mesioden) are most frequent in the anterior dental arch and may disturb the eruption and/or position of the adjacent permanent incisors (Arx, 1992). This was not seen in our case as the tooth was impacted in the zygoma.

Most dentigerous cysts are treated by careful enucleation of the lesion along with the involved tooth. In our case we were able to remove the cyst wall completely. The polypoidal mass in the right nasal cavity was most likely due to the pressure effect from the expanding dentigerous cyst in the right maxillary antrum.

Conclusion

Cystic lesions in the nasal cavity or in the paranasal sinuses are frequently encountered by the Otolaryngologist. It can originate in the mucosa of the nose and the paranasal sinuses or from the adjacent structures such as dental tissues. They may become large leading to functional disturbances with or without cosmetic problems. These cases need thorough clinical and radiological assessment before surgical removal.

FIG. 4

Microphotograph showing the cyst wall with stratified squamous epithelium and thick collagen. The central part shows ulceration and inflammation. (H & E; × 10)

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References

Arx, T. V. (1992) Anterior maxillary supernumerary teeth: A clinical and radiographic study. *Australian Dental Journal* **37:** 189–195.

Cawson, R. A. (1991) Cysts of the jaws. In *Essentials of Dental Surgery and Pathology*. 5th Edition, Churchill Livingstone, Edinburgh, pp 225–245.

Lidov, M., Behin, F., Som, P. M. (1990) Calcified sphenoid mucocoele. *Archives of Otolaryngology, Head and Neck Surgery* **116:** 718–720.

Natvig, K., Larsen, T. E. (1978) Mucocoele of the paranasal sinuses: A retrospective clinical and histological study. *Journal of Laryngology and Otology* **92:** 1075–1082.

Tobin, H. A. (1980) Surgery of the maxilla and mandible. In *Otolaryngology*. 2nd Edition. vol. 3. Head and Neck (Paparella, M. M., Shumrick, D. A., eds.), W. B. Saunders Co., Philadelphia, pp 2716–2757.

Wilson, D. F., Shear, M. (1992) Developmental and inflammatory cysts of the jaws. In *Oral Disease in the Tropics* (Prabhu, S. R., Wilson, D. F., Daftary, D. K., Johnson, N. W., eds.), Oxford Medical Publications, Oxford University Press, Oxford, pp 686–714.

Zizmor, J., Noyek, A. M. (1973) Cysts, benign tumors and malignant tumors of the paranasal sinuses. *Otolaryngologic Clinics of North America* **6:** 487–508.

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