



A Rare Case of Mucocele of Pterygoid Plate

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Abstract

A mucocoele is an epithelial-lined, mucus-containing sac completely filling the sinus and capable of expansion. While they most frequently occur in the frontal and ethmoid sinuses, other locations like maxillary sinus, sphenoid sinus, dacrocyst are rare. While ophthalmologic symptoms are most common, patients also report rhinological or neurological complaints. The close proximity of paranasal sinus mucoceles to the orbit and skull base predisposes the patient to significant morbidity. Computed tomography displays a non-enhancing homogenous mass with expansion of bony walls. Magnetic resonance imaging reveals variable intensity of T1-weighted images and a hyperintense mass on T2-weighted images. Histopathologically mucoceles have features of respiratory mucosa with areas of reactive bone formation and hemorrhage. Surgical excision is the standard treatment with trends towards endoscopic techniques.

Keywords: Sinus; Mucoceles; Hemorrhage; Pterygoid Plate

Introduction:

A mucocoele is an epithelial-lined, mucus-containing sac completely filling the sinus and capable of expansion [1]. The fronto-ethmoidal region is by far the most commonly affected overall (60% in frontal, 30% in ethmoid) and the maxillary sinus the least (10%), but a proportion of sphenoidal mucoceles present to neurosurgeons (1%) [2]. Aeration of the pterygoid processes potentially occurs after the closure of the sphenoid-occipital suture [3]. When it happens they may become involved in obstructive inflammatory disease such as sinusitis and mucocele formation. The etiopathogenesis is related to the association of two factors namely osteal obstruction (anatomic anomalies, traumatic event, benign or malignant tumors) and inflammation [4]. There may be a considerable time lag between the initiating factor and the clinical presentation with the mucocele. In the case of surgery or trauma this is an average of 23 years, whereas following an acute infective episode the mean time to presentation is 22 months [5].

Case Presentation:

A 53 year old male presented to ENT department with history of nasal obstruction, unilateral on Left side, associated with left sided head ache. On diagnostic nasal endoscopy a soft cystic mass occupying the posterior nasal cavity and choana, not bleeding to touch was visualized (Figure 1).

Patient was subjected to CT scanning of nose and paranasal sinuses which revealed, ~24.5*30*27 (AP*TR*CC) sized well defined lesion with no calcification in the region of greater palatine and sphenopalatine foramina causing anterior deviation of posterior wall of maxilla, posterior displacement and scalloping of left pterygoid and projecting medially in to posterior left nasal cavity (Figures 2 and 3).

The tumor was managed with endoscopic excision and marsupialization, whereon mucous secretions and straw colored fluid was aspirated (Figure 4).

The histopathological examination revealed features of respiratory mucosa with cyst walls demonstrating

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Figure 1: Endoscopic view of nasal cavity.



Figure 2: CT scanned image of para sagittal view of nose.

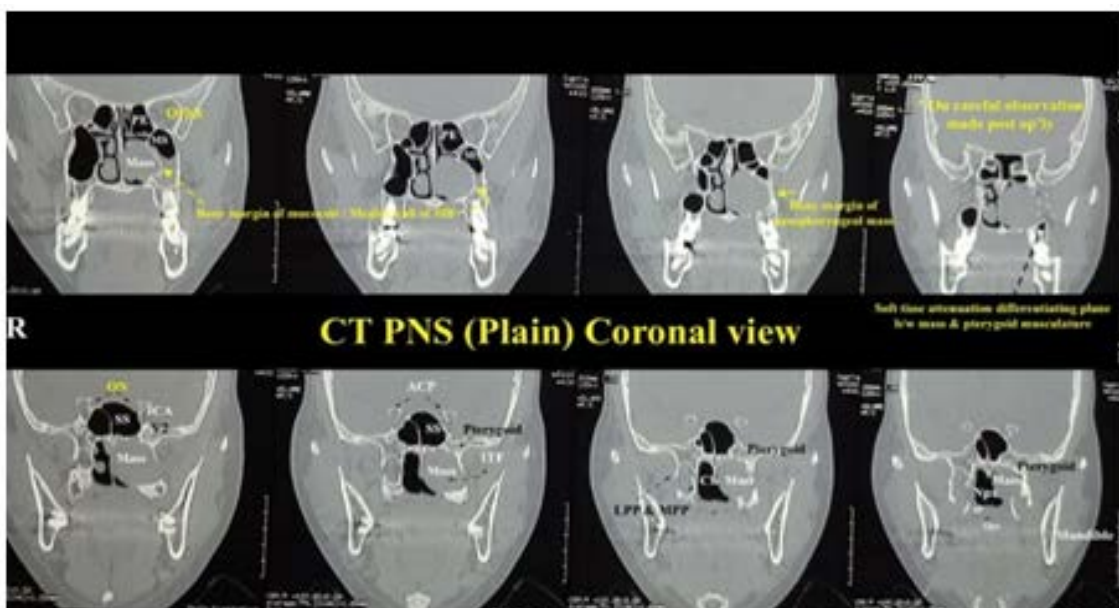


Figure 3: CT scanned image of para coronal view of nose.

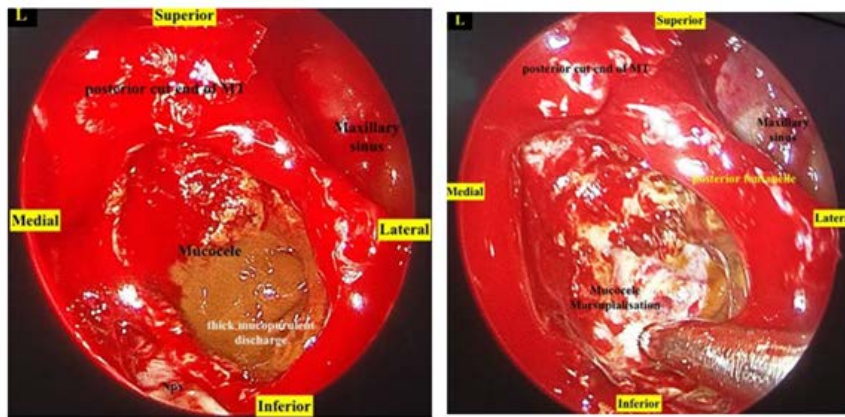


Figure 4: Tumour image of nose.

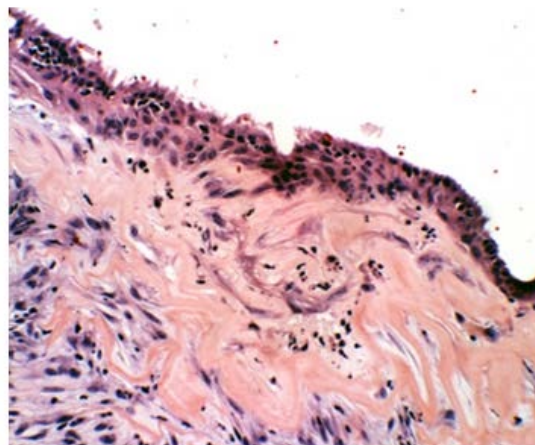


Figure 5: Different respiratory mucosal layer.

single-layered, pseudostratified, ciliated, columnar epithelium. Patient is asymptomatic to date (Figure 5).

Discussion:

Mucoceles are benign, slow-growing, locally expansive masses, filled with mucus and lined by epithelium. Mucoceles were first described by Langenbeck in 1818 and Rollett in 1896. With no sex predilection, mucoceles tend to occur between the fourth and the seventh decades of life. Mucoceles are thought to arise as a consequence of obstruction plus inflammation. Three main theories of pathogenesis are found in the literature:

1. Pressure erosion
2. Cystic degeneration of glandular tissue.
3. Active bone resorption and regeneration.

In the mucocoele, the balance between osteogenesis and osteolysis is just tipped in favour of osteolysis, facilitating expansion of the lesion unless acute

infection supervenes with pyocoele formation, a number of bone-resorbing factors have been found in mucocoele mucosa, including prostaglandins such as PGE2, leukotrienes, HETES and a range of cytokines, increased levels of IL-1a, IL-1b and tumour necrosis factor were with upregulation of vascular adhesion molecules, e-selectin and I-CAM4.

Typically, patients with mucoceles in the frontoethmoidal region are referred to ophthalmic surgeons due to orbital displacement. The classical presenting features are headache, diplopia, proptosis, and visual field defects. Anterior extension of the mucocoele may present as Pott's puffy tumor. Similarly, posterior extension of a mucocoele may result in suppurative infections such as meningitis, epidural abscess, and subdural empyema¹. Pressure effects on the cranial nerves can result in sudden focal neurological deficits such as blindness if the cavernous part of the carotid sinus is involved laterally. In the sphenoid, the intimate relation of the sinus to the orbital apex and cavernous sinus

may lead to an acute presentation with visual disturbance, including diplopia and blindness.

Computed tomography (CT) scanning is the optimum method of demonstrating a mucocoele. The features are areas of complete bone resorption may be present, resulting in bony defect and extension of the 'mass' into adjacent tissues. Peripheral calcification is sometimes seen. Following administration of contrast, only peripheral enhancement (if any) is seen.

MRI: MRI signal intensity is highly variable and depends on the proportions of water, mucus and protein [6].

T1: water-rich content: low signal (most common), protein-rich content: high signal

T2: water-rich content: high signal (most common), protein-rich content: low signal

T1 C+ (Gd): enhancement, if present, only occurs at the periphery

DWI: variable

Conclusion:

Differential diagnosis being Simple fluid retention mucocoele(no bony expansion), Neoplasia- inverted papilloma, sinonasal malignancy (most of these enhance)

Treatment is generally endoscopic drainage and marsupialization. A mucocoele within the pneumatized pterygoid process can be removed via an endoscopic transnasal transethmoid sphenoidotomy approach

Interests of Conflicts:

None

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