

Paranasal sinus mucocele

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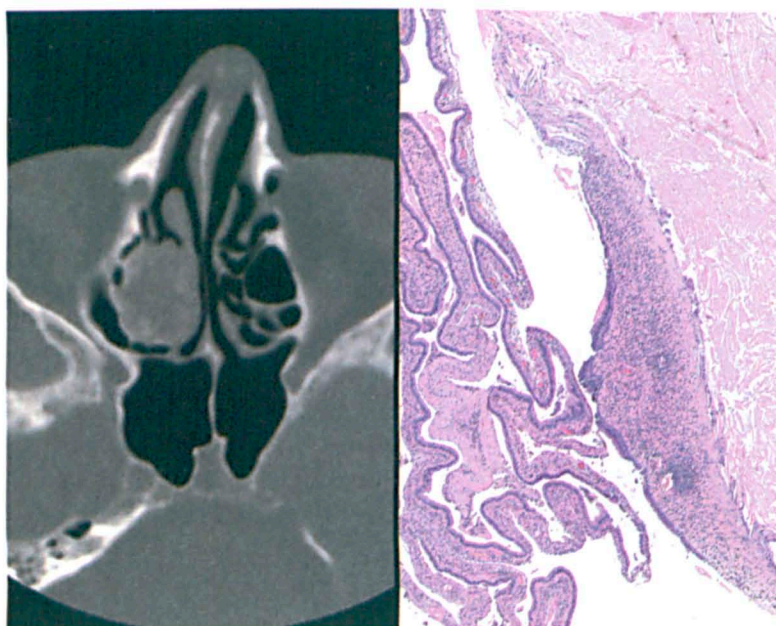


Figure 1. Left: A well-rounded opacification of the right ethmoid-frontal sinus-nasal cavity complex is seen on a computed tomography scan. Right: There are strips and fragments of benign respiratory epithelium. Note the mucinous material on the far right, below the stroma.

Mucocele of the paranasal sinuses is a distinct clinicopathologic entity in which there is obstruction of the sinus cavity outflow tract, resulting in expansion of the sinus walls. The histologic features are quite non-specific, requiring clinical, radiologic, and pathologic correlation. Most of these lesions result from increased pressure in the sinus due to sinus outlet obstruction, usually as a consequence of inflammatory or allergic processes. However, tumor, trauma, and previous surgery may play a role.

These lesions are without a gender predilection and can develop at any age. The vast majority arise within the frontal and ethmoid sinuses. Patients present clinically with pain, nasal obstruction, and facial swelling

or deformity. Symptoms are usually present for a long time rather than arising acutely.

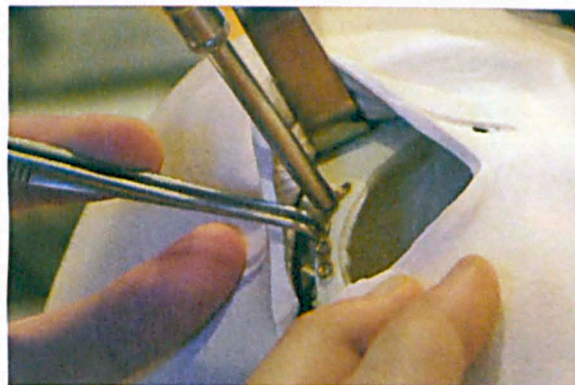
Radiographic findings are critical to the diagnosis, usually showing opacification of the sinus (figure 1) with thinning, erosion, or destruction of the sinus wall. This results in radiolucency, although sclerosis may be seen in adjacent bone. The expanded cavity shows a rounded appearance, reactive bone thickening, and a homogenous mucoid content. Complete excision, especially by endoscopic methods, results in control of the disease. Rarely, a pyocele, meningitis, or brain abscess may develop.

Clinically, mucocèles are separated into internal and external, depending on whether the cyst contents are

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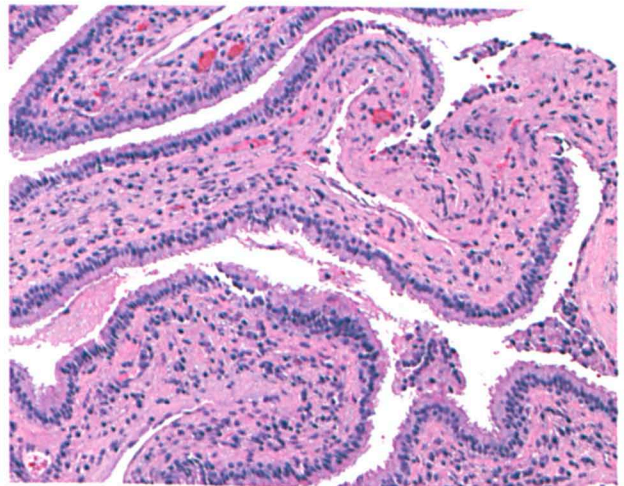


Figure 2. High-power view shows the ciliated respiratory epithelium with unremarkable stroma. The cilia belie the remarkable pressure that can be detected in a mucocoele.

contained within the bony walls of the sinus or expand into the subcutaneous or cranial cavities. The histologic appearance is very subtle, showing strips of flattened, pseudostratified, ciliated, columnar epithelium. Metaplastic changes of the epithelium may be present in long-standing cases. The ciliated epithelium is quite remarkable given the intense intralesional pressure (figure 2), which results in bone remodeling and destruction. There may be reactive bone formation immediately adjacent to the epithelium. Mucinous material may be present, and there is usually associated chronic inflammation. Rupture may result in fibrosis, granulation tissue, hemorrhage, and cholesterol cleft formation or cholesterol granuloma.

Suggested reading

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- Socher JA, Cassano M, Filheiro CA, et al. Diagnosis and treatment of isolated sphenoid sinus disease: A review of 109 cases. *Acta Otolaryngol* 2008;128(9):1004-10.