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Case Report

A rare case report of unilateral giant sphenochoanal polyp with sphenoidal mucocele

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ABSTRACT

Sphenochoanal polyp is a rare benign tumour arising from sphenoid sinus. The most common presenting complaint is gradually progressing nasal obstruction. Clinically, it mimics antrochoanal polyp and differentiated using nasal endoscopy, computer tomography and magnetic resonance imaging of the paranasal sinuses. Functional endoscopic sinus surgery (FESS) is the treatment of choice. Whereas mucous retention cyst of sphenoid is one of the rarer conditions. It develops due to obstruction of seromucinous gland of sinus mucosa, resulting in accumulation of mucus causing dilatation of the gland. Retention cysts and polyposis are infrequent in sphenoid sinus compared to other paranasal sinuses. Main clinical presentation of sphenoid mucocele is due to its pressure effects on surrounding structures, causing headache, diminished vision, ophthalmoplegia or intracranial complications. Sometimes, it remains undiagnosed and comes out as an accidental finding during surgery as occurred in our case. Patients with complaints must go under surgical removal of cyst and polypoidal mass. We report a case of a 23-year-old male presenting with unilateral nasal obstruction, headache, periorbital swelling, and a history of recurrent paranasal sinus infections. He was diagnosed with a sphenochoanal polyp based on investigations but underwent FESS, during which a sphenoid mucocele was discovered as an incidental finding.

Keywords: Sphenocoanal polyp, Sphenoid mucocele, Mucus retention cyst, Nasal endoscopy, Case report

INTRODUCTION

Choanal polyps are single, benign growths that originate from the inflamed and edematous mucous membranes of the paranasal sinuses, extending into the nasal cavity through ostium of respective sinus and blocking the nasopharynx. There are three parts of choanal polyp: an intrasinusal, ostial and extrasinusal.[1]

Choanal polyps are classified based on their sinus of origin as antrochoanal polyps originating from maxillary sinus, sphenochoanal polyps from sphenoid sinus and ethmochoanal polyps from ethmoid sinus.[2] Nearly half of all sphenochoanal polyps occur in children.[1]

Sphenochoanal polyps often present late due to their deep location, emphasizing the need for thorough clinical and radiological evaluation before surgical planning.[3]

A paranasal sinus mucocele occurs when mucoid secretions accumulate and become trapped within a sinus, causing thinning, distension of its bony walls and potentially eroding them. Frontal sinus mucocele is the most common, followed by the anterior ethmoidal sinus. Sphenoid sinus is rarely involved and comprises 1–2% of all paranasal sinuses mucoceles, but it can lead to many complications involving several important structures, including the dura, pituitary gland, optic nerve, cavernous sinus, internal carotid artery and cranial nerves (mainly cranial nerves III, IV, V, and VI).

CASE REPORT

A 23-year-old male presented with complaints of left periorbital swelling for 10 days, which was insidious in onset and gradually progressive, with persistent headache. The patient had a history of left-sided nasal obstruction for

6 months, with recurrent paranasal sinus infections. There was no history of blurring of vision, diminished vision, nasal bleeding, or trauma, or a mass coming out of the nasal cavity.

On general examination, the patient was vitally stable, with normal eyeball movements (no ocular mobility restrictions). Anterior rhinoscopy was within normal limits. Diagnostic nasal endoscopy revealed a pale polypoidal mass in the left nasal cavity, medial to the middle turbinate, blocking the left posterior choana, and it did not bleed on touch.

Non-contrast computed tomography of the nose and paranasal sinuses (NCCT PNS) showed diffuse soft tissue opacification in the bilateral sphenoid sinus, suggestive of a sphenochoanal polyp. Contrast-enhanced computed tomography showed non-enhancing polypoidal thickening involving the left sphenoid sinus, extending into the left nasal cavity and causing widening of the spheno-ethmoidal recess. A well-defined, non-enhancing polypoidal lesion measuring 2.5 x 1.2 x 1.7 cm (AP x Trans x CC) was seen in the left choana, abutting the nasal septum medially and the inferior turbinate laterally, causing near-complete choanal blockage on the left side. No obvious bony erosion was noted, and the features suggested a benign etiology, specifically a sphenochoanal polyp.

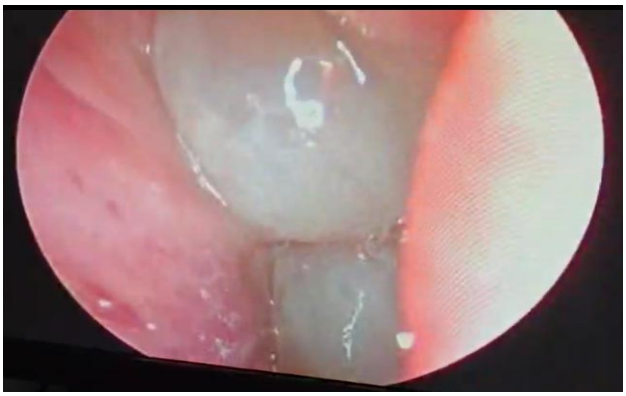

Figure 1: Left nasal endoscopy showing polypoidal mass.

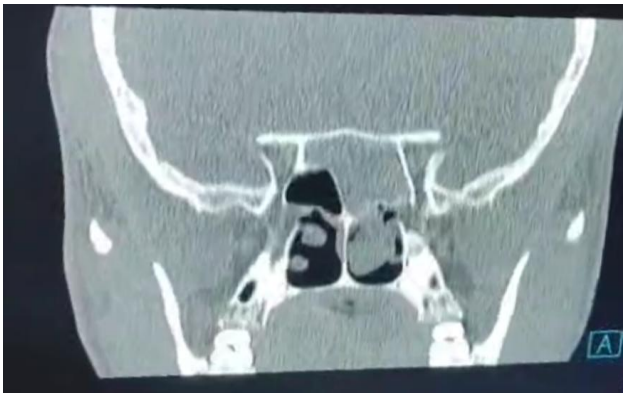

Figure 2: NCCT PNS coronal view.

The patient was posted for FESS. During the procedure, a mucous retention cyst was seen along with a polypoidal mass coming from the left sphenoid sinus opening. Widening of the ethmo-sphenoid recess was present. The mucous retention cyst and polypoidal mass were removed and sent for histopathological examination (HPE).

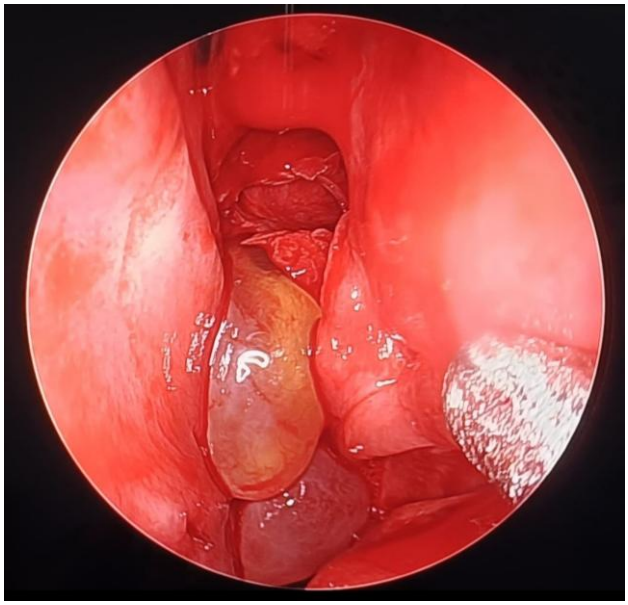

Figure 3: Polypoidal mass in sphenoid sinus along with mucocele.

Histopathological examination

Gross

The sphenochoanal polyp appeared as a single, whitish, soft to firm polypoidal tissue piece measuring 1.5×1.5×1.0 cm. On cut section, it was whitish-yellow and translucent. The mucous retention cyst was seen as a single, brownish-white, soft to firm tissue piece measuring 0.5×0.4×0.2 cm.

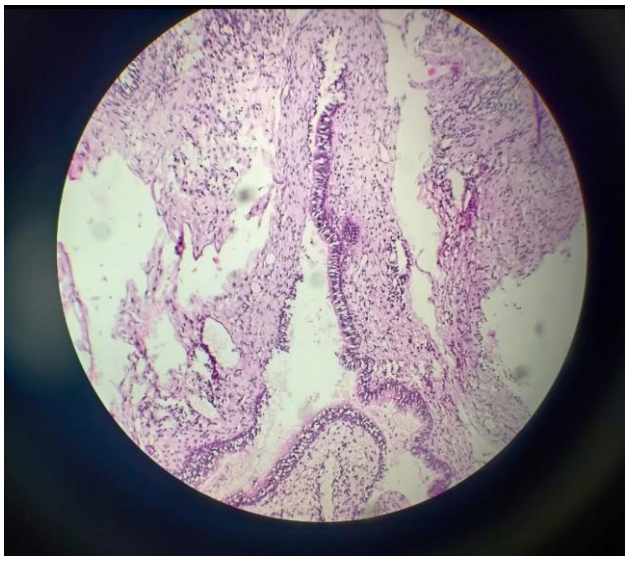

Figure 4 Histopathology slide.

Microscopic examination

The sphenochoanal polyp showed tissue lined by mucin-secreting pseudostratified ciliated columnar epithelium supported by a fibrovascular core. The stroma was loose, edematous, and showed dense inflammatory infiltrates of eosinophils, lymphocytes, and plasma cells. Final diagnosis: inflammatory nasal polyp - allergic type.

The mucous retention cyst was lined by mucin-secreting pseudostratified columnar epithelium with congested capillary-sized blood vessels. The lumen of the cyst was filled with mucinous material. Final diagnosis: mucous retention cyst.

Saline nasal douching was continued post-surgery. Follow-up was taken at 2, 4, 6, and 10 weeks after surgery, and postoperative nasal endoscopy and computed tomography (CT) of the paranasal sinuses were performed. No evidence of polypoidal mass or discharge was observed.

DISCUSSION

Nasal polyps are benign growths that typically originate in the paranasal sinuses and can extend into the nasal cavity, towards the choana, and into the nasopharynx.[4] The naming of nasal polyps is based on the sinus from which they originate. Choanal polyps comprise around 4-6% of all nasal polyps.[4] Antrochoanal polyps, originating from the maxillary sinus, are the most common type, while ethmochoanal and sphenochoanal polyps, arising from the ethmoid and sphenoid sinuses, respectively, are relatively rare.[3] Many studies indicate a connection between choanal polyps and allergic diseases, yet the exact etiology of choanal polyps remains unknown. According to Berg's study, it's thought that choanal polyps may originate from intramural cysts in the maxillary antrum or sphenoid sinus.[1] Zuckerkandl is credited with the first description of sphenochoanal polyps.[3]

Sphenochoanal polyps show no gender predilection and predominantly affect adolescents and young adults.[2] The incidence of choanal polyps among nasal polyps is 4-6% in adults, whereas in children, it significantly rises to approximately 33%. Some studies suggest small sphenochoanal polyps may regress spontaneously, while larger polyps that become infected tend to cause symptoms.[2]

On diagnostic nasal endoscopy it appears as a soft tissue mass obstructing the nasal cavity's passage to the nasopharynx. Careful endoscopic examination typically allows determination of the sinus of origin for choanal polyps. Antrochoanal polyps extend from the maxillary sinus ostium, passing between the middle turbinate and lateral nasal wall to reach the choana. In contrast, sphenochoanal polyps emerge from the sphenoid sinus ostium, advancing between the septum and the middle turbinate in the sphenoethmoid recess to reach the choana.[2]

The key differential diagnosis for sphenochoanal polyps is antrochoanal polyps, as they can be clinically and histopathologically similar. Common symptoms include unilateral nasal obstruction, rhinorrhea, snoring, visible oropharyngeal mass, and Eustachian tube dysfunction.[1] Sphenochoanal polyps can be easily missed on anterior rhinoscopy due to their origin and location in the posterior nasal cavity. In our case, the polyp was not seen on anterior rhinoscopic examination.

Nasal endoscopy is crucial for confirming the diagnosis and assessing the extent of the polyp. CT of the paranasal sinuses is the gold standard investigation. Thus, history, physical examination, and radiologic findings are important for the diagnosis.[3] An ophthalmological assessment is recommended to evaluate potential compression symptoms related to the sphenoid sinus mass.

FESS is the treatment of choice for sphenochoanal polyps. The goal is to remove the polyp en bloc, widen the sphenoid ostium (inferiorly and medially), and clear the sinuses. Endoscopic surgery is preferred over simple polypectomy for sphenochoanal polyps due to better visualization, precise removal, and reduced risk of recurrence, considering the sphenoid sinus's proximity to critical structures.[1] Complete removal of both the intranasal and intrasphenoidal components of the polyp can prevent recurrence. Regular follow-up is also crucial.[3]

Mucoceles of the paranasal sinuses are benign, epithelial-lined lesions that can lead to bone thinning and erosion. Sphenoid sinus mucoceles are relatively rare compared to mucoceles in other paranasal sinuses. Chronic headaches are a common symptom of sphenoid sinus mucoceles.[5] The exact mechanism behind spontaneous mucocele development is unclear, with various theories proposed, including: sinus obstruction, cystic development from embryonic epithelial residues, cystic dilatation of glandular structures, atypical craniopharyngioma form.[5]

Mucoceles most commonly affect the frontal and ethmoid sinuses, less frequently the maxillary sinuses, and rarely the sphenoid sinuses, which account for only 1-2% of all paranasal sinus mucoceles.[2] The first reported case of sphenoid mucocele was by Berg in 1889.[2] Sphenoid sinus mucoceles typically present in the fourth decade of life, with no significant sex predilection.[4]

CT scans of the nose and paranasal sinuses can help diagnose sphenoid sinus mucoceles, typically showing a hypodense cystic lesion in the sphenoid sinus, which may extend to adjacent areas like the sellar, suprasellar, parasellar, or retrosellar regions.

Sphenoid sinus mucoceles need to be differentiated from other cystic lesions in the region, including: craniopharyngioma, Rathke cleft cyst, cystic pituitary adenoma, epidermoid cyst, cystic optic nerve glioma, and arachnoid cyst. MRI scan of the nose and paranasal sinuses

can help confirm the diagnosis of a mucocele, providing detailed imaging of the soft tissue and extent of the lesion.[4]

Surgical management is the treatment of choice for mucoceles, with the surgical approach determined by the extent and location of the lesion. The endoscopic approach is a standard and preferred method for treating mucoceles due to its minimally invasive nature and reduced morbidity, which was the approach used for our patient.[5] Sphenoid sinus mucoceles pose a risk of permanent vision loss. The extent of visual recovery after surgery is influenced by preoperative visual acuity, the underlying cause of the mucocele, and the promptness of surgical intervention.[4]

CONCLUSION

Sphenochoanal polyps are rare and can mimic other sinonasal polyposis clinically and histologically. A combined approach using CT scans of the paranasal sinuses and diagnostic endoscopy is necessary for accurate diagnosis. Sphenoid sinus mucoceles are rare, benign, expansile lesions that can lead to irreversible vision loss if diagnosis and treatment are delayed. Even in delayed presentations, surgical intervention should be performed as soon as possible, as there is still a possibility of some vision improvement, although the likelihood may be low.

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