One More Chance to See the World: A Rare Case Report on Sphenoid Mucocele Causing Vision Loss

Abstract

Mucocele of the sphenoid sinus is one of the rare diseases which an ENT surgeon can encounter in a clinical setup. It can often present as a chronic headache. It can remain undiagnosed unless a symptom due to the compression effect of the mucocele, such as diminution of vision, ophthalmoplegia, or any intracranial complication, occurs. Early diagnosis and emergency surgical intervention are imperative to prevent complications. Although late presentation can have a risk of permanent vision loss, improvement in vision postsurgery does not necessarily depend on the duration of symptoms. Here, we present a rare case scenario where, even after the delayed presentation, the patient had a significant vision improvement postsurgery.

Keywords: *Endoscopic marsupialization, painless vision loss, permanent vision loss, sphenoid mucocele, steroid therapy*

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Introduction

The sphenoid sinus is the least common site for a mucocele to occur. Sphenoid sinus mucocele accounts for only 1%–2% of the total paranasal sinus mucocele.[1] Mucoceles are epithelium-lined, encapsulated lesions filled with mucous, which has the potential to erode bones. Otorhinolaryngologists are concerned about this feature as it poses more debilitating complications such as visual disturbance or intracranial extension. Sphenoid sinus mucocele is always considered an emergency when it causes visual disturbance. Furthermore, less literature cites the visual prognosis of patients with sphenoid sinus mucocele postsurgery, as sphenoid sinus mucocele is rare. Here, we report a case of late presentation of sphenoid sinus mucocele with vision impairment and the prognosis of the patient postsurgery.

Case Report

A 51-year-old male presented to our otorhinolaryngology outpatient department with complaints of intermittent holocranial headaches for 1 month. It was associated with gradual painless diminution followed by complete vision loss in the left eye.

Examination revealed that the patient had no perception of light in the left eye, associated with a relative afferent pupillary defect. Fundus examination revealed features suggestive of compressive optic neuropathy. On the right eye, visual acuity was 6/9, with a normal fundus. Diagnostic rigid nasal endoscopy showed a mucosa-covered bulge arising from the left sphenoid ostium. Contrast-enhanced computed tomography (CT) of the nose, paranasal sinus, and orbit [Figure 1] revealed a well-defined hypodense nonenhancing cystic lesion measuring 3.9 cm × 3.1 cm × 2 cm in the bilateral sphenoid sinus expanding anteriorly into the left sphenoethmoidal recess. Magnetic resonance imaging (MRI) of the brain [Figure 2] in T1- and T2-weighted images showed a hyperintense cystic lesion of 2.5 cm × 3.2 cm × 4 cm extending superiorly to the sella cistern causing compression of the optic chiasma.

On the working diagnosis of isolated sphenoid sinus mucocele, the patient was taken up for the marsupialization of the mucocele. Intraoperatively, upon marsupialization, 30 ml of clear fluid was drained. A dehiscent optic canal [Figure 3] and opticocarotid recess were noted in the left sphenoid sinus. Postoperatively, serial ophthalmology opinion was taken. The patient had immediate clinical improvement of vision to 6/36 in the left eye from nil perception of light. The patient was started

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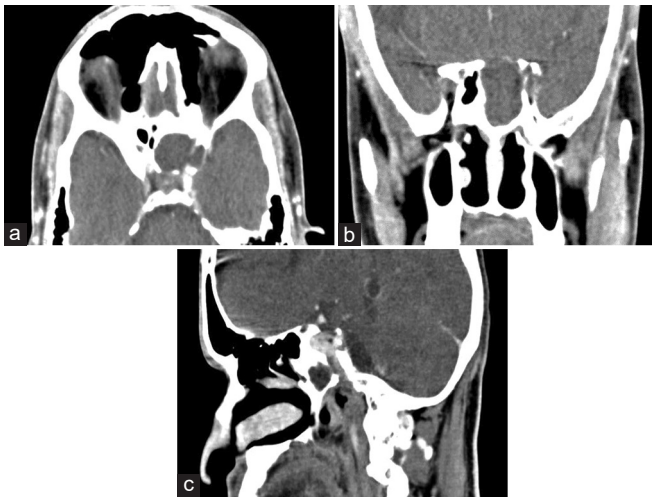

Figure 1: CECT showing a well-defined hypodense nonenhancing cystic lesion measuring 3.9 cm × 3.1 cm × 2 cm noted in the bilateral sphenoid sinus expanding anteriorly into the left sphenoethmoidal recess in axial (a), coronal (b), and sagittal cuts (c). CECT: Contrast-enhanced computed tomography

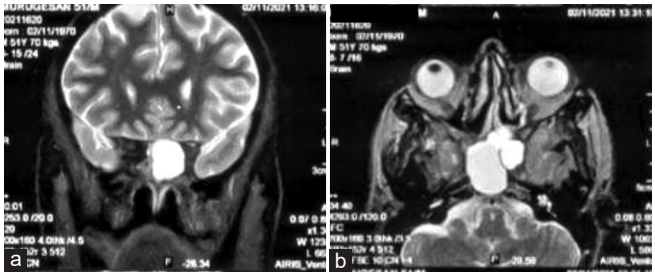

Figure 2: Magnetic resonance imaging of the brain in T2- (a) and T1- (b) weighted images showed a hyperintense cystic lesion of 2.5 cm × 3.2 cm × 4 cm extending superiorly to sella cistern causing compression of optic chiasma

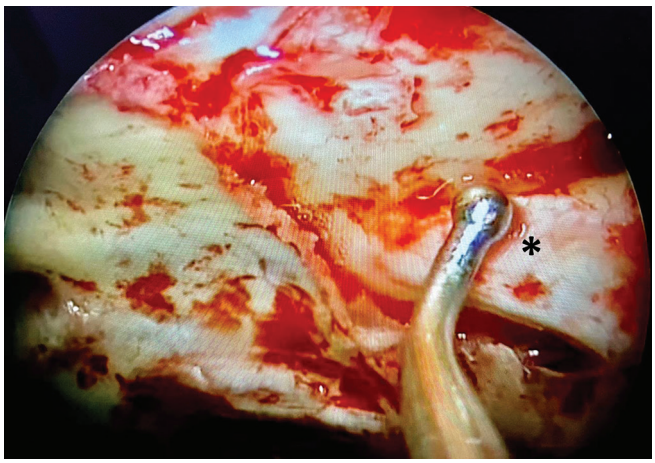

Figure 3: Intraoperative view of left dehiscent optic canal (*) under the probe after marsupialization of the mucocele

on oral steroids at a dose of 1 mg/kg per day to a maximum of 60 mg for 1 week followed by a tapering course over the next 2 weeks in anticipation of further vision improvement. On postsurgery follow-up for 3 months, the patient showed no new symptoms or signs of recurrence.

Discussion

Mucoceles of the paranasal sinus are benign, epithelial-lined lesions. It can cause thinning and erosion of the bone. Sphenoid sinus mucocele is a rare presentation among paranasal sinus mucocele. The common symptom of sphenoid sinus mucocele includes chronic headaches. As many vital structures are closely related to the walls of the sphenoid sinus, the complication depends on the structures getting compressed due to the expansive property of the lesion. These include diplopia, blindness, meningitis, cavernous sinus thrombosis, and internal carotid artery compression.[2]

The development mechanism of spontaneous mucocele is not precise. There are different theories: sinus obstruction, cystic development of embryonic epithelial residues, cystic dilatation of the glandular structures, and even an atypical form of craniopharyngioma.[3,4]

Imaging studies such as contrast-enhanced CT and MRI will throw light on a better diagnosis of sphenoid sinus pathology; however, CT is the most essential and beneficial method as it reflects the imaging of homogeneous, cystic, expansile mass eroding the surrounding bone tissue.[5] MRI helps in showing intracranial extension of the lesion.

Mucoceles are surgically managed. The extent of the lesion determines the surgical approach. The endoscopic approach being a standard and less morbid approach, our patient was also treated with an endoscopic technique.[5] In this patient, a left middle turbinectomy was done, and mucocele was identified in the sphenoid sinus. Approximately 30 ml of clear fluid was drained, and marsupialization of the cyst wall was done.

In cases of sphenoid sinus mucocele with or without ethmoid sinus involvement, permanent vision loss is one of the severe complications that we are always worried about. The mechanism of vision loss has been attributed to optic nerve ischemia and inflammation secondary to displacement and compression.[6] The degree of visual acuity improvement postsurgery depends on the preoperative visual acuity, etiology of mucocele, and duration between the presentation and the surgery.[7] Delayed presentation of sphenoid sinus mucocele has increased the risk of permanent vision loss. In our patient, there was a late presentation with 1-month history of progressive diminution of vision. Although we anticipated a dreaded complication of permanent loss of vision, the patient had improvement in vision after surgical treatment. Hence, timely surgical intervention with high-dose steroids can result in good outcomes.[8]

Conclusion

Sphenoid sinus mucocele is a rare disease. It is a benign, expansile lesion that has the potential to cause irreversible vision loss if not diagnosed and treated at the right time. Although prompt diagnosis and emergency

decompression will not assure a recovery of visual symptoms, it helps prevent further complications. Even in cases of delayed presentation, surgical intervention should be done as early as possible. While the likelihood of vision improvement in such cases is minimal, it is never entirely absent.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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