



Recurrent Posterior Ethmoid Mucocele with Sphenoid Sinus Extension: A Case Report

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Abstract

Mucoceles are benign, expansile and encapsulated mass within a paranasal sinus. It is mostly found in the frontal sinus and less commonly in the posterior ethmoid and sphenoid sinus. We reported a case of 61-year-old lady with recurrent right posterior ethmoid mucocele with sphenoid sinus extension after 3-month from first endoscopic sinus surgery for removal of mucocele. Computed tomography scan showed larger right posterior ethmoid mucocele with sinus expansion and erosion of right lamina papyracea. Second endoscopic sinus surgery was performed and symptoms of patient relieved. Mucocele of paranasal sinuses can cause various complications and can be removed surgically. Take note of recurrence and regular follow up must be done.

Keywords: Mucoceles; Sphenoid sinus; Ophthalmology

Introduction

A mucocele of the paranasal sinuses (PNS) is an encapsulated mass within a sinus containing mucoid secretions with desquamated epithelium and causing distension of the sinus walls. It is mostly found in the frontal and ethmoidal sinus and less commonly in the sphenoid sinus. It is benign histologically, but, because of its relation to important structures and its character, it can be clinically invasive.

Case Report

A 61-year-old lady was referred from ophthalmology clinic with complaint of diplopia and proptosis of right eye. Otherwise, there was no nasal symptoms, no history of trauma or prior operation. Nasoendoscopy only showed bilateral inferior turbinate hypertrophy. There was no other significant finding. On examination, there was mild proptosis of right eye, slight restriction in extraocular muscles movement. The pupils were reactive to light. A computed tomography (CT) scan

showed right isolated posterior ethmoid mucocele extending into the orbit causing compression at the right medial rectus muscle and absence of lamina papyracea (Figure 1). Patient was then proceeded with right functional endoscopic sinus surgery (FESS). The mucocele seen at right posterior ethmoid sinus (Figure 2) was removed completely.

Three months later, patient presented again with complaint of diplopia, blurry of vision and proptosis of right eye. Physical examination was otherwise unremarkable. A repeated CT scan showed larger right posterior ethmoid mucocele and suspected meningocele (Figure 3a & 3b). The patient was proceeded with magnetic resonance imaging (MRI) which showed right ethmoid mucocele with thinning of floor of anterior cranial fossa. There was no continuity with intracranial cerebrospinal fluid (CSF), thus meningocele was excluded (Figures 4a and 4b).

Patient underwent image-guided FESS. Intraoperative, the mucocele in the right posterior ethmoid sinus was seen extending posteriorly to sphenoid. There was no evidence of CSF leak and dura is intact (Figures 5a and 5b). The postoperative recovery was uneventful.

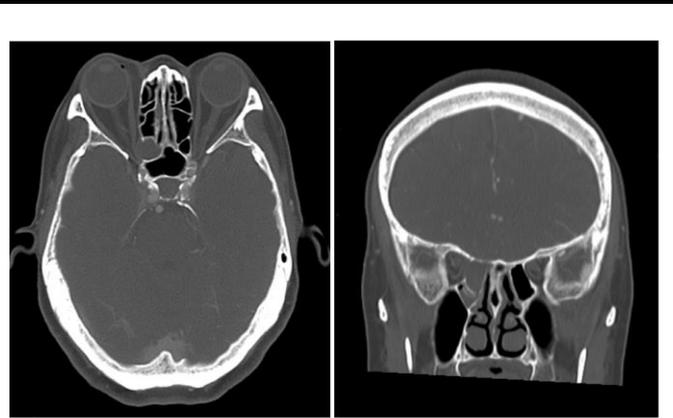


Figure 1: A CT scan showed soft tissue density arising from the right posterior ethmoid air cells with sinus expansion, absence of the lateral ethmoid sinus wall and indents against the right medial rectus muscle.

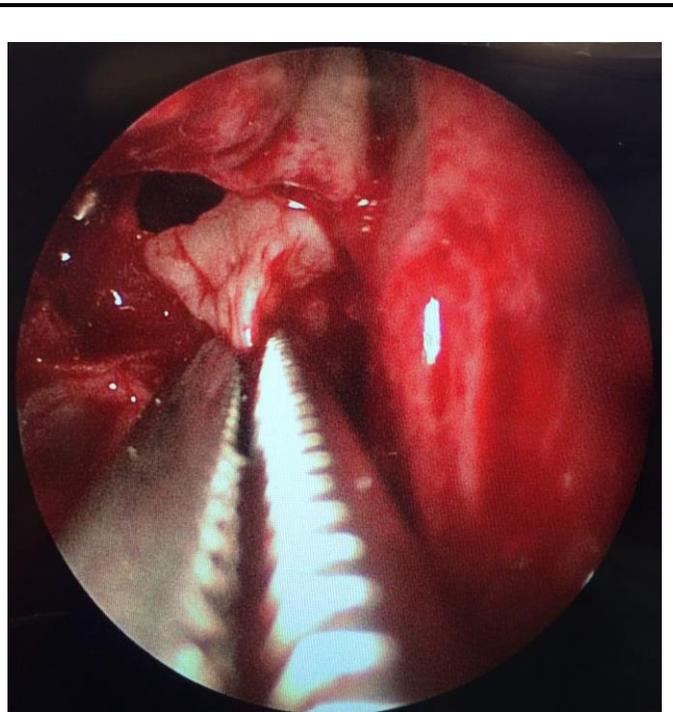


Figure 2: First FESS was performed and mucocele seen at right posterior ethmoid sinus was removed completely.

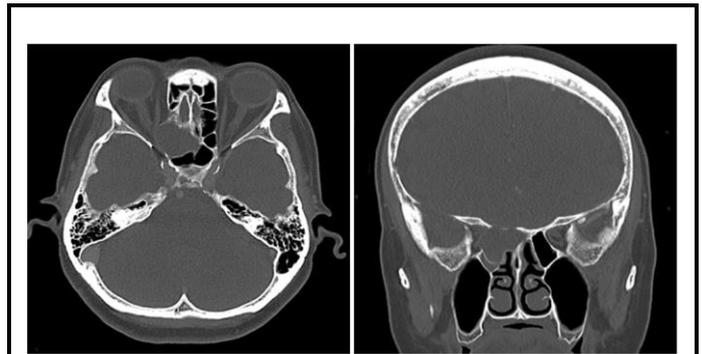


Figure 3: Repeated CT scan (3-month apart) showed larger previously seen non-enhancing right posterior ethmoid soft tissue density, associated with sinus expansion, erosion of right lamina papyrecea and thinning of surrounding walls. Laterally, there was lesion extending into right orbital apex and compression of the right medial rectus muscle.



Figure 4: A MRI scan showed lesion at the right posterior ethmoid air cells causing erosion of the floor of anterior cranial fossa.

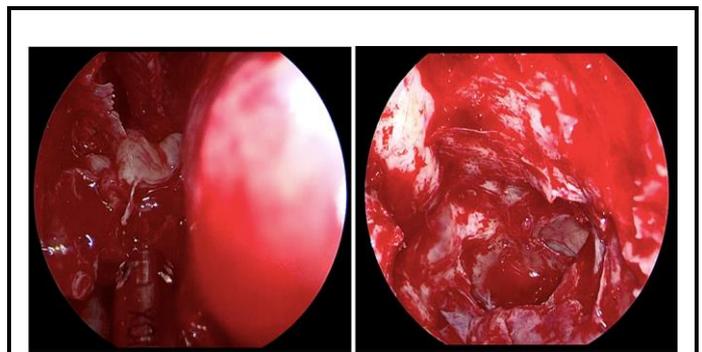


Figure 5: Intraoperatively, the mucocele in right posterior ethmoid was seen extending posteriorly into the sphenoid sinus.

Discussion

A mucocele of the paranasal sinuses is an encapsulated mass within a sinus containing mucoid secretion with desquamated epithelium and causing distension of the sinus walls [1]. The postulated etiology of mucocele includes obstruction of ostium of the affected PNS due to chronic rhinosinusitis, sinonasal polyposis, craniofacial trauma, previous surgery, benign tumors (such as osteomas, bone fibrous dysplasia) or malignant neoplasms (can be primary or metastatic) [2]. Frontal sinus mucoceles is the most common (50%), followed by frontoethmoidal (31%), ethmoidal (16%) and sphenoidal (3%) [3]. The occurrence of mucocele formation is higher with evidence of trauma such as drilling during surgery [4].

A recent retrospective study of natural history of mucocele showed 75% had a history of sinus surgery, essentially for nasal polyposis and only 15% of mucocele occurred spontaneously [5]. The same study on recurrence rate showed 23.5% of recurrence or second mucocele were detected, with a mean interval of 4 years after resection of the first mucocele [5]. In our case, the first presentation was mucocele occurred spontaneously and postoperative recurrence occurred within 3-month duration.

Common presenting symptoms of PNS mucocele were facial pain or headache (38%), ocular or orbital complications (28%), while 20% of patients were asymptomatic [5]. It can induce headache, periorbital pain, and visual disturbance. PNS mucocele usually present with ophthalmic symptoms such as proptosis, periorbital pain, blurred vision, and diplopia. Because PNS mucoceles are located anatomically in proximity to the orbit, the lesion can compress the orbit. A retrospective study on ophthalmic manifestation of PNS mucocele showed 92.7% improvement or resolved ophthalmic complaints after operation [6]. This was also observed in our patient.

The diagnosis is usually put forth by imaging study after the clinical history is taken and physical examination is made. CT is the most helpful tool to detect mucocele. Changes in the surrounding bone tissue like as expansion, thinning or erosion are better visualized with CT scan [7]. MRI provides better information about the surrounding soft tissue and it is more useful in critical locations involvement such as intracranial and intraorbital extension [7]. In our case, the initial CT scan unable to rule out intracranial extension. Therefore, MRI was done to delineate the surrounding soft tissue.

The treatment of mucocele is surgical. Among number of treatment options, the choice depends on the location

and degree of extension of mucocele [8]. FESS offers a conservative minimally invasive treatment of PNS mucocele, avoiding inconveniences of different external approaches such as recurrence, postoperative morbidity, and longer hospitalization [7]. In extensive mucocele and close proximity with critical structures as seen in our case, the role of Image Guide Surgery should be emphasized.

Conclusion

Sinonasal mucocele, which can cause severe vision loss or visual complications, should be treated as quickly as possible. Clinicians should note that minimally invasive surgery to remove mucoceles is relatively straightforward and avoids the complications associated with these lesions. But recurrence may occur despite surgical intervention. The prevention and detection of recurrent mucocele constitute major challenges in the management of this disease, which is why regular and prolonged clinical follow-up in order to detect the lesions.

Conflict of Interest

None declared.

Funding

None declared.

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