

Endoscopic Management Of A Giant Ethmoid Mucocele

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Citation

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Abstract

We present an 11 years old female with the complaints of persistent left frontal headache, unilateral nasal obstruction, and left orbital pain. The patient's visual acuity was intact and she did not have exophthalmos and diplopia. The patient was treated with transnasal *endoscopic surgical drainage. She had complete resolution of all of her symptoms. There was no evidence of recurrence after six months follow up.

INTRODUCTION

Mucocele is a clinical entity which was first described by Langenbeck in 1818. Mucoceles are the most common lesions causing expansion of the paranasal sinuses. It is an epithelial lined, mucus-containing sac almost completely filling a paranasal sinus cavity and being capable of expansion. It is a relatively uncommon condition occurring most frequently in the fronto-ethmoidal region. The sinuses most commonly involved, in decreasing order of frequency are the frontal, ethmoid, sphenoid, and maxillary sinuses.

Mucocele usually enlarge slowly over many years. Frontal ethmoid and sphenoidal mucoceles frequently cause visual disturbances (1). Ethmoidal mucoceles occur most often in the anterior ethmoid region and may be suspected on clinical examination by the presence of proptosis or lateral displacement of the globe (2).

Posterior ethmoid mucoceles may falsely give the impression of being localized in the sphenoid sinus because they impinge upon the apex of the orbit causing visual dysfunction including proptosis, diplopia and impairment of visual acuity(1).

CASE REPORT

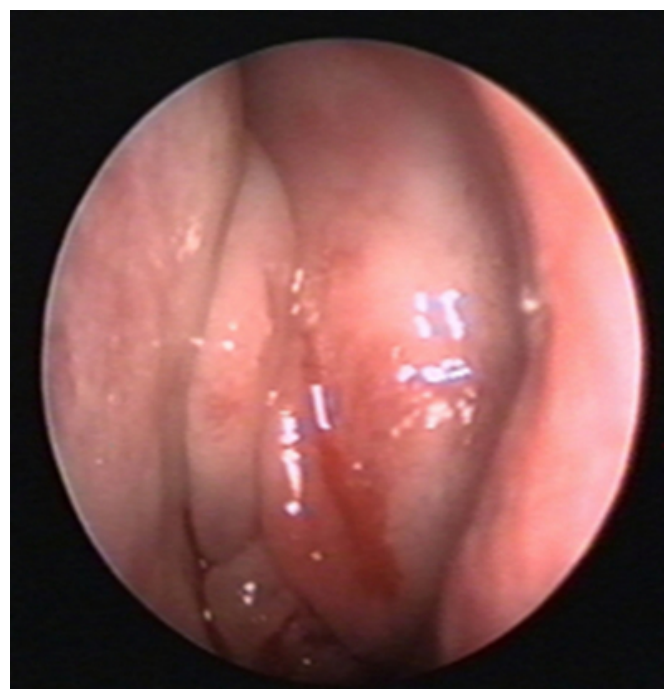
An 11 years old female presented to our department with the complaints of unilateral persistent nasal obstruction, frontal headache and left orbital pain. The symptoms had been present for three years. The patient had no diplopia or exophthalmos. The patient's visual acuity was intact at the time of the examination.

Nasal endoscopy revealed the medial displacement of the

middle turbinate by a soft tissue mass protruding from the osteomeatal complex(Figure 1).

Figure 1

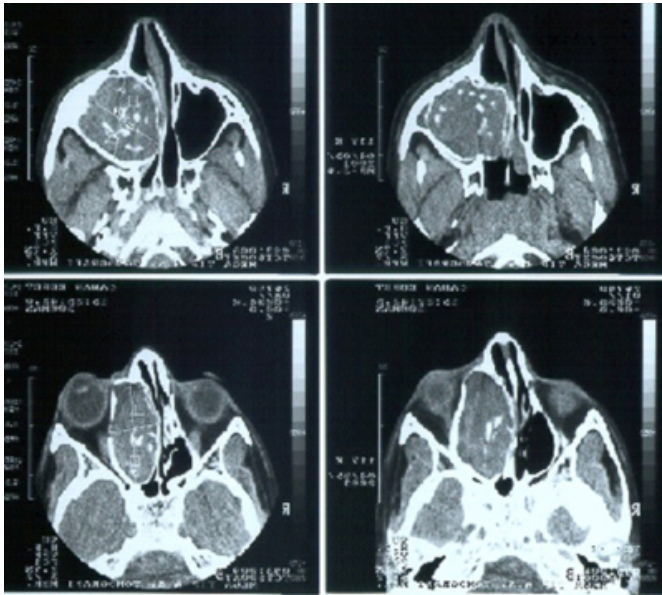
Figure 1: Endoscopic view of the left anterior ethmoid region;the soft tissue mass is between the lateral nasal wall and the middle turbinate which is displaced medially towards the nasal septum



Axial and coronal computed tomography scans showed the presence of a mucocele in size 4,5 x 4.0 x 4.0 cm originating from the left anterior and posterior ethmoid sinuses and extending into the left maxillary sinus without resorption of the orbital bone (Figure 2).

Figure 2

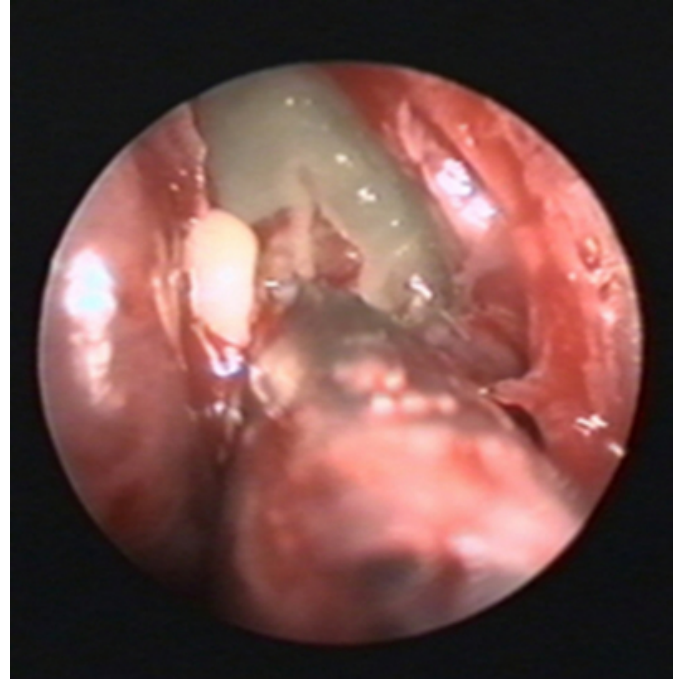
Figure 2: Preoperative axial computed tomography scans demonstrating a soft tissue mass medial to the left orbit which was consistent an expanding mucocele.



The patient underwent an endoscopic nasal surgery. Intraoperatively, the mucocele was found to fill the middle meatus, it was widely opened. A microdebrider (XPS1-xomed Medtronic, USA) was used to open the mucocele carefully and suction its contents (Figure 3).

Figure 3

Figure 3: The mucocele is evacuated by suctioning and resecting its inferior wall with a microdebrider . The contents of the mucocele (thick greenish secretions) and its epithelial lining were submitted for detailed histological and microbiologic examination.



The histopathological results showed that the lining of the mucocele was similar with the sinus mucosa. The microbiologic examination was negative.

Also the ostium of the maxillary sinus was successfully enlarged after the marsupialization procedure.

The post operative course of the patient was uneventful. Follow-up CT scans after 6 months showed an open and self draining cavity with no evidence of recurrence. The patient remains so far asymptomatic clinically ,as well (Figure 4).

Figure 4

Figure 4: Postoperative coronal CT scans of sixth month demonstrating a large ethmoidomaxillary cavity.



SUMMARY

Mucoceles can occur as primary lesions or may emerge secondary to some other conditions (3,4). Primary mucoceles are mucus retention cysts, whereas secondary mucoceles are caused by various conditions including chronic obstruction of the sinus ostia, mucosal inflammation, previous surgical procedures, benign and malignant lesions, chronic infection, or allergic disease (5).

Moriyama et al (1) found that in postoperative mucoceles the time relapse from surgery to symptomatic mucocele formation was between 11 to 49 years.

The symptoms are headache, pain, diplopia and proptosis (2). The ocular symptoms occur secondary to displacement of the globe. In sphenoidal and posterior ethmoidal mucoceles, there may be involvement of the optic nerve with resultant visual loss. Sphenoidal and posterior ethmoidal mucoceles may cause pressure on the optic nerve with a potential for visual loss as well.

A CT scan is the diagnostic study of choice (6,7). Mucoceles expand slowly and therefore, may become very large before the patient seeks medical attention (8).

Intranasal marsupialization of mucoceles was reported as early as 1921 by Horwath who stated that by removing the floor of the mucocele, one practically makes the mucocele a part of the roof of the nose (10).

There are two modes of operative treatment. The first is marsupialization and the creation a new drainage pathway. The second method is an external approach such as Lynch-Howarth external frontoethmoidectomy with or without placement of a stent in the frontal duct / recess. Alternatively, frontal sinus osteoplastic approach with fat obliteration may be preferred in order to prevent the collapse of the anterior wall. These procedures have significant surgical morbidities including scarring, cosmetic deformities and paresthesias (1,6,7). Further more, obliterative procedures may make follow-up difficult because of the inability to visualize the cavity endoscopically and difficulty in imaging recurrent disease. Kennedy et al (7) and Moriyama et al (2) stated that an approach to widely open the drainage pathways may be chosen, obviating need to completely excise mucoceles.

Kennedy (7) proposed the effective and safe drainage of frontal, ethmoid and sphenoid mucocele with endoscopic surgical techniques. In his series of 18 patients, there were 11 frontal, 5 ethmoid and 2 sphenoid mucoceles. All of the ethmoidal and sphenoidal and eight of the frontal mucoceles were successfully treated by endoscopic surgery with no recurrences.

The advantages of endoscopic mucocele marsupialization is the preservation of the bony framework of the sinus involved (6) and decreased operative time, no external incisions and decreased hospitalization costs as the surgery may be performed on an out-patient basis (8). With this approach the mucosal lining and function of the sinus are preserved (6,7).

Moriyama (1) published a series of 47 patients with ethmoid and sphenoid mucoceles. He reported that it was not necessary to completely excise the ethmoid and sphenoid mucoceles, but it was necessary to widely open the mucocele in order to establish routes for drainage.

The patients who may not be suitable for endoscopic decompression include those who have a thick, hypertrophic bone surrounding the frontal recess and its internal os, and those whose disease involves the lateral aspect of the frontal sinus (6) or cranial and orbital cavities (7).

Endoscopic techniques can also be used in conjunction with external approaches in difficult cases such as those with septated mucoceles (9).

Our patient had an 4.5x4.0x4.0 cm in size ethmoid mucocele which was managed endoscopically by creating a large

drainage pathway. Close follow-up with nasal endoscopy showed no evidence of recurrence or stenosis of the drainage pathway after 6 months post operatively.

CONCLUSION

Mucoceles can occur as primary lesions or they may emerge secondary to some other conditions. There are two modes of surgical treatment. The first is the endoscopic marsupialization and creation of a new, drainage pathway. The second method is the standard external approach such as Lynch-Howarth external frontoethmoidectomy or frontal osteoplastic operation.

There is increasing in the literature that endoscopic management of sinus mucoceles is successful, with low morbidity rates and recurrence. Rhinologic surgeons should consider the endoscopic technique as the surgical procedure of choice for management of paranasal sinus mucoceles.

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