

Case Report

Endoscopic Sinus Surgery of Frontal Mucocele

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Abstract

The findings and symptoms associated with a mucocele depend on its location and on the extent of bony erosion. Men and women are affected equally, and these lesions are mostly encountered during the third and fourth decades of life. We describe a frontal mucocele that accompanied diplopia, headache, and displacement of orbita and was successfully managed by endoscopic sinus surgery and medical treatment.

Introduction

A mucocele is a chronic, cystic lesion of the paranasal sinuses, which is lined with pseudostratified or low-columnar epithelium containing occasional goblet cells.^{1,2} This lesion expands slowly, and frequently requires 10 years, or more to become symptomatic.³

With increasing size and bony erosion the mucocele extend outside the sinus. Significant morbidity and potential mortality may ensue if mucoceles are allowed to grow.²

The lesion may extend to the orbital and intracranial structures and lead to meningitis brain abscess or cerebrospinal fluid (CSF) fistulas.³

The main symptoms of orbital involvement are pain, swelling, exophthalmos, diplopia, and loss of vision. Proptosis is usually the chief complaint⁴ oculomotor nerve palsy is rare.³

We report a case of a frontal mucocele that involved the orbit and was treated by endoscopic sinus surgery and medical treatment.

Case

A 44-year-old woman presented with a two-year history of right side headache, especially at her forehead. She had experienced facial trauma three years ago, had no history of nasal and sinus surgery. Her right eye was proptotic and there was mild tenderness over the right frontal bone. Paranasal computerized tomography (CT) showed a mass causing destruction of the frontal sinus base (Figure 1). An endoscopic sinus surgery was performed. During the procedure, local and topical vasoconstricting agent was applied, agger nasi cell and anterior ethmoid cells were removed. Soft tissues in front of the frontal recess were excised and the mucocele was aspirated. There was no

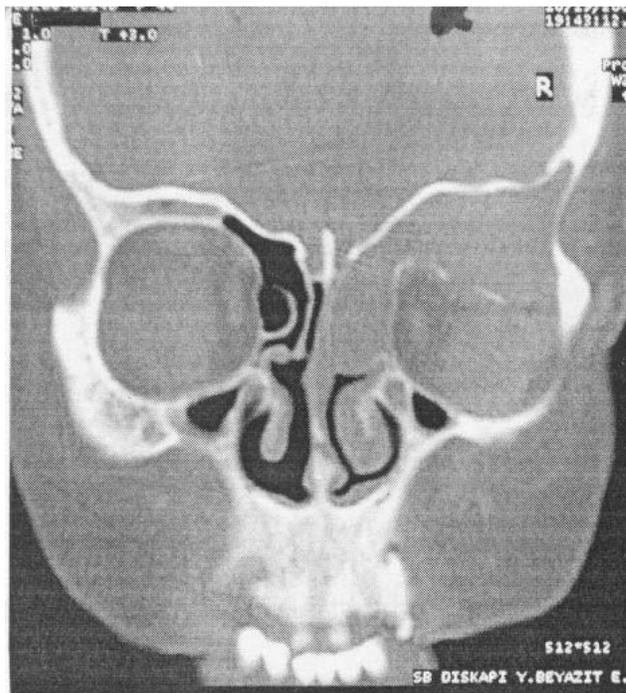


Figure 1. Preoperative paranasal computerized tomography.



Figure 2. Postoperative appearance

complication perioperatively. The patient was discharged two days after surgery. Visual field improved postoperatively (Figure 2). The postoperative paranasal CT, two months later, showed the anterior ethmoidectomy with a good aeration of the frontal sinus and absence of recurrence.

Discussion

A clinically significant mucocele most commonly originates in the frontal sinus.^{1,5} Frontal headache and proptosis are the common presenting complaints, with displacement of the globe in a downward and outward direction.⁶ The diplopia is caused by displacement of the globe. Headache and deep nasal or periorbital pain are the usual symptoms.⁶ In contrast to those with acute or chronic sinusitis, nasal obstruction and rhinorrhea are unusual findings.

There is some conflict among authors concerning the etiology of the mucoceles.^{1,2} Some suggest they develop from obstruction of the sinus ostium, whereas others believe that mucocele formation occurs when there is obstruction of the duct of a minor salivary gland located within the lining of the paranasal sinus.² Either mechanism may result in mucocele formation.

The diagnosis of mucocele is based on the history, physical examination, and radiologic findings. CT and magnetic resonance imaging (MRI) are effective in detecting the lesion and in demonstrating any intracranial extension.⁵

Treatment for paranasal sinus mucocele involves complete removal of the sinus mucosal lining and obliteration of the sinus.⁶ Several treatment options are available, and the choice depends on the degree of extension.⁷ Some authors believe that surgery is the only effective treatment, and may range from functional endoscopic sinus surgery to craniotomy and craniofacial exposure with or without obliteration of the sinus.⁸ Some authors believe that an intranasal approach is the first choice, even in patients with intracranial extension⁷, as it is found less invasive. The authors also emphasize the possibility that the lesion can be diagnosed and completely removed without the need of craniotomy.⁹ On the other hand, some authors prefer a transcranial extension to anterior mucoceles with intracranial extension to ensure complete removal and to prevent recurrence.⁹ However, this

is an extensive procedure involving an external incision, periosteal elevation, and fracturing of sinus floor in creation of the flaps. It also has a significant morbidity as stripping of the mucocele lining occasionally leads to dural injury and CSF leaks.¹⁰ The follow-up of an obliterated sinus can also be unreliable as imaging may not be able to distinguish an obliterated sinus from a recurrent mucocele.⁶

Endoscopic sinus surgery (ESS) should be considered as a treatment option for paranasal sinus mucocele with orbital involvement. Our patient was treated by ESS without incision, CSF fistula, and other complications.

Conclusion

In our opinion, an intranasal approach can be used when the lesion is confined to the paranasal sinuses. However, if intracranial extension is confirmed, we prefer a combined intranasal and transcranial approach. This can help the surgeon to achieve complete removal of the mucocele and a good appearance.

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