

Frontal Mucocoele

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Abstract

A 77 year old male patient suffering from left sided proptosis and pain around the left eye was admitted to our department. Patient had limitation of eye movements. Fundoscopic examination was normal. The patient was referred to the ENT where surgery was planned for a frontal mucocoele. Postoperatively eye movements returned to normal. A case of a frontal mucocoele is reported.

Introduction

Mucocoeles are slowly expanding cystic lesions with respiratory epithelium containing mucus most commonly affecting the frontal and ethmoidal sinuses. They are caused by obstruction of sinus ostium. Mucocoeles exert pressure on the bony boundaries and due to the proximity to the brain and orbit extension to these areas are common.

Paranasal mucocoeles are slowly expanding cystic lesions with pseudostratified columnar epithelium in the setting of a background of chronic inflammation filled with inspissated mucus exerting pressure on the normal boundaries of the sinus due to the obstruction of sinus ostium.¹ The mucocoeles are usually filled with clear to yellowish thick mucoid secretions.² The obstruction can be caused by congenital anomalies, allergy, infection, trauma, surgical intervention in the nose and neoplasms.³ The pressure exerted by the mucocoele can cause expansion of the sinus, thinning of the bony wall, and finally extension through the weakest point to the adjacent important structures namely orbit and cranial cavity.² Significant morbidity and potential mortality

may ensue if mucocoeles are allowed to grow. Such advanced mucocoeles present challenge in their surgical management.

Case Report

A 77 year old male patient suffering from left sided proptosis and pain around the left eye was admitted to our department. He had a history of left frontal sinus mucocoele one year ago that was offered an osteoplastic frontal sinus surgery that the patient refused. Patient had limitation of eye movements. Fundoscopic examination was normal. Coronal computed tomography and orbital magnetic resonance imaging showed a frontal mucocoele with suspicious erosion of the orbital roof and a superiorly localized extraconal mass displacing the orbit inferotemporally. The patient was referred to the ENT where surgery was planned for a frontal mucocoele. During surgery no defect was found on the orbital roof. Pathological examination showed a frontal mucocoele. Postoperatively eye movements returned to normal. On early postoperative paranasal tomography frontal recess was patent with an aerating frontal sinus and inflammation of the eye was resolving (Figs. 1-6).

Discussion

Sites of occurrence of mucocoeles are the maxillary sinus, frontal sinus, anterior ethmoidal sinus and rarely the posterior ethmoidal sinus and sphenoidal sinus.⁴ The pathophysiology of frontoethmoid mucocoeles has been lightened in experimental studies and by clinical observations that the trapped mucosa in the frontal and ethmoidal sinuses after obstruction of sinus ostia.⁵ They may

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Fig. 1 : A left sided proptosis with inferotemporal displacement of the globe.



Fig. 2 : Coronal paranasal computed tomography demonstrating a frontal mucocoele and an intra orbital cystic mass having similar intensities and a suspected area of communication through the bony roof of the orbit.

occur at any age, but most of them are seen between the fourth and seventh decades. They are seen similarly at both sexes. Frontoethmoid mucocoeles cause outward and downward displacement of the globe and are often associated with a palpable mass in the superonasal and medial canthal region. The expanding mass lesion may cause proptosis, restriction of eye movements,



Fig. 3 : Axial magnetic resonance imaging demonstrating avert proptosis and lateral displacement of the orbit.



Fig. 4 : Microscopically, accumulation of inflammatory exudate, mucin secretion and the wall of mucocoele composed of granulation tissue were seen.

diplopia, visual loss, retroorbital pain or headache.

The mucocoeles of the frontal sinus may disrupt the medial canthal ligament and the orbital roof in which surgical interventions should include the reconstruction of these anatomic structures.^{6,7} Many surgical approaches to frontal mucocoeles have been defined but we preferred a combined



Fig. 5 : Microscopically orbital abscess wall is seen composed of fibrosis and inflammatory cells lacking a mucosal lining.

endoscopic and external approach for the treatment of frontal mucocoele and the orbital abscess suspected to be a fronto orbital mucocoele. If we knew that orbital mass was an abscess instead of a mucocoele before the operation our approach would have been different. Instead of entering the orbit and removing the mass a long term course of antibiotics with drainage would have been preferred.

Conclusion

Fronto-orbital mucocoeles are commonly encountered pathologies, but frontal mucocoele with an orbital abscess is a rarely seen and should be kept in mind because their treatment differ.

References

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Fig. 6 : Postoperative coronal paranasal tomography demonstrating an aerating frontal sinus with a patent frontal recess that has a silicone stent in place.

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