Case report

**Frontal mucocele with an accompanying orbital abscess mimicking a fronto-orbital mucocele: case report**

Erdinc Aydin*1,3, Guzin Akkuzu1, Babur Akkuzu1 and Banu Bilezikci2

Address: 1Baskent University Faculty of Medicine, Department of Otorhinolaryngology, Ankara, Turkey, 2Baskent University Faculty of Medicine, Department of Pathology, Ankara, Turkey and 3Baskent University Faculty of Medicine, Department of Otorhinolaryngology & Head and Neck Surgery, 6. Cadde No:72/2, 06490 Bahcelievler-Ankara, Turkey

Email: Erdinc Aydin* - erdinca@baskent-ank.edu.tr; Guzin Akkuzu - guzina@baskent-ank.edu.tr; Babur Akkuzu - babura@baskent-ank.edu.tr; Banu Bilezikci - banub@baskent-ank.edu.tr

* Corresponding author

**Abstract**

**Background:** Mucoceles 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. Mucoceles exert pressure on the bony boundaries and due to the proximity to the brain and orbit extension to these areas are common.

**Case presentation:** A case of a frontal mucocele with an accompanying orbital abscess mimicking a fronto-orbital mucocele is reported. A 77 year old female patient suffering from left sided proptosis and pain around the left eye was admitted to our department. She had a history of left frontal sinus mucocele one year ago that was offered an osteoplastic frontal sinus surgery that the patient refused. Patient had limitation of eye movements. Fundoscopic examination revealed a minimal papilledema. Coronal computerized tomography and orbital magnetic resonance imaging showed a frontal mucocele with suspicious erosion of the orbital roof and a superiorly localized extraconal mass displacing the orbit lateroinferiorly. Frontal and orbital masses had similar intensities. Thus surgery was planned for a fronto-orbital mucocele. During surgery no defect was found on the orbital roof. Frontal mucocele and orbital cystic mass was removed separately. Pathological examination showed a frontal mucocele and an orbital abscess wall. Postoperatively eye movements returned to normal and papilledema resolved.

**Conclusion:** Fronto-orbital mucoceles are commonly encountered pathologies, but frontal mucocele with an orbital abscess is a rarely seen and should be kept in mind because their treatments differ.

**Background**

Paranasal mucoceles are slowly expanding cystic lesions with pseudostratified columnar epithelium in the setting of a background of chronic inflammation filled with inspissiated mucus exerting pressure on the normal boundaries of the sinus due to the obstruction of sinus ostium [1]. The mucoceles 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 mucocele can cause expansion of the sinus, thinning of the bony wall, and

Published: 18 April 2006


Received: 13 February 2006

Accepted: 18 April 2006

This article is available from: http://www.biomedcentral.com/1472-6815/6/6

© 2006 Aydin et al; licensee BioMed Central Ltd.

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.
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 mucoceles are allowed to grow. Such advanced mucoceles present challenge in their surgical management.

Case report
A 77 year old female patient suffering from left sided proptosis and pain around the left eye was admitted to our department. She had a history of left frontal sinus mucocele one year ago that was offered an osteoplastic frontal sinus surgery that the patient refused. Patient had limitation of eye movements. Fundoscopic examination revealed a minimal papilledema. Coronal computerized tomography (Figure 1) and orbital magnetic resonance imaging (Figure 2, 3) showed a frontal mucocele with suspicious erosion of the orbital roof and a superiorly localized extraconal mass displacing the orbit lateroinferiorly. Frontal and orbital masses had similar intensities. Thus surgery was planned for a fronto-orbital mucocele. During surgery no defect was found on the orbital roof. Frontal mucocele and orbital cystic mass was removed separately. Pathological examination showed a frontal mucocele (Figure 4) and an orbital abscess wall (Figure 5). Postoperatively eye movements returned to normal and papilledema resolved. On early postoperative paranasal tomography frontal recess was patent with an aerating...
frONTAL sinus and inflammation of the eye was resolving (Figure 6).

**Discussion**

Sites of occurrence of mucoceles are the maxillary sinus, frontal sinus, anterior ethmoidal sinus and rarely the posterior ethmoidal sinus and sphenoidal sinus [4]. The pathophysiology of frontoethmoid mucoceles 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 occur at any age, but most of them are seen between the fourth and seventh decades. They are seen similarly at both sexes. Frontoethmoid mucoceles 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, diplopia, visual loss, retroorbital pain or headache.

The mucoceles 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 mucoceles have been defined but we preferred a combined endoscopic and external approach for the treatment of frontal mucocele and the orbital abscess suspected to be a fronto orbital mucocele. If we new that orbital mass was an abscess instead of a mucocele 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 mucoceles are commonly encountered pathologies, but frontal mucocele with an orbital abscess is a rarely seen and should be kept in mind because their treatments differ.
Competing interests
The author(s) declare that they have no competing interests.

Authors’ contributions
EA carried out the medical care and surgery of the patient, participated in the design, writing and drafting of the article.

BA carried out the medical care and surgery of the patient, participated in the design, writing and drafting of the article.

GA participated in the design, writing and drafting of the article.

BB carried out the histopathological investigation and participated in the design, writing and drafting of the article.

All authors read and approved the final manuscript.

References

Pre-publication history
The pre-publication history for this paper can be accessed here:

http://www.biomedcentral.com/1472-6815/6/6/prepub