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Frontoethmoidal Mucocele with Orbital Extension Revealed by Preseptal Cellulitis: A Case Report

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Abstract | **Case Report**

Mucoceles are uncommon benign pseudocysts characterized by an insidious course. Their association with acute cellulitis is rare and highlights the urgency of appropriate management. We report the case of a 40-year-old patient with no significant medical history, admitted for the management of a frontoethmoidal mucocele causing posterior displacement of the globe, evolving over four months, and complicated by acute inflammation of the left upper eyelid for five days. Orbital computed tomography (CT) revealed a left frontoethmoidal mucocele responsible for sinus expansion with erosion of the orbital roof cortex and orbital extension, leading to posterior displacement of the intraconal contents and resulting in grade I extra-axial exophthalmos.

Keywords : frontoethmoidal mucocele; preseptal cellulitis; marsupialization; exophthalmos.

INTRODUCTION

Mucoceles are benign, expansile, slow-growing pseudocysts of the paranasal sinuses that develop within epithelial-lined sinus cavities and usually contain sterile mucus [1,2]. Despite their benign histological nature, mucoceles may exhibit locally aggressive behavior, with potential extension to adjacent structures, particularly the orbit and the brain [3]. Surgical management remains the treatment of choice and consists of excision of the cystic lesion with adequate drainage of the affected sinus.

Preseptal cellulitis is an infection involving the eyelid and periorbital soft tissues located anterior to the orbital septum. It typically presents with eyelid edema, localized pain, warmth, and erythema. In non-collection preseptal cellulitis, treatment relies on antibiotic therapy—most commonly a combination of amoxicillin and clavulanic acid—associated with close clinical monitoring over 24 to 48 hours [4]. In cases of abscess formation, surgical drainage is indicated.

We report a case of a frontoethmoidal mucocele with orbital extension revealed by preseptal orbito-palpebral cellulitis. This case highlights the aesthetic and functional consequences of orbital involvement, the radiological features, and the medical and surgical management of both the mucocele and the associated cellulitis.

CASE REPORT

A 40-year-old female patient with no significant past medical history was admitted for the management of a frontoethmoidal mass causing posterior displacement of the left globe. The lesion had been evolving for four months and was associated with fronto-orbital pain, epiphora, progressive reduction in left visual acuity, nasal obstruction, and acute orbito-palpebral inflammation of the upper left eyelid for five days.

Clinical examination revealed edema of the left upper eyelid with pain, erythema, and warmth, without fever, fluctuation, or fistulization. The patient was unable to open her left eye due to palpebral swelling. Exophthalmos was noted, associated with a painless, soft, non-pulsatile, renitent superomedial intraorbital mass measuring approximately 2 cm, without overlying inflammatory signs (Figure 1). Ophthalmological examination demonstrated a mild decrease in visual acuity to 7/10, associated with limited ocular motility and narrowing of the palpebral fissure.

Figure 1. Patient at presentation in the emergency department.

Orbital CT imaging revealed a left frontoethmoidal mucocele measuring 38 × 31 mm, responsible for expansion of the sinus and erosion of the orbital roof cortex, with extension into the orbit. The lesion displaced the intraconal contents posteriorly, resulting in grade I extra-axial exophthalmos, without associated intracerebral abnormalities (Figure 2).

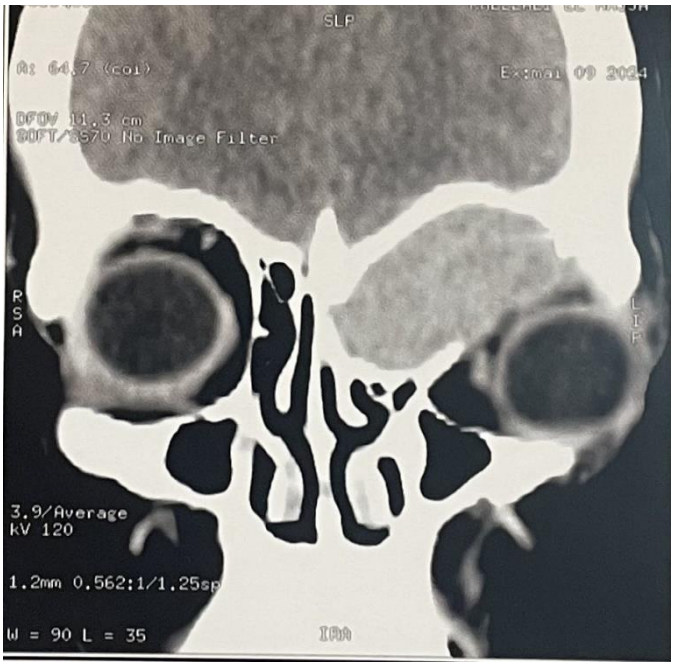

Figure 2. Orbital CT scan, coronal section (parenchymal window).

The mucocele was punctured for decompression, and a cytobacteriological analysis of the contents was performed. Empirical intravenous antibiotic therapy with amoxicillin–clavulanic acid was initiated.

The patient received intravenous amoxicillin–clavulanic acid at a dose of 1 gram every 8 hours for 10 days, with favorable clinical evolution of the preseptal cellulitis. She was subsequently scheduled for endonasal surgical management of the frontoethmoidal mucocele. Histopathological examination revealed a cystic lesion with inflammatory changes and no evidence of malignancy.

DISCUSSION

Orbital extension and complications represent the most frequent clinical manifestations of frontoethmoidal mucoceles [5,6]. Although this pathology remains rare, its reported incidence has increased in recent years, likely due to improved imaging techniques and the widespread use of endoscopic endonasal surgery [7,8]. Reported incidence rates vary between series, ranging from 2.5 to 16 cases per year [9–12].

In the present case, ocular complications included reduced visual acuity and exophthalmos. Preseptal cellulitis was the triggering factor that prompted emergency consultation in a patient with chronic exophthalmos evolving for several months. More severe ophthalmologic complications such as amaurosis, oculomotor nerve palsy, and visual field defects have been reported in the literature [13].

CT scanning remains the first-line imaging modality in cases of suspected mucocele, whether clinically or endoscopically. Magnetic resonance imaging (MRI) is indicated in cases of diagnostic uncertainty, suspicion of tumoral or inflammatory differential diagnoses, or in the presence of intraorbital or intracranial extension, particularly in sphenoidal localizations.

Surgery remains the cornerstone of treatment. Two main approaches are described: external and endonasal (endoscopic) approaches [14]. While several authors advocate endonasal endoscopic surgery as the preferred technique [15,16], this approach may be limited in laterally located mucoceles, where complete exposure can be challenging. Inadequate marsupialization via the endonasal route may lead to synechiae formation and recurrence [17].

In our patient, an endonasal approach with marsupialization of the pseudocyst was performed, resulting in progressive repositioning of the globe to a satisfactory anatomical position and improvement of left visual acuity to 9/10.

CONCLUSION

Frontoethmoidal mucoceles are benign but potentially serious lesions due to their capacity for local extension. Surgical management remains the standard of care. The choice of surgical approach continues to be debated, particularly with the evolution of endonasal techniques, which now offer favorable aesthetic and functional outcomes. In rare cases complicated by preseptal cellulitis, urgent management should focus on treating the infection, followed by elective surgical treatment of the mucocele once the acute phase has resolved.

Highlights

- Frontoethmoidal mucoceles are rare benign lesions with potential orbital complications.
- Orbital extension may lead to exophthalmos and visual impairment.
- Preseptal cellulitis can be a revealing and emergency presentation.

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