

ENDOSCOPIC SINUS SURGERY TREATMENT FOR A RIGHT FRONTAL-ETHMOID-MAXILLARY MUCOCELE COMPLICATED BY AN HOMOLATERAL PRESEPTAL CELLULITIS

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Abstract

Mucoceles are epithelial lined mucus-containing sac completely filling a paranasal sinus cavity. They are relatively unusual, occurring most frequently in the frontal-ethmoidal region. The obstruction of mucociliary drainage is central to their development and the retention of mucus within a confined space leads them to expansion with remodeling of the bone surrounding it. The imaging features on computerized tomography and magnetic resonance are relatively characteristic although a correct diagnosis requires a careful radiological assessment because the mucoceles may occur in association with other pathologies such as nasal polyposis or neoplastic lesion. We report on a case of a right frontal-ethmoid-maxillary mucocele presenting with nasal respiratory obstruction, right frontal headache and homolateral medial canthus swelling. The patient has undergone a double endoscopic endonasal surgery due to an initial post-operative restenosis conditioning the recurrence of the symptoms. This evidence confirms the complexity of frontal sinus surgery which requires a deep anatomic

knowledge, a long experience and dedicated instrumentation, all inevitably conditioned by the clinical and biological profile of each individual patient.

Report

We describe the case of a sixty-eight years old woman suffering from a long history of nasal respiratory obstruction and rhinorrhea aggravated by about four months with the appearance of right eyelid redness, right medial canthus swelling and homolateral frontal and supraorbital headache. The patient, a guest of a nursing home, suffered from multiple comorbidities including diabetes mellitus, arterial hypertension, persistent atrial fibrillation in need of anticoagulant therapy, bronchial chronic obstructive pneumopathy, severe obesity and severe obstructive sleep apnea.



Unable to perform a CT scan, the patient performs an MRI with gadolinium, documenting the presence of a right pluriconcamerated frontal mucocele extended in the ethmoid-maxillary region and complicated by a right preseptal cellulitis as shown by the characteristic edematous suffusion in the right periorbital region¹.

A mucocele is an epithelial lined mucus-containing sac completely filling a paranasal sinus cavity² characterized by slow enlargement over many years unless infection supervenes to produce a pyocele. The retention of mucus within a confined space leads to the progressive expansion of the sinus mucoceles, with remodeling of the bone surrounding it, and finally extension into the adjacent structures. All this can cause various complications depending on their original sites, the direction of expansion, the size of the neoformation and the specific function of the involved structures⁴.

With regard to preseptal cellulite, it is an inflammatory process that involves the tissues located anterior to the orbital septum and represents the first grade of Chandler's classification of orbital complications from acute rhinosinusitis. According to this classification, depending on its localization and severity, the inflammatory process may subsequently evolve into orbital cellulite, subperiosteal and interorbital abscess up to cavernous sinus thrombosis.

Focusing on the report, the patient, in consideration of the clinical and radiological findings, thus underwent antibiotic and cortisone intravenous therapy without benefit. Surgical treatment with endoscopic endonasal technique was therefore indicated. This minimally invasive technique, enabled by the vast experience of our surgical team, dedicated instrumentation and favorable anatomical conditions (as well as adequate antero-posterior and lateral diameter of the frontal recess^{5,6}), has been favored to the more

invasive external technique by frontal osteoplasty.

The procedure provided for an access septoplasty, a middle antrostomy with drainage of the right maxillary purulent collection and a radical ethmoid-sphenoidotomy with subtotal sacrifice of the medium turbinate. The latter has been performed under the armpit of the medium turbinate itself without affecting the sensitive olfactory neuroepithelium. Once drained the ethmoidal inflammatory collection has therefore been completed the marsupialization of the frontal mucocele achieving a frontal sinusotomy according to the classification of Draf type IIa, that is by milling the floor of the frontal sinus extending until the projection of the vertical section of the medium turbinate itself.^{7,8}

Despite postoperative seriate outpatient dressings after four months the patient complained of the recurrence of frontal headache, nasal respiratory obstruction and swelling of the right medial canthus. During the endoscopic evaluation was appreciated a restenosis of the frontal and maxillary sinuses with a purulent discharge from the latter. The patient was thus subjected to a new MRI with gadolinium that confirmed the clinical suspicion by documenting a right frontal-ethmoid-maxillary empyema. It was thereby decided to undergo the patient to a revision endoscopic surgery with drainage of the ethmoid-maxillary empyema first, and then the frontal one by performing a Draf type IIb frontal senotomy, that is by extending the milling of the frontal sinus floor to the interfrontal septum.^{7,8}

Currently, after seven months the patient is stably asymptomatic and the endoscopic evaluations document a partial scarring of the frontal sinusotomy which, although reduced in size compared to the immediate post-operative, maintains its patency like the maxillary sinusotomy.

In conclusion, endoscopic frontal sinus surgery is the most difficult step in the learning curve of an endoscopic surgeon, whose performance must be guided by a deep anatomical knowledge, a large surgical experience and dedicated instrumentation. In addition the surgical procedure does not represent the end of the treatment but it must be followed by seriate endoscopic dressings to facilitate the healing process, counteract the tendency to restenosis and avoid or timely identify potential complications. Nevertheless, even with brilliant surgical treatment and scrupulous outpatient follow-up, post-operative course is strongly influenced by clinical and biological profile of each individual patient, his comorbidities and his predisposition to exuberant scarring¹⁰.

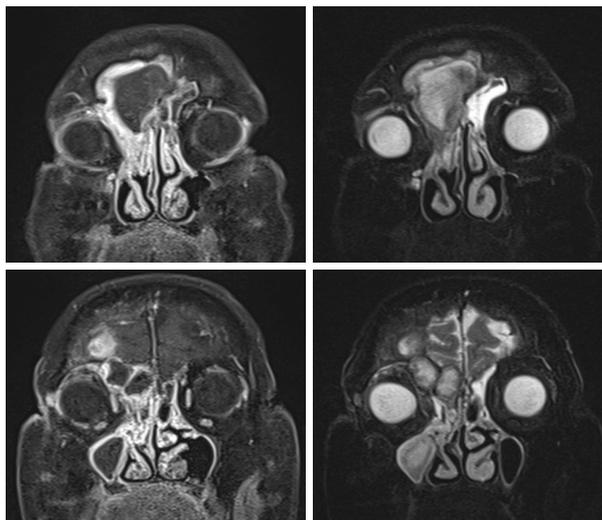


Figure SEQ Figure 1 ARABIC 2 - The preoperative MRI showed the presence of a pluriconcated right frontal mucocele (images A and B) extended in the homolateral ethmoid-maxillary region (images C and D). The T1 weighed sequences (images A and C) show a peripheral hyperintense hemline with central hypointensity while in the T2 weighed sequences (images B and D) the typical hyperintensity of the liquid content leaves room for an isodensity indicative of a long time, partially dehydrated collection.*

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