Case Report

Giant ethmoid mucocele presenting as a nasal region mass with intracranial extension, a case report

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ABSTRACT

Background: Mucocele is expansile slowly growing benign cystic lesion that occurs as a result of occlusion of the ostia of the paranasal sinuses by benign neoplasms (e.g., osteomas and fibrous dysplasias), by malignant or metastatic tumors, and by an intrasinal accumulation of excreted substances secondary to infection, allergy, or trauma [2]. Mucocele most commonly produces bone destruction within the paranasal sinuses and mostly involves the frontal sinus followed by ethmoid and rarely sphenoid and maxillary sinuses [1].

Case presentation

A 34-year-old adult male referred with history of nasal region mass for last 1.5 years associated with nasal obstruction and headache. Brain and paranasal MRI was performed for detection of cause according to the ordering physician. The MRI exam performed by 1.5 Tesla machine without and with administration of Gadolinium. The images revealed a large expansive lesion in the region of the ethmoid air cells with high signal intensity on T1W1, T2WI, FLAIR images (Fig. 1A–C) and no post contrast enhancement (Fig. 1D). The lesion was causing significant mass effect over the nasal cavity and adjacent structures, bulging into the anterior cranial fossa show-

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Mucocele is generally accepted to occur because of obstruction of the paranasal sinus natural orifice and followed by accumulation of excreted substances within sinus. The frontal sinus is the most frequent, followed by the ethmoid sinus and the sphenoid sinus and maxillary sinus in the order of frequency. The primary site is not always identified due to progressive osteolysis of bony walls adjacent to the mucous membrane. Ethmoid sinus mucocele extension into less resistant intracranial space is highly possible than the sphenoid sinus because the ethmoid plates and the roofs are often thin in cases of overgrowth of the ethmoid sinus [3]. Risk factor for mucocele formation includes inflammation, allergy, trauma, previous surgery, anatomical abnormality, osteoma, ossifying fibroma, or fibrous dysplasia that results in persistent or intermittent closure of paranasal ostium. The pressure generated in the obstructed sinus by continued mucous secretion is resulting in gradual thinning, distention and erosion of one or more of its walls [4]. Mucoceles most commonly affect patients with age group 40-60 years. Paranasal mucocele is rarely seen in children, although some case reports have been published in literature. The symptoms associated with mucocele vary depending on the location, size, and degree of extension into adjacent structures. Usual symptoms are headache, facial pressure, facial swelling or deformity, dental pain, nasal obstruction, ophthalmic manifestations like proptosis, periorbital pain, impaired ocular mobility, and diplopia. Sinus wall expansion may compress optic nerve or compromise its blood supply leading to optic atrophy. Intracranial extension through erosion of the posterior wall of the frontal sinus can result to meningitis or CSF fistula, orbital cellulitis, meningitis, and brain abscess [1].

In our case the mucocele occupied and expanded the superior nasal cavity resulting in nasal region mass and extended into anterior cranial fossa compressing the frontal lobe.

The mucocele diagnosis is based on the clinical history, physical examination, and radiologic findings. Computed tomography and MRI are effective in detecting the lesion and in demonstrating any intracranial extension [2]. Paranasal sinus mucoceles can be effectively treated using the transnasal endoscopic approach and marsupialization with complete recovery reported in 82%-96% of cases, while an extranasal approach can be used for recurrence [1]. Giant ethmoid mucoceles are rare which have large extracranial and intracranial extensions and present as craniofacial disfigurement. Few such cases exist in the literature [4].
Conclusions

In conclusion, we highlight that giant ethmoid mucoceles are rare and may have intracranial or extracranial extension resulting in craniofacial disfigurement which should be considered in patient presenting with nasal region mass.

Patient consent

I, the principle author, have received permission from my patient to publish this case as a case report, and my patient has no problem with the publication of the case. This study was approved by the institutional review board, and informed consent was obtained from the patient.

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