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A case of concha pyocele (concha bullosa mucocele) mimicking intranasal mass

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Abstract. *A case of concha pyocele (concha bullosa mucocele) mimicking intranasal mass.* Concha bullosa is the most common anatomic variant of the middle turbinate that usually remains asymptomatic. If the mucosal lining of pneumatized middle turbinate becomes inflamed, symptoms such as nasal obstruction, post-nasal discharge, snoring, headache, and fever occur.

We report a case of concha pyocele (concha bullosa mucocele) in a 19-year-old girl. Computed tomography identified a right intranasal mass expanding towards the medial wall of the right maxillary sinus, nasal septum and right ethmoidal cells. The concha pyocele caused obstruction of the ostiomeatal complex, leading to right maxillary, ethmoid and sfenoid sinusitis. The patient was endoscopically treated under local anaesthesia. Histological examination of the mass revealed an active chronic inflammation caused by a foreign body.

Introduction

Concha bullosa (CB) is the pneumatization(aeration) of the middle turbinate (MT) and is one of the most common variations of the sinonasal anatomy. A prevalence of concha bullosa varying from 14% to 53.6% was reported in the literature.[1] Concha bullosa is detected in approximately 10% of otherwise normal patients, and in 30% of patients presenting sinonasal problems.[2] Pyoceles of the MT and empyemas of the concha bullosa are also known as concha bullosa pyoceles.[3] Theoretically, the formation of pyocele in a concha bullosa might occur secondary to disease with impaired transport of mucus, inherent defects in the clias, or increased viscosity of mucus.[2]

The concha bullosa may be the site of mucosal inflammatory disease, but frank mucocele or pyocele formation is quite uncommon.[4] If the mucosal lining of the pneumatized middle turbinate becomes inflamed, nasal obstruction, post-nasal discharge, snoring, headache, and fever may occur.[4] Furthermore, this will likely cause nasal obstruction and require marsupialisation to restore a normal airway and sinus ventilation and drainage.[4,5]

Here we report a case of concha pyocele mimicking an intranasal mass in a 19-year-old girl treated endoscopically.

Case report

A 19-year-old girl complaining of nasal obstruction, post-nasal discharge, snoring, headache, and fever was referred to our ENT clinic, and her detailed medical history was obtained and analyzed. The patient had visited her primary care physician two years ago for these symptoms, and was treated with an oral decongestant. Nevertheless, her nasal stuffiness persisted.

Nasal examination of the patient revealed a mass in the right nasal cavity expanding through the medial wall of the right maxillary sinus and the nasal septum with purulent secretion. Other otolaryngological investigations were within normal limits, and a general physical examination revealed normal results. Biochemical investigations, evaluation of hepatic functions, and urinary analysis were normal. Chest X-ray was normal.

The computed tomography (CT) demonstrated the right intranasal mass expanding through the medial wall of the right maxillary sinus, nasal septum and right ethmoidal cells with right maxillary, ethmoidal and sfenoidal sinusitis (Figure 1A-B).

In the light of the findings obtained via anterior rhinoscopic and endoscopic examinations, we initially suspected the mass to be a nasal tumour. However, after a prebiopsy evaluation by CT, we diagnosed the right intranasal mass expanding through the medial wall of the right maxillary sinus, nasal septum and right ethmoidal cells with right maxillary, ethmoidal and sfenoidal sinusitis. The mass was marsupialised, the foreign body was endoscopically removed, and the middle turbinate

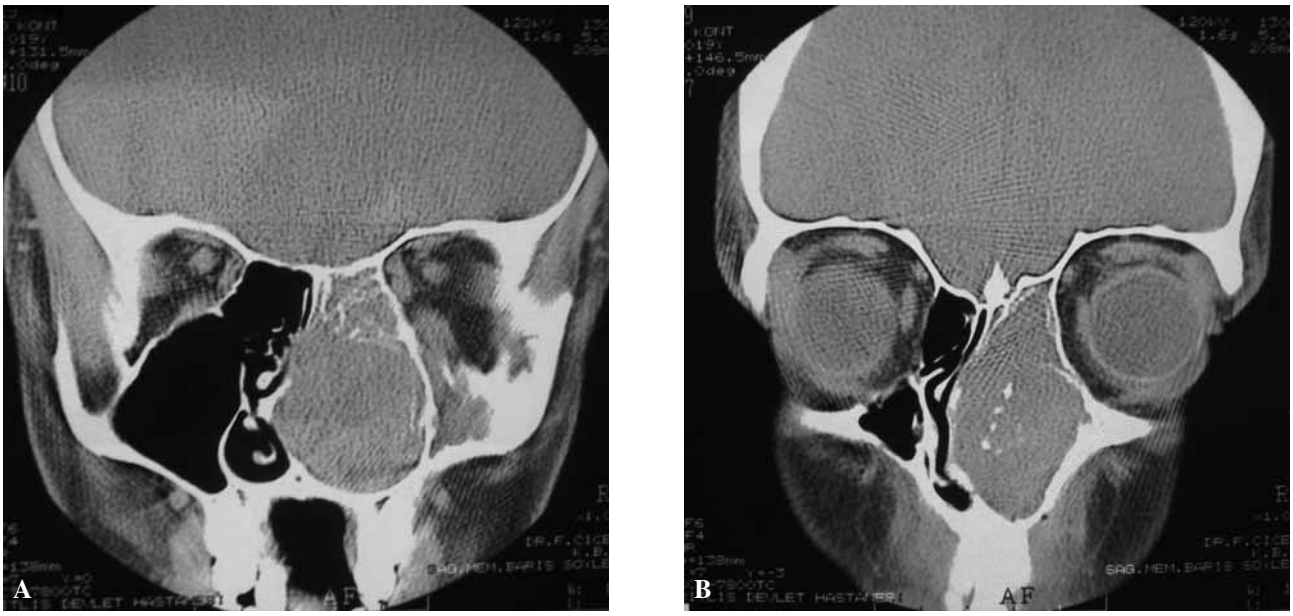

Figure 1
Right intranasal mass expanding through the medial wall of the right maxillary sinus, nasal septum and right ethmoidal cells with right maxillary, ethmoidal and sfenoidal sinusitis. A: coronal CT image at the level of the maxillary sinus; B: coronal CT image anteriorly in the nose.

was resected under local anaesthesia. Following the procedure, the symptoms of the patient disappeared.

The histological examination showed that the middle turbinate consisted of pus surrounded by a partially bony shell with mucosa at both the inner and outer sides, confirming the diagnosis of a pyocele in concha bullosa and active chronic inflammation caused by a foreign body (Figure 2).

Currently, the patient is free from nasal symptoms.

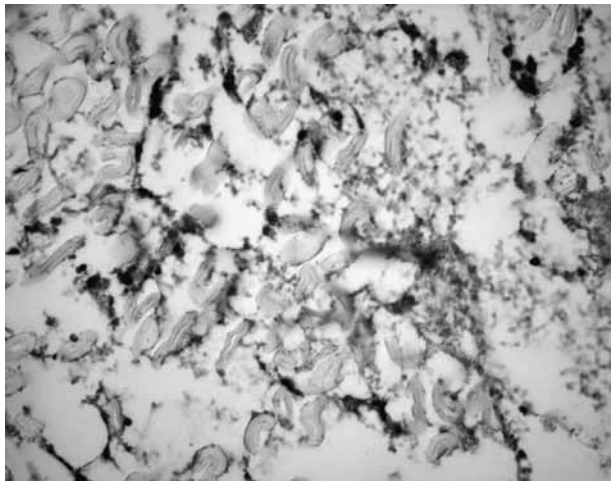

Figure 2
The admixtures of nonbirefrigent refractive and necrotic (foreign) material (haematoxylin-eosin stain, original magnification 100×).

Discussion

The middle turbinate is the region of the ethmoid bone attached at the roof of the nose, lateral to the cribriform plate, and may be cellular or cystic.[3] Functions of the middle turbinate include moisturization of inspired air, lamination of air-flow, and deflection of inspired air superiorly toward the olfactory epithelium. In some cases, the MT enlarges as a result of either hyperplasia of the overlying mucosa, or enlargement of the cyst itself, derangement of nasal physiology, disturbance in air-flow, and obstruction of the natural drainage of the paranasal sinuses.[3]

In a concha bullosa, which is either unilateral or bilateral, the degree of pneumatization varies in terms of size and internal structure. Minimal pneumatization usually

remains asymptomatic and may appear on only one section of the CT scan. Unlike the case presented here, it rarely becomes so severe that it causes ballooning expansion of both middle turbinates, and comes into intimate and extensive contact with large areas of the nasal septum and the entire lateral wall of the nose. Pneumatization of the middle turbinate may originate from the frontal recess, anterior ethmoids, or directly from the middle meatus.[6]

In the case of pyoceles, the mucosal lining of the pneumatized middle turbinate may become inflamed, leading to swelling of the anterior portion of the middle turbinate by obstruction of the middle meatus. The obstruction of the ostiomeatal complex leads to sinusitis.[3]

Sinus mucoceles are lined by mucus epithelium and become enlarged by the accumulation of the products of secretion and desquamation, which produce a cyst-like expansion.[4] The secretions are usually clear, thick, and tenacious; they become yellow or greenish in color if secondarily infected (e.g., "pyocele").[4]

As the mucocele enlarges, gradual thinning, local bone destruction, remodeling, expansion and erosion of the bony walls and sinus, which may be quite asymmetric, occur.[4] In the case of concha bullosa pyocele discussed in our report, expansion of medial wall of the right maxillary sinus, nasal septum and right ethmoidal cells had occurred.

The diagnosis of intranasal masses has been greatly facilitated by the development of CT and MRI.[3] The CT scan is the optimum imaging method for showing the bone expansion that occurs during mucocele formation.[7] Imaging prior to endoscopic surgery is essential to avoid complications, such as cerebrospinal fluid leakage or massive hemorrhages.[1,8] If the mucocele extends towards the nasal cavity, the endoscopic observation may be beneficial for diagnosis.[9] Our case was diagnosed via CT, which revealed the right intranasal mass to be expanding into medial wall of the right maxillary sinus, nasal septum and right ethmoidal cells.

Marsupialization and drainage of the cyst is believed to be the mainstay of treatment and the endoscopic approach seems to be the most successful method in carrying out this type of surgical management.[7] Our case was treated endoscopically.

Conclusion

In conclusion, a case of concha pyocele (or concha bullosa mucosele) mimicking intranasal mass was described in this report. The diagnosis of such cases should be confirmed not only by CT, but also by endoscopic analysis, and treatment should be initiated immediately.

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