

Middle Turbinate Pyocele: A Case Report

E Tas, S Vural, A Gursel

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Abstract

This paper presents a middle turbinate pyocele case. Although the most common anatomic variation of middle turbinate is concha bullosa, rarely it gives rise to large mucocèles and pyocèles. With this rare case the incidence, anatomic structure, physical and endoscopic examination findings, differential diagnosis and treatment were also discussed.

The work was done in Bakirkoy Dr. Sadi Konuk Education and Research Hospital.

INTRODUCTION

Mucocele is the term usually preferred for a cyst without an epithelial lining that was caused by trauma (1). However, when the term mucocèle is applied to the paranasal sinuses, it carries a different connotation, because nearly all sinus mucocèles are true mucus retention cysts with an epithelial lining principally caused by obstruction (2). Pneumatization of the middle turbinate (called the concha bullosa) occurs as a result of migration of the ethmoid cells. There is an ostium that connects the air cell lumen to the frontal recess. When the ostium is occluded, accumulation of mucus in the concha bullosa results in the formation of a mucocèle. If the mucocèle becomes infected, a pyocele occurs. We present a case of a secondarily infected giant mucocèle arising from a concha bullosa. It was excised intranasally with complete resolution of symptoms.

CASE

A 31 year-old male was referred to us with complaints of nasal obstruction on the left side and headache since one year. Examination of the left nasal fossa revealed an abnormally enlarged non-pulsatile, smooth mass that completely filled the left nasal cavity and covered with normal mucosa (image 1).

On valsalva manœuvre there wasn't any change in the size of the mass. There were no signs of infection either in the nasal cavity or nasopharynx. A computerized tomography (CT) scan showed an expansile lesion, with a homogeneous structure of soft tissue density, which was occupying the left nasal cavity completely (image 2).

Figure 1



Figure 2



This lesion considered as middle turbinate. It expanded against the neighboring bone and thinning it. No significant bone destruction was seen. Firstly a fine needle aspiration (FNA) biopsy was performed. A mucopurulent material was obtained, and the lesion decreased in size after the aspiration. According to those findings (examination, CT, FNA) an infected mucocoele of the middle turbinate was being suspected. Endonasal microsurgery was performed under local anesthesia. After freeing the mass from the superior margin, a bullous middle turbinate, with pus in it, was seen. Incision of the mucoperiosteum and underlying bone was followed by resection of the lateral and inferior walls of the middle turbinate. On histopathologic examination of the surgical specimen, respiratory epithelium and osseous particles with chronic inflammatory changes were seen. The final diagnosis was middle turbinate pyocele. *Staphylococcus aureus* was cultured from the aspirated material. Endonasal microsurgery yielded good results. A follow-up CT scan 15 months after the surgery demonstrated no residual or recurrent disease, and the patient had no complaints.

DISCUSSION

The prevalence of concha bullosa in patients with chronic sinusitis varied among authors and reported between 24-53.6% (3, 4, 5, 6). Although the mostly seen anatomic variation of middle turbinate is concha bullosa, it only rarely gives rise to pathologic entities like mucocoele and pyocele (3). The majority of mucocoeles (more than 70%) occur in the fronto-ethmoidal complex (7, 8), and a middle turbinate

pyocele as large as that reported in this case is a very rare occurrence.

Concha bullosa has its own mucociliary transport system. It usually drains into frontal recess and rarely, through the lateral sinus, into middle meatus (9). Although the obstruction of the drainage is usually caused by chronic inflammation, there are some other etiologic factors like nasal polyps, surgery, trauma and tumors (10). In our case we couldn't find any other predisposition except recurrent rhinosinusitis for two years.

The diagnosis of an intranasal mass has been greatly facilitated by the development of computed tomography (CT) and magnetic resonance imaging (MRI) (11). Imaging before biopsy is essential to avoid potential complications such as cerebrospinal fluid leak or massive hemorrhage. The complementary use of CT and MRI is well illustrated. CT is superior to conventional radiography because of identifying osseous structures with orbital and intracranial extensions. MRI is a supportive technique in showing the soft tissue, bone and dural inflammation accompanying mucocoele. If there is a suspicion of intracranial involvement, then MRI should be obtained to delineate the extension of the mass. Lanzeri et al reported the sensitivity of CT, MRI and gadolinium MRI in the evaluation of a mucocoele as 87%, 79%, 93%, and the specificity's as 65%, 65%, 95% respectively (12). According to our patient's CT there was neither bony erosion nor intracranial extension. So only CT imaging was satisfactory for this case.

Endoscopic endonasal surgery is an adequate management choice in patients with mucocoeles (13). This also includes concha bullosa mucocoeles, and highly satisfactory results were obtained in our case with endonasal microsurgery.

CONCLUSION

Although the most common anatomic variation of middle turbinate is concha bullosa, it rarely gives rise to large mucocoeles, which in turn may infect and cause pyocoeles. So in the differential diagnosis of the nasal masses, the mucocoeles/pyocoeles must be considered. The diagnosis is based on physical, radiological and histopathological examinations. Endonasal microsurgery is well indicated for the management of patients with concha bullosa pyocoeles.

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Author Information

Ebru Tas, M.D.

Rota-KBB ORL Clinic

Sukran Vural, M.D.

Bakirkoy Dr. Sadi Konuk Education and Research Hospital, ORL Department

A. Okan Gursel

Assistant Professor, Clinical Director of ORL Department, Fatih Sultan Mehmet Education and Research Hospital