

**Case report**

**Mucopyocele of concha bullosa mimicking ethmoidal polyp**  
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**Abstract:**

Concha bullosa (CB) is a pneumatized middle turbinate. Although CB is the most common variant of the middle turbinate, the formation of mucocele or mucopyocele of CB has been rarely reported. The inflamed mucosal lining of the concha bullosa may lead to mucocele formation. Infection of the retained secretion will later on lead to mucopyocele. We report a 12-year-old girl presented with right unilateral nasal blockage associated with rhinitis symptoms. She was initially diagnosed as nasal polyp which later on turned out to be a mucocele histopathologically.

**Keywords:** Nasal bullosa; turbinates; mucocele; nasal obstruction

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**Introduction:**

Mucocele is an epithelium-lined cavity that contains mucus that fills the sinus and is capable of expansion<sup>1</sup>. The most common sites for paranasal mucocele are frontal and ethmoid sinuses, but it can occur in any paranasal sinuses. Infected mucocele is known as mucopyocele. Middle turbinate is one of the common turbinates that can be pneumatized known as concha bullosa (CB). Although CB alone is common, it is usually asymptomatic and frequently found as incidental findings on routine scans. However in mucocele or mucopyocele, the CB may expand and occupy the nasal cavity mimicking a huge mass or polyp. Excessive expansion of mucocele or mucopyocele is a rare condition<sup>2</sup>.

**Case report:**

A 12-year-old girl presented with history of right sided nose block for the past 1 year which was

associated with rhinitis symptoms. There was no foul smelling discharge, headache, orbital symptoms or history of trauma. She had snoring without apnea symptoms for the past two months. Nasoendoscopy showed a right nasal mass occupying the whole osteomeatal region resembling a Grade 3 or III polyp with minimal mucous discharge seen (Figure 1). The left nostril revealed a small polyp at the middle meatus. Computed tomography (CT) scan of the paranasal sinuses showed a soft tissue density mass and polypoidal growth in the right nasal cavity arising from the right middle turbinate (Figure 2). There was a thin bone surrounding this mass with mild deviation of nasal septum to the left. However there was no bony erosion. Extensive mucosal thickening was noted in both maxillary sinuses, ethmoid, frontal and sphenoid sinuses. She was clinically diagnosed as bilateral ethmoidal polyps.

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However intraoperatively, the right nasal mass was noted to be arisen from the thin bone of the expanded middle turbinate. Upon removal, a thick greenish purulent material was drained (Figure 3). The mucosa of osteomeatal complex (OMC) was polypoidal with thick greenish mucopus within the maxillary antrum. The tissue biopsy was sent for histological examination and reported as infected mucocele. There was no evidence of malignancy or granuloma. She was on regular followed up for a year and neither recurrence nor synechiae were observed.

**Discussion:**

Mucocele is a benign lesion of a true cyst lined by pseudostratified ciliated columnar epithelium. It usually occurs in the ethmoid or frontal sinuses. The etiology can be due to the blockage or obstruction in the sinus ostium either by nasal polyps, previous history of nose surgery, trauma or benign tumors. CB occurs about 14-53% of the population<sup>2</sup>. There are 3 types of CB based on the site of pneumatization. It is termed as lamellar if the vertical lamella of concha is involved. If it involves the inferior bulbous segment, it is known as bullous, and it is a true CB if it involves the entire concha<sup>2</sup>. True CB is the most common. The CB is lined by the same lining epithelium of the nasal and paranasal sinuses so that it can develop the same inflammatory disorders that occur in paranasal sinuses or nasal cavity. Usually it is asymptomatic and rarely large enough in size to cause sinus ostium and nasal obstruction. Generally, it drains into the frontal recess or the middle meatus. Obstruction of the drainage of CB may lead to mucocele formation which eventually may be secondarily infected and forming a mucopyocele<sup>3</sup>. Mucopyocele of the CB is rare in which most of the case follows nasal trauma. Mucopyocele of middle turbinate was first described in 1994<sup>4</sup>. The lesion was diagnosed in an old man with history of previous nasal surgery. The surgery causes obstruction of the drainage system of the paranasal sinuses. In our case, the patient is young girl with no history of nasal trauma or surgery before. Apart from the more common acquired causes, congenital mucocele of the middle turbinate had been reported<sup>1</sup>. A patient with mucopyocele may present with unilateral nasal block, mucoid nasal discharge and headache. The orbital complications occur if the mass expands superomedially into the orbit and patient may present with visual complaints. This infected form of mucocele can cause local bony erosion and diplopia. In unilateral CB, there is no statistical relationship with any sinus disease. There is, however, a strong

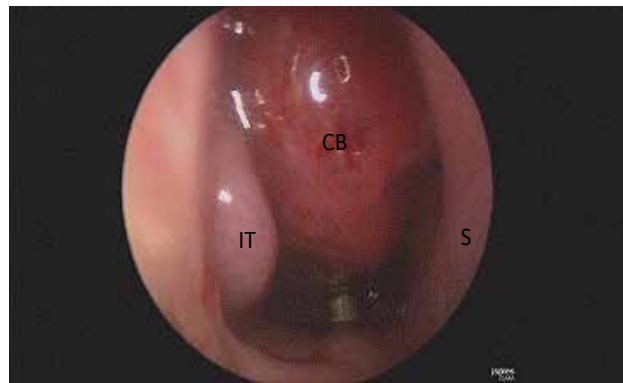


Figure 1: Endoscopic view of the right nasal cavity showing a solitary mass (CB) occupying almost the entire right nostril with pus discharge seen at the floor. CB – Concha Bullosa IT –Inferior Turbinate S - Septum



Figure 2: Axial CT of the nasal cavity in the bone window. The large arrow indicates the soft tissue density in the right nasal cavity arising from the right middle turbinate (arrowhead). The small arrows indicate the thin rim of bone.

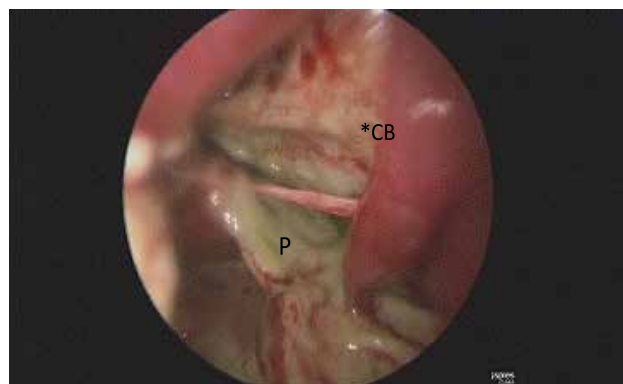


Figure 3: Lateral wall of the concha bullosa removed showing thick pus with slough. \*CB – Medial wall of concha bullosa P – Thick pus within the CB

relationship between the presence of unilateral CB and contralateral nasal septal deviation<sup>5</sup>. This is shown in our case where the deviation of the nasal septum is opposite to the direction of the CB.

CT scan and magnetic resonance imaging (MRI) are the preferred modalities for evaluation of a nasal mass. CT scan can provide valuable information regarding the nasal cavity and paranasal sinuses as well as the surrounding bony structures. CT is also superior in evaluating CB, as the expanded middle turbinate and thin bone at the margins is well demonstrated<sup>6</sup>. In contrast, MRI is a better choice in the assessment of intraorbital or intracranial involvement. It can help to differentiate mucocele from mucopyocele<sup>7</sup>, depending on the T1 and T2 signal intensities. Mucopyocele typically appears as a mass of soft tissue density surrounded by a thin plate of bone and it expands at the expense of the surrounding structures that show thinning out and bowing of their bone<sup>8</sup>. Presence of peripheral enhancement on CT further suggests the diagnosis of mucopyocele. In this case, the CT scan demonstrated a right polypoidal nasal mass arising from the right middle turbinate with incomplete rim of thin bone and zone of sclerosis seen at the margin separating it from the medial wall of the maxillary

sinus. There is also obliteration of both maxillary ostium and pansinusitis. Unfortunately, contrast was not administered to this patient during the CT examination due to initial diagnosis was nasal polyps. Endoscopic surgery is the recommended treatment for mucocele and mucopyocele of the CB<sup>7</sup>. There are four techniques to manage CB surgically; lateral marsupialization, medial marsupialization, crushing and tranverse excision<sup>9</sup>. Braun and Stamberger concluded that resection of lateral lamella including ostium of middle turbinate is the treatment of choice for mucopyocele of concha bullosa<sup>10</sup>.

### **Conclusion**

Mucopyocele of CB is a rare entity that presents with persistent nasal symptoms, commonly nasal blockage. However it should be considered as one of the differential diagnosis of patient with unilateral nasal mass. It can be detected clinically however easily mimics the commoner lesions such as nasal polyp. Confirmation of diagnosis can be made only after radiological imaging. If the imaging is still inconclusive, an endoscopic sinus surgery is the procedure of choice either for diagnostic or therapeutic intent.

### **References:**

1. Toledano A, Herraiz C, Mate A et al. Mucocele of the middle turbinate: A case report. *Otolaryngol Head Neck Surg* 2002;**126**(4):442-4.
2. Abdel-Aziz M. Mucopyocele of the concha bullosa presenting as a large nasal mass. *J Craniofac Surg* 2011 ;**22**(3):1141-2.
3. Cohen SD, Matthews BL. Large concha bullosa mucopyocele replacing the anterior ethmoid sinuses and contiguous with the frontal sinus. *Ann Otol Rhinol Laryngol* 2008;**117** (1):15-7.
4. Badia L, Parikh A, Brookes GB. Pyocele of the middle turbinate. *J laryngol Otol* 1994;**108**:783-4.
5. Stallman JS, Lobo JN, Som PM. The incidence of concha bullosa and its relationship to nasal septal deviation and paranasal sinus disease. *ANJR Am J Neuroradiol* 2004;**25**(9):1613-8.
6. Lidov M, Som PM. Inflammatory disease involving a concha bullosa (enlarged pneumatized middle nasal turbinate): MR and CT appearance. *AJNR Am J Neuroradiol* 1990;**11**(5):999-1001.
7. Al-Sebeih KH, Bu-Abbas MH. Concha bullosa mucocele and mucopyocele: A series of 4 cases. *Ear Nose Throat J*2014;**93**(1):28-31.
8. Llyod G,Lund VJ, Savy L, Howard D. Optimum imaging for mucoceles. *J Laryngol Otol* 2000;**114**(3):233-6.
9. Marianowski R, Farraqi M, Zerah M, Brunelle F, Manach Y. Subdural empyema complicating a concha bullosa pyocele. *Int J Paediatr Otorhinolaryngol* 2002;**65**(3):249-52.
10. Braun H, Stammberger H. Pneumatization of turbinate. *Laryngoscope* 2003;**113**(4):668-72.