

# Concha bullosa mucocele disguising as a nasal tumor in an epistaxis patient: A case report

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## ABSTRACT

Concha bullosa is the most common anatomical variant of middle turbinate in both children and adults. When the natural drainage of concha bullosa is obstructed, it leads to the formation of mucocele. It is confusing with nasal tumor when the entire nasal cavity gets occupied. Concha bullosa mucocele and profuse epistaxis is rarely found in the same patient. Both pathologies require appropriate management for the early recovery of the patient and prevent severe complications like concha bullosa mucopyocele from concha bullosa mucocele and hypovolemic shock from profuse epistaxis. We present a 74-year-old female who presented with profuse epistaxis from the left nasal cavity due to concha bullosa mucocele filling the right nasal cavity and pushing nasal septum towards left side which was confused with nasal tumor.

**Keywords:** Concha bullosa primary mucocele, endoscopic surgery, posterior epistaxis.

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## INTRODUCTION

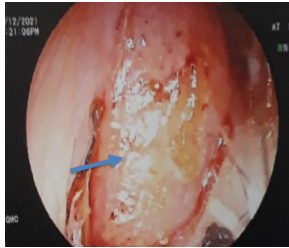
Epistaxis is a common otolaryngological emergency. There are several causes of epistaxis like trauma, hypertension, bleeding diathesis, nasal tumor, and many more.<sup>1</sup> In cases of unilateral nasal mass in old patients, nasal tumor has to be ruled out. Concha bullosa (CB) is a normal anatomical variant of the middle turbinate in both adults and children.<sup>2</sup> CB can be unilateral or bilateral with the incidence varying from 14 to 53.6%.<sup>3</sup> Obstruction of the natural drainage of middle turbinate can lead to the formation of concha bullosa mucocele.<sup>4</sup> Here, we report a case of 74 years old female who presented with CB mucocele filling the right nasal cavity that pushed the septum towards the left and caused profuse epistaxis from the left nasal cavity which is confusing with nasal tumor.

## CASE REPORT

A 74-year female from the hilly region presented to the Emergency department of Gandaki Medical College with left-sided epistaxis for two days. Initially, bleeding was on and off but it became continuous and profuse on the morning of the day of presentation. She was treated locally with ribbon gauge at health post however, the bleeding was not controlled. She had no history of pain on the bilateral nasal cavity. She was a known case of Chronic obstructive pulmonary disease (COPD) under regular medications for five years. She didn't have any history of trauma or nasal surgery.

Clinical examination showed the pulse rate of 101 beats per minute and her blood pressure was 90/50 mm Hg. Initial resuscitation was done with one liter of normal saline in the emergency after which

her blood pressure was 110/70 mm Hg and her pulse was 80 beats per minute. Anterior rhinoscopy revealed a mass filling the right nasal cavity. Her hemoglobin was 7.6 gm/dl. The coagulation profile was within normal limit. A fiberoptic nasopharyngeal laryngoscope (FNPL) was performed which confirmed the mass that filled the right nasal cavity and was globular in shape and reddish in color and pushed the septum towards the left side. (Figure 1) Her left nasal cavity was packed with merocele to stop bleeding immediately.



**Figure 1:** The right nasal cavity concha bullosa mucocele. (Shown by arrow)

A computerized tomography (CT) scan showed a homogenous low attenuating mass with peripheral hyperintense ring shadow continuous with middle turbinate suggestive of concha bullosa mucocele. (Figure 2) Minimal mucosal thickening in bilateral ethmoidal, sphenoid and maxillary sinuses were noted. The patient received three units of whole blood. After the blood transfusion, her hemoglobin level was 10.5 gm/dl.

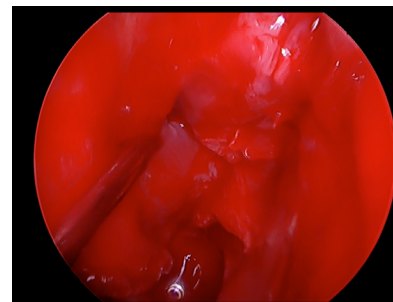


**Figure 2:** CT scan showing homogenous low attenuating mass with peripheral hyperintense ring (shown by star)

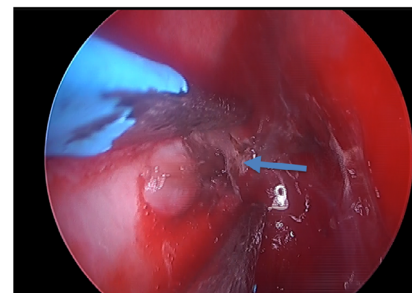
The patient underwent lateral lamella excision of CB mucocele, endoscopic septoplasty, and left sphenopalatine artery ligation under general anesthesia. We started endoscopic excision of the lateral lamella and lower part of the middle lamella of concha bullosa by microdebrider. (Figure 3) Endoscopic septoplasty was performed to access the posterior part of left nasal cavity. Sprouting bleed occurred from the septal branch of the sphenopalatine

artery which was cauterized by using bipolar cautery at a low current setting. (Figure 4) The main trunk of the sphenopalatine artery was then ligated just posterior to the crista ethmoidalis. (Figure 5) Bilateral nasal packing was done using the merocele nasal pack which was removed on the third postoperative day.

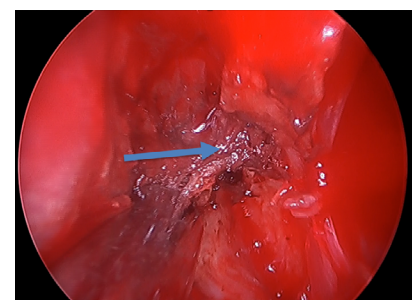
The culture of the content of CB mucocele was sent which didn't show any bacterial growth. The post-operative period was uneventful. The patient was discharged on the fourth post-operative day. The patient was fine during three months of regular follow up.



**Figure 3:** Intraoperative pic show opening of right nostril after removal of lateral lamella and lower part of middle lamella of concha bullosa mucocele.



**Figure 4:** Bipolar cauterization of septal branch of the left sphenopalatine artery (shown by arrow)



**Figure 5:** Bipolar cauterization of main trunk of Left SPA at sphenopalatine foramen (shown by arrow)

## DISCUSSION

Unilateral nasal mass and epistaxis are concerning nasal entities in old age.<sup>5</sup> It should be thought of as either a benign or malignant lesion. Our patient had a mass in the

right nasal cavity and epistaxis from the left nasal cavity. Initially, we assumed that bleeding from the right nasal mass was coming from the left nostril as suggested by clinical examination findings. CT helps to differentiate among nasal mass and reason of epistaxis in such situation.<sup>6</sup> On the CT scan, a non-enhancing, homogeneous, hypodense, well-defined, rounded, expansile lesion suggestive of mucocele was found. Typically, there is a rim enhancement due to inflammatory and hyperplastic mucosa. A mucocele can be locally destructive, with displacement, thinning, erosion, or dehiscence of the bony walls. CT is therefore of utmost importance when evaluating these bony changes and helps to rule out the orbital or intracranial extension.<sup>19</sup>

The middle turbinate functions as a moisturizer of inspired air.<sup>7</sup> It helps to laminate airflow and deflect inspired air superiorly toward the olfactory epithelium.<sup>8</sup> There are several variations of Middle turbinate. These are CB, paradoxically bent turbinate, or hypoplastic middle turbinate.<sup>9</sup> Out of these variants, CB is the most common anatomical variant. The exact reason for middle turbinate pneumatization is still unknown. Bolger et al<sup>10</sup> classified patients with CB into three groups according to pneumatization of the middle turbinate and localization; These are lamellar, bulbous, and extensive types. Only enlarged CB fills up the nasal cavity obstructing the nasal airway or the sinus ostia. It is often asymptomatic and is only found incidentally on CT scan.

A mucocele of the middle turbinate always develops from a concha bullosa. Mucocele of the middle turbinate was first described by Badia<sup>9</sup> in 1994. Mucoceles can be idiopathic, the consequence of nasal trauma or surgery, or associated with a nasal tumor. The pathogenesis of the mucoceles is unknown, but obstruction of the drainage pathway associated with chronic inflammation is generally considered a factor promoting them. Moreover, osteoclastic bone resorption provoked by the release of prostaglandin (PGE<sub>2</sub>) and proinflammatory cytokines (IL-1 and TNF- $\alpha$ ) into the wall of the mucocele has been demonstrated.<sup>11</sup>

Nasal endoscopy is important for the further planning of such patients.<sup>12</sup> In our case, it revealed the character of mass and localize the site of epistaxis. Furthermore, nasal endoscopy revealed a mass that completely blocked the right nasal cavity and displaced the nasal septum towards left. These findings mimicked the aspect of a nasal tumor. The differential diagnosis included hemangioma, inverted papilloma, antrochoanal polyp.

The ideal management of the patient is to control the bleeding in the nasal cavity to prevent the death of the

patient. Anterior Nasal packing can be done with help of merocele nasal pack. However, it was very difficult to control the bleeding in our case due to obstructed deviated nasal septum (DNS). Traditional posterior nasal packing was tried but it was not successful. In such cases, bleeding should be controlled with sphenopalatine artery (SPA) ligation that gives very satisfactory result<sup>13</sup> but access to the posterior part of the nose is difficult due to obstructed DNS and Right-sided CB mucocele in this case. It is important to excise the concha bullosa mucocele, open the left nasal cavity by doing endoscopic septoplasty and ligate the bleeding branch i.e. septal branches and main trunk of SPA. Ligation of the SPA at sphenopalatine foramen controls 95%-98% of posterior epistaxis.<sup>14</sup>

### CONCLUSIONS

Profuse posterior epistaxis in normotensive elderly patients is life-threatening. Profuse bleeding from the septal branch of the sphenopalatine artery hidden by obstructed DNS caused by the contralateral huge concha bullosa mucocele was seen in our case. Concha bullosa mucocele associated with epistaxis is a very unusual finding. Multiple nasal pathologies can be managed with endoscopic surgery with encouraging results.

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