



Choanal Polyp Originating from the Superior Turbinate: Case Report and Review of Literature

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A choanal polyp (CP) manifests as a unilateral benign growth blocking the nasal passage and most commonly originates from the maxillary sinus. A lesion from the superior turbinate has never been documented earlier. We report a case of a 21-year-old male presenting with a 6-month history of left-sided nasal obstruction, purulent discharge from the left side of the nose, and snoring. A CP originating from the superior turbinate was diagnosed and was removed by endoscopic endonasal surgery. There were no intraoperative or postoperative complications occurred, and the symptoms were resolved after the surgery. This article also discusses the clinical features, pathogenesis, and surgical treatment of this entity. Although very rare, a CP arising from the superior turbinate must be considered in the differential diagnosis of a solitary nasal polyp.

Key words: Choanal polyp; superior turbinate; endoscopic endonasal surgery

INTRODUCTION

A choanal polyp (CP) is a solitary benign tissue mass usually originating from the nasal cavity and the paranasal sinuses and extending toward the choana. These polyps may extend into the nasopharynx or even may become sufficiently large to hang down into the oropharynx. The most common presenting symptoms are unilateral nasal obstruction, rhinorrhea, and snoring.¹⁻³ In extreme cases, the disease may cause dyspnea in the upper airway or dysphagia. According to the sites of origin, CPs can be classified as antrochoanal, sphenchoanal, and ethmochoanal.⁴ Antrochoanal polyps are the most common form of CPs and originate within the maxillary sinuses.^{2,3} Some cases with CPs arising from the middle and inferior turbinates and the nasal septum have been reported.⁴ Herein, we report a case of a CP originating from the superior turbinate that was removed by endoscopic endonasal surgery in a young male. To the best of our knowledge, there has been no previous description of a CP originating from the superior turbinate in the literature.

CASE REPORT

A 21-year-old male suffered from upper respiratory tract infection and then presented with left-sided nasal obstruction, purulent discharge from the left side of the nose, and severe snoring for 6 months. Besides allergic rhinitis, he denied any history of chronic illness. Rigid nasal endoscopy showed a single polypoid mass with a long pedicle protruding from above the left middle turbinate and extending posteriorly toward the choana [Figure 1]. A computed tomographic scan of the paranasal sinus revealed a mass extending through the choana into the nasopharynx with its pedicle attached to the medial side of the left superior turbinate [Figure 2]. All paranasal sinuses were clear. Then, endoscopic endonasal surgery was performed. First, the polypoid mass with its partial pedicle was removed. Subsequently, the insertion point of the mass on the left superior turbinate was identified by tracing the remaining pedicle [Figure 3a]. Finally, the remaining pedicle and its attached mucosa were excised, and complete removal was achieved [Figure 3b]. Histological examination showed that the surface of the specimen was composed of respiratory epithelium. The stroma beneath the epithelium was loose and mucoid. Multiple

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Choanal polyp of superior turbinate

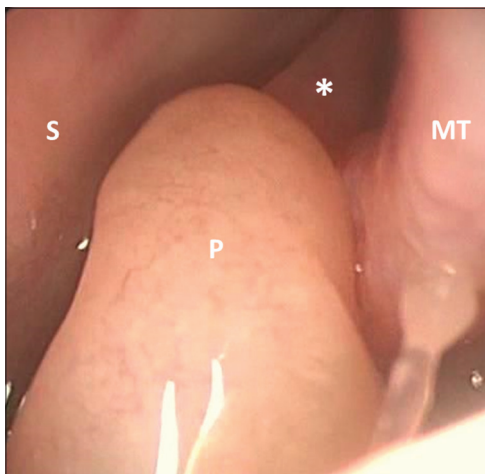


Figure 1: Endoscopic view of the choanal polyp. The asterisk indicated the pedicle of the choanal polyp. MT = Middle turbinate; S = Septum; P = Polyp

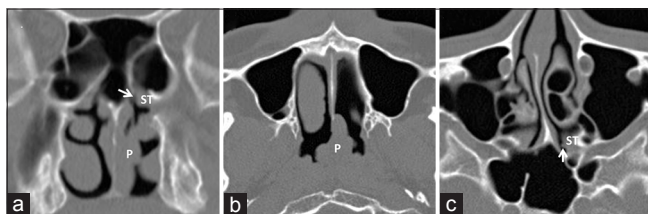


Figure 2: Computed tomographic images of the paranasal sinuses. Coronal (a) and axial (b and c) views. The arrow indicated the insertion site of the choanal polyp. P = Polyp; ST = Superior turbinate

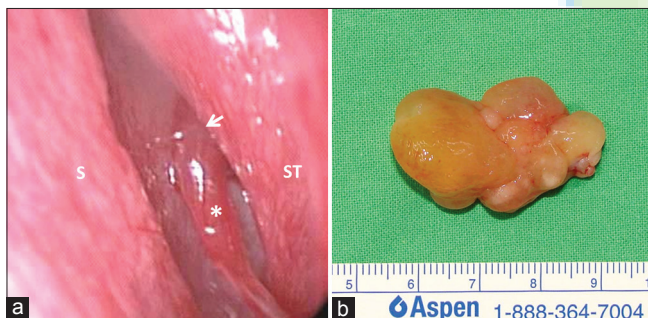


Figure 3: Intraoperative view (a) of the pedicle of the choanal polyp and gross appearance (b) of the resected specimen. The arrow indicated the insertion site of the choanal polyp. *Pedicle; S = Septum; ST = Superior turbinate

foci of chronic inflammatory cell infiltration were noted in the stroma. The excised mass was diagnosed as an inflammatory polyp based on histopathological examination. At 1-year postoperative follow-up, the patient was found to be free of symptoms and had no recurrent disease.

DISCUSSION

Nasal polyps are common benign sinonasal lesions, and their prevalence has been reported to be about 4% in the

general population. Although the etiology is unknown, they are associated with allergy, asthma, infection, cystic fibrosis, and aspirin sensitivity.⁵ CPs represent 4%–6% of all nasal polyps.^{1,6} However, unlike general nasal polyps that are frequently associated with chronic sinusitis, CPs most commonly present in children and young adults as a unilateral and solitary mass.^{3,7} In addition to the difference in clinical appearance between these two entities, there is some difference in microscopic presentation. Light microscopic examination reveals inflammatory infiltration of predominantly lymphocytes, plasma cells, and neutrophils in antrochoanal polyps compared to that of nasal polyps originating from the middle meatus. However, more eosinophils are present in polyps arising from the middle meatus than those in antrochoanal polyps. Degeneration and partial destruction of the endothelial cells of the blood vessels are commonly observed in antrochoanal polyps. This study concludes that the etiology of antrochoanal polyps may be chronic inflammatory processes.⁷ Mahfouz *et al.* have demonstrated that patients with antrochoanal polyps are characterized with an inflammatory reaction with upregulation of basic fibroblast growth factor and transforming growth factor-beta in the mucosa of the diseased maxillary sinus.⁸ Moreover, there is an increased expression of mucin genes in the sinus mucosa in antrochoanal polyps and in chronic sinusitis. Local inflammation has been proposed as a significant factor for the induction of CP formation at unusual sites.⁴ On the other hand, Cook *et al.* have concluded that allergic disease is significantly associated with antrochoanal polyps in their study patients.⁹ In our case, we speculated that the patient's allergic rhinitis and the previous upper respiratory tract infection might have led to local inflammation over the mucosa of superior turbinate, which induced the formation and growth of a single polyp. Subsequently, the gravity and negative air pressure (Bernoulli's phenomenon) resulted in the extension of this polyp toward the choana.

Nasal endoscopy, computed tomography, and magnetic resonance are the main diagnostic tools and are beneficial in detecting the origin and the extent of the polyp. Computed tomography has revealed that the polyp is often hypodense. Magnetic resonance imaging has shown that the polyps typically have intermediate-to-low T1-weighted and high T2-weighted signal intensities due to their high-water and low-protein contents.¹⁰ Besides a CP, the differential diagnosis of a unilateral nasal mass includes benign neoplasm, such as inverted papilloma and juvenile nasopharyngeal angiofibroma, and malignancy.⁴ Detection of the site of origin is very important because surgical removal of the polyp with the mucosa of its pedicle attachment is required to prevent recurrence. This disease has a high relapse rate when treated with simple polypectomy alone.² Endoscopic endonasal

surgery is an effective surgical procedure for the treatment of CPs. However, the combination of a mini-Caldwell and endoscopic approaches is needed for the complete removal of CPs if the endonasal technique fails.³ When a huge CP extending into the oropharynx is encountered, the choanal component can be more easily removed via the transoral route. *En bloc* resection of the polyp with its inserted mucosa is the optimal surgical technique. However, it is difficult to exactly identify the origin of a CP without the removal of the main component when the endoscopic approach is performed in some patients, as in our case. Under some circumstances, the removal of main component of the polyp, followed by the excision of the pedicle and the attached mucosa, is an alternative and relatively simple procedure to eradicate this disease.

This report describes the first superior turbinate originated CP in a young adult. The histopathological feature and clinical symptoms in the patient with a CP originating from the superior turbinate are similar to those in patients with CPs originating from other sites. Histologically, a CP is covered by a ciliated cylindrical epithelium. The stroma is usually edematous and highly vascular, composed of loose connective tissue mainly infiltrated with chronic inflammatory cells.⁷ These patients often suffer from the block of the nasal passage and rhinorrhea.⁶ Although a CP originating from the superior turbinate is very rare, it must be considered in the differential diagnosis of unilateral nasal polypoid masses, especially in children and young adults.

CONCLUSION

We highlight an unusual form of a CP that arises from the superior turbinate and suggest that the CP may originate in the mucosa of any nasal structures and paranasal sinuses. The surgeon must focus on the detection of the exact origin and the extent of the polyp. A delicate excision, including the removal of the CP and the diseased mucosa, is necessary to prevent recurrence.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent form. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initial will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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