

Sleep Apnea Revealing A Choanal Polyp Originating from the Middle Turbinate: A Case Report

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Introduction

Choanal polyps (CPs) are benign, solitary soft tissue lesions that extend to the junction between the nasal cavity and the nasopharynx through the choana, and sometimes extend into the oropharynx¹. The most frequent form is the antrochoanal polyp which originates from the maxillary sinus, but there are other rarer localisation, such as polyps originating from the ostium of the sphenoidal sinus, the inferior turbinate, the middle turbinate and the inferior and middle meatus²⁻⁴. We report a rare case of a patient who consulted for sleep apnea with right unilateral nasal obstruction revealing choanal polyp originating from the middle turbinate that was removed by an endoscopic surgery technique.

Case Report

A 26-year-old male patient presented with a 6months history of right nasal obstruction, sleep apnea, right unilateral rhinorrhea and posterior discharge without epistaxis. He had no significant past medical history. Endoscopic examination identified a big mass in the lateral wall of the right choana, originating from the inferior portion of the left middle concha, extending into the oropharynx and reaching the base of the tongue. Examination of the oral cavity identified reddish-grey polypoid mass filled the oropharynx (**Figure 1**). computed tomography (CT) scan of the of face revealed a mass of cystic density filling the lumen of the nasopharynx and the upper part of the oropharynx which was

non-enhanced after contrast injection. However, all the paranasal sinuses were clear (**Figure 2**). MRI of the face revealed an oblong mass filling the lumen of the cavum originating in the right nasal cavity opposite the middle meat and extending into the oropharynx (**Figure 3**). At surgery, the nasopharyngeal part of the lesion and oropharyngeal part was debulked endoscopically and transorally (**Figure 4**). Histopathological analysis confirmed the diagnosis of Inflammatory *sinonasal polyp* (**Figure 5**).



Figure 1: Oropharyngeal extension of nasal polyp.



Figure 2: Axial and sagittal sections of a CT scan of the face: shows a mass of cystic density which is inserted into the middle turbinate and extends into the nasopharynx (a,b) and oropharynx (a,b,c).

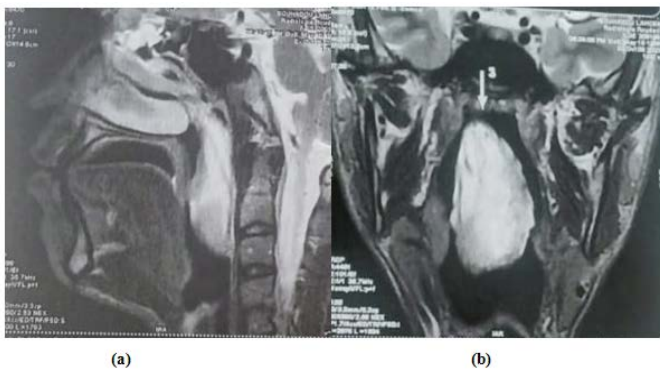


Figure 3: Coronal and sagittal sections of a facial MRI: Insertion site of the mass in the middle turbinate and extension into the nasopharynx (a) and oropharynx (b).



Figure 4: The choanal polyp, excised endoscopically and transorally.

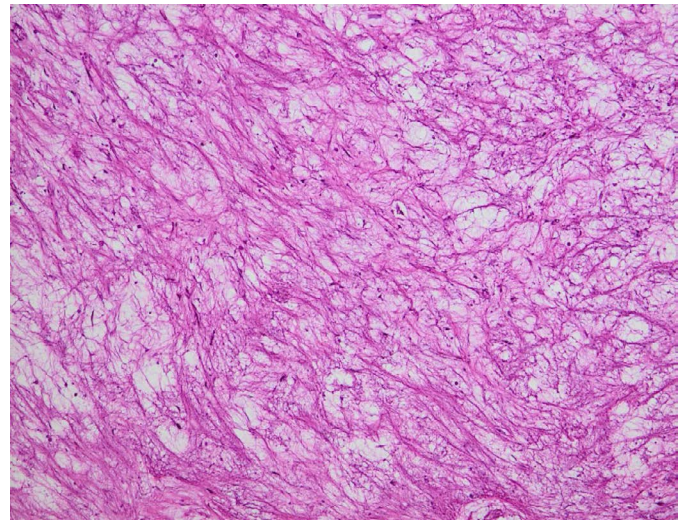


Figure 5: Histological section stained with hematoxylin and eosin (magnification $\times 20$) the chorio is oedematous and the site of a polymorphic inflammatory infiltrate composed of lymphocytes, plasma cells and neutrophils.

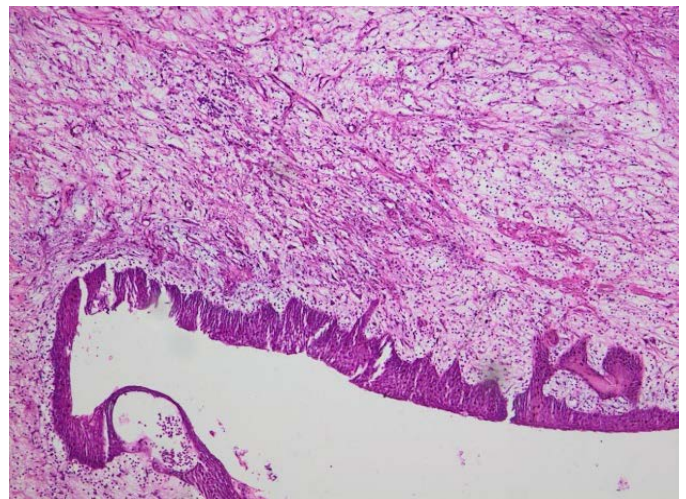


Figure 6: Histological section stained with hematoxylin and eosin (magnification $\times 20$): The surface coating is of respiratory type with squamous metaplasia.

Discussion

The first description of choanal polyps was reported by Killian⁵. Based on what we currently understand, the maxillary or sphenoid sinus are common sites where choanal polyps originate, particularly the antrochoanal type, which constitutes approximately 6% of all nasal polyps. Choanal polyposis typically affects a single sinus. There is compelling evidence indicating that the antral or sphenoidal regions of choanal polyps consist of a cyst surrounded by oedematous stroma⁶⁻⁸. Nevertheless, in rare cases, they can originate from the anterior ethmoid, sphenoidal sinus, nasal septum, inferior and middle turbinate⁸. In 1906, Killian described the first case of a choanal polyp from the posterior end of the middle turbinate⁹, and only a few cases have so far been reported in the literature⁹⁻¹¹.

Although varying in location, CPs present in a similar manner and share similar symptoms and histological findings. Nasal

obstruction is the predominant symptom in a CP originating from the middle turbinate¹⁰. Other non-specific symptoms can be accompanied such as nasal congestion, hyposmia, runny nose, mouth breathing and snoring if it extends into the oropharynx. Epistaxis is not the usual revealing sign of a choanal polyp and should raise suspicion of a nasopharyngeal fibroid in adolescents¹.

One of the main characteristics of CPs is the tendency for rapid growth, resulting in their impressive dimensions. This phenomenon may be attributed to heightened levels of basic fibroblast growth factor (bFGF) and transforming growth factor beta (TGF- β) expression within CP tissue compared to bilateral nasal polyposis and particularly healthy nasal mucosa¹².

The differential diagnosis of nasopharyngeal masses necessitates consideration of benign pathologies like juvenile angiofibroma, teratoma, and meningoencephalocele, as well as malignant conditions such as carcinoma, lymphoma, and sarcoma¹³⁻¹⁵.

Nasal endoscopic examination and imaging techniques are commonly used to diagnose a CP and should be considered before any definitive treatment. Imaging modalities such as computed tomography paranasal sinus (CT) and magnetic resonance imaging are employed to finding the attachment of the polyp, deciding the size of the polyp, and diagnosis of concurrent sinusitis, all of which are crucial for therapeutic effectiveness¹⁶. The choanal polyp is hypodense on CT, hypointense on T1-weighted and hyperintense on T2-weighted MR images, with peripheral contrast enhancement. In cases involving vascular lesions, magnetic resonance angiography of the nasopharynx may be indicated, there by rendering it indispensable in the diagnostic process.

Surgery stands as the primary recourse for treating CPs. Unlike nasal polyposis, steroid medications exhibit minimal efficacy against CPs. Prior to the advent of endoscopic nasal surgery, the Caldwell-Luc method and straight forward polyp removal were the predominant surgical approaches for many years¹⁷. Presently, endoscopic surgery emerges as the preferred treatment, offering a favorable prognosis and minimal recurrence rates^{2,18,19}. Resection of CPs at their point of origin typically proves adequate, while for antrochoanal polyps and sphenchoanal polyps, complete removal of the cystic component within the maxillary and sphenoid sinuses is imperative to forestall recurrence^{3,4,18,19}.

Conclusion

In conclusion, it should be kept in mind that CPs can originate from unusual locations. CT and MRI as well as nasal endoscopy usually give precise definition of the polyp's origin, thus preventing that unaffected sinuses are operated on. Biopsy and histopathologic examination or further imaging techniques (such as MRI) to avoid any missed diagnosis, especially in instances with an atypical site of origin of CPs. The most effective treatment is endoscopic removal of all cases of CPs.

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