

A rare nasal cavity mass in a child: Accessory middle turbinate

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Abstract

Objectives: The accessory middle turbinate, a rare anatomical variation of the nasal cavity, have been systematically studied in adults. Presence of accessory middle turbinate and its clinical significance in a child has not been reported. We describe clinical appearance and radiologic features of accessory middle turbinate in a child.

Methods: Retrospective chart review.

Results: A 3-year-old boy presented to the otolaryngology clinic for evaluation of recurrent epistaxis. Anterior rhinoscopy revealed moist nasal mucosa without inflammation and bilateral prominent blood vessels on the anterior nasal septum. Nasal endoscopy showed turbinate like protuberances in bilateral middle meatus. CT images documented accessory middle turbinate in the bilateral nasal cavity.

Conclusion: Otolaryngologists should be cognizant of anatomical variations of middle turbinate to achieve correct diagnosis and avoid potential complications during surgical management.

Keywords

Accessory middle turbinate, children, epistaxis, nasal mass, congenital

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Introduction

The accessory middle turbinate, a rare anatomical variation of the nasal cavity, has been systematically studied in adults.^{1,2} The accessory middle turbinate has been documented in asymptomatic adults and in adults with chronic nasal obstruction, headache, and frontal sinusitis. Presence of accessory middle turbinate and its clinical significance in a child has not been reported. We describe clinical appearance and radiologic features of accessory middle turbinate in a child.

Case report

A 3-year-old boy was referred to a tertiary care children's hospital for assessment of recurrent epistaxis. Epistaxis occurred almost one to two times per week for 2 months and was not associated with trauma. Parents denied symptoms of nasal obstruction, nasal discharge, post-nasal drip, sneezing, headache, and cough. The use of topical saline did not relieve recurrent epistaxis. The birth history was unremarkable; the patient had never been hospitalized and had never undergone surgery. Past medical history and family history were unremarkable.

At the time of presentation, physical examination revealed a well-appearing child in no respiratory distress and normal otologic exam results. No abnormality was found in the oral cavity, oropharynx, and head and neck region. Anterior rhinoscopy revealed moist nasal mucosa without inflammation and bilateral prominent blood vessels on anterior nasal septum. Nasal endoscopy showed masses in the bilateral middle meatus (Figure 1(a) and (b)). The masses had a smooth surface the same color as adjacent mucosa. Cauterization of

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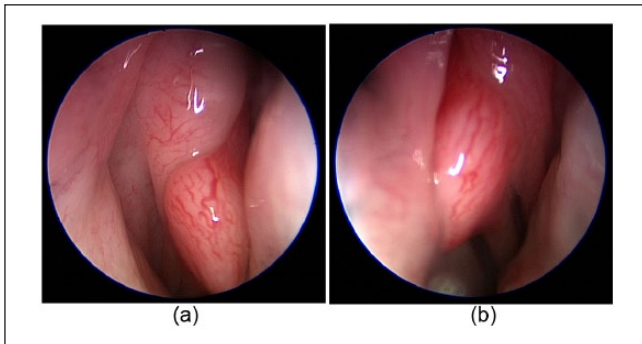


Figure 1. Endoscopic examination demonstrated mass lesions in (a) the right middle meatus and (b) the left middle meatus.

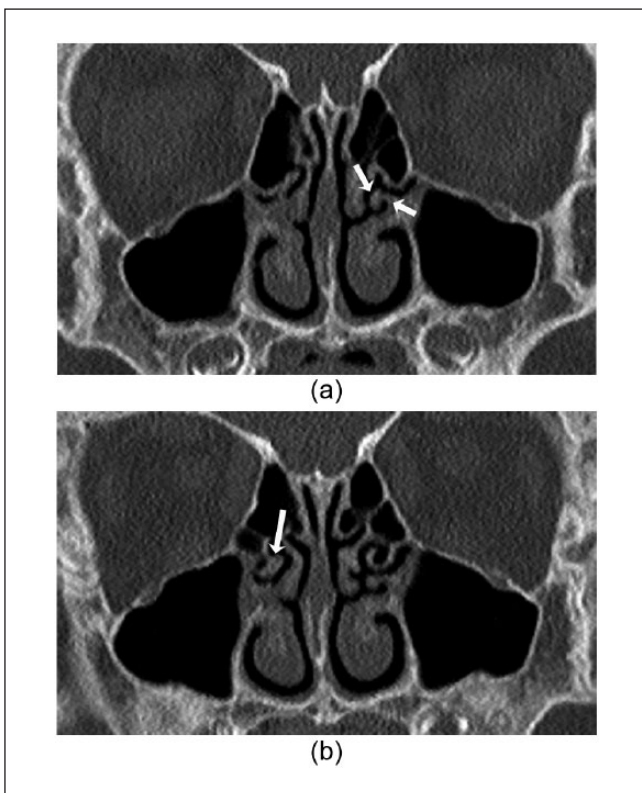


Figure 2. Coronal computed tomography images of the nasal cavity and paranasal sinuses showing (a) left accessory middle turbinate (arrows) and (b) right accessory middle turbinate (arrow).

prominent blood vessels was performed. Computed tomography (CT) images were obtained to evaluate the bilateral nasal cavity and paranasal sinuses (Figure 2(a) and (b)).

Discussion

An accessory middle turbinate is defined as an uncinata process that is bent medially and folded anteriorly to a greater than usual extent, giving the impression that two middle turbinates are present.¹ With this anomaly, the uncinata process

can arise from the lateral nasal wall or the inferior turbinate, and its free margin may protrude superiorly into the middle meatus, giving the appearance of a duplicated middle turbinate, or even inferiorly out of the middle meatus, resembling a bifid inferior turbinate.²

Embryologically, the precursors of human turbinates can be distinguished as prominences, termed ethmoturbinals and maxilloturbinals, extending from the lateral nasal wall in the 8th to 10th weeks of fetal life.³ The maxilloturbinate develops into the inferior nasal turbinate,² whereas the uncinata process and middle turbinate arise from the first and second ethmoturbinals, respectively.³ These differences in embryology are important in differentiating between the various nasal anomalies.

Clinically, an endoscopic examination will reveal an additional turbinate above the inferior turbinate along with a middle turbinate posteriorly. At this point, a differential diagnosis would include polyps from chronic inflammation, hemangioma, inverted papilloma, or neoplasm.

Imaging can provide further information regarding the etiology of the nasal mass. Concha bullosa and paradoxical middle turbinate are the most common anatomical variations of the turbinates encountered in imaging with CT.³ Other, less common, turbinate variations resembling the middle turbinate include accessory middle turbinate, secondary middle turbinate, and bifid inferior turbinate. The secondary middle turbinate originates from the lateral wall of the middle meatus and usually projects superomedially without obstructing the ostiomeatal unit.² The accessory middle turbinate and bifid inferior turbinate, on the other hand, seem to be variations of the uncinata process. The bifid inferior turbinate has been described as severe inferomedial displacement of the uncinata process.³ Although the bifid inferior turbinate could be confused with an accessory middle turbinate, it can easily be distinguished on a paranasal sinus CT scan because there is no uncinata process in a bifid inferior turbinate.⁴

In this study, accessory middle turbinates were encountered as incidental finding, and recurrent epistaxis was not related to accessory middle turbinates. Variations of uncinata process anatomy may obliterate the paranasal sinus drainage pathway, but do not usually affect nasal airflow.⁴ There have been case reports of accessory middle turbinates causing frontal sinusitis² and polyposis,⁴ and in these cases, routine endoscopic sinus surgery should be performed to open up the natural sinus drainage pathways. The more clinically relevant importance of these variations lie in the fact that they can mimic the real middle turbinate or uncinata process, which serves as important landmarks for endoscopic sinus surgery, and failure to recognize these variants could lead to intraoperative complications, such as inadvertent damage to the lamina papyracea during surgery.²

Anatomical variations of the nasal cavity in adults have been extensively documented in adults.¹⁻⁴ Adults with sinonasal anatomical variations may present with no clinical symptoms or higher incidence of inflammatory sinus disease.^{2,4} Better understanding of the anatomical variations of the nasal cavity in children has potential to improve

diagnosis, avoidance of radiation exposure due to CT imaging, and understand clinical significance.

Conclusion

Accessory middle turbinate may be encountered in children with sinonasal symptoms. Otolaryngologists should be cognizant of anatomical variations of middle turbinate to achieve correct diagnosis and avoid potential complications during surgical management.

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Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical approval

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Informed consent

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