



ENT

INVERTED PAPILLOMA OF THE MIDDLE TURBINATE IN AN ADOLESCENT: AN UNCOMMON DIAGNOSIS IN A UNILATERAL NASAL MASS

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ABSTRACT

Introduction: Sinonasal inverted papilloma is a benign epithelial neoplasm characterized by locally aggressive behavior, recurrence, and potential malignant transformation. It predominantly occurs in middle-aged and older adults and is distinctly uncommon in children and adolescents. Recognition in this age group is therefore clinically important because unilateral nasal obstruction may initially suggest more common inflammatory lesions. **Case Report:** A 14-year-old boy presented with left-sided nasal obstruction for six months. There was no history of epistaxis or other significant nasal symptoms. Computed tomography of the paranasal sinuses demonstrated an enlarged left middle turbinate with peripheral soft-tissue thickening. Histopathological examination of a biopsy obtained from the middle turbinate revealed features consistent with inverted papilloma. **Conclusion:** Sinonasal inverted papilloma, although predominantly a disease of adults, should be considered in the differential diagnosis of a unilateral nasal mass in adolescents. Histopathological confirmation and careful assessment of the tumor attachment are essential. Complete attachment-oriented excision and long-term surveillance are important because of the propensity for recurrence and malignant transformation.

KEYWORDS : Adolescent; Inverted Papilloma; Nasal Obstruction; Nasal Cavity; Middle Turbinate

INTRODUCTION

Inverted papilloma is a benign epithelial neoplasm characterized by endophytic proliferation into the underlying stromal tissue of the nasal cavity and paranasal sinuses. Despite its benign histological nature, it is notable for its locally aggressive behavior, high propensity for recurrence, and potential association with malignant transformation. The characteristic histopathological pattern of endophytic growth into the underlying connective tissue stroma was first described in detail by Reingertz in 1935. Although inverted papilloma commonly arises from the lateral nasal wall and paranasal sinuses, origin from the nasal septum is exceedingly rare. Septal inverted papilloma therefore presents a distinctive diagnostic and therapeutic challenge. Reporting such uncommon presentations can enhance the existing literature and provide valuable insights into the clinical, radiological, and pathological characteristics of this rare entity.[1]

Pediatric and adolescent sinonasal IP is distinctly uncommon. Published pediatric cases have generally involved patients between 5 and 15 years of age, with reported sites including the maxillary sinus, nasal septum, and middle turbinate.[2]

The present case highlights an inverted papilloma arising from the middle turbinate in a 14-year-old boy. The important teaching point is that age alone should not exclude IP from the differential diagnosis of a unilateral nasal mass.

Case Report

A 14-year-old boy presented to the otorhinolaryngology department with a six-month history of left-sided nasal obstruction. There was no history of nasal bleeding. On and off history of nasal discharge, left facial pain, headache, anosmia was present.

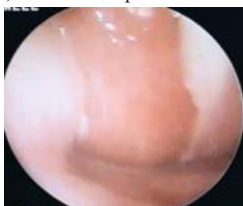


Fig.1 : Diagnostic Nasal Endoscopic Picture of the Nasal Mass

On diagnostic nasal endoscopy, in the left nasal cavity a reddish polypoidal mass seen occupying the entire left nasal cavity with mucopus seen in the left middle meatal region.(fig.1)

Computed tomography of the paranasal sinuses demonstrated an enlarged left middle turbinate with peripheral enhancement seen and left maxillary sinus had polypoidal changes.(fig.2a and 2b)

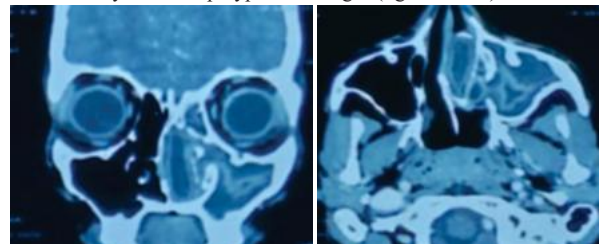


Fig.2a and 2b - 2a: Coronal View and 2b: Axial of Computed Tomography Showing the Nasal Mass with Peripheral Enhancement

Patient was taken up for left FESS under general anaesthesia and mass was excised and sent for histopathological examination

HPE showed Inverted papilloma of the middle turbinate.(fig.3a and 3b)

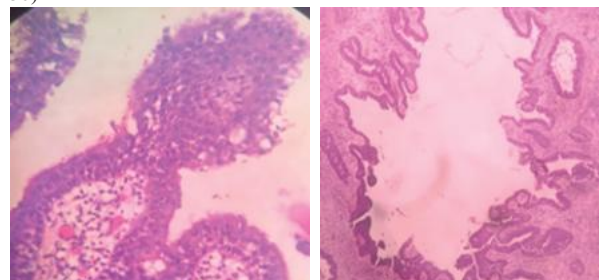


Fig. 3a and 3b- Under 40x Magnification 3a: Showing Focal

Hyperplasia and Transmigrating Neutrophils and Under 10x Magnification 3b: Showing Endophytic Invagination of Surface Epithelium into the Stroma.

DISCUSSION

Sinonasal inverted papilloma (SNIP) is among the most frequently encountered benign epithelial tumors of the sinonasal tract, with a marked predilection for males in the fifth and sixth decades of life. Its estimated prevalence ranges from 0.6 to 1.5 cases per 100,000 population.[3] whereas its occurrence in children is exceedingly uncommon. SNIP most often presents as a unilateral lesion involving the nasal cavity and/or paranasal sinuses, particularly the lateral nasal wall, ethmoid, and maxillary sinuses. Despite its benign histological nature, SNIP is clinically significant because of its locally aggressive behavior, potential for bone destruction, propensity for recurrence, and risk of malignant transformation.[5]

The clinical presentation of SNIP is often nonspecific. Patients may experience unilateral nasal obstruction, anterior or posterior nasal discharge, headache, epistaxis, reduced sense of smell, or facial pain. On nasal endoscopic examination, the lesion typically appears as a grayish-red, lobulated or mulberry-like mass within the nasal cavity or paranasal sinuses and may bleed easily on manipulation. Histopathological examination remains the definitive diagnostic modality. Computed tomography (CT) and magnetic resonance imaging (MRI) serve as important adjunctive investigations for assessing the extent and characteristics of the lesion. MRI, in particular, may demonstrate the characteristic cerebriform pattern on contrast-enhanced T2-weighted images, which can aid in differentiating SNIP from other sinonasal lesions.[4,8] Recent studies have explored the application of artificial intelligence (AI) in the diagnosis of sinonasal inverted papilloma using diagnostic nasal endoscopic videos. AI-based analysis demonstrated a diagnostic accuracy of **84.3%**, which was higher than that achieved by human otorhinolaryngologists (**69%**), highlighting the potential role of AI as an adjunctive tool for the early and accurate identification of sinonasal inverted papilloma.[6]

Surgical excision remains the cornerstone of treatment, with approaches ranging from traditional open procedures to minimally invasive endoscopic endonasal techniques. Endoscopic surgery is generally preferred for appropriately selected lesions; however, tumors extending into anatomically inaccessible regions may require an external or combined endoscopic-external approach. Regardless of the surgical technique, achieving adequate visualization and complete removal of the tumor, including its attachment site, is essential to minimize the risk of recurrence.[5,7]

CONCLUSION

Sinonasal inverted papilloma is rare in the pediatric and adolescent population but should be considered in the differential diagnosis of a persistent unilateral nasal mass. Middle-turbinate involvement is particularly unusual but has been described in pediatric patients. Early recognition, histopathological confirmation, accurate identification of the tumor attachment, complete surgical excision, and prolonged endoscopic surveillance are essential because of the risk of recurrence and malignant transformation.

Key Messages

- Inverted papilloma should be considered even in adolescents presenting with a unilateral nasal mass.
- A middle-turbinate lesion can represent inverted papilloma despite the patient's young age.
- Histopathological examination is essential for definitive diagnosis.
- Surgical planning should focus on identifying and completely treating the tumor attachment site.
- Long-term endoscopic surveillance is important because inverted papilloma can recur and has malignant potential.

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