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Research Article

Unveiling the Red Menace: A Case of Oncocytic type of Inverted Papilloma in a 65year old male

Dr REJEESH REJI, Dr NAVEENKUMAR A G, Dr RAMEEZA BEE Z, Dr ALMAS AMBREEN, Dr SACHINKUMAR E.M

MS ENT Junior Resident 3, Department of OTORHINOLARYNGOLOGY, Sapthagiri institute of medical sciences and Research Centre, Bangalore.

PROFESSOR AND HEAD OF DEPARTMENT, Department of OTORHINOLARYNGOLOGY, Sapthagiri institute of medical sciences and Research Centre, Bangalore.

MS ENT Junior resident 3, Department of OTORHINOLARYNGOLOGY, Sapthagiri institute of medical sciences and Research Centre, Bangalore.

MS ENT Junior Resident 3, Department of OTORHINOLARYNGOLOGY, Sapthagiri institute of medical sciences and Research Centre Bangalore.

MS ENT Junior Resident 3, Department of OTORHINOLARYNGOLOGY, Sapthagiri institute of medical sciences and Research Centre Bangalore.

Abstract

Inverted papilloma is a benign yet locally aggressive Sino nasal epithelial tumor characterized by high recurrence and potential for malignant transformation. The oncocytic variant is rare and requires careful evaluation. A 65-year-old male, a known case of Diabetes Mellitus and Hypertension, presented with unilateral right nasal obstruction and intermittent epistaxis for past 6 months. Endoscopic evaluation revealed a friable vascular mass arising from the right maxillary sinus. CT of paranasal sinuses showed a soft tissue lesion with widening of the maxillary ostium and cortical thinning. The patient underwent endoscopic medial maxillectomy. Histopathology confirmed oncocytic type inverted papilloma or exophytic growth pattern. Early detection, meticulous complete surgical excision, and long-term follow-up are crucial to achieving optimal outcomes in oncocytic-inverted papilloma, despite its benign histological nature.

Keywords: Inverted papilloma, Sino nasal tumor, Maxillary sinus

Introduction

Inverted papilloma is a benign epithelial tumor characterized by the proliferation of epithelium that extends into the underlying stroma of the nasal cavity and paranasal sinuses. Despite its benign nature, the tumor is well known for its locally invasive behavior, high recurrence rate, and association with malignant transformation.[1,2] The occurrence of

inverted papilloma in the sinonasal cavity was first documented by Ward in 1854.[3] Later, in 1935, Reingertz provided a detailed histological description of the tumor and highlighted its characteristic inverted growth pattern into the underlying connective tissue stroma.[4] In 1971, Hyams reviewed several cases and classified sinonasal papillomas into three types: inverted, fungiform, and cylindrical cell types.[1,5,6]

Inverted papilloma is a relatively rare benign tumor with an incidence of approximately 0.6 cases per 100,000 individuals per year.[7] It accounts for about 0.5–4% of all primary nasal tumors.[8] The lesion most commonly originates from the lateral nasal wall, particularly in the region of the middle meatus, and frequently extends into the ethmoid and maxillary sinuses. In advanced cases, the tumor may extend into adjacent structures on the ipsilateral side, whereas intracranial extension and dural involvement are rare.[9]

Inverted Papilloma etiology yet unknown. High- and low-risk human papillomavirus connected with the formation of Inverted Papilloma, but conflicting evidence exists regarding their role. Occupational and industrial exposures may also contribute to Inverted Papilloma formation, while smoking may increase the odds of malignant progression. Exon 20 mutations in EGFR are an active area of research in IP with mixed evidence. Finally, several cell cycle and angiogenic factors such as Ki67, VEGF, and Akt/mTOR implicated in the development and progression of Inverted Papilloma.[10,11]

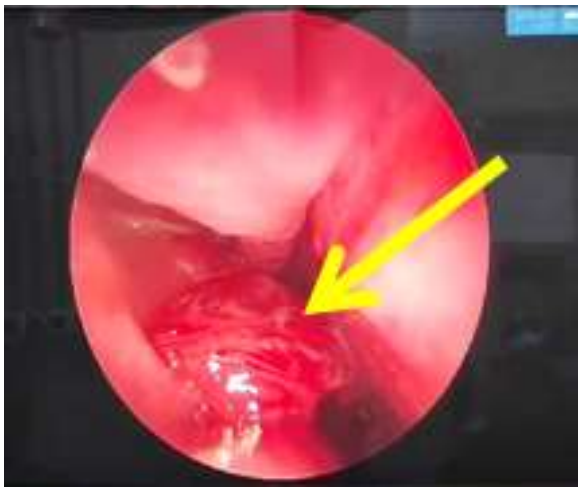
Case Report

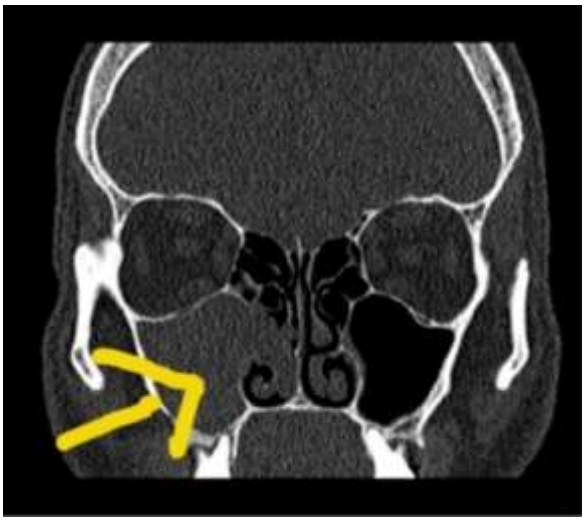
A 65-year-old male presented with right-sided nasal obstruction for 6 months, insidious in onset and gradually progressive. He also reported four episodes of spontaneous epistaxis over the preceding three months, each episode lasting approximately five minutes and resolved spontaneously. Patient is a known case of Hypertension for past 7 years and on regular treatment (on Cilnidipine + Telmisartan 10/40 mg). He diagnosed to have Type 2 Diabetes Mellitus for past 1 year and now on Vildagliptin 50 mg. On clinical examination, the external nose appears normal. The nasal septum is deviated toward the left side. In the right nasal cavity, a solitary reddish-brown polypoidal mass is noted arising from the middle meatus and extending into the nasal cavity. The lesion is associated with mucoid discharge admixed with blood clots. Further probing avoided in view of the suspected vascular nature of the mass. Left

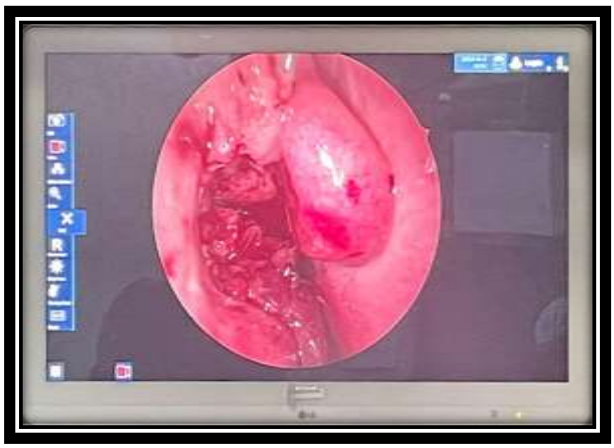
nasal cavity appears normal. Rest of Oto Rhino Laryngological examination observed to be within normal limits.

Management

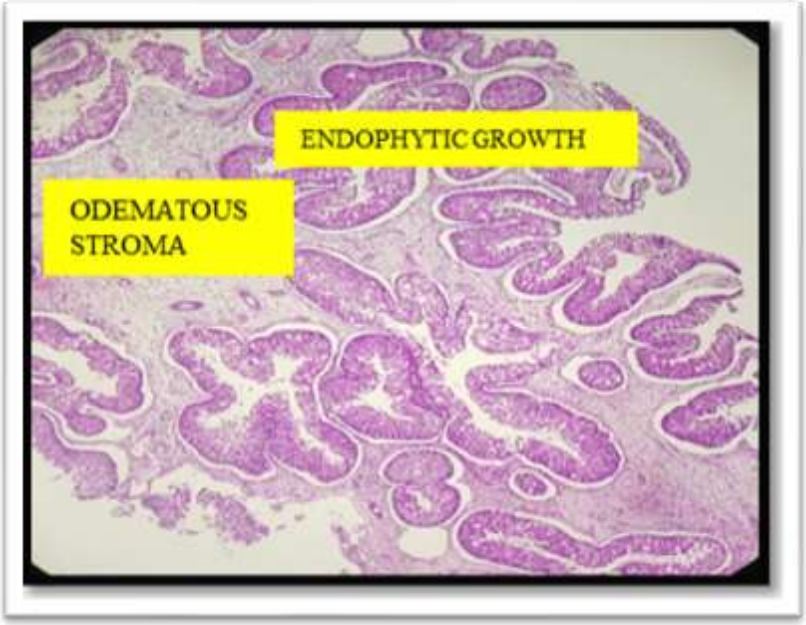
On Diagnostic Nasal Endoscopy, there was a pedunculated friable vascular mass arising from right maxillary sinus that bleeds on touch. Choana clear. In CT Para Nasal Sinus, a polypoidal soft tissue attenuation lesion noted occupying the right maxillary antrum, causing widening of the maxillary ostium and extending posteriorly into the nasal cavity. The lesion results in obliteration of the right nasal cavity and is associated with thinning of the adjacent bony cortex. Findings were suggestive of an aggressive benign lesion with bone remodelling.







The patient underwent endoscopic right medial maxillectomy under general anaesthesia, with complete excision of the tumor along with its site of attachment. The postoperative period was uneventful, and the patient followed up weekly for four weeks, followed by monthly for 6 months. Lacrimal syringing with betadine and saline performed, found to be patent. Healthy mucosa observed during follow-up examinations. Histopathological evaluation revealed an endophytic growth pattern composed of oncocytic epithelial cells, consistent with oncocytic-type inverted papilloma. No evidence of dysplasia or malignancy identified.



Discussion

A wide spectrum of both benign and malignant neoplasms can arise within the sinonasal tract.[1] Among these, sinonasal Papillomas constitute a clinically significant group in the differential diagnosis of nasal masses. They originate from the ectodermally derived, ciliated columnar respiratory epithelium lining the nasal cavity and paranasal sinuses, known as the Schneiderian membrane; hence, they are collectively referred to as Schneiderian papillomas.[2] Based on their morphological characteristics, they are classified into three distinct subtypes. Although the terminology has varied historically, the 4th edition of the WHO Classification of Head and Neck Tumours currently recognizes the following categories: Sinonasal Inverted papilloma (SNIP), Sinonasal Oncocytic papilloma (SNOP), and Sinonasal Exophytic papilloma (SNEP) with rates of 62%, 6% and 32%, respectively, among sinonasal papillomas [12]

The differential diagnosis of inverted papilloma includes sinonasal inflammatory polyps, non-keratinizing respiratory carcinoma, and verrucous carcinoma. Clinically, sinonasal inflammatory polyps may resemble inverted papillomas; however, histopathologically, inverted papillomas demonstrate characteristic epithelial alterations, which are absent in inflammatory polyps. Non-keratinizing respiratory carcinoma may occasionally mimic inverted papilloma, but it can be distinguished by the presence of cytological atypia and dysplastic features indicative of malignancy. Verrucous carcinoma, on the other hand, is characterized by cleft-like spaces lined by a thick layer of parakeratin that extend from the surface deep into the lesion—a hallmark feature that is not observed in inverted papilloma.[13]

The present case of a 65-year-old male aligns well with the established epidemiological profile of this uncommon lesion. Clinically, patients often present with unilateral nasal obstruction, intermittent epistaxis, rhinorrhea, facial fullness, or anosmia. The unilateral nature of symptoms, especially in elderly individuals, should raise suspicion for neoplastic pathology rather than inflammatory disease. Endoscopic examination usually reveals a reddish, polypoidal, friable mass—features that may clinically mimic inflammatory polyps or malignancy. Radiologically, computed tomography typically demonstrates a unilateral, heterogeneously enhancing soft tissue mass with possible bony remodeling or focal erosion. While bone destruction may suggest malignancy, in Oncocytic Inverted Papilloma it is often due to pressure effects rather than true invasive growth.

Histopathological examination remains the gold standard for diagnosis. Oncocytic Inverted Papilloma characterized by thickened epithelium composed of multi-layered oncocytic columnar cells with abundant granular eosinophilic cytoplasm and small, uniform nuclei. Inverted growth into the underlying stroma is evident, along with intraepithelial mucin-filled cystic spaces and micro abscess formation. The absence of significant cytological atypia, increased mitotic activity, or destructive stromal invasion supports its benign nature, although dysplastic changes and malignant transformation reported in a minority of cases.

Although histologically benign, oncocytic inverted papilloma is locally aggressive and carries a recognized risk of recurrence and malignant transformation. Inverted Papillomas are reported to have a substantial recurrence rate of up to 32%, and degenerate into or simultaneously harbour squamous cell carcinoma (SCC) in 15% of cases.[14,15]The lesion's propensity for local extension underscores the importance of complete surgical removal, commonly achieved via endoscopic medial maxillectomy or other appropriate approaches depending on tumor extent. Long-term surveillance with periodic nasal endoscopy and imaging is essential, particularly in elderly patients, given the potential for delayed recurrence or malignant transformation.

Conclusion

Oncocytic inverted papilloma, although histologically benign, is characterized by locally aggressive behaviour and a recognized potential for malignant transformation. This case highlights the need for a high index of clinical suspicion, particularly in patients presenting with unilateral nasal masses. Thorough endoscopic evaluation combined with detailed radiological assessment is essential for accurate delineation of the lesion, while definitive diagnosis relies on histopathological confirmation. Complete surgical excision with adequate clearance of the site of attachment remains the cornerstone of management. Furthermore, a long-term follow-up protocol is necessary to detect recurrence at an early stage.

Declarations

Ethical Approval: Not required for single case report as per institutional policy.

Patient Consent: Written informed consent obtained.

Conflict of Interest: None declared.

Funding: None.

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