

Case Report

Endoscopic resection of inverted papilloma of nasal cavity: a case report

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Received: 06 February 2018

Revised: 12 March 2018

Accepted: 14 March 2018

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ABSTRACT

Inverted papilloma is a benign neoplasm of nasal cavity arising from the lateral wall. Human papilloma virus (HPV) is the main causative agent. Definitive treatment is surgery and there are number of approaches. Literature shows that endoscopic approach has less recurrence rate. We report a case of inverted papilloma managed by endoscopic resection.

Keywords: Inverted papilloma, HPV, Endoscopic resection

INTRODUCTION

Inverted papilloma is a benign epithelial neoplasm originating from the Schneiderian membrane of the nose and paranasal sinuses. It is characterized by a high rate of recurrence between 0 and 78 percent, malignant transformation, residual disease, and a tendency towards multicentricity.¹ Victor Schneider in 1600s, demonstrated that nasal mucosa produces catarrh, not CSF and identified the origin of inverted papilloma from the ectoderm. Inverted papilloma is known by many other names such as epithelial papilloma, transitional cell papilloma, squamous cell papilloma, Schneiderian papilloma, Ringertz tumor.²

Inverted papilloma in the sinonasal cavity was first described by Ward in 1854.³ The classical histological nature of inversion of the neoplastic epithelium into the underlying stroma rather than proliferation outwards was documented by Ringertz in 1935.⁴ Several cases of papilloma occurring in the sinonasal cavity were reviewed by Hymans in 1971 and these sinonasal papilloma were subdivided into inverted, oncocytic (cylindrical or

columnar cells) and fungiform types (exophytic, septal).⁵ Inverting papilloma accounts for 70% of all sinonasal papillomas.⁶

The incidence of metachronous malignancy associated with inverted papilloma is 1%, whereas that of synchronus malignancy is upto 15%. Since there is a tendency towards multicentricity and a risk of malignant transformation of inverted papilloma multiple sections need to be examined to define the initial tumor type.⁷ Hence the tumor warrants complete surgical excision in view of its high recurrence rate. Surgical approaches include minimally invasive endoscopic approach, and more extended approaches like lateral rhinotomy, midfacial degloving and subcranial approach.¹ Here we report a case of inverted papilloma of nasal cavity which was managed by endoscopic approach.

CASE REPORT

A 50 year old lady presented with right sided nasal obstruction and foul smelling mucopurulent nasal discharge since one year. Patient also complained of

swelling over the right side of cheek associated with facial pain since two months. On diagnostic nasal endoscopic examination a friable bleeding polypoidal mass was seen in the right nasal cavity arising from right middle meatus which could be probed all around except laterally. Right maxillary and ethmoidal sinuses were tender. There were no neck nodes on palpation.

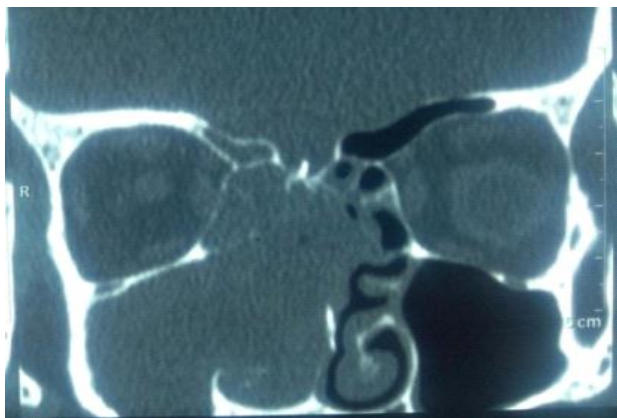


Figure 1: CT PNS plain coronal section.

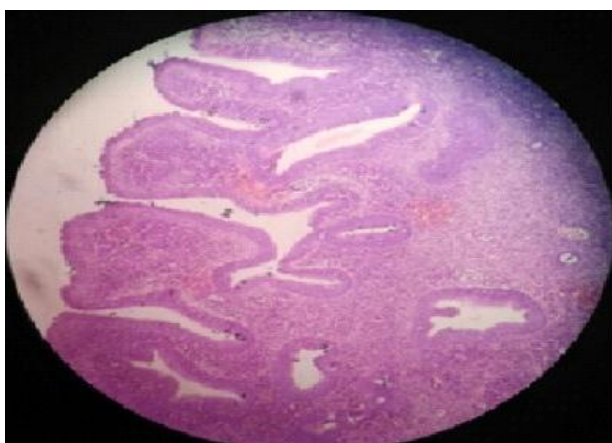


Figure 2: Histopathology.



Figure 3: Pre-op endoscopic image.

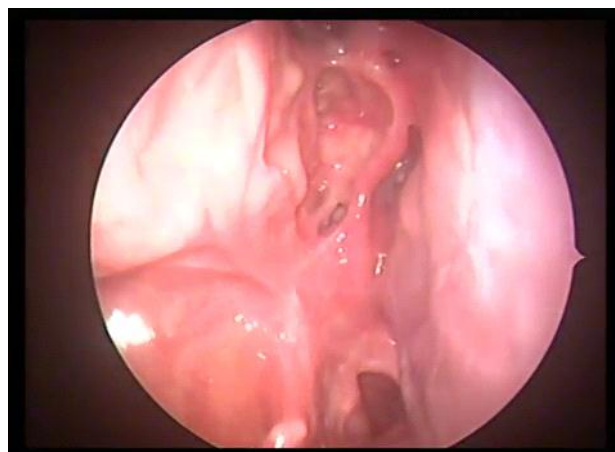


Figure 4: Post-op endoscopic image.

Computed tomographic (CT) scan of paranasal sinuses was done which revealed homogeneous opacity completely occupying right nasal cavity, maxillary, ethmoid and frontal sinuses (Figure 1). Septum was deviated to left side and there was no bony erosion. Hematological and biochemistry investigations were normal. Biopsy was taken from the nasal mass under local anesthesia and sent for histopathological examination (HPE). HPE showed features consistent with Inverted papilloma (Figure 2). The patient underwent endoscopic sinus surgery under general anesthesia. Right medial maxillectomy was done and mass was resected completely using microdebrider (Figure 3). Post operative period was uneventful (Figure 4).

DISCUSSION

Inverted papilloma also called Schneiderian papilloma or Ringertz tumor is a benign neoplastic growth of superficial epithelium of nasal mucosa.² It arises from the lateral nasal wall (middle turbinate or ethmoid recesses), middle meatus, extending into ethmoid and maxillary sinuses. In advanced cases, extension into all ipsilateral paranasal sinuses may occur, whereas rarely there is intracranial extension or dural penetration.^{1,8} It is more common in 2nd to 6th decade of life and male to female ratio is 3:1. Incidence of inverted papilloma is 0.6 cases per 100000 people per year and comprises 0.5–4% of all primary nasal tumors.^{3,9} Metachronous malignancy occurs in 1% of cases and synchronous malignancy in 15% of cases. Squamous cell carcinoma is the most common malignant neoplasms associated with inverted papilloma. Other malignant neoplasm found to be associated with inverted papilloma in decreasing order of frequency are adenocarcinoma and small cell carcinoma.^{2,10,11}

Inverted papilloma is caused by HPV 6, 11, 16, 18 and Epstein Barr viruses. Their association was confirmed by the study of Respler et al and Weber et al.^{12,13} Patients with inverted papilloma usually present with nasal obstruction, rhinorrhea, epistaxis, anosmia, bleeding

nasal mass and headache. Proptosis and facial swelling sometimes develop secondary to expansion of lesion.

Table 1: Krouse staging system.¹⁸

Stage - 1	Tumor restricted to nasal cavity
Stage - 2	Tumor restricted to ethmoid sinus and medial portion of the maxillary sinus
Stage - 3	Tumor involving the lateral or inferior or superior portion of the maxillary sinus or frontal or sphenoid sinuses
Stage - 4	Tumor beyond nose and paranasal sinus boundaries or malignant disease

Radiological features seen in contrast enhanced CT in inverted papilloma include varying degree of bone destruction like thinning, remodeling, erosion, sclerotic bony changes, widening of infundibulum in involvement of maxillary sinus, slight enhancement and calcification.^{14,15} Magnetic resonance imaging (MRI) is an alternative study that is superior to CT in distinguishing papillomas from inflammation and for providing better delineation of the lesions in contrast to surrounding soft tissue.¹⁶

Biopsy is the diagnostic method of choice. Multiple sections need to be examined to define the initial tumor type as inverted papilloma can be associated with coexisting malignancy. Histopathological examination classically shows inverted growth pattern of stratified squamous epithelium into underlying stroma. Markedly thickened squamous epithelial proliferation extend downward into underlying connective tissue stroma to form large clefts, ribbons and islands. Mitotic figure seen in basal and parabasal layers and stromal components vary from myxoid to fibrous, with admixed chronic inflammatory cells and variable vascularity.¹⁷

Inverted papillomas are effectively managed by surgery. Three goals of adequate surgical procedure are to allow sufficient exposure for complete resection of the tumor, provide an unobstructed view for postoperative surveillance of the cavity and minimize cosmetic deformities and functional disabilities. There are four types of approaches – endoscopic, midfacial degloving, lateral rhinotomy and modified Lothrop.^{2,18,19} Endoscopic approach was first tried by Stammberger in 1981.¹⁹ Studies by Pasquini et al and Mirza et al showed that recurrence rate was low in endoscopic approach as compared to traditional approaches.²⁰⁻²² Endoscopic surgery is effective for inverted papilloma restricted to middle nasal meatus, anterior ethmoidal cells and posterior ethmoidal cells, nasofrontal recess or sphenoid sinus.¹ Other advantages of endoscopic approach are superior visualization, preservation of normal sinonasal physiological function and achievement of mucociliary clearance pattern, lack of an external scar, shortened hospital stay, decreased blood loss and increasing the patient's quality of life.²⁰⁻²³

Inverted papilloma has a high rate of recurrence between 0 and 78 percent and recurrence represents residual disease in most cases. Hence it is imperative to completely excise the tumor with appropriate surgical approach.

CONCLUSION

Inverted papilloma comprises 0.5 to 4% of all primary nasal tumors. One should suspect inverted papilloma if a fifth or sixth decade patient comes with history of unilateral nasal obstruction, nasal discharge and epistaxis. Preoperative clinical, endoscopic and imaging assessment and histopathological examination of multiple sections from suspected nasal mass should be done to arrive at a proper diagnosis. Recent studies have showed that the best possible approach for complete resection of inverted papilloma can be achieved by endoscopic approach. Inverted papilloma, being a locally invasive tumor, is known to recur if incompletely excised. Hence it becomes mandatory to completely resect the tumor with the best possible surgical approach.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Dudda R, Jayanna SH, Hanumantha Prasad M, Balaji NK. Endoscopic resection of inverted papilloma of nasal cavity: a case report. *Int J Otorhinolaryngol Head Neck Surg* 2018;4:846-9.