

A Rare Sinonasal Tumour: Inverted Papilloma & Its Resection Using Endoscopic Approach

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Abstract: Background: *Inverted Schneiderian Papilloma is a fairly rare benign tumour of the nasal cavity. Even if this type of tumour is included in the category of benign tumours, it has an increased invasion potential and an increased tendency for malignization. Case report:* *We present the case of a 62 years-old male patient diagnosed with sinonasal tumour. Our evaluation and diagnostic protocol consisted in: ENT clinical examination, nasal endoscopy, and CT scan. The treatment consisted in total removal of the tumour through endoscopic sinus surgery. The positive diagnosis was confirmed postoperatively by histopathological examination. Our patient showed favourable outcome under the treatment applied pre; intra- and postoperatively. Conclusion:* *we believe that the transnasal endoscopic approach is a successful treatment method, but rigorous preoperative clinical, endoscopic and imaging assessment is mandatory; also the technical equipment, surgical abilities and experience of the surgeon are essential to ensure better results than those obtained by an external approach.*

Keywords: endoscopic sinus surgery, Schneiderian Papilloma, nasal cavity tumours

1. Introduction

Inverted Schneiderian Papilloma is a benign tumour which develops at nasosinus level, characterized histologically by an inverted Papilloma proliferation aspect in the dermal epithelium. Even if the tumour is included in the category of benign tumours, it has an aggressive growth, with an increased potential and an increased tendency for malignancy (2-53%). 10% of the cases diagnosed with Schneiderian Papilloma are associated with squamous cell carcinoma(1). Inverted Papilloma is almost always recurrent. In almost all cases described in the scholarly literature, they are localized unilaterally, with an increased frequency in males aged 50-60.

The aetiology of inverted Papilloma is unknown; there are only some hypothesis incriminating allergic and local infectious factors.

Positive diagnosis is based on clinical examination, nasal endoscopy and imaging, as well as histopathological findings.

2. Case Report

A 62years-old patient came to our clinic with chief complaints of mass in right nasal cavity since 6years and nasal obstruction since 2 years. The patient first noticed swelling 6years back which had gradually progressed to the present size. Also complaints of nasal obstruction which was insidious in onset and gradually progressed. No aggravating or relieving factors drugs, but with no improvement.

Our evaluation and diagnostic protocol consisted in : ENT clinical examination, nasal endoscopy and CT scan. On clinical examination, a pinkish mass seen occupying whole of right anterior choana pushing septum to opposite side. Surface of mass appears smooth, no discharge, no visible pulsations. Floor of nose appears free from mass. Nasal

mucosa, inferior turbinate cannot be visualised on right side. Opposite nasal cavity appears normal.

On probing, it can be passed medially, inferiorly, but cannot be passed supero-laterally. Mass is non tender, didnot bleed on touch and firm in consistency. Tenderness present over right maxillary sinus.

Based on the clinical features, a differential diagnosis- Antrochoanal polyp, Ethmoidal polyposis, inverted Papilloma.

On diagnostic nasal endoscopic examination a pinkish polypoidal mass was seen in the right nasal cavity arising from right middle meatus. Doesnot bleed on touch.(Figure1). C T scan of Paranasal sinus revealed a large soft tissue density mass of size 5.5* 1.7cm is noted in right nasal cavity which was displacing towards left. It was not causing erosion and destruction of bony nasal septum. There was no extension of mass or any compression on muscles of right orbit or optic nerve(Figure 2).

Biopsy was taken from nasal mass under local anaesthesia , sent for histopathological examination .

The HPR report was suggestive of Inverted Papilloma. Low power view: this section shows nests of squamous epithelium, arranged in papillary pattern enclosing fibrovascular stroma (Figure 4). High power view : This section shows pseudostratified ciliated columnar epithelium of nose. The mass was situated below nasal mucosa. Fibrovascular tissue shows scattered inflammatory cells. No atypia, no features of malignancy seen in the sections examined.

The patient underwent endoscopic sinus surgery under general anaesthesia. Mass was resected completely using microdebrider. Post operative period was uneventful(Figure 3).

3. Discussion

Inverted Papilloma also called Schneiderian Papilloma or Ringertz tumour. It is a benign neoplastic growth of superficial epithelium of nasal mucosa. It is more common in 2nd to 6th decade of life. 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 tumours (2)(3)(4)(5). It arises from the lateral nasal wall (middle turbinate or ethmoid recess), middle meatus, extending into ethmoid and maxillary sinuses. In advanced cases, extension into all ipsilateral paranasal sinuses may occur. Intracranial extension or dural penetration is rare (4)(5).

Squamous cell carcinoma is the most common malignant neoplasm associated with inverted Papilloma. Other malignant neoplasm are adenocarcinoma and small cell carcinoma (6)(7)(8)(9)(10). Inverted Papilloma is caused by HPV 6, 11, 16, 18 and Epstein Barr viruses (9)(10). Inverted Papilloma has a high rate of recurrence.

Patients with inverted Papilloma usually present with nasal obstruction, rhinorrhoea, epistaxis, anosmia, nasal mass and headache. Proptosis and facial swelling sometimes develop secondary to expansion of lesion.

Table 1: Krouse staging system (11)

Stage 1	Tumour restricted to nasal cavity
Stage 2	Tumour restricted to ethmoid sinus and medial portion of the maxillary sinus.
Stage 3	Tumour involving the lateral or inferior or superior portion of the maxillary sinus or frontal or sphenoid sinuses
Stage 4	Tumour 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, remodelling, erosion, sclerotic bony changes, widening of infundibulum in involvement of maxillary sinus, slight enhancement and calcification (12)(13).

Biopsy is the diagnostic method of choice. Multiple sections need to be examined to define the initial tumour type as inverted Papilloma can be associated with coexisting malignancy. Histopathological examination classically shows inverted growth pattern of stratified squamous epithelium into underlying stroma (14).

Inverted Papilloma are effectively managed by surgery. There are 4 types of approaches- endoscopic, lateral rhinotomy, midfacial degloving and modified Lothrop (2)(11)(15). Endoscopic approach was first tried by Stammberger in 1981 (15). 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). Dudda Studies by Pasquini et al and Mirza et al showed that recurrence rate was low in endoscopic approach as compared to traditional approaches (16)(17)(18).

In conclusion, Inverted Papilloma comprises 0.5 to 4% of all primary sinonasal tumours. One should suspect it if a patient 5th and 6th decade patient come with particular history. Preoperative clinical, endoscopic examination, imaging assessment & histopathological examination should be done to arrive at a proper diagnosis. Recent studies showed that endoscopic approach is the best for resection of inverted Papilloma. As it is locally invasive tumour, can recur if incompletely excised. Hence it is mandatory to completely resect the tumour.

Declarations

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Conflicts of interest: none

References

- [1] Musat G. - Patologia rinosinusala benigna otorinolaringologica. In: Popescu I., Ciuce C. (sub red.), Sarafoleanu C. (coord.) - *Tratat de chirurgie*. Editia a II-a. Vol. I.: Otorinolaringologie si chirurgie cervicofaciale. Editura Academiei Romane, 2012; p.160-166.
- [2] Ward N. A mirror of the practice of medicine and surgery in the hospitals of London. London Hosp Lancet. 1854;2:87-99.
- [3] Buchwald C, Nielsen LH, Nielsen PL, Ahlgren P, Tos M. Inverted papilloma: A follow-up study including primarily unacknowledged cases. *Am J Otolaryngol*. 1989;10:273-81.
- [4] Draf W. The frontal sinus. In: Gleeson M, Browning GG, Burton MJ, eds. *Scott-Brown's Otorhinolaryngology, Head and Neck Surgery*. 7th ed. 2nd vol. Great Britain, Hodder Arnold; 2008; 1523-1524
- [5] Miller PJ, Jacobs J, Roland JT Jr, Cooper J, Mizrahi HH. Intracranial inverting papilloma. *Head Neck*. 1996;18:450-3.
- [6] Melroy CT, Senior BA. Benign sinonasal neoplasms: A focus on inverting papilloma. *Otolaryngol Clin North Am*. 2006;39:601-17, x.
- [7] Lawson W, Le Benger J, Som P, Bernard PJ, Biller HF. Inverted papilloma: An analysis of 87 cases. *Laryngoscope* 1989;99:1117-24.
- [8] Lawson W, Ho BT, Shaari CM, Biller HF. Inverted papilloma: A report of 112 cases. *Laryngoscope*. 1995;105(3 Pt 1):282-8.
- [9] Respler DS, Jahn A, Pater A, Pater MM. Isolation and characterization of papillomavirus DNA from nasal inverting (Schneiderian) papillomas. *Ann Otol Rhinol Laryngol*. 1987;96:170-3.
- [10] Weber RS, Shillito EJ, Robbins KT, Luna MA, Batsakis JG, Donovan DT, et al. Prevalence of human papillomavirus in inverted nasal papillomas. *Arch Otolaryngol Head Neck Surg*. 1988;114(1):23-6.
- [11] Krouse JH. Endoscopic treatment of inverted papilloma: Safety and efficacy. *Am J Otolaryngol*. 2001;22:87-99.
- [12] Lee JT, Bhuta S, Lufkin R, Castro DJ. Isolated inverting papilloma of the sphenoid sinus. *Laryngoscope*. 2003;113:41-4.
- [13] Khandekar S, Dive A, Mishra R, Upadhyaya N. Sinonasal inverted papilloma: A case report and mini

review of histopathological features. *J Oral Maxillofac Pathol.* 2015;19(3):405.

- [14] Weing B.M. Neoplasms of the Nasal Cavity and Paranasal Sinuses. In: *Atlas of Head & Neck Pathology.* Philadelphia: WB Saunders; 1993: 65– 72.
- [15] Wormald PJ, Ooi E, van Hasselt CA, Nair S. Endoscopic removal of sinonasal inverted papilloma including endoscopic medial maxillectomy. *Laryngoscope.* 2003;113:867–73.
- [16] Lawson W, Kaufman MR, Biller HF *Laryngoscope.* 2003;113(9):1548-56.
- [17] Pasquini E, Sciarretta V, Farneti G, Modugno GC, Ceroni AR *Am J Otolaryngol.* 2004;25(3):178-85.
- [18] Mirza S, Bradley PJ, Acharya A, Stacey M, Jones NS *J Laryngol Otol.* 2007;121(9):857-64.



Figure 3: Intraoperative



Figure 1: Diagnostic Nasal Endoscopy

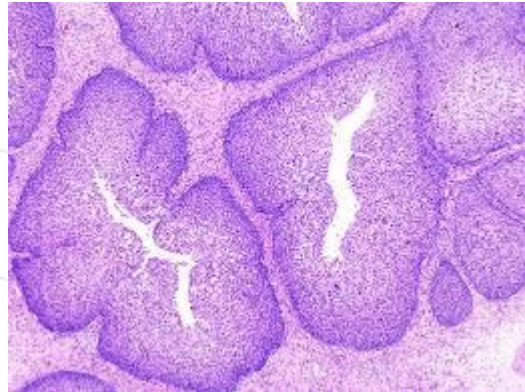


Figure 4: Histopathology

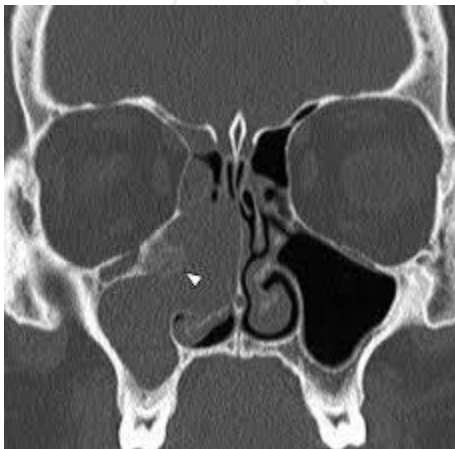


Figure 2: CT scan

