

# A Study On The Clinical Profile And Management Of Inverted Papilloma

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## Abstract

Inverted papilloma is a locally aggressive sinonasal tumor that arises from the outlining Schneiderian respiratory membrane. The present study was carried out in the department of otorhinolaryngology of Nepalgunj medical college during March 2004 to 2008. 25 patients with inverted papilloma admitted in the department were included in the study. A detailed history, ENT and detailed radiological evaluation by contrast CT scanning was done taking coronal and axial cuts of nose and PNS. Endoscopic examination and biopsy performed to confirm the diagnosis before going in for definitive surgical treatment. Depending upon the site, size and invasion the surgery planned included lateral rhinotomy, medial maxillectomy, endoscopic ethmoidectomy. Patients were followed up for average 2 years. Data regarding the clinical features, investigations and surgical approach were collected and compared to the existing studies. This study showed that in spite of geographical diversity and late presentation of the patient, recurrence rate was low.

## INTRODUCTION

Inverted papilloma is a locally aggressive sinonasal tumor that arises from the outlining Schneiderian respiratory membrane.

Ward reported the first case of inverted papilloma in 1864. It is a relatively rare neoplasm, constituting 0.5% to 4% of all primary nasal tumors. It has been reported in all age groups, peak incidence being in the fifth and sixth decades of life. There is a male to female predominance in the ratio of 3 to 1. Caucasians are more commonly affected.

The etiology of this tumor is unknown. Possible theories include proliferation of nasal polyp, allergy, chronic inflammation, environmental carcinogens, and viral infection. Using the techniques of southern blot molecular hybridization, Respler recently reported the presence of human papilloma virus (HPV) type 11. In Weber's study, all recurrent inverted papilloma were HPV DNA positive, suggesting that the presence of the virus may affect the biological behavior of these epithelial proliferations. Further analysis is needed to confirm that HPV is not only a bystander.

Currently endoscopic removal of tumour is gaining popularity but incidence of recurrence is quite high. The surgical technique of choice is an en bloc medial

maxillectomy and ethmoidectomy as described by Sessions (1977). This provides complete visual delineation of all tumor margins while preserving the orbital rim, eye, nasal pyramid, and lacrimal apparatus. The medial maxillectomy can be accomplished via either lateral rhinotomy or mid-facial degloving techniques.

## AIMS & OBJECTIVE

1. To review our experience in the management of inverted papilloma in this institute
2. To emphasize the role of intraoperative nasal endoscopy in the management of inverted papilloma

## MATERIAL & METHOD

Present study was carried out in the department of otorhinolaryngology of Nepalgunj medical college during march 2004 to 2008. 25 patients with inverted papilloma admitted in the department were included in the study. A detailed history regarding onset and duration of symptoms previous surgery and history about prior chronic rhinosinusitis were noted. ENT examination done as anterior and posterior rhinoscopy. Detailed radiological evaluation by contrast CT scanning was done taking coronal and axial cuts of nose and PNS. Endoscopic examination and biopsy

performed to confirm the diagnosis before going in for definitive surgical treatment. Depending upon the site, size and invasion the surgery planned included lateral rhinotomy, medial maxillectomy, endoscopic ethmoidectomy.

Intraoperative nasal endoscopy done in every case to ensure the extent of excision in order to excise the whole pathology with normal margin to prevent recurrence. Patients who showed malignant changes were sent for radiation therapy using CO60.

**RESULTS**

The age of the patients ranged from 13-65 years with a mean age of 39 years. The maximum number of patients 12(60%) were found in the age group of 51-70 years. Males were 18(72%), and females 7 (28%) (Table no 1).

**Figure 1**

Table 1: Age and sex distribution

Age group	male	female	Total percentage
10-30 yrs	1	1	8%
31- 50 yrs	5	3	32%
51-70 yrs	12	3	60%
	72%	28%	

The commonest symptom in this study was unilateral nasal obstruction, which occurred in 25(100%) cases. Other symptoms were nasal discharge 24(96%), mass in nasal cavity 18(72%), epistaxis 12(48%), headache 10(40%), hyponasal voice 8(32%), sinusitis 5(20%), anosmia 3(12%) (table no 2).

**Figure 2**

Table 2: Symptoms

Symptoms	No. of cases	Percentage
Nasal obstruction	25	100%
Nasal discharge	24	96%
Mass in nasal cavity	18	72%
Epistaxis	12	48%
Headache	10	40%
Sinusitis	5	20%
Anosmia	3	12%
Hyponasal voice	8	32%

The lateral nasal wall and nasal cavity were involved in all the 25 cases (100%). The individual sinuses were involved to a variable extent. As per the findings documented by CT Scan of nose and PNS (Axial and Coronal Views) and intra-operative endoscopic assessment, the maxillary sinuses were involved in 21 cases (84%), ethmoid sinuses in 18 (72%), sphenoid sinus in 1(4%), nasopharynx in 4 (16%). Nasal septum was eroded in two cases(8%). Lamina papyracea was eroded in 2 (8%) cases. Lateral wall of the maxilla was

involved in 2 (8%). In 1(4%) case, posterior wall of maxilla was eroded. Only 4 (16%) patients presented with the lesion in the nasal cavity alone. 10 (40%) patients showed bony erosion in their radiographic (C.T. Scan) study. The most common site of bony erosion was found at the lateral nasal wall or medial wall of the maxillary antrum in 8 cases (Table no.3,4) ( Figure no. 1).

**Figure 3**

Table 3: CT scan finding

Lateral nasal wall	25	100%
Lateral wall of maxilla	2	8%
Lamina papyracea	2	8%
Nasal septum	1	4%
Sphenoid involvement	1	4%

**Figure 4**

Table 4: Intra operative endoscopic findings

Site of involvement	No. of cases	Percentage
Nasal cavity	25	100%
Lateral nasal wall	25	100%
Ethmoid sinus	18	92%
Maxillary sinus	8	32%
Sphenoid sinus	4	16%
Nasopharynx	4	16%

Figure 5

Figure 1: CT Scan finding



Out of the 25 patients in this study, one case was associated with squamous cell carcinoma. That patient was treated with Lateral Rhinotomy followed by post operative radiation therapy. The rest of the patients were treated by different surgical procedures, viz. Lateral Rhinotomy, Lateral Rhinotomy and Medial Maxillectomy, Endoscopic intranasal Ethmoidectomy, Intra-nasal endoscopic removal, Endoscopic Ethmoidectomy and Caldwell-Luc operation (Table no. 5).

Figure 6

Table 5: Surgical approach used for the cases

## Endoscopic ethmoidectomy surgery

The post-operative  
Transient epiphora (5 case  
lateral rhinotomy and medial  
orbital swelling (3 cases), p

The post-operative complications found in this study were minimal. Transient epiphora (5 cases) was the commonest complication encountered after lateral rhinotomy and medial maxillectomy. The other complications seen were peri-orbital swelling (3 cases), post-operative bleeding (3 cases) and pain at the site of operation (1 case). The patients were followed up upto 3 years (16 to 36 months). There was no recurrence in any case.

## DISCUSSION

Inverted papilloma is a lesion of the mucus membrane of the nasal cavity and paranasal sinuses. It is a rare tumor occurring in approximately 0.5% of the nasal tumors, thus representing approximately 4% of all nasal polyps. Although Inverted Papilloma of the nose and paranasal sinuses are relatively rare, but in this study 25 cases were seen in 4 years. The age of the patients varied from 13-76 years, with a majority of patients in the age group of 50-70 years and the male: female ratio of 2.6:1; which consistent with the findings of Vrabc (1975), Kelly et al (1980), Myers et al (1990) and Lawson et al (1995). Bielamowicz et. al. found the average age of diagnosis to be 53 with a range from 6 years old to 91 years old.

On review the Inverted papilloma has an unknown etiology. There have been many causes suggested in literature as allergy, chronic sinusitis, and viral infections. Allergy is unlikely since most of the patients in the study do not have an allergic history and the polyposis associated with allergic rhinitis is usually bilateral. The presence of sinusitis could be related to the obstructive nature of the disease and not the cause.

The presenting symptoms seen in this study were similar with the findings of many authors who believed that the signs and symptoms of the disease depend on the location and extent of the tumour. Common symptoms in this study were unilateral nasal obstruction, which occurred in 25(100%) cases, nasal discharge in 24(96%) cases, mass in nasal cavity 18(72%). while N. C. Lyngdoh et al. reported nasal obstruction in 93.3% cases, nasal discharge in 40% cases, nasal mass in 20% of cases. This discrepancy may be because of late presentation of cases due to geographical and socioeconomical barriers. Other symptoms were epistaxis 12(48%), headache 10(40%), hyponasal voice 8(32%), sinusitis 5(20%), anosmia 3(12%). 18(72%) cases presented with nasal mass. and nasal obstruction was complained by all patients. The reported duration of symptoms in our series was 2 weeks to 8 years. Other symptoms not present in this study but found in literature were facial numbness, diplopia, hypo-nasal speech, facial pruritus, and anosmia.

In present study CT scan showed maxillary sinus involvement in 84% of cases, ethmoid sinuses in 4% cases, nasal septum was eroded in 8% cases. Lamina papyracea was found to be eroded in 8% of cases. Radiological CT scan study showed extensive destruction in two cases, involving palate, posterior and lateral wall of maxilla. Only 4(16%) cases showed limited disease in the nasal cavity. All the patient were evaluated preoperatively and intraoperatively with endoscope. Mark A. Sukenik, MD, Roy Casiano, MD, FACS evaluated. The overall sensitivity and specificity for the preoperative CT evaluation were 69% and 20%, respectively. For intraoperative endoscopic evaluation they were 69% and 68%, respectively. Excluding the sphenoid sinus, the overall sensitivity for CT scan and intraoperative endoscopic evaluation increased to 87%. Excluding the anterior ethmoids, the overall specificity for CT scan and intraoperative endoscopic evaluation increased to 25% and 79%, respectively. The overall cure rate was 94% (18 patients) with an average follow-up of 2 years.

In our study we observed that preoperative and intraoperative endoscopic evaluation with CECT study

makes surgeon more confident in choosing the surgical approach. One can give a final look for remnants of the tumours in crevices and extent of surgery can be extended. Intraoperative endoscopic examination may be a better way of determining the extent of mucosal removal during surgery. Whatever the surgical approach was used to reduce the rate of recurrence as there was no recurrence even after a average follow up of 2 years.

In this study we performed lateral rhinotomy with or without medial maxillectomy in most of the cases. Endoscopic surgery was done in 2 (8%) cases. In these two cases lesion was not so extensive and only lateral wall was involved. In 2 (8%) cases endoscopic ethmoidectomy with Caldwell-Luc surgery was performed. Caldwell-Luc surgery was done to remove the disease in maxillary sinus. Intraoperative endoscopic examination used as adjuvant to remove extension of tumour to cervixes.

An association between inverted papilloma and carcinoma is well established, with reported incidence rates varying from 2% to 53%. In our study only one case (4%) was reported with the associated malignancy.

The complications after surgery encountered by us were minimal transient epiphora in 20%, periorbital swelling in 12% and hyperesthesia in one case. These findings are same as in Myer et al, Vrabeck, Lyngdoh et al. None of the patient showed any sign of recurrence after their routine ENT examination even after 2 years of follow up except one patient with malignancy who was lost in follow up.

### **CONCLUSION**

The clinical findings of inverted papilloma depends on the site, extension and the duration of the tumour. In present experience progressive nasal obstruction, recurrent epistaxis, profuse mucopurulent discharge were the usual symptoms. Most of the cases with extensive disease treated with lateral rhinotomy and medial maxillectomy. Pre and per operative endoscopy was always helpful. Endoscopy during the surgery enables the surgeon to demonstrate the normal and abnormal mucosa. Pre operative endoscopy and CT scan increases the sensitivity for the diagnosis and extent of the tumour. And make the surgeon confident to choose the correct surgical approach.

### **References**

1. Brown B. The Papillomatous tumours of the Nose. *J Laryngol Otol* 1964;58:889-96.
2. Ringertz N. Pathology of malignant tumours arising in nasal and paranasal cavities and maxilla. *Acta Otolaryngol*

1938;27:31-42.

3. Vrabec PD. The Inverted Schneiderian Papilloma: A Clinical and Pathological Study. *Laryngoscope* 1975;85:186-220.

4. Buchwald C, Franzmann MB, Jacobson GK and Lindeberg H. Human Papilloma Virus (HPV) in Sino-nasal Papillomas: A Study of 78 cases using In-situ Hybridization and Polymerase Chain Reaction. *Laryngoscope* 1995;105:66-71.

5. Vrabec PD. The Inverted Schneiderian Papilloma: A 25-Year Study. *Laryngoscope* 1994;104:582-604.

6. Myers EN, Fernau JL, Johnson JT, Tabet JC, Bernes L. Management of Inverted Papilloma. *Laryngoscope* 1990;100:481-90.

7. Phillips PP, Gustafson RO, Facer GW. The Clinical Behaviour of Inverting Papilloma of the Nose and Paranasal Sinuses: report of 112 cases and review of literature.

*Laryngoscope* 1990;100:463-9.

8. Lawson W, Ho BT, Jacobson A. Inverted Papilloma: a report of 112 cases. *Laryngoscope* 1995;105:282-8.

9. Kelly JH, Joseph M, Carroll E, Goodman ML, Pilch BZ, Levinson RM, et al. Inverted Papilloma of the Nasal Septum. *Arch Otolaryngol* 1980;106:767-71.

10. Dolgin SR, Zaveri VD, Casiano RP, Maniglia AJ. Different options for treatment of Inverted Papilloma of the nose and Paranasal Sinuses: a report of 41 cases. *Laryngoscope* 1992;102:231-6.

11. Momose EN, Weber AL, Goodman M. Papilloma. *Radiology* 1980;134:73-9.

12. Osborn DA. Transitional cell growths of the upper respiratory tract. *J. Laryngol* 1956;70:574-88.

13. Yagamuchi KT, Shapshay SM. Inverted Papillomas and squamous cell carcinoma. *J Otolaryngol* 1979;8:171-8.

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