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SURGICAL MANAGEMENT OF INVERTED PAPILLOMA: RETROSPECTIVE STUDY OF 45 CASES

Monil Parsana	Senior Resident, Department o ENT, BJ Medical college, Ahmedabad
Abhishek Gugliani*	Senior Resident, Department of ENT, BJ Medical college, Ahmedabad *Corresponding Author
Kalpesh Patel	Associate Professor, Department of ENT, BJ Medical College, Ahmedabad

ABSTRACT The aim of our study is to analyze our management of Inverted Papilloma(IP) over last decade, with regard to outcome of the treatment and recurrence rate, and compare the outcomes with other studies. This is a single center retrospective study of 45 diagnosed case of IP, which were managed by endoscopic surgical removal, from June 2007 to June 2017. The results shows marked incidence of tumor in 5th decade (46% cases), with male preponderance (4:1). Based on the CT finding the tumor was classified according to the Krouse staging, with 60% of the patients in the stage 3. The recurrence was observed in 6 patients (13.33%). 3 cases(6.67%) showed malignant transformation on follow up. To conclude Inverted papilloma, being a locally invasive tumor, with significant recurrence rate and malignant transformation rate, it becomes mandatory to completely resect the tumor. Complete removal of the tumor can be satisfactorily achieved by endoscopic approach.

KEYWORDS : benign tumor, sinonasal mass, inverted papilloma, Ringert tumor, Schneiderian papilloma.

INTRODUCTION

Inverted papilloma(IP) is a benign tumor of nasal cavity otherwise named as Transitional cell papilloma or Ringertz tumor or Schneiderian papilloma or Cylindrical cell carcinoma. In 1938, Ringertz identified the characteristic endophytic growth pattern and introduced the term "Inverted Papilloma"[1], since then contributions of the many have helped us understand what we now know as 'inverted papilloma'.

Inverted papilloma is a rare benign tumor constituting 0.5% to 4% of all primary nasal tumors. Most commonly seen in the age group of 40-70 years with a strong male preponderance (3:1)[2]. The tumor presents a red or gray polypoidal mass arises from lateral wall of nose and is usually involves unilateral nasal cavity. No symptoms are unique to IP, the symptoms are similar to those of sinonasal polyp. The aetiology of this tumor is unknown. Possible theories include proliferation of nasal polyps, allergy, chronic inflammation, environmental carcinogens and viral infection A history of previous operations, including polypectomy and septal or sinus surgery is common. The incidence of recurrences is a common occurring and is directly related to the method of surgical treatment.

The standard treatment of IP has always been complete surgical removal of the tumor. Preoperatively, CT scan imaging with intravenous contrast is the investigation of choice (Buchwald C et al 1990)[3]. IP is associated with malignancy in 5-15% of cases, this is one of the characteristic feature of the tumors that endorses surgical management of the tumor[4]. Over the last decade endoscopic surgery has become the gold standard treatment for IP with many studies showing better results with endoscopic surgical approach[4].

The aim of our study is to analyze our management of IP over last decade, with regard to the outcome of the treatment and recurrence rate, and compare the outcome with other studies.

MATERIALS AND METHOD

The study group comprises of all diagnosed cases of Inverted papilloma, who underwent surgery in Department of ENT & Head & Neck Surgery, BJ Medical College and Civil Hospital, Ahmedabad. It is a retrospective study of 45 patients; duration of study was taken as 10 years from June 2007 to June 2017. All diagnosed cases of IP, who underwent surgery at our hospital were included in the study. The patients diagnosed with malignant nasal tumors and patients diagnosed with allergic or infective nasal pathologies, were excluded from the study. Clinical data was retrieved from the registry of histo-cytopathology and clinical notes from medical records department.

RESULTS AND DISCUSSION

The present study evaluates the clinical behavior and surgical management of benign nasal tumors. A total of 45 diagnosed cases of inverted papilloma were evaluated. The basic characteristic (age), clinical characteristics of the patients, local examination, nasal endoscopy findings, computer tomography scan findings, approach of surgical resection, complications and recurrence, were noted. In cases of inverted papilloma, marked incidence of 21 cases (46%) was observed in 5rd decade of life, followed by 12 cases (26.67%) in 4th decade and 9 cases (20%) in 6th decade of life.

There is a male preponderance of this tumor and we observed a 4:1 ratio in male to female in our series. The results were comparable to the study conducted by S N Saha et al.[5] on a total number of 52 patients with 10 :1 male: female ratio. Our study indicates that the tumor was more common in the fifth decade. Similar age incidence was reported by S N Saha et al. [5]

Table 1. Comparision of age group and gender distribution.

	OUR STUDY	S N Saha et al. [5]
MALE TO FEMALE RATIO	4: 1	10: 1
AGE GROUP	5th decade	5th decade

Based on the Computer tomography findings, the tumor was classified based on the KROUSE classification; of the 45 studied patients with inverted papilloma, 9 cases (20%) in T1, 9 cases (20%) in T2, 27 cases (60%) in T3. However, a study conducted by Xiao Ting W et al. [6] on 156 patients diagnosed with inverted papilloma, found 26 cases (16.67%) in T1, 33 cases (21.15%) in T2, 94 cases (60.25%) in T3 and 3 cases (1.96%) in T4.

Table 2. Comparision of staging in cases of inverted papilloma

STAGE	CASES	%	Xiao Ting W et al. [6]
I	9	20%	16.66%
II	9	20%	21.15%
III	27	60%	60.25%
IV	0	0%	1.96%

The choice of surgical approach was based on the extent of the disease on CT scan, all patients underwent trans-nasal endoscopic excision as the disease was confined to paranasal sinus and not going beyond it. The selection of surgical approach was comparable to a study conducted by Keita Oikawa et al. [7] on Preoperative Staging and Surgical Approaches for Sino nasal Inverted Papilloma, on 22 patients where in T1, T2, and T3 stages were managed by endoscopic approach and T4 was managed by open approach.

Table 3. Comparision of surgical approach in Inverted Papilloma

Krouse Stage	Approach In Our Study	Keita Oikawa et al. [7]
T1	Endoscopic	Endoscopic
T2	Endoscopic	Endoscopic

T3	Endoscopic	Endoscopic + External
T4	-	External Approach

In our series the recurrence was seen in 6 patients (13.33%). Lawson et al. [8] reported 12% recurrence rate in endoscopic removal of inverted papilloma and Pasquini et al. [9] reported lower recurrence rate of 3% with endoscopic procedure and 24% with traditional approaches. Analyzing a recent series Mirza et al. [10] observed that the recurrence rates were 12.8% for endoscopic procedures, 17% for lateral rhinotomy with medial maxillectomy, and 34.2% for limited resections such as nasal polypectomy and Caldwell-Luc approaches.

Table 4. Comparision of recurrence rate in Inverted Papilloma

Recurrence Rate	Our Study	Lawson et al. [8]	Pasquini et al. [9]	Mirza et al. [10]	Xiao-Ting W et al. [6]
Percentage	13.33%	12%	3%	12.8%	9.09%

There is an indisputable relation of carcinomas with inverted papilloma. Initially, the nasal columnar epithelium changes into a transitional epithelium, followed by the occurrence of squamous metaplasia. Once epithelial dysplasia is established, carcinoma in situ and invasive SCC may follow. Malignant transformation into squamous cell carcinoma was observed in 3 patient (6.67%). In a study by S N Saha et al. [5] two (4%) had recurrence with malignant transformation. A study by Wormald, P et al. on 17 consecutive cases of inverted papilloma showed malignant transformation in 6% of the patients, which was comparable to our study.[11]

Table 21. Comparision of malignant transformation in Inverted Papilloma

Malingnant Transformation	Cases	Our Study	S N Saha et al. [5]	Wormald, P et al. [11]
	3	6.67%	4%	6%

CONCLUSIONS

Inverted papilloma is a locally invasive 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.

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