Identifying Inverted Papilloma: An Important Consideration in Nasal Polyposis

Ruuzeno Kuotsu[1], Jijitha Lakshmanan[2], Hanifa Akhtar[3]

Received on: 15 March 2025; **Accepted on:** 28 March 2025; **Published on:** 07 April 2025

ABSTRACT

Inverted papillomas comprises only 0.4% to 7% among all sinonasal tumors and commonly presents as red, bulky, unilateral, vascular mass and sometimes associated with the presence of polyps. Though benign, it is given special attention because of its increased incidence of recurrence, with a property to cause destruction locally and, in long-standing cases, its association with carcinoma. Its presentation can be very similar to chronic rhinosinusitis with nasal polyposis or an antro-choanal polyp; therefore, it can be misdiagnosed if high clinical suspicion is not kept in mind. Out of the three cases in this series, one case was initially diagnosed as chronic rhinosinusitis with nasal polyposis, a second case was diagnosed as antro-choanal polyp based on clinical, radiological, and pre-operative biopsy reports, and the third case was diagnosed as inverted papilloma with synchronous squamous cell carcinoma after the preoperative biopsy report. The need to bear in mind the possibility of inverted papilloma, although rare in differential diagnosis of nasal polyposis, is stressed because it necessitates a more complete surgical procedure to avoid recurrence and achieve a better outcome.

Keywords: Inverted papilloma, polyposis, antro-choanal polyp.

INTRODUCTION

Inverted papillomas are benign neoplasm arising from the pseudostratified ciliated columnar epithelium, which lines the nasal cavity and paranasal sinuses. It is called inverted papilloma because of its histologic characteristic of inversion through the surface epithelium originating from the schneiderian membrane. It is a rare benign sinonasal epithelial tumour categorized under sinonasal Schneiderian papilloma.[1]

Inverted papillomas constitute only about 0.4% to 7% of all sinonasal tumors.[2] It is known to have a male preponderance, with the presenting age group at 50's.[2]

Though benign given its nature of destruction locally, increased incidence of recurrence, and its association with carcinoma, it distinguishes itself from other sinonasal tumours.[3] Given these features, complete excision of the tumour becomes a necessity.

It can have varied presentations; many times, it can have symptoms mimicking chronic rhinosinusitis with nasal polyposis, or sometimes it can mimic antro-choanal polyp as seen in our cases.

We would like to emphasise the varied presentations of Inverted Papilloma and to keep in mind the differential of Inverted papilloma in any cases presenting with nasal polyposis.

Access this article online	
Website: **https:**//ajohns.net/	Quick Response Code
DOI: 10.66243/Krishers-AJOHNS-006	

Senior Resident[1], Assistant Professor[2], Associate Professor[3]
Department of ENT and Head and neck surgery[1-3],
All India Institute of Medical Sciences, Guwahati, India

Corresponding Author: Ruuzeno Kuotsu
Senior Resident, Department of ENT and HNS,
All India Institute of Medical Sciences, Guwahati, India-781101
Email ID: ruuzenokuotsu@gmail.com

Source of funding: None

Conflict of interest: None declared

How to cite this article: Ruuzeno K, Jijitha L, Hanifa A. Identifying Inverted Papilloma: An Important Consideration in Nasal Polyposis. J Otolaryngol Head Neck Surg. 2025; 1(1): 22-24

CASE SERIES

Case 1

A lady in her 60s came to the ENT Head and Neck Surgery Department with complaints of prolonged right-sided nasal blockage, which was not improving with medical treatment. Diagnostic nasal endoscopy (DNE) showed extensive polyposis filling the entire nasal cavity, extending to the choana and hanging in the oropharynx behind the uvula (Fig. 1a). A computed tomography (CT) scan showed that soft tissue density was filling the entire nasal cavity, the maxillary sinus on the right side. It was also seen to involve the choana completely and extend into the oropharynx; it was

reported as right antro-choanal Polyp (Fig. 1b). Preoperative biopsy reported as inflammatory polyp. She was planned for endoscopic sinus surgery.

Given the intraoperative findings wherein, polypoidal tissue occluded the right middle meatus and the right maxillary sinus was filled with tissue which were friable and it was found adherent to the wall of the maxillary sinus. She underwent endoscopic medial maxillectomy to obtain complete removal of the mass. The post-operative histopathological report was interpreted as Inverted papilloma- squamous type.

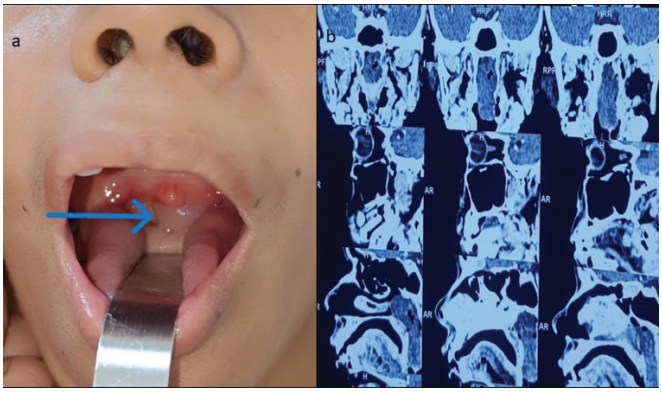

Fig. 1: (a) Blue arrow showing polypoidal mass behind the uvula hanging in the oropharynx; (b) CT coronal and sagittal view showing soft tissue density in the nasal cavity extending to the choana and hanging in the oropharynx

Case 2

A gentleman in his 60s came to the ENT Head and Neck Surgery Department with complaints of persistent left-sided nasal blockage, nasal discharge, occasional epistaxis, and headache for more than 2 years. Nasal endoscopic examination showed pale polypoidal tissue filling the entire left nasal cavity and septal perforation due to some previous surgery 10 years back, a document of which was not available (Fig-2a). We proceeded with CT nose and paranasal sinuses (PNS), showing soft tissue density in the nasal cavity, ethmoid sinus, and frontal sinus (Fig-2b). Preoperative biopsy report was suggestive of inflammatory polyp. Intraoperatively, the polypoidal tissue was arising from the frontal sinus region. He underwent left endoscopic sinus surgery, and given the involvement of the frontal sinus, Draf 2a was done for complete removal of the tumour. Histopathological examination reported as Inverted papilloma. 6 months follow- up showed no recurrence.

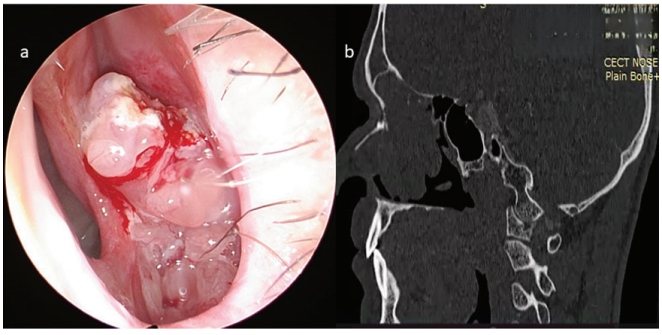

Fig. 2: (a) Intraoperative polypoidal mass seen on the left nasal cavity; (b) CT Nose and PNS Sagittal view showing soft tissue density in the nasal cavity, ethmoid sinus and frontal sinus.

Case 3

A gentleman in his 30s came to the ENT Head and Neck Surgery Department with complaints of persistent bilateral nasal blockage, mass protruding out of the nose, nasal discharge, occasional epistaxis, anosmia, and headache for more than 6 years. He also complained of palatal bulge with ulceration, which occurred 2 months back. On examination, bilateral mucoid discharge was present in the nasal cavity, with a reddish-gray lobulated mass filling the entire nasal cavity. On palpation, it was more firm than inflammatory polyp, and it bled on touch. On oral cavity examination, there was a hard palate bulge with ulceration over the bulge. Preoperative biopsy from the nasal cavity showed inverted papilloma, and the biopsy from the lesion over the hard palate was reported as squamous cell carcinoma. The patient was advised for a total maxillectomy, but the patient was lost to follow-up.

DISCUSSION

Sinonasal Inverted papillomas (IPs) are mostly known to have a unilateral presentation. It usually presents as a reddish-grey, firm mass, which is firmer than polyp and has an interesting "raspberry" aspect.[1] Usually, on probing, IPs are generally friable and bleed on touch. However, not all cases may have a unilateral presentation as stated above; occasionally, it may present as chronic rhinosinusitis with polyposis or bilateral polyposis, or bilateral nasal mass with palatal bulge.[2-4]

It is more commonly seen arising from the lateral wall of the nose, maxillary sinus, ethmoidal sinus, sphenoid sinus, and rarely from the frontal sinus.[5] Despite their generally benign look, inverted papillomas can behave aggressively in certain areas. These lesions can even destroy bone or spread outside the nasal cavity, infiltrating nearby tissues. In long-standing cases, malignant transformation is associated in 5%-15%.[6] Synchronous carcinomas have been reported to be between 1.7% and 56%.[5]

In cases of high clinical suspicion, not only Computed Tomography (CT) but the addition of Magnetic Resonance Imaging (MRI) is needed as CT has drawbacks wherein it cannot differentiate calcifications from trapped or altered bone from inflammatory polyps with retained debris; however for bony extent, CT stands as the gold standard. The specificity of CT is about 20%, and its sensitivity is only roughly 69%.[7] At this point, MRI is more helpful since it has a higher contrast resolution, making it easier to differentiate between inflammatory lesions and inverted papillomas. Better tumour delineation of adjacent soft tissues is another benefit of MRI. Therefore, MRI is especially useful in complex instances or when a differential diagnosis needs to be made, even if CT is frequently employed.

For the diagnosis of inverted papillomas, histologic investigation is still the gold standard, particularly when a lesion seems suspicious. Inverted papillomas are uncommon, however, they can appear in bilateral polyps that appear normal at first glance.[8] To rule out an inverted papilloma, any unilateral or uncommon polyps should be examined histologically. However, in some cases, if deeper preoperative biopsies are not taken, the report might come out as inflammatory polyps.

Numerous factors, such as the tumour's location, size, histological characteristics, surgical approach, and aftercare, can affect the recurrence of inverted papillomas following surgery. The most important cause of recurrence is incomplete excision, which frequently results from removing only a portion of the lesion, misdiagnosing the tumour as an inflammatory disease, or failing to get a sufficient biopsy before surgery, in such a case a careful planning for a second-staged surgery should be done to guarantee the eradication of any leftover tumor tissue.

Given its high recurrence rate and malignant association, it is therefore advised to perform a complete local excision using either an endoscopic technique or a lateral rhinotomy. According to recent studies, which include systematic reviews and a meta-analysis, the endoscopic method is typically preferred over open surgery since it is less invasive and more effective.[9-10]

CONCLUSION

Given the varied clinical presentation of inverted papillomas, the lack of definitive CT findings, and the possibility of preoperative biopsies indicating inflammatory polyps, it is crucial to maintain a high clinical suspicion. If there is a strong suspicion of inverted papilloma, an MRI should be obtained for better characterization of the lesion. The most important cause of recurrence is incomplete excision, which frequently results from removing only a portion of the lesion, misdiagnosing the tumor as an inflammatory disease in such cases, in such a case a careful planning for a second-staged surgery should be done to guarantee the eradication of any leftover tumor tissue leading to reduce future chance of recurrence.

REFERENCES

1. Barnes L, Weltgesundheitsorganisation, International Agency for Research on Cancer, editors. Pathology and genetics of head and neck tumours: ... reflects the views of a working group that convened for an Editorial and Consensus Conference in Lyon, France, July 16 - 19, 2003. Reprinted. Lyon: IARC Press; 2007. 430 p. (World Health Organization Classification of Tumours).
2. Lund VJ, Stammberger H, Nicolai P, Castelnuovo P, Beal T, Beham A, et al. European position paper on endoscopic management of tumours of the nose, paranasal sinuses and skull base. Rhinol Suppl. 2010 Jun 1;22:1–143.
3. Lisan Q, Laccourreye O, Bonfils P. Sinonasal inverted papilloma: From diagnosis to treatment. Eur Ann Otorhinolaryngol Head Neck Dis [Internet]. 2016 Nov [cited 2025 Feb 26];133(5):337–41.
4. Rabhi MA, Sbai AA, Benfadil D, Lachkar A, Abdenbi Tsen A, Elayoubi F. Bilateral inverted papilloma: Case report and literature review. Radiol Case Rep [Internet]. 2025 Mar [cited 2025 Mar 2];20(3):1499–503.
5. Lawson W, Le Benger J, Bernard PJ, Biller HF, Som P. Inverted papilloma: An analysis of 87 cases. The Laryngoscope [Internet]. 1989 Nov [cited 2025 Mar 1];99(11):1117–24.
6. Bielamowicz S, Calcaterra TC, Watson D. Inverting papilloma of the head and neck: The UCLA update. Otolaryngol Neck Surg [Internet]. 1993 Jul [cited 2025 Mar 2];109(1):71–6.
7. Sukenik MA, Casiano R. Endoscopic medial maxillectomy for inverted papillomas of the paranasal sinuses: value of the intraoperative endoscopic examination. The Laryngoscope. 2000 Jan;110(1):39–42.
8. Romashko AA, Stankiewicz JA. Routine histopathology in uncomplicated sinus surgery: is it necessary? Otolaryngol--Head Neck Surg Off J Am Acad Otolaryngol-Head Neck Surg. 2005 Mar;132(3):407–12; discussion 413.
9. Karkos PD, Fyrmpas G, Carrie SC, Swift AC. Endoscopic versus open surgical interventions for inverted nasal papilloma: a systematic review. Clin Otolaryngol [Internet]. 2006 Dec [cited 2025 Mar 2];31(6):499–503.
10. Busquets JM, Hwang PH. Endoscopic Resection of Sinonasal Inverted Papilloma: A Meta-analysis. Otolaryngol Neck Surg [Internet]. 2006 Mar [cited 2025 Mar 2];134(3):476–82.