Original Article

# Sinonasal Inverted Papilloma Presenting as Nasal Polyposis: A Two-Case Series from KIMS Narketpally

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## Abstract

**Background:** Sinonasal inverted papilloma is an uncommon benign epithelial tumour of Schneiderian mucosa. Despite its benign histology, it is clinically important because of local aggressiveness, risk of recurrence and potential for malignant transformation. It may closely mimic inflammatory nasal polyposis, especially when the presentation is nonspecific. **Case Series:** This study describe two histopathologically confirmed cases of sinonasal inverted papilloma managed in the Department of Otorhinolaryngology, KIMS Narketpally, Telangana, India. The first patient was a 16-year-old male who presented with progressive left-sided nasal obstruction for six months and one episode of left-sided nasal bleeding. Nasal endoscopy revealed a pale polypoidal mass in the left middle meatus. Computed tomography showed polypoidal mucosal thickening, more prominent in the left ethmoid air cells, extending into the left nasal cavity with patchy osteolytic change. Functional endoscopic sinus surgery with microdebrider-assisted excision was performed, and histopathology confirmed inverted papilloma. The second patient was a 33-year-old male farmer with recurrent, progressive bilateral nasal obstruction, postnasal drip and mouth breathing. He had undergone functional endoscopic sinus surgery seven years earlier for inflammatory polyposis. Endoscopy and computed tomography demonstrated bilateral sinonasal polyposis with greater left-sided disease burden. Microdebrider-assisted bilateral functional endoscopic sinus surgery was performed, and histopathology showed endophytic-type sinonasal inverted papilloma. **Conclusion:** These cases highlight that inverted papilloma can present in a young patient and may also masquerade as recurrent bilateral nasal polyposis. A high index of suspicion, careful endoscopic assessment, radiological mapping, adequate biopsy and complete endoscopic excision are essential. Long-term endoscopic surveillance is required because recurrence may be delayed or clinically silent.

**Keywords:** Inverted papilloma; Sinonasal papilloma; Nasal polyps; Functional endoscopic sinus surgery; Histopathology.

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## Introduction

Sinonasal inverted papilloma is a benign epithelial neoplasm arising from the Schneiderian mucosa of the nasal cavity and paranasal sinuses. It is uncommon but clinically distinctive because it combines a benign microscopic appearance with locally aggressive behaviour, bone remodelling or erosion, recurrence after surgery and a recognized association with squamous cell carcinoma.[1-3] Patients often present with nasal obstruction, rhinorrhoea, anosmia, headache or epistaxis. In daily otorhinolaryngology practice, the lesion may be mistaken for inflammatory nasal polyps until histopathology establishes the diagnosis.

The current standard of care relies on a combined diagnostic approach using nasal endoscopy, computed tomography (CT) of the paranasal sinuses, biopsy from representative tissue and complete surgical removal. Endoscopic surgery has become the preferred approach in suitable cases because it permits accurate localization, resection of involved tissue and lower morbidity when compared with older external approaches.[1,4] Nevertheless, recurrence is well documented, particularly when the site of attachment is not adequately addressed or when disease is multifocal or recurrent.[4-6]

This case series reports two cases of sinonasal inverted papilloma managed at KIMS Narketpally. The series is clinically relevant because one patient was only 16 years old, while the second had recurrent bilateral sinonasal polyposis following previous surgery for inflammatory polyposis. Together, the cases emphasize the need for histopathological confirmation in atypical, unilateral, bleeding, recurrent or extensive sinonasal polypoidal lesions.

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## Case Series

This two-case series was prepared from de-identified clinical presentation, operative and histopathology details of patients managed in the Department of Otorhinolaryngology, KIMS Narketpally, Telangana, India, during October-December 2025. Relevant demographic information, symptoms, examination findings, nasal endoscopy, CT findings, operative details and histopathological impressions were summarized. Long-term postoperative follow-up data were not available in the source record and should be updated before final submission.

**Case 1**

A 16-year-old male student presented with progressive left-sided nasal obstruction for six months. The symptom was insidious in onset and gradually progressive. It was reported to worsen during exposure to cold weather and showed partial temporary relief with intermittent use of azelastine hydrochloride and fluticasone propionate nasal spray. He also had one episode of bleeding from the left nasal cavity two months earlier, following forceful blowing of the nose. The bleeding was mild in quantity and stopped spontaneously.

There was no history of nasal trauma, nose picking, nasal pain, nasal discharge, altered smell perception, watering of eyes, paroxysmal sneezing, facial pain, facial heaviness, postnasal drip, headache, orbital symptoms, fever, night sweats, weight loss, decreased appetite or bleeding diathesis. He had no prior similar complaints, no history of ear, nose and throat surgery and no known diabetes mellitus, hypertension, bronchial asthma, epilepsy, tuberculosis, coronary artery disease or thyroid disorder. There was no history of tobacco or alcohol use.

General examination revealed a conscious, coherent, moderately built and nourished young male. He was afebrile, with pulse rate 80/min, blood pressure 120/80 mmHg and respiratory rate 18/min. Systemic examination was unremarkable. External nasal framework was normal. Anterior rhinoscopy showed caudal dislocation of the columella to the left and an anterior deviated nasal septum to the right with septal spur impinging on the right inferior turbinate. The left nasal cavity showed an irregular pale polypoidal mass between the lateral wall and septum, probably arising from the middle meatus, not extending to the floor. Probe test showed a soft, non-tender mass that bled on touch; the probe could be passed all around except laterally. The cold spatula and cotton wool tests showed reduced air movement on the left side. Examination of paranasal sinuses, eyes, oral cavity, oropharynx, larynx, neck and ears was unremarkable.

Diagnostic nasal endoscopy confirmed an irregular pale-pink polypoidal mass in the left middle meatus, located approximately 1 cm posterior to the anterior end of the inferior turbinate. It did not extend to the nasal floor or choana. The right nasal cavity showed an anterior septal deviation with spur to the right, while the remaining endoscopic findings were normal.

Plain and contrast CT of the nose and paranasal sinuses showed sinusitis-like polypoidal mucosal thickening in bilateral paranasal sinuses. The disease was more prominent in the left ethmoid air cells, extended into the left nasal cavity and partially obliterated the left middle turbinate region with patchy osteolytic change. The radiological differential included chronic sinusitis and inverted papilloma. A right-sided deviated nasal septum with septal spur indenting the right inferior turbinate was also noted.

Functional endoscopic sinus surgery under general anaesthesia was performed on 14 October 2025 using a microdebrider. Intraoperatively, a pinkish grape-like polypoidal mass was seen in the left middle meatus. Local infiltration with 2% lignocaine with adrenaline was given over the axilla of the middle turbinate, uncinate process, corresponding septum and polypoidal tissue. Superficial and deeper biopsies were taken. The remaining polypoidal tissue was removed with a microdebrider. The maxillary ostium was widened, frontal recess polyps were removed and polypoidal tissue extending posteriorly up to the posterior ethmoid region was identified and excised. Haemostasis was secured and a soframycin-soaked merocele nasal pack was placed. The patient was extubated uneventfully.

Histopathological examination showed inward growth of epithelium into the underlying stroma, consistent with endophytic growth. The stroma showed scant lymphocytic infiltrate. The final impression was histological features of inverted papilloma.

**Case 2**

A 33-year-old male farmer presented with left-sided nasal obstruction for five years and right-sided nasal obstruction for two years. Both symptoms were insidious in onset, gradually progressive and aggravated by exposure to cold weather. He reported partial temporary relief with intermittent xylometazoline nasal drops. He also had postnasal drip, mouth breathing and dryness of mouth.

The patient had undergone functional endoscopic sinus surgery seven years earlier for similar bilateral nasal obstruction, and the earlier histopathology was reported as inflammatory polyposis. He had no known diabetes mellitus, hypertension, bronchial asthma, epilepsy, tuberculosis, coronary artery disease or thyroid disorder. There was no history of tobacco or alcohol use. Family history was not significant.

General examination showed a conscious, coherent, moderately built and nourished male. He was afebrile, with pulse rate 90/min, blood pressure 120/80 mmHg and respiratory rate 16/min. Systemic examination was within normal limits. External nasal framework was normal and the columella was central. Anterior rhinoscopy showed an anterior deviated nasal septum to the left. The right nasal cavity showed an irregular pinkish polypoidal mass between the lateral wall and septum, probably arising from the middle meatus, not extending to the floor. The left nasal cavity showed an irregular greyish polypoidal mass between the lateral wall and septum, also probably arising from the middle meatus and not extending to the floor. Bilateral nasal mucosa was congested, while the visible parts of both inferior turbinates were normal. Probe testing showed insensitive, mobile polypoidal masses that bled on touch; the probe could be passed all around except laterally on both sides. Cold spatula and cotton wool tests showed reduced airflow bilaterally. No paranasal sinus tenderness, orbital abnormality, neck node enlargement, or ear, oral cavity, oropharyngeal or laryngeal abnormality was

identified.

Diagnostic nasal endoscopy demonstrated multiple pale polyps arising from the right middle meatus, not reaching the floor, located about 0.5 cm behind the anterior end of the inferior turbinate. On the left side, there was mild anterior septal deviation and multiple pale polyps arising from the middle meatus, not reaching the floor and extending anteriorly to approximately 0.5 cm short of the vestibular area. Nasopharynx was normal on both sides.

Plain and contrast CT of the nose and paranasal sinuses revealed soft-tissue-density nodular opacities involving bilateral frontal sinuses, all left ethmoidal air cells, anterior right ethmoidal cells, left sphenoid sinus and right maxillary sinus. These findings were suggestive of multiple sinonasal polyposis. The left osteomeatal complex was obliterated. Overall, bilateral sinonasal polyposis was noted, more extensive on the left side.

The provisional diagnosis was bilateral sinonasal polyps, with ethmoidal polyp and inverted papilloma considered in the differential diagnosis. Microdebrider-assisted functional endoscopic sinus surgery was performed under general anaesthesia on 10 December 2025. Local infiltration with 2% lignocaine with adrenaline was given near the superior attachment of the middle turbinate and polypoidal changes of the right middle turbinate. Biopsy was taken from polyps in the right middle meatus and sent for histopathological examination. Polyps were excised from the middle meatus, anterior ethmoidal air cells and frontal recess area. A similar procedure was carried out in the left nasal cavity. Haemostasis was secured, nasal washes were given and soframycin-soaked ribbon gauze packs were placed bilaterally. The patient was shifted to the postoperative area after uneventful extubation and stabilization.

Histopathological examination of polypoidal tissue bits from the left nasal cavity, right nasal cavity and frontal sinus origin showed features of sinonasal inverted papilloma, endophytic type. The final impression was histological features of sinonasal inverted papilloma, endophytic type.

**Table 1: Clinical summary of the two cases**

| Parameter | Case 1 | Case 2 |
|---|---|---|
| Age/sex | 16-year-old male | 33-year-old male |
| Occupation | Student | Farmer |
| Main symptoms | Left nasal obstruction for six months; one episode of left nasal bleeding | Left nasal obstruction for five years; right nasal obstruction for two years; postnasal drip and mouth breathing |
| Past ENT history | No previous ENT surgery | Previous FESS seven years earlier; HPE reported as inflammatory polyposis |
| Anterior rhinoscopy | Irregular pale polypoidal mass in left nasal cavity, probably from middle meatus; right DNS with spur | Bilateral irregular polypoidal masses, probably from middle meatus; anterior DNS to left |
| Diagnostic nasal endoscopy | Pale-pink polypoidal mass in left middle meatus, not extending to floor or choana | Multiple pale polyps arising from both middle meati, not extending to floor |
| CT findings | Polypoidal mucosal thickening, prominent in left ethmoid air cells, extending into left nasal cavity with patchy osteolysis; right DNS with spur | Bilateral frontal, ethmoid, left sphenoid and right maxillary sinus involvement; left osteomeatal complex obliterated; left > right disease |
| Surgery | Left-sided FESS with microdebrider; biopsy from superficial and deeper polypoidal tissue; maxillary ostium widened; frontal recess and posterior ethmoid disease addressed | Bilateral FESS with microdebrider; biopsy from right middle meatus; bilateral polyp excision from middle meatus, anterior ethmoids and frontal recess |
| Histopathology | Inverted papilloma with endophytic epithelial growth | Sinonasal inverted papilloma, endophytic type |

Abbreviations: CT, computed tomography; DNS, deviated nasal septum; ENT, ear, nose and throat; FESS, functional endoscopic sinus surgery; HPE, histopathological examination.

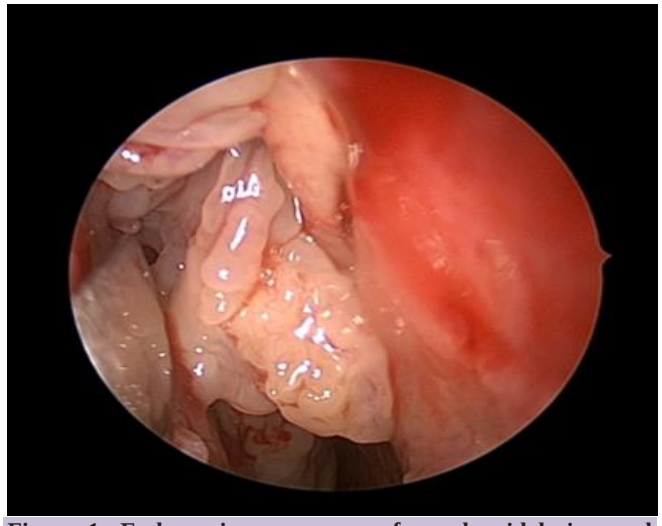

**Figure 1: Endoscopic appearance of a polypoidal sinonasal lesion. The lesion appears pale and polypoidal, supporting the need for biopsy when clinical behaviour is atypical.**

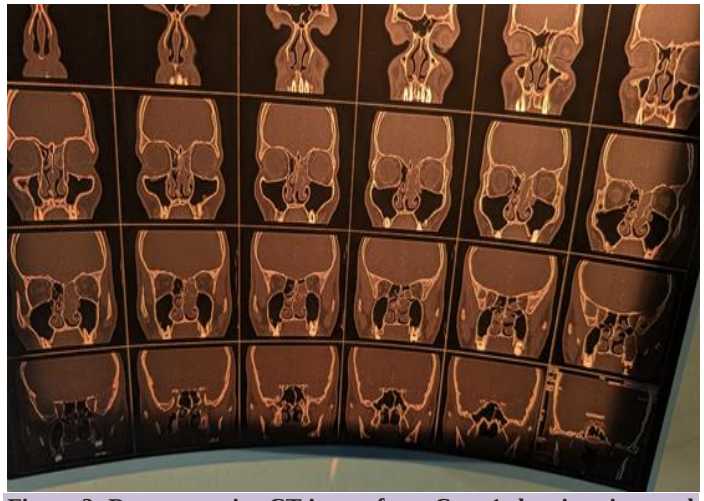

**Figure 2: Representative CT image from Case 1 showing sinonasal mucosal disease with left-sided ethmoidal predominance and extension into the left nasal cavity. Replace this draft image with original high-resolution CT export before submission.**


**Figure 3: Representative CT image from Case 2 showing bilateral sinonasal disease with extensive polypoidal opacities. Replace this draft image with original high-resolution CT export before submission.**

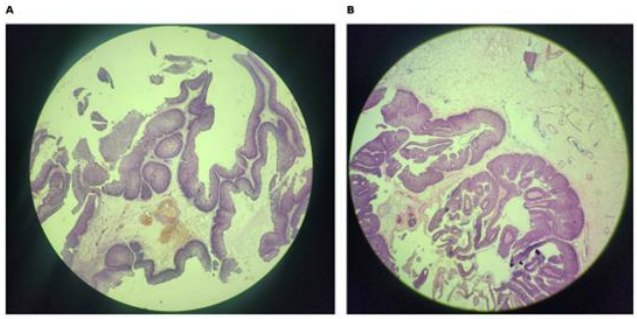


**Figure 4: Representative histopathology photomicrographs showing endophytic epithelial growth consistent with inverted papilloma. A, scanner/low-power view; B, low-power/high-power representative view.**

## Discussion

The present two-case series illustrates the broad clinical spectrum of sinonasal inverted papilloma. Although the tumour is classically reported in adults, the first patient was an adolescent. His presentation with unilateral progressive obstruction and an episode of epistaxis was clinically important because unilateral bleeding polypoidal disease should not be treated as simple inflammatory polyposis without tissue diagnosis. The second patient had bilateral recurrent disease with previous surgery and earlier histology reported as inflammatory polyposis. This pattern highlights a frequent diagnostic challenge: inverted papilloma can coexist with, resemble or be obscured by inflammatory polypoidal disease, especially when extensive sinonasal mucosal disease is present.

Nasal endoscopy remains essential because it defines the site, surface, bleeding tendency and extent of the visible lesion. In both patients, the masses arose from or were centred around the middle meatus and bled on touch. These features are not diagnostic by themselves but support the need for biopsy and radiological mapping. CT was useful in both cases for evaluating sinus involvement, osteomeatal complex obstruction, septal deviation and possible bony change. In the first case, patchy osteolytic change around the left middle turbinate region strengthened clinical suspicion. In the second case, extensive bilateral disease involved frontal, ethmoid, sphenoid and maxillary sinus regions, which demanded a more comprehensive endoscopic approach.

Histopathology is the final diagnostic standard. Inverted papilloma is characterized by endophytic invagination of thickened epithelium into the underlying stroma, a feature described in the first case and confirmed as endophytic sinonasal inverted papilloma in the second case. Representative sampling is important. Deep biopsy from the lesion and from the suspected attachment area improves diagnostic yield and surgical planning. Complete surgical excision is the mainstay of treatment. Modern endoscopic sinus surgery allows removal of involved mucosa, clearance of diseased sinuses and better visualization of attachment sites while avoiding the morbidity of external approaches in selected patients.[1,4] The use of a microdebrider in both cases facilitated controlled removal of polypoidal tissue. However, oncological discipline is still required; the surgeon should identify and address the tumour base, remove all involved mucosa and maintain careful haemostasis. In extensive or recurrent cases, incomplete removal can predispose to recurrence.

The second case is particularly relevant because prior surgery is repeatedly discussed in the literature as a context in which recurrence or delayed diagnosis may occur. A contemporary series of patients undergoing endoscopic resection reported recurrence in 15.3% of cases, with median time to recurrence of 22 months, and recurrent disease frequently occurring at the primary attachment site.[4] Other studies have reported recurrence rates across a wide range, influenced by disease extent, attachment site, prior surgery, surgical technique and duration of follow-up.[4-7] Malignant transformation, most often to squamous cell carcinoma, is another reason why complete excision and continued surveillance are necessary.[5,6]

The current cases also support a practical message for tertiary-care settings: every unilateral, bleeding, recurrent, atypical or extensive sinonasal polyp should be considered for biopsy. Inverted papilloma should remain in the differential diagnosis even when the lesion appears inflammatory on endoscopy or CT. Postoperative surveillance should include regular nasal endoscopy, attention to the original attachment site and repeat imaging when symptoms recur or endoscopy is limited. Because late recurrence can occur, follow-up should not stop after early symptomatic improvement.

This case series has limitations. It includes only two patients from a single centre. Magnetic resonance imaging, HPV testing, immunohistochemistry and formal staging were not documented.

Even with these limitations, the series is useful because it documents two different clinical patterns of the same pathology: an adolescent with unilateral disease and an adult with recurrent bilateral disease after earlier surgery for inflammatory polyposis.

## Conclusion

Sinonasal inverted papilloma should be suspected in patients with unilateral nasal obstruction, bleeding polypoidal lesions, recurrent polyposis, bony changes on CT or poor clinicoradiological fit with simple inflammatory nasal polyps. The two cases show that the disease may occur in a young patient and may also present as recurrent bilateral polyposis. Endoscopy, CT, adequate biopsy and histopathological confirmation are central to diagnosis. Microdebrider-assisted functional endoscopic sinus surgery can achieve effective clearance in appropriately selected cases, but meticulous removal of the tumour base and long-term endoscopic surveillance are essential to reduce recurrence and detect malignant change early.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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