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Polyp with a Twist; Osseous Metaplasia in the Nasal Cavity

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ABSTRACT

Objective: To report an unusual clinical presentation of osseous metaplasia arising in the Schneiderian epithelium of the nasal cavity and paranasal sinus

Background: Inverted papilloma with osseous metaplasia is a rare entity in ENT clinical practice

Case Report: We present the case of a 33-year-old male who attended our outpatient department with a complaint of left-sided nasal obstruction for 1 year. Clinical examination revealed a soft mass, insensitive to touch, localized to the left cavity. Successful surgical excision was performed, with an uneventful intraoperative and postoperative course

Conclusion: This case study highlights the rare occurrence of osseous metaplasia in the inverted papilloma.

Keywords: Osseous metaplasia, Inverted papilloma

*See End Note for complete author details

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INTRODUCTION

Schneiderian papilloma, also known as inverted papilloma, is a rare, benign yet locally aggressive epithelial tumor that primarily affects the nasal cavity and paranasal sinuses. Characterized by its high recurrence rate and potential for malignant transformation, this tumor exhibits a male predominance and typically affects individuals between the 3rd to 5th decades of life. Human papillomavirus (HPV) subtypes 6, 11, 16, and 57b are commonly implicated in its pathogenesis.[1]

Clinically, Schneiderian papilloma often presents as a unilateral nasal mass, leading to symptoms such as nasal obstruction, epistaxis, discharge, and impaired olfaction.[2] Notably, our case report documents a rare osseous metaplasia, a reversible process where well-differentiated respiratory epithelium transforms into osteoblasts, resulting in ectopic bone formation. This unusual finding has been rarely reported previously, highlighting the unique nature of this case

CASE REPORT

A 33-year-old male patient presented to the Ear, Nose, and Throat (ENT) department with a chief complaint of left-sided nasal obstruction, which had been persisting for approximately one year. Additionally, he had been experiencing headaches and parosmia (a distortion of the sense of smell) for the past three months

The patient also reported noticing a mass protruding from the left nasal cavity during episodes of upper respiratory tract infections. However, he denied any rapid increase in the size of the mass. Furthermore, he complained of unilateral mucopurulent nasal discharge and a single episode of unprovoked, moderate nasal bleeding, which had occurred one month before presentation and had stopped spontaneously.

The patient's medical history was significant for dyslipidemia, and he had also experienced multiple facial trauma in a past accident. He had been

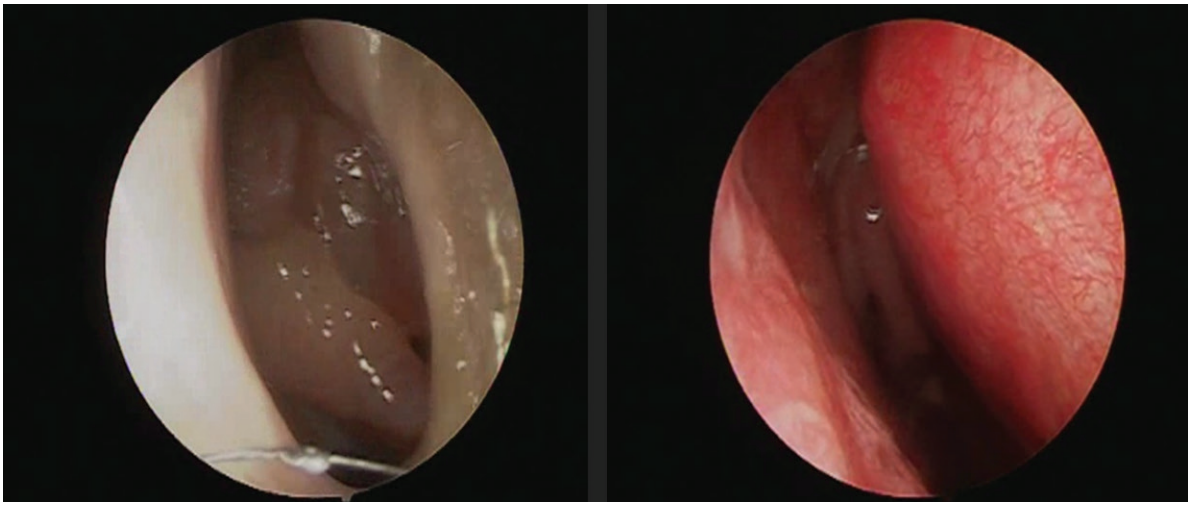

Figure 1. Mass filling the entire left nasal cavity, no mass visualised in right nasal cavity

experiencing symptoms of mouth breathing and snoring for the past year, which had been affecting his quality of life.

A diagnostic nasal endoscopic examination was performed, which revealed a complete obstruction of the left nasal cavity and nasopharynx by a large polyp **(Figure 1)**. The polyp was found to occupy the middle and superior meatus, causing significant obstruction to nasal airflow.

Computed tomography (CT) scans of the paranasal sinuses were obtained **(Figure 2)**, which showed a large mass completely filling the left nasal cavity and extending into the nasopharynx. The mass also involved the anterior and posterior ethmoidal cells, frontal sinus, and maxillary sinus. However, there was no evidence of bone erosion or destruction.

Despite medical management with local and systemic steroids, as well as other supportive measures, the patient's symptoms persisted. Therefore, it was decided to proceed with endoscopic medial maxillectomy to remove the obstructing polyp and restore normal nasal airflow.

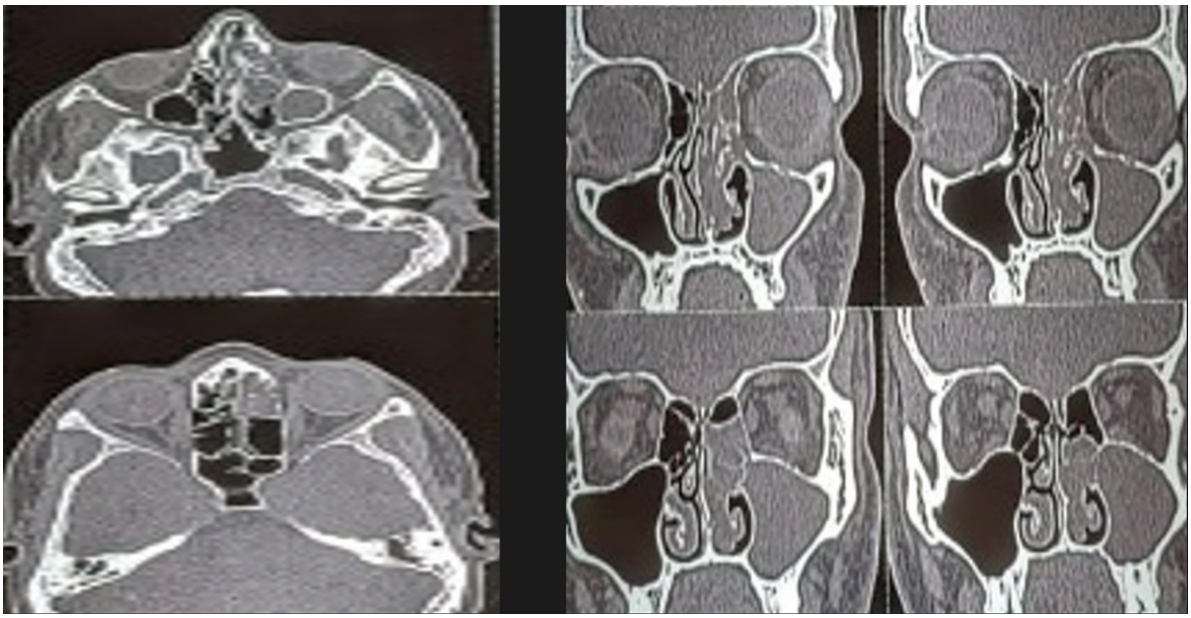

Figure 2. CT PNS- A mass completely filling the left nasal cavity that extended into the nasopharynx and the left anterior and posterior ethmoidal cells, frontal sinus, and maxillary sinus with no bone erosion

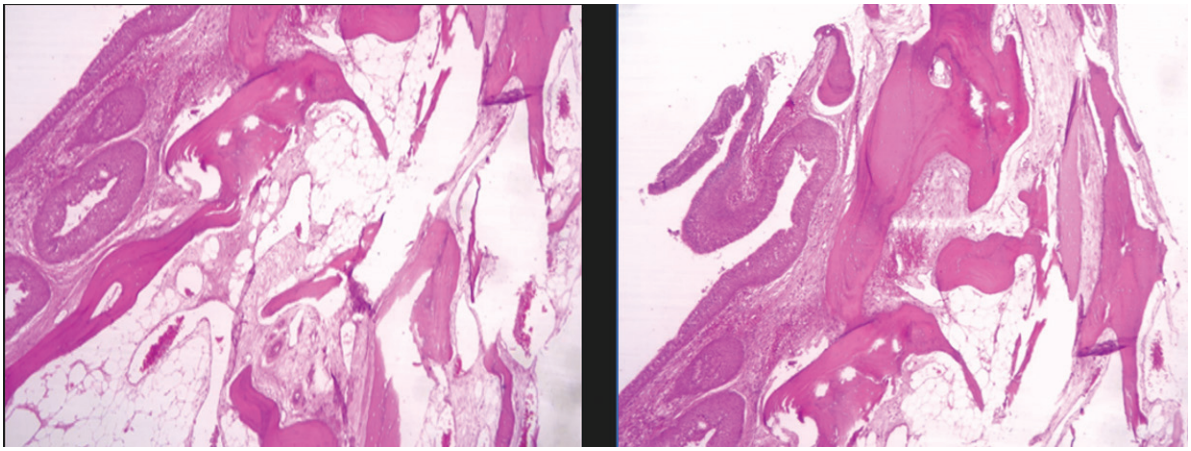

Figure 3. Microscopic image of inverted papilloma with osseous metaplasia

During the surgical procedure, bone fragments were unexpectedly identified within the polyp. The polyp was carefully removed, and the underlying bone fragments were also extracted. The surgical specimen was then sent for histopathological examination **(Figure 3)**.

The histopathological report confirmed the presence of inverted papilloma with osseous metaplasia. Osseous metaplasia is a rare finding in which bone tissue forms within the polyp, and it is not commonly associated with inverted papilloma. This unusual finding was consistent with the presence of bone fragments identified during the surgical procedure

DISCUSSION

Inverted papilloma, also known as Schneiderian papilloma, is a rare, benign epithelial tumor originating from the sinonasal tract, commonly affecting the lateral wall of the nose, ethmoid sinus, or maxillary sinus. Typically presenting unilaterally with a male predominance, this tumor can exhibit metaplastic changes, including osseous metaplasia.

Osseous metaplasia, a pathological process, involves the reversible replacement of well-differentiated respiratory epithelium with osteoblasts, forming independent bone tissue within the nasal mass.[3] This phenomenon is rare in sinonasal diseases and is thought to arise from the presence of pluripotential cells or the dedifferentiation of cells into osteoblastic progenitors.

Notably, our case presented without a history of sinonasal surgeries, which are often considered a triggering factor for osseous metaplasia. Furthermore, calcifications, commonly associated with chronic nasal polyposis and hamartomas, were not observed, and serum calcium levels were within normal limits.

Computed Tomography (CT) scans of the paranasal sinuses revealed focal hyperostosis, a finding that, according to Lee et al[4] can serve as a predictor of tumor origin in sinonasal inverted papilloma. Focal hyperostosis was defined as eccentric bone thickening and sclerosis limited to a portion of the paranasal sinus wall.[5]

Following a comprehensive clinic-radiological examination, the patient underwzent surgical intervention. Histopathological evaluation of the specimen revealed mature trabecular bone tissue, unconnected to the nasal bone tissue, within the polyp beneath the respiratory epithelia. This unusual finding led to the diagnosis of inverted papilloma with osseous metaplasia.

CONCLUSION

Based on the comprehensive evaluation of clinical, radiological, and histopathological features, we diagnose this case as Unilateral Inverted Papilloma with Osseous Metaplasia. Notably, this represents our institution's first documented case of inverted papilloma with osseous metaplasia, contributing to the existing literature on this rare entity.

END NOTE

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