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Rare Head and Neck Osteomas: A Case Series of Inferior Turbinate and External Auditory Canal osteoma

Dr Divya D Malgannavar[1], Dr Lavanya[2], Dr Prashanth V[3], Dr V Srinivas[4], Dr Dechu Muddaiah[5]
[1,2,3,4,5]Department of ENT, BGS Global Institute of Medical Sciences,Bangalore

Corresponding Author

Dr Divya D Malgannavar
department of ENT, BGS Global Institute of medical sciences,Bangalore

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ABSTRACT

Osteomas are slow-growing, benign bony tumors commonly found in the paranasal sinuses and the external auditory canal (EAC). Osteomas involving the inferior turbinate or extending into the middle ear cavity are exceedingly rare. We present a case series of three patients with osteomas located in the inferior turbinate and EAC, each presenting with unique clinical and radiological features. Surgical management and histopathological findings are discussed in detail.

Keywords: Osteoma, Inferior turbinate, External auditory canal, Endoscopic excision, Nasal obstruction, Temporal bone.

INTRODUCTION

Osteomas are benign osseous tumors, characterized by their indolent growth and frequently asymptomatic nature. They predominantly affect the paranasal sinuses, particularly the frontal sinus, and occasionally arise in the external auditory canal (EAC). Although external auditory canal osteomas account for approximately 0.05% of otologic surgeries, osteomas of the nasal cavity, and especially those arising from the inferior turbinate, are much rarer. While often incidental findings, osteomas may cause symptoms like nasal obstruction or conductive hearing loss when significantly enlarged. This case series highlights three rare cases of osteoma in uncommon anatomical locations—the inferior turbinate and the EAC—and discusses their presentation, diagnosis, surgical management, and outcomes.

CASE 1

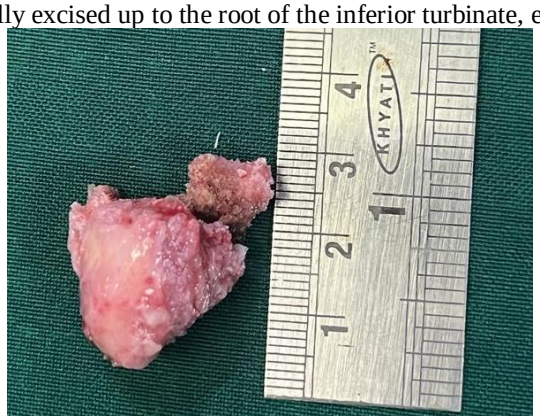
A 44-year-old male presented with a four-year history of bilateral progressive nasal obstruction, initially affecting the right side and gradually involving the left. The patient also complained of hyposmia persisting for eight months. There was no history of nasal discharge, epistaxis, headache, facial pain, comorbidities, or prior nasal surgeries.

Examination: Anterior rhinoscopy revealed a grossly deviated nasal septum (DNS) to the left with a C-shaped deformity. A hard, non-tender, non-bleeding mass was noted attached to the right inferior turbinate, extending to the lateral nasal wall. Diagnostic nasal endoscopy (DNE) confirmed the septal deviation and clearly visualized the hard mass arising from the right inferior turbinate.

Imaging:

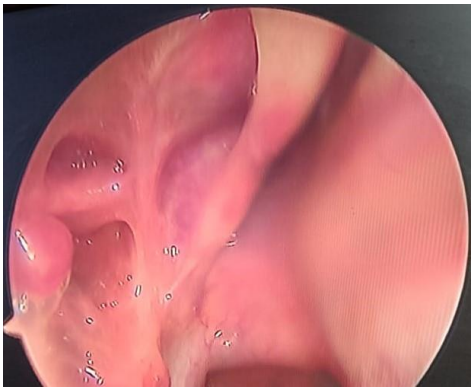
CT of the paranasal sinuses (PNS) revealed a well-defined, expansile bony lesion measuring 3 × 2.5 × 2 cm arising from the right inferior turbinate and the base of the medial wall of the right maxillary sinus, with coarse bony trabeculae and calcifications.

Management:
The patient underwent a septoplasty with endoscopic Modified Denker's approach for medial maxillectomy. Subperiosteal dissection was performed to access the maxillary sinus, and the anteromedial wall of the sinus was removed. The osteoma was found attached to the inferior turbinate and had extended into the maxillary sinus cavity. The bony attachments were systematically excised up to the root of the inferior turbinate, ensuring complete removal.



Histopathology: Microscopy revealed bony trabeculae with inconspicuous osteoblasts and intermixed mature lamellar and woven bone with loose fibrous stroma, consistent with osteoma.

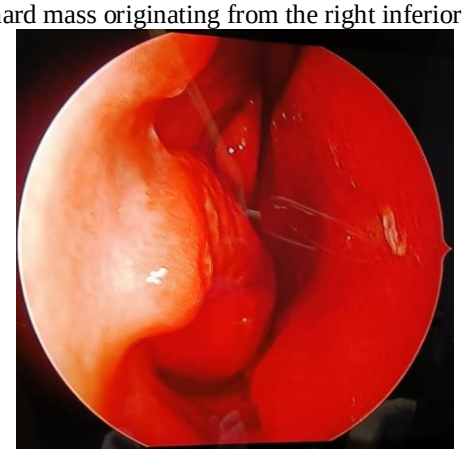
Outcome: Postoperative recovery was uneventful. The patient remained asymptomatic at the three-month and six-month follow-up, with no evidence of recurrence.



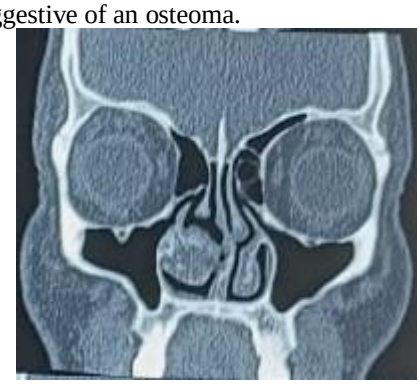
CASE 2

A 32-year-old male presented with a two-year history of right sided progressive nasal obstruction. There were no associated symptoms such as nasal discharge, headache, epistaxis, or olfactory disturbances. Past medical and family histories were non-contributory.

Examination: Anterior rhinoscopy revealed inferior turbinate hypertrophy with bulging of the anterior end. On probing, a hard, non-tender, non-bleeding mass was appreciated at the anterior end of the right inferior turbinate. Diagnostic nasal endoscopy confirmed a well-defined, hard mass originating from the right inferior turbinate.



Imaging: CT PNS demonstrated a 2.8 × 2.3 × 2 cm expansile bony lesion arising from the right inferior turbinate. The lesion exhibited dense calcifications, suggestive of an osteoma.

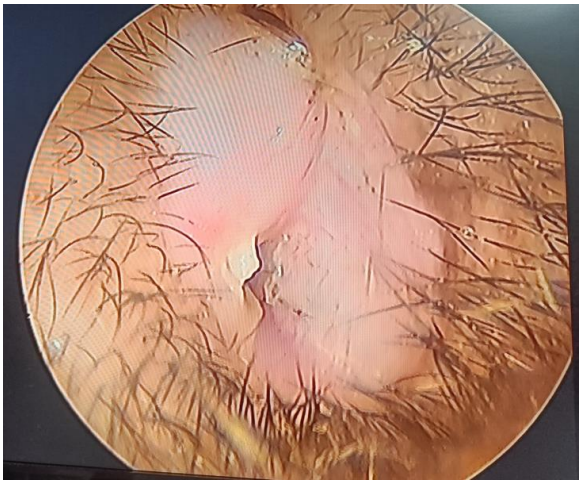


Management: The patient underwent a right inferior turbinectomy, achieving complete excision of the osteoma.
Histopathology: The excised specimen showed bony trabeculae lined by inconspicuous osteoblasts, with mature lamellar bone and intervening loose fibrous stroma, confirming the diagnosis of osteoma.

Outcome: The postoperative period was uneventful. At the three-month and six-month follow-up, the patient remained asymptomatic with no evidence of recurrence on nasal endoscopy.

CASE 3

A 28-year-old female presented with a two-month history of reduced hearing and aural fullness in the left ear. On examination, there was a mass occluding the left external auditory canal (EAC). The mass was bony hard in consistency and non-tender. The tympanic membrane was not visualized as the lesion circumferentially involved the EAC.

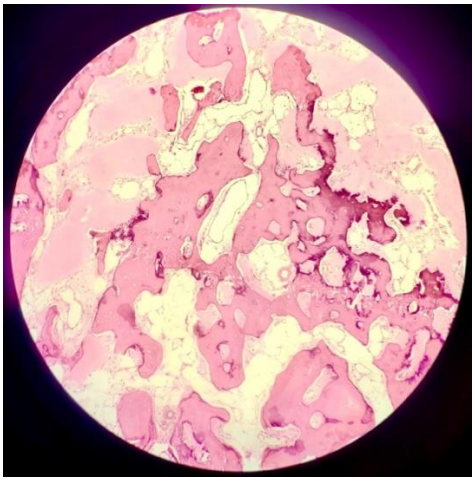


Imaging: High-resolution CT of the temporal bone showed a solitary bony, homogenous density mass with smooth margins in the medial aspect of the left bony EAC, measuring 0.9 × 1.1 × 0.6 cm (AP × TR × CC), causing near complete narrowing of the EAC.

Audiometry: Pure tone audiometry showed moderately severe conductive hearing loss (70 dB HL) in the left ear.

Management: Left canaloplasty with complete excision of osteoma and myringostapediopexy using Temporalis fascia graft through endaural approach under general anaesthesia..

Histopathology: Histopathology confirmed the diagnosis of osteoma, showing dense lamellar bone with bland osteocytes and haversian canals. The inter-trabecular spaces exhibited loose fibrous stroma, with no evidence of atypia or malignancy.



Outcome: The postoperative period was uneventful. The patient reported hearing whispering voice at 3 feet. Follow-up revealed no recurrence.

DISCUSSION

Osteomas are benign tumors composed of mature bone and are typically slow-growing. Although common in the frontal sinus, inferior turbinate and EAC osteomas are exceedingly rare. Symptoms depend on tumor size and location and include nasal obstruction, aural fullness, or hearing loss. CT imaging is crucial for diagnosis, providing detailed assessment of bony involvement. Histologically, osteomas can be compact, cancellous, cartilaginous, or mixed.

Inferior turbinate osteomas should be distinguished from other causes of nasal obstruction such as nasal polyps, turbinate hypertrophy, or neoplasms. Similarly, EAC osteomas must be differentiated from exostoses, fibrous dysplasia, and ossifying fibroma.

Conclusion: Although rare, osteomas should be considered in patients presenting with chronic nasal obstruction or aural symptoms, particularly when a hard mass is detected on examination. High-resolution imaging and histopathology play an important role in diagnosis of osteoma. Surgical excision is curative and recurrence is rare.

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