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A rare osseous mass of the middle ear: Endoscopic management of a middle ear osteoma – A case report

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Abstract

Middle ear osteomas are extremely rare benign tumors of the temporal bone and are most commonly associated with conductive hearing loss due to ossicular chain involvement. We report the case of a 24-year-old female who presented with left-sided hearing loss, intermittent otalgia, and taste disturbance. Radiological evaluation revealed a well-defined bony lesion within the middle ear. The patient was treated successfully using an endoscopic transcanal approach. Histopathological examination confirmed the diagnosis of osteoma. Postoperative audiometry demonstrated marked hearing improvement. This case highlights the rarity of middle ear osteomas and emphasizes the effectiveness of endoscopic ear surgery as a minimally invasive treatment option.

Keywords: middle ear osteoma, endoscopic ear surgery, conductive hearing loss, ossicular chain

Introduction

Osteomas are benign, slow-growing bone tumors that frequently arise in the paranasal sinuses and external auditory canal [1]. Involvement of the middle ear is exceedingly rare, with only a limited number of cases reported in the literature [2, 3]. Patients usually present with conductive hearing loss caused by ossicular chain fixation, although otalgia, tinnitus, and facial nerve involvement have also been described [4]. High-resolution temporal bone computed tomography is the gold standard for diagnosis and surgical planning [5]. Endoscopic ear surgery has increasingly been adopted for selected middle ear pathologies due to improved visualization and reduced surgical invasiveness compared with conventional microscopic approaches [6]. The aim of this case report was to present the endoscopic transcanal management and clinical outcome of a rare middle ear osteoma in a young adult patient.

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Informed Consent
The authors stated that the written consent was obtained from the patient presented with images in the study.

Conflict of Interest
No conflict of interest was declared by the authors.

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Case presentation

A 24-year-old female presented with progressive hearing loss in the left ear, intermittent otalgia, and taste disturbance affecting the left side of the tongue. There was no history of chronic otitis media, trauma, or previous otologic surgery. Otoscopic examination revealed an intact tympanic membrane without signs of infection (Figure 1). Pure tone audiometry demonstrated conductive hearing loss in the left ear with a clear air–bone gap (Figure 2). High-resolution temporal bone computed tomography revealed a well-circumscribed hyperdense bony lesion within the left middle ear cavity causing ossicular chain fixation (Figure 3).

Figure 1: Preoperative endoscopic view of the left tympanic membrane demonstrating an intact membrane with preserved anatomical landmarks.

Figure 2: Preoperative pure tone audiometry showing normal hearing thresholds in the right ear and conductive hearing loss in the left ear, characterized by a significant air–bone gap.

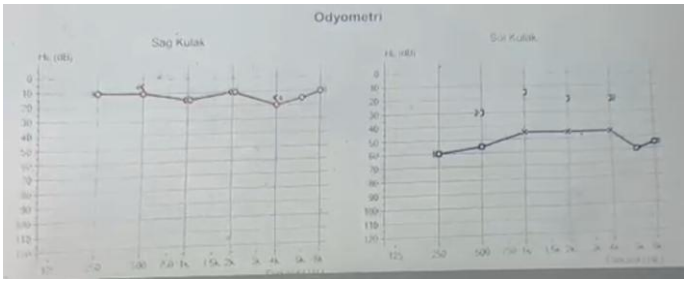


Figure 3: Preoperative axial temporal bone computed tomography image demonstrating a well-defined hyperdense osseous lesion located within the left middle ear cavity. The lesion is closely related to the ossicular chain and causes mechanical fixation. An arrow indicates the lesion.

The patient underwent endoscopic transcanal middle ear surgery under general anesthesia. Following tympanomeatal flap elevation, a bony mass consistent with an osteoma was identified in close proximity to the ossicular chain, resulting in restricted ossicular mobility (Figure 4). Intraoperatively, the osteoma was found to encase the ossicular chain without evidence of invasion, allowing preservation of the ossicles during excision. A 0-degree endoscope was used for the primary surgical steps, and a 30-degree endoscope was additionally employed to enhance visualization of the posterior mesotympanum and to confirm complete excision.

The osteoma was completely excised using an endoscopic approach, providing adequate exposure of the middle ear cavity and ossicular chain (Figure 5). Instability of the incudostapedial joint was noted intraoperatively and was reinforced using bone cement. Histopathological examination confirmed the diagnosis of osteoma. At the six-month postoperative follow-up, pure tone audiometry demonstrated marked improvement in hearing thresholds with closure of the air–bone gap (Figure 6), and the patient reported no persistent or recurrent taste disturbance.

Figure 4: Intraoperative endoscopic view demonstrating a bony mass consistent with an osteoma in close proximity to the ossicular chain.

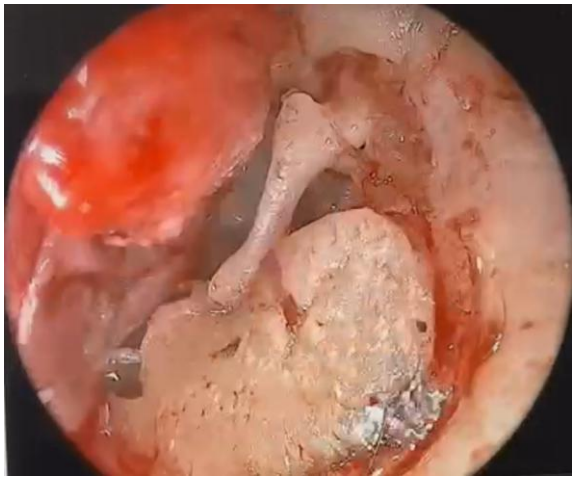


Figure 5: Intraoperative endoscopic view of the middle ear following complete excision of the osteoma.

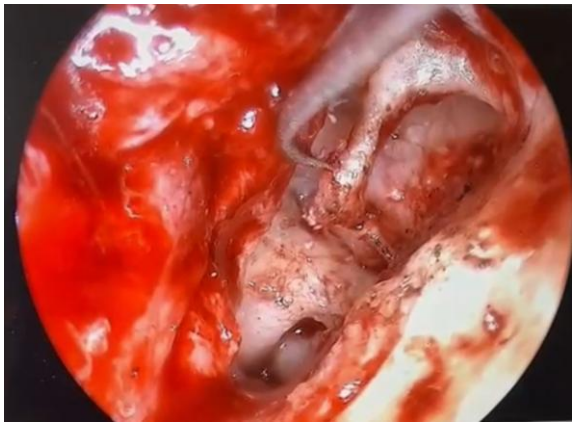
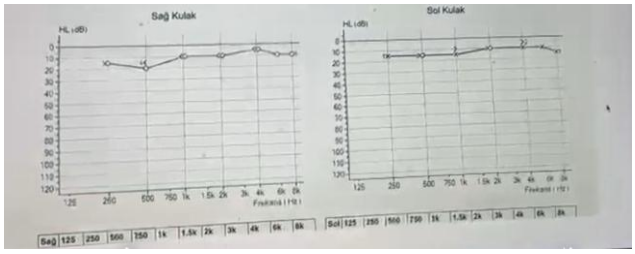


Figure 6: Six-month postoperative pure tone audiometry demonstrating closure of the preoperative air–bone gap.



Written informed consent was obtained from the patient for publication of this case report and the accompanying images. The report was prepared in accordance with the ethical standards of the institutional research committee and the Declaration of Helsinki.

Discussion

Middle ear osteomas are among the rarest benign tumors of the temporal bone. Since their first description in the literature, only a small number of cases have been reported [2, 3]. Conductive hearing loss is the most common presenting symptom and typically results from ossicular chain fixation [4]. Additional symptoms may occur depending on tumor size and anatomical location. In the present case, taste disturbance was a notable complaint, which can be explained by the close relationship of middle ear structures to the chorda tympani nerve. The complete resolution of taste disturbance observed at the six-month follow-up supports functional preservation of the chorda tympani nerve, consistent with reports describing recovery when the nerve is anatomically preserved during middle ear surgery [7-9].

The differential diagnosis of a well-defined osseous lesion confined to the middle ear cavity includes middle ear osteoma, ossifying fibroma, osteoid osteoma/osteoblastoma, tympanosclerosis with ossicular fixation, and other rare fibro-osseous lesions [10-13]. Lesions originating from the external auditory canal, such as exostoses and external canal osteomas, are typically localized to the bony canal and only exceptionally extend into the middle ear; therefore, they are generally distinguished by their site of origin on high-resolution temporal bone CT [10, 11]. Ossifying fibroma may demonstrate a more expansile growth pattern and can show mixed radiological density rather than the uniformly hyperdense, sharply circumscribed appearance typical of osteoma [12]. Osteoid osteoma is often characterized by disproportionate otalgia and may show a nidus on CT imaging, findings that were absent in our case [13]. In the present patient, the lesion's sharply circumscribed homogeneous hyperdense appearance on high-resolution CT, together with histopathological confirmation, supported the diagnosis of a middle ear osteoma and helped exclude other middle ear fibro-osseous entities [10-13]. Histopathologically, osteomas are generally classified as compact (ivory) or cancellous (spongiotic/trabecular) types. Compact osteomas are reported more frequently in temporal bone lesions and tend to be denser, which may increase the technical difficulty of surgical excision, whereas spongiotic osteomas may be removed more easily due to their trabecular architecture [9].

Traditionally, microscopic surgical approaches have been used; however, endoscopic ear surgery offers superior visualization and reduced invasiveness [6]. In particular, endoscopes with different viewing angles may improve exposure of blind spots around the ossicular chain and the incudostapedial joint. In our case, a 0-degree endoscope was used for the main surgical steps, while a 30-degree endoscope was additionally employed to improve visualization of the posterior mesotympanum and other partially hidden areas behind the lesion. This angled view facilitated safe dissection along a clear surgical plane and helped confirm complete excision while preserving ossicular integrity. Favorable hearing outcomes following endoscopic excision have been reported, supporting endoscopic transcanal surgery as an effective minimally invasive option for middle ear osteomas [9].

Conclusion

Middle ear osteomas should be considered in the differential diagnosis of unexplained unilateral conductive hearing loss. Endoscopic transcanal surgery represents a safe and effective treatment option with excellent visualization and favorable functional outcomes.

References

1. Nielsen GP, Rosenberg AE. Update on bone-forming tumors of the head and neck. Head Neck Pathol. 2007;1:87-93.
2. Greinwald JH, Simko EJ. Diagnosis and management of middle ear osteomas. Ear Nose Throat J. 1998;77:134-9.
3. Cho YS, Kim JH, Hong SH, Chung WH. A huge osteoma of the middle ear. Int J Pediatr Otorhinolaryngol. 2005;69:1569-74.
4. Temirbekov D, Celikyurt C. Middle ear osteoma causing Eustachian tube obstruction. J Otol. 2020;15:161-5.
5. Yoon YS, Yoon YJ, Lee EJ. Incidentally detected middle ear osteoma. Am J Otolaryngol. 2014;35:524-8.
6. Presutti L, Gioacchini FM, Alicandri-Ciufelli M. Endoscopic ear surgery. Otolaryngol Clin North Am. 2016;49:1255-67.
7. Gyo K, Aoyagi M, Kojima H, Sakurai Y, Iwasaki S, Takahashi M. Taste disturbance following middle ear surgery. Acta Otolaryngol. 1996;116:107-10.
8. Uzun C, Adali MK, Koten M, Karasalihoglu AR. Evaluation of taste disturbance after middle ear surgery. Otol Neurotol. 2003;24:943-6.
9. Kuwabara M, Matsumoto Y, Motegi M, Chikamatu K. A case of spongiotic osteoma arising in the supratubal recess. Cureus. 2025;17:e82860.
10. Swartz JD, Harnsberger HR. The temporal bone: imaging of benign lesions. Radiol Clin North Am. 1998;36:819-53.
11. Harnsberger HR, Wiggins RH 3rd. Diagnostic Imaging: Head and Neck. 3rd ed. Philadelphia: Elsevier; 2016.
12. Waldron CA. Fibro-osseous lesions of the jaws. J Oral Maxillofac Surg. 1993;51:828-35.
13. Sires BS, Hengerer AS, Rosenberg SI. Osteoid osteoma of the temporal bone: case report and literature review. Otolaryngol Head Neck Surg. 1990;102:288-92.