Yemen Journal of Medicine

https://yemenjmed.com

Article information

DOI: 10.63475/yjm.v5i1.0301

Article history:
Received: 25 December 2024
Accepted: 30 March 2025
Published: 07 April 2026

Correspondence to:
Umar Sufiyanu Yabo
Email: omaryabo@gmail.com
ORCID: 0000-0002-3963-2860

How to cite this article
Umar SY, Iseh KR, Muhammad BG, Abdulmajid U, Sanusi S, Bala M. Osteoma of the external auditory canal: A case report and review of literature. Yemen J Med. Published online April 07, 2026. doi: 10.63475/yjm.v5i1.0301:1-4.

Case Report

Osteoma of the External Auditory Canal: A Case Report and Review of Literature

Umar Sufiyanu Yabo[1], Iseh Kufre Robert[2], Bashar Goronyo Muhammad[3], Usamatu Abdulmajid[4], Saidu Sanusi[5], Bala Mujtaba[6]

1 Consultant Otorhinolaryngologist, Department of Ear, Nose, and Throat & Head and Neck Surgery, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria
2 Consultant Otorhinolaryngologist, Department of Ear, Nose, and Throat & Head and Neck Surgery, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria
3 Consultant Otorhinolaryngologist, Department of Ear, Nose, and Throat & Head and Neck Surgery, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria
4 Consultant Otorhinolaryngologist, Department of Ear, Nose, and Throat & Head and Neck Surgery, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria
5 Consultant Otorhinolaryngologist, Department of Ear, Nose, and Throat & Head and Neck Surgery, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria
6 Consultant Dental and Maxillofacial Surgery, Department of Dental and Maxillofacial Surgery, Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria

ABSTRACT

Osteomas of the external auditory canal are considered clinically to be discrete, benign, pedunculated bone lesions arising along the tympanosquamous suture. They present as solitary, unilateral, and slow-growing tumors. It is usually asymptomatic, but symptoms can arise if a canal obstruction occurs. We report an osteoma occurring in the external auditory canal of a 14-year-old female patient who presented to the ENT Outpatient clinic with a 1-year history of progressive hearing loss affecting the right ear. On physical examination, the right external auditory canal was completely occluded by a hard mass, which was fixed and covered with wax. The Osteoma was removed surgically through the transcanal approach. Histopathological findings confirmed osteoma.

Key words: Osteomas, external auditory canal, hearing loss

INTRODUCTION

External auditory canal (EAC) osteomas are rare, benign bony neoplasms that occur in a wide range of patients. [1] While chronic irritation and inflammation have been suggested as causal factors in several cases, there is insufficient data to support these suspicions. [2, 3] Diagnosis is made based on a combination of clinical history and examination, radiographic imaging, and histopathology. [4] Osteomas of the EAC are usually found incidentally, unilateral, and solitary. It may occur in any part of the temporal bone, with the EAC being the most common site. EAC osteoma commonly arises from tympanosquamous or tympanomastoid sutures beside the bony-cartilaginous junction. [5] The cause remains unknown. Distinguishing between osteoma and exostosis of the EAC has become controversial over the last few decades. But both of these lesions are found to be incidental. [6] Symptoms of both lesions include vertigo, paroxysmal tinnitus, sensorineural hearing loss, trigeminal neuralgia, and pain. Exostoses consist of parallel, concentric layers of subperiosteal bone with abundant osteocytes on histopathology. [3, 5] Histopathologically, EAC osteomas are covered with periosteum and squamous epithelium, and consist of lamellated bone surrounding fibrovascular channels with

minimal osteocytes. [6, 7] Fibroosseous lesion of the EAC showed dense fibrous tissue admixed with mineralized osteoid material. Hence, in 1979, Graham concluded that the presence or absence of a fibrovascular channel is the distinguishing feature between exostoses and osteoma. Osteomas have historically been compared and contrasted with exostoses of the EAC. While they share similarities, in some cases, it is possible to distinguish the two bony neoplasms based on clinical history and radiographic studies. [8, 9] On computed tomography (CT) scan, an osteoma appears as a single, unilateral, pedunculated hyperdense mass that originates from the tympanosquamous or tympanomastoid suture line and extends into the internal auditory canal space. [4, 5] Exostoses appear as multiple, bilateral, broad-based, and smooth-bordered hyperdense lesions protruding into the internal auditory canal. [5, 8] CT reveals a hyperdense, pedunculated mass arising from the tympanosquamous suture and lateral to the isthmus. [5] Arguments remain in the literature as to whether basic histopathology can distinguish osteomas of the EAC from exostoses. Surgical excision is the standard treatment for EAC osteomas; however, close observation is considered acceptable in asymptomatic patients. [10]

CASE REPORT

A 14-year-old female patient presented to the ENT Outpatient clinic with a 1-year history of progressive hearing loss affecting the right ear. The patient has no history of otorrhea, Otalgia, tinnitus, or vertigo. On physical examination, the right EAC was completely occluded by a hard mass, which was fixed and covered with wax.

Puretone audiometry revealed moderate Conductive hearing loss in the right ear with a pure tone average of 42.5 dB and an air-bone gap of >15 dB (**Figure 1**) and normal hearing in the left ear. CT scan of the temporal bone showed a unilateral, pedunculated 1.1 cm × 1.5 cm hyperdense mass filling and occluding the right EAC, arising from the tympanomastoid suture (**Figure 2**). Bilateral tympanic membranes, middle ear ossicles, cochlear, and semicircular canals were normal.

Preliminary diagnosis of right EAC osteoma was made. The patient subsequently underwent excision of the right ear canal mass by transcanal approach. Xylocaine adrenaline was infiltrated around the lesion and base to reduce intraoperative bleeding. The mass originated from the posterosuperior part of the outer half of the canal. The skin flap lateral to the stalk was raised, and the peduncle was fractured and removed. The remaining bony projection of the stalk was cleared using a high-speed drill. The flap was then repositioned. The EAC was packed with gauze and chloramphenicol ointment to prevent infection. Histopathological findings show an irregularly arranged lamellated cancellous bone with abundant fibrovascular channels, overall features suggestive of osteoma.

Postoperatively, the patient did well, was followed up for 6 months, and there was no evidence of recurrence, and the patient has normal hearing bilaterally.

DISCUSSION

Osteomas are regarded as bony lesions that show a predilection for the EAC, mastoid cortex, facial bones, and mandible. [1] Osteomas of the EAC are considered benign tumors as they are non-invasive; however, they can cause significant symptoms due to mass effect and auditory canal obstruction. [2–4]

Clinically, an osteoma of the EAC is usually a solitary, pedunculated bony growth attached to the tympanosquamous or tympanomastoid suture line, superficial to the isthmus,

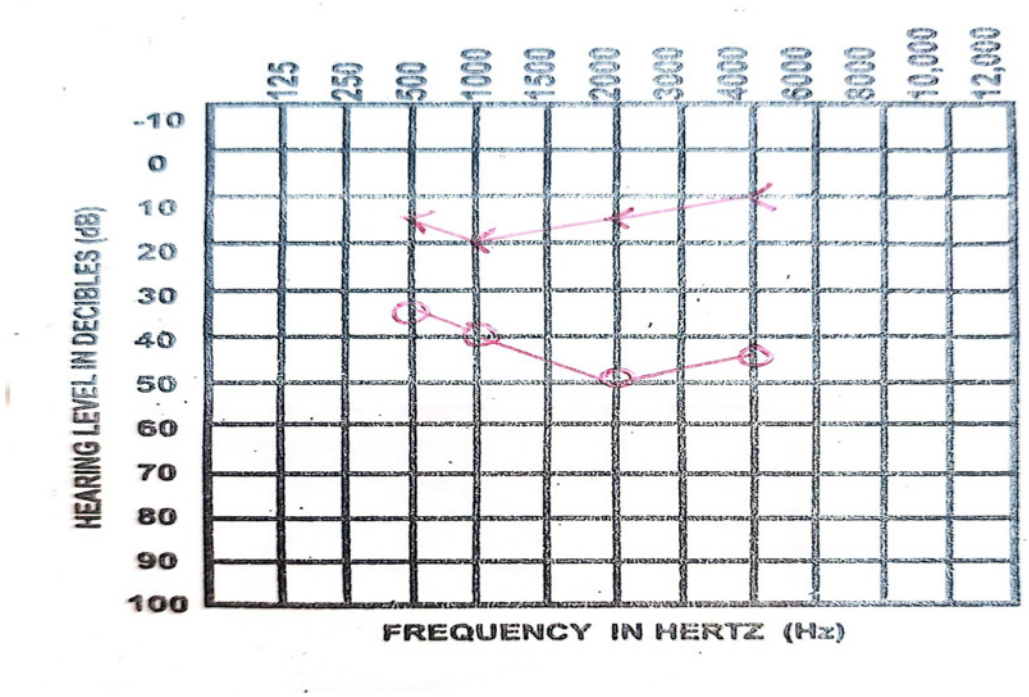

Figure 1: Audiogram of the right ear with pure tone average of 42.5 dB and air bone gap of >15 dB.

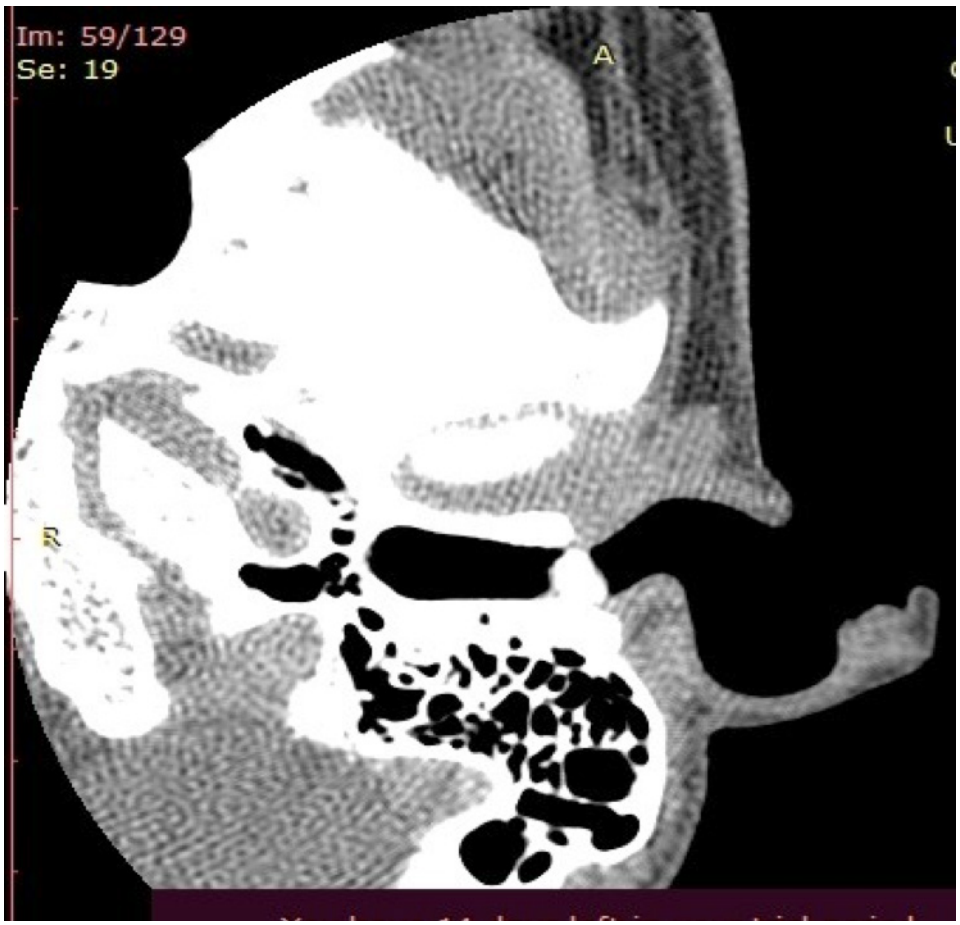

Figure 2: CT scan of the right temporal bone showing a 1.1 cm × 1.5 cm ovoid bony mass in the right external auditory canal.

benign in nature but prone to progressive growth and secondary obstruction of the EAC. Occasionally, they may be small, multiple, and asymptomatic.

Osteoma should be discriminated from exostoses. Exostoses arise bilaterally in response to repeated cold-water stimulation of the bony external canal and are usually multiple, with a broad base. Osteomas, in contrast, are usually solitary pedunculated masses of unknown etiology and histopathologically different from exostoses. [5, 6] Sheehy [3] reported that out of the 16 operations done to remove a solitary osteoma involving the EAC. Three (18.8%) of these patients were under 15 years of age.

Interestingly, our case is a 14-year-old who presented as a typical hyperdense lesion on a high-resolution CT scan.

Externa auditory canal osteomas are removed microscopically through transcanal, postauricular, and endaural approaches. A small pedunculated lesion located lateral to the isthmus can be removed directly through transcanal, while the other approaches are recommended for a big, broad-based lesion located more medially. Recently, quite many otorhinolaryngologists have adopted transcanal endoscopic ear surgery. Chen et al. published a case series on the outcomes of endoscopic management of EAC osteoma using two methods of direct removal with and without a skin flap. [10]

CONCLUSIONS

External auditory osteoma should be considered as a differential diagnosis in a case of a lobulated hard mass in the EAC. It may appear as an ovoid mass on CT of the temporal bone.

CONSENT

Written informed consent was obtained from parents for the publication of this case report and all associated images.

AUTHORS' CONTRIBUTION

All authors have significantly contributed to the work, whether by following the case at the bedside, conducting literature searches, drafting, revising, or critically reviewing the article. They have given their final approval of the version to be published, have agreed with the journal to which the article has been submitted, and agree to be accountable for all aspects of the work.

SOURCE OF FUNDING

None.

CONFLICT OF INTEREST

None.

REFERENCES

1. Baik FM, Nguyen L, Doherty JK, Harris JP, Mafee MF, Nguyen QT. Comparative case series of exostoses and osteomas of the internal auditory canal. Ann Otol Rhinol Laryngol. 2011;120(4):255-260. https://doi.org/10.1177/000348941112000407
2. Tran LP, Grundfast KM, Selesnick SH. Benign lesions of the external auditory canal. Otolaryngol Clin North Am. 1996;29(5):809-820. https://doi.org/10.1016/S0030-6665(20)30317-0
3. Sheehy JL. Diffuse exostoses and osteomata of the external auditory canal: A report of 100 operations. Otolaryngol Head Neck Surg. 1982;90(3 Pt 1):337-242.
4. Bergstrom L. Disease of the external ear. In: Bluestone CD, Stool SE, Scheetz MD, eds. Pediatric Otolaryngology. 2nd ed. Philadelphia, PA: Saunders; 1990. p. 311-319.
5. Andrew JE, Arun KG. Osteoma of the external auditory canal. Ear Nose Throat J. 2012;91(3):96-100. https://doi.org/10.1177/014556131209100304
6. Graham MD. Osteomas and exostoses of the external auditory canal. A clinical, histopathologic and scanning electron microscopic study. Ann Otol Rhinol Laryngol. 1979;88(4 Pt 1):566-572. https://doi.org/10.1177/000348947908800422
7. Yuen HC, Joseph M. External auditory canal osteoma. Otol Neurotol. 2008;29(6):875-876. https://doi.org/10.1097/MAO.0b013e318161aaf8
8. Kailani AA, Nik Othman NA, Md Daud MK. External ear canal osteoma presented as multilobulated mass with peripheral calcifications. Indian J Otol. 2022;28(2):160-162. https://doi.org/10.4103/indianjotol.indianjotol_119_21
9. Barbon DA, Hegde R, Li S, Abdelbaki A, Bajaj D. Bilateral external auditory exostoses causing conductive hearing loss: A case report and literature review of the surfer's ear. Cureus. 2017;9:e1810. https://doi.org/10.7759/cureus.1810
10. Chen CK, Chang KP, Chien CY, Hsieh LC. Endoscopic transcanal removal of external auditory canal osteomas. Biomed J. 2021;44(4):489-944. https://doi.org/10.1016/j.bj.2020.04.003