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Temporal Bone Histopathology Case of the Month
Epitympanic Osteoma

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Osteomas are benign slow-growing tumors of the lamellar bone that occur almost exclusively in the craniofacial region. Within the temporal bone, they are most commonly seen in the external ear canal but may also arise from other sites such as the mastoid, squamous part of the temporal bone, internal auditory canal, glenoid fossa, eustachian tube, petrous apex, and styloid process with respective symptoms (1).

CASE REPORT

A 50-year-old female patient presented with a 3-year history of intermittent left otorrhea and hearing loss. Otoscopy revealed a large posterosuperior marginal perforation with tympanosclerosis in the mesotympanum. Pure-tone audiogram showed a 30- to 50-dB conductive hearing loss on the left. Computed tomographic scan of the temporal bone showed decreased pneumatization of the temporal bone on the same side, a bone density mass in the posterior epitympanum, and soft tissue signal in the mastoid antrum (Fig. 1). The patient underwent a canal wall up mastoidectomy, and a circumscribed bony mass was identified in the posterior epitympanum, occupying the space between the lateral semicircular canal and the tegmen and obstructing the aditus ad antrum. The bony mass was successfully removed, and a small cholesteatoma sac was identified anterior to it, which was removed as well. Histopathologic examination showed compact lamellar bone with Haversian canals and only small and scant fibrovascular spaces, consistent with an osteoma (Fig. 2).

DISCUSSION

Histologically, osteomas are characterized by dense lamellae with organized Haversian canals. The intratrabecular stroma contains osteoblasts, fibroblasts, and giant cells, with no hematopoietic cells, and there are varying degrees of osteoblastic and osteoclastic activity within the tumor (2). Three histologic types of osteoma are described, compact, spongiotic, and mixed. Most middle ear osteomas develop from the promontory, whereas the pyramidal process seems to be the next most common site of origin (2).

Although osteomas in the middle ear may remain asymptomatic, conductive hearing loss is the most common symptom, usually because of ossicular chain impingement (3). In addition, when the eustachian tube is obstructed, otitis media with effusion may appear. Ossicular chain dislocation and obliteration of the round window niche have also been reported, whereas erosion of the lateral semicircular canal might result in vestibular

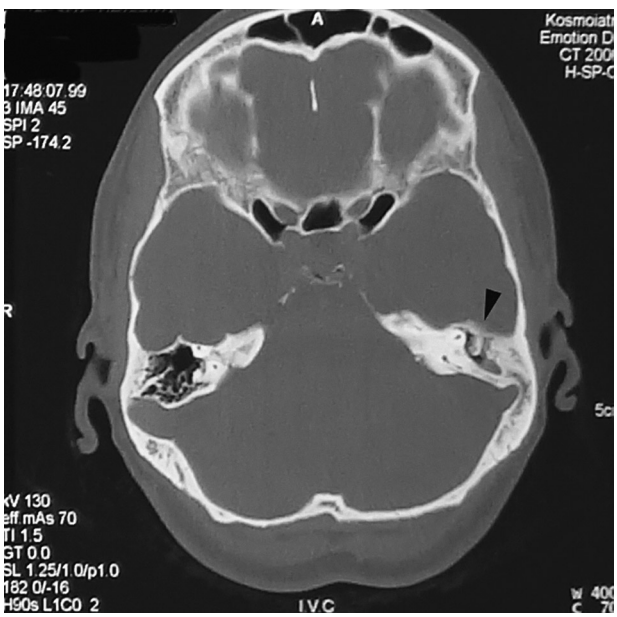

FIG. 1. Axial computed tomographic scan of the temporal bone. The osteoma (*arrow*) is seen at the level of the superior semicircular canal.

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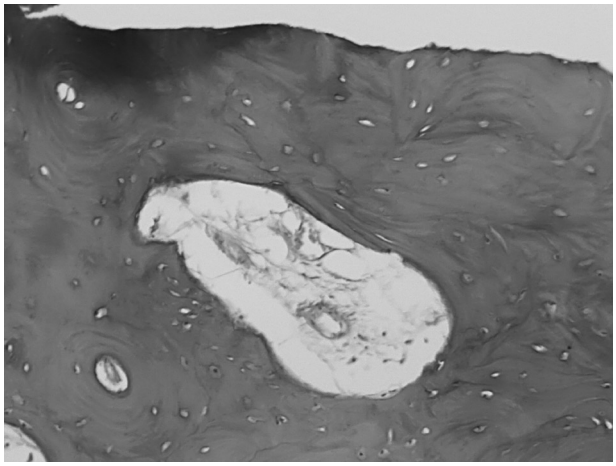

FIG. 2. Characteristic osteoma with organized Haversian canals within the dense lamellae (hematoxylin and eosin; original magnification, ×100).

symptoms. In our case, the osteoma obstructed the aditus ad antrum, possibly resulting in the development of a retraction pocket and subsequent formation of cholesteatoma.

Management of asymptomatic middle ear osteomas requires periodic evaluation rather than surgical exploration (4). Surgical intervention is warranted in cases of progressive growth and hearing loss as well as in cases of vestibular symptoms (3). In our case, a diamond burr was used to break the osteoma into smaller pieces, achieving complete removal, without injuring the neighboring otic capsule. The cholesteatoma was subsequently removed through the posterior tympanotomy.

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