

Osteoma of the Middle Ear: Case Report¹

Ji Hwa Ryu, M.D.

Osteomas of the middle ear are exceedingly rare benign neoplasms. To date, only 21 cases have been reported in the literature. They arise from the promontory, the pyramidal process and the ossicles, and they are usually asymptomatic or cause some conductive hearing loss. We report here the CT & pathologic findings in a 38-year-old woman with a benign osteoma of the middle ear along with chronic otitis media.

Index words : Ear, abnormalities
Ear, neoplasms
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An osteoma is a protruding mass of the lamellar bone that commonly originates from the paranasal sinuses. Osteomas of the middle ear are exceedingly rare benign neoplasms. To date, only 21 cases have been reported in the English literature (1 - 3). They most commonly arise from the promontory, and only 2 cases of these reports have described osteomas of the ossicles (4). The most common symptom is conductive hearing loss because of the impingement of the ossicular chain. Some cases are asymptomatic and they are diagnosed incidentally. Osteomas are slow growing and surgical excision is recommended only for symptomatic lesions.

We describe here a rare case of osteoma arising between the malleus and incudostapedial joint in a 38-year-old woman with chronic otitis media.

Case Report

A 38-year-old-woman was admitted to our hospital for

evaluation of her left hearing impairment. She had a history of left otorrhea combined with frequent upper respiratory tract infections. Otoscopic examination revealed a small perforation at the anteroinferior portion of the left tympanic membrane without any active discharge. The audiogram showed a mild conductive hearing loss on the left side.

Temporal bone high resolution CT scans were performed (Somatom plus 4, Siemens, Erlangen, Germany) in the axial & coronal planes with a 1 mm slice thickness and no gap. The CT scans showed a 2 mm round bony mass between the malleus and incudostapedial joint. The ossicles appeared normal, but a small sclerotic left mastoid cavity was filled with a small amount of granulation tissue. Perforation of the tympanic membrane was identified (Fig. 1).

The patient underwent a left mastoidectomy and a type 1 tympanoplasty. A round white mass was observed between the malleus & incudostapedial joint, but the mobility of ossicles was preserved. The mass was isolated and then removed. The perforation of the left tympanic membrane was grafted with temporal fascia.

The histologic examination of the mass revealed fine trabeculae of lamellar bone with partial necrosis. The pathologic diagnosis was benign osteoma between the malleus and incudostapedial joint (Fig. 2).

¹Department of Radiology, College of Medicine, Inje University, Dongrae Paik Hospital

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Address reprint requests to : Ji Hwa Ryu, M.D., Department of Radiology, College of Medicine, Inje University, Dongrae Paik Hospital, 223-83 Bugok 3-dong, Gumsong-gu, Busan 609-323, Korea.

Tel. 82-51-607-8162 Fax. 82-51-512-2966

E-mail: rjhrad@empal.com

Discussion

Osteomas of the ossicles and middle ear are extremely

rare lesions. Thomas (5), in 1964, was the first to diagnose 2 cases arising from the pyramidal processes in the brother and sister with conductive hearing loss. To date, a total of 21 cases have been reported (1 - 3). When re-

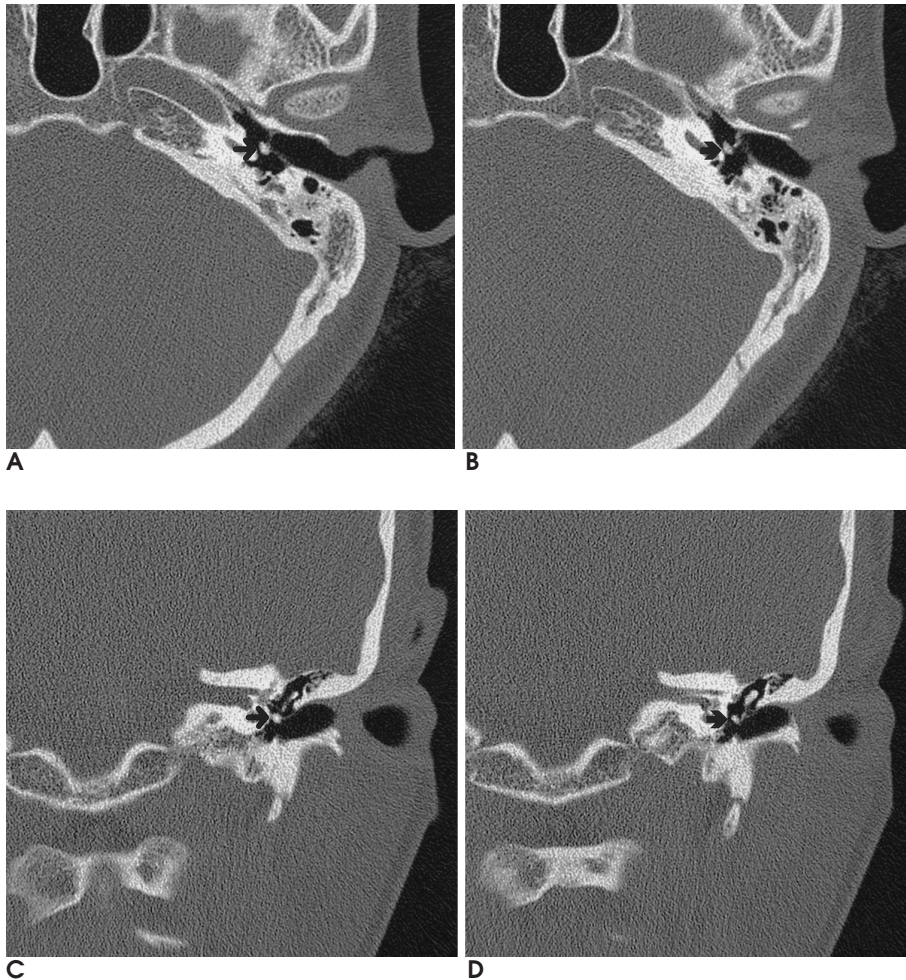


Fig. 1. Axial (A, B) and coronal (C, D) temporal bone CT scans show a round small bony mass (arrow) between the malleus and incudostapedial joint of the left middle ear. A small sclerotic left mastoid cavity is filled with small amount high density material.

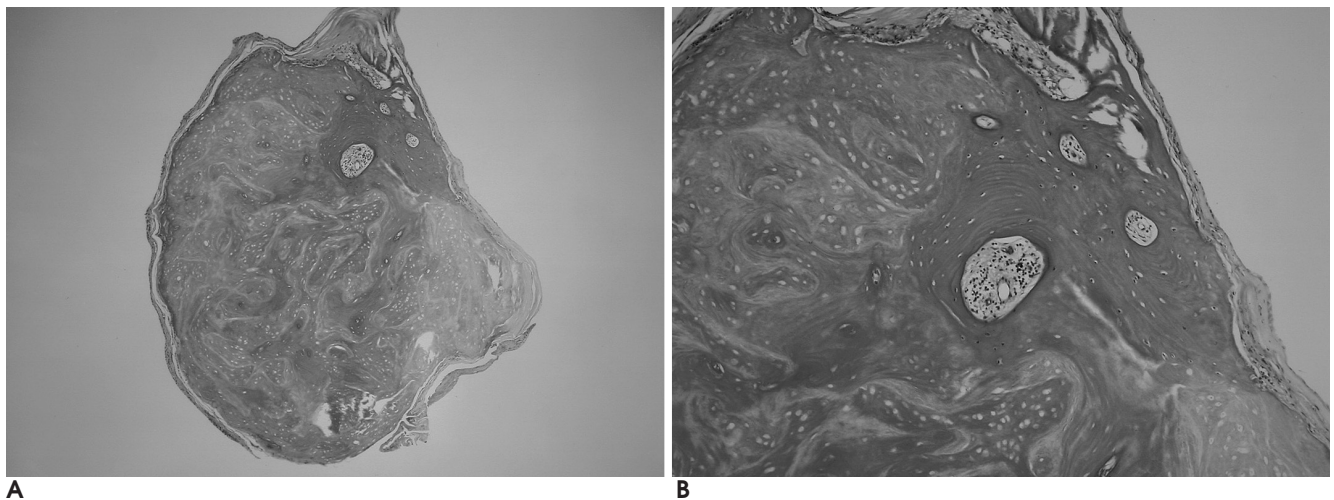


Fig. 2. Photomicrograph of the osteoma. Note the fine trabeculae of lamellar bone with partial necrosis (A: $\times 40$, B: $\times 200$, Hematoxylin and Eosin stain).

viewing the cases in the literature, the patients showed an age ranging from 5 to 57 years, and all but 6 cases have been male patients (6). One can see that even in the middle ear cavity there are several different anatomical places from which an osteoma may originate (3). Of these cases, 9 originated from the promontory and 3 originated from the pyramidal process. Only 2 cases have described osteomas of the ossicles (6). In our case, the osteoma was located between malleus and incudostapedial joint, and this is the 3rd case with osteoma of the ossicle.

The etiology of middle ear osteoma is not well understood. Trauma, infection, and heredity have all been implicated as inciting factors (7).

Thomas (5) reported on 2 cases involving a brother and sister, and Silver et al (8) described a case with bilateral ear involvement. Yamasoba et al (9) reported an osteoma accompanied by congenital cholesteatoma. These findings suggest the primary congenital origin of this neoplasm. Osteomas are thought to originate from the preosseous connective tissues. In our case, perforation of the tympanic membrane and the chronic otitis media with osteoma of the middle ear suggests the possible inflammatory origin.

The most common symptom of the middle ear osteomas is conductive hearing loss. Twelve of the 21 cases had conductive hearing loss caused by impingement of the ossicular chain and also by the obliteration of the round window, eustachian tube obstruction and otic capsule invasion. Ito et al (10) have reported a case with vestibular symptoms that was associated with an osteoma arising from the lateral semicircular canal. Nine other reported cases were asymptomatic and so they were diagnosed incidentally. Two cases were identified during the surgery for a concomitant cholesteatoma and adenoma.

The diagnosis is confirmed by CT or at the time of surgical exploration. CT is particularly useful to define the extent of the bony mass, to evaluate the involvement of the ossicular chain and to detect any secondary manifestations of the tumor (i.e., cholesteatoma) and the combined abnormality of the ear. On the other hand, those lesions appearing as a soft tissue mass will be difficult to differentiate from such lesions as cholesteatomas or neoplasm. In this case, CT revealed a well circumscribed, small, round bony mass between the malleus and incudostapedial joint, and there was also the combined chron-

ic otitis media and mastoiditis.

Osteomas of the middle ear are usually small lesions and they tend to remain stable in size. Therefore, excision is recommended only for symptomatic lesions. The only symptom associated with the middle ear osteomas reported to date has been conductive hearing loss.

The histopathology of middle ear osteomas is consistent with the histopathologies of osteomas from other sites. These tumors are composed of mature bone and histologically, they consist of dense lamellae with organized haversian canals. The intertrabecular stroma is usually cellular and contains osteoblasts, fibroblasts and giant cells.

Conclusion

Osteomas of the middle ear are rare entities, but they should be considered in the differential diagnosis of conductive hearing loss or for spherical masses that are observed to involve the tympanic membrane or middle ear. If a definite diagnosis of asymptomatic osteomas is made by inspection and CT scan, no rapid intervention is required. Observation of asymptomatic masses is the treatment of choice. Surgery should be reserved for those cases with hearing loss or pain, or surgery can be performed for diagnostic purpose.

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