

IMAGES IN CLINICAL RADIOLOGY

Bilateral exostoses of the internal auditory canal

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A 54-year-old female patient presented to her physician with a 3-year-old history of bilateral tinnitus and hearing loss. She also complained of paresthesia in the periauricular area. There were no episodes of imbalance or vertigo.

Otologic history revealed that she had experienced a left serous otitis media in 2008 and multiple episodes of otitis media as a child. The head and neck examination yielded normal findings. Otologic examination revealed an atelectatic tympanic membrane on the left side. Pure tone audiometry displayed a mild mixed hearing loss on both sides.

CT and MRI scan were performed. Temporal bone CT scan (Fig. A) showed bilateral prominent broad based bony growths of the anterior openings of the internal auditory canal (IAC) resulting in a stenosis of the IAC on the right side (Fig. A1) and a narrowing of the IAC on the left side (Fig. A2).

T1-weighted MRI (Fig. B) showed a hypo-intens lesion in the anterior opening of the right IAC in contact with the statoacoustic nerve. A similar smaller lesion was seen on the left side.

The lesions showed a very low signal intensity on the 3D T2-weighted DRIVE sequence (Fig. C) which could be compatible with bone or calcification. This was confirmed on the MDCT.

Based on these imaging findings, the diagnosis of bilateral IAC exostoses was made.

Because of the mild hearing loss the patient was treated conservatively and clinical follow-up was recommended.

Comment

Exostoses, as well as osteomas are benign slow-growing bony lesions of the auditory canal. They are common in the external auditory canal but are rare in the internal auditory canal.

The cause remains unclear. Reported etiological factors are trauma, infection, inflammation, developmental and genetic abnormalities.

In most cases exostoses and osteomas remain asymptomatic but they may cause symptoms due to a local compressive effect. Depending on their exact location and size they can manifest as hearing loss, vertigo or tinnitus.

Since a biopsy specimen of the IAC cannot easily be obtained, the radiographic appearance is important in differentiating between different bony lesions.

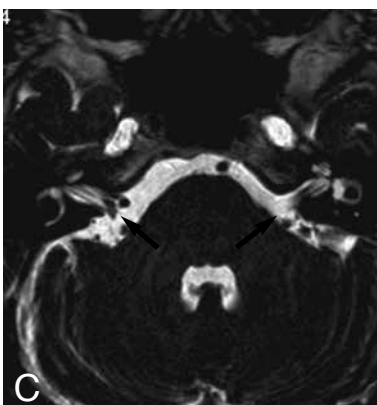
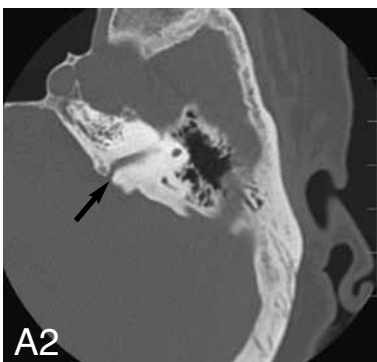
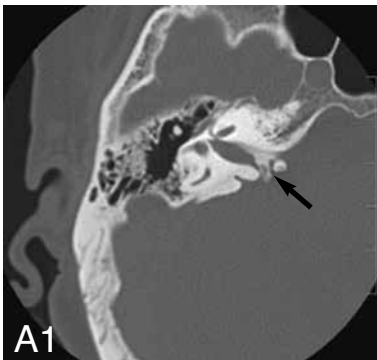
Exostoses are smooth-bordered, broad-based bony lesions growing into the IAC. They are often multiple and bilateral whereas osteomas are solitary, stalked lesions. Osteomas may also be differentiated from exostoses by the radiographic appearance of bone marrow.

On histologic specimen on osteoma displays fibrovascular channels within the bone.

Exostoses and osteomas are slow growing lesions and can remain stable for many years. Treatment depends on the severity of the symptoms. Regular clinical follow-up and regular CT monitoring is recommended for asymptomatic lesions whereas surgical excision and decompression is the treatment of choice in patients with severe progressive symptoms.

Reference

1. Nguyen L., Baik F., Doherty J., Harris J., Nguyen Q.: Exostoses and Osteomas of the Internal Auditory Canal. *Laryngoscope*, 2010, 120: S215.



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