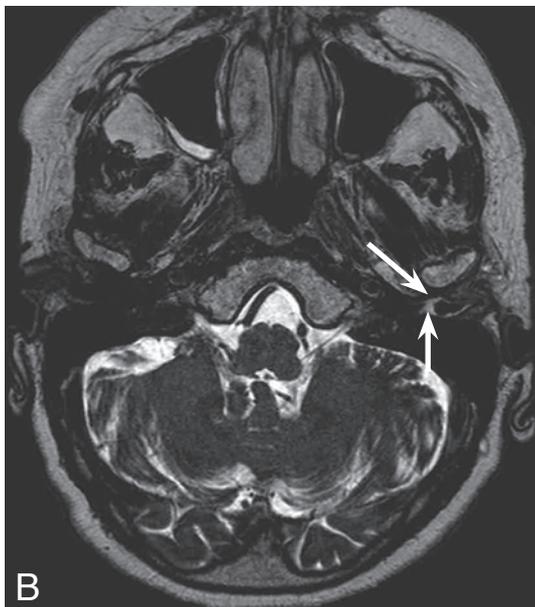
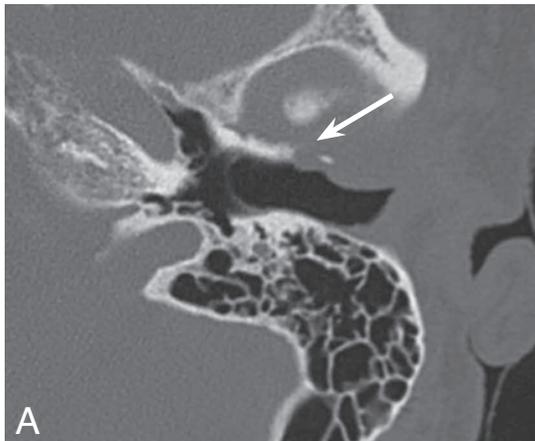


IMAGES IN CLINICAL RADIOLOGY



Imaging findings in a patient with saliva in the auditory canal

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A 78-year-old female presented with complaints of unilateral clear otorrhea, which worsened after consuming meals. The complaints started acutely four weeks before. There were no associated complaints of otalgia, craniofacial pain, hearing loss or tinnitus. During clinical examination, otomicroscopy revealed marked edema of the external ear canal with a limited amount of clear fluid and debris, and a normal tympanic membrane, as well as an anterior canal wall which was highly mobile during jaw movement. Pure tone audiometry showed bilateral symmetrical high frequency sensorineural hearing loss. Repetitive culture of the debris in the ear canal only detected commensal flora.

Treatments with suction cleaning, several types of local antibiotics and local corticosteroids, and local application of caustic agents (Iotagen) resulted in only temporary and partial improvement with multiple exacerbations over the course of six months. After resolution of edema of the external auditory canal, persistence of granulation tissue in the anterior bony canal wall a few millimeters lateral to the tympanic annulus became apparent, and led to the suspicion of a patent foramen tympanicum. Subsequent biochemical analysis of the ear discharge demonstrated an amylase concentration of more than 1500 U/l (normal values: undetectable).

Cone-Beam CT examination was performed, which revealed a three-millimeter wide defect of the antero-inferior external auditory canal wall, six-millimeter lateral to the tympanic annulus (Fig. A, arrow). To detect a possible parotid fistula, MRI of the parotid region and petrous bone was performed. Analogous with the use of lemon-extracts in sialography to induce saliva production, patient was given a slice of lemon orally just before the examination. Axial high resolution T2 examination showed a small fluid effusion outlining the external auditory canal (Fig. B, arrows). Combined with the clinical investigation, patient was diagnosed with a patent foramen tympanicum and until now refused treatment.

Comment

The foramen tympanicum, also referred to as the foramen of Huschke, consists of an anatomical variation with an osseous defect in the antero-inferior wall of the external auditory canal, posteromedial

from the temporomandibular joint. In a prospective study conducted by Lacout et al., 4.5% of the patients exhibited a foramen tympanicum.

Presumably, an embryologic anomaly occurs during the formation of the external auditory canal, due to failure in fusion of the anterior and posterior prominences, resulting in a bony gap variant, the foramen of Huschke. As this osseous disparity may involute up to the age of 5, diagnosis should only be made after this age.

In patients with chronic discharge, multiple mechanisms are possible including a parotid gland fistula or ectopic parotid tissue, lodged in the cleft. Synovial tissue of the temporomandibular joint may also herniate through this corridor.

Caution should be warranted when executing temporomandibular arthroscopy in these patients, as the persistent foramen may lead to herniation of the endoscope in the external auditory canal and rupture of the tympanic membrane. An infection may thus spread in the external auditory canal, middle ear, as well as in the infratemporal fossa. Other complications include incudal dislocation, labyrinthine disruption or injury of the tympanic segment of the facial nerve. Patients with a foramen of Huschke also appear to be prone to tumoral or infectious spread from the infratemporal fossa to the external auditory canal and vice versa.

Treatment is only performed in symptomatic patients, by way of patch placement obliterating the anomalous space.

Reference

Lacout A., Marsot-Dupuch K., Smoker W.R., et al.: Foramen tympanicum, or foramen of Huschke: pathologic cases and anatomic CT study. *AJNR Am J Neuroradiol*, 2005, 26: 1317-1323.

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