CASE REPORT

Temporomandibular Joint Herniation through the Huschke Foramen

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Abstract

Aim: To enlighten about the importance of the anatomic defect—Huschke foramen/foramen tympanicum—in the differential diagnosis of external auditory canal masses, especially when ear complaints are exacerbated by mandibular movements and when in anteroinferior configuration.

Background: Most cases of persistent bony defect connecting the external acoustic meatus to the temporomandibular joint are asymptomatic. Although extremely rare, temporomandibular joint herniation through this defect may occur. This entity is not a straightforward diagnosis. Differential diagnosis with tumors involving the ear auditory canal or even cholesteatoma must be carefully excluded. A high-resolution cone-beam computed tomography is the preferred imaging modality for the evaluation of this anatomic variant. Treatment options depend on the presenting symptoms and the patient's willingness to undergo surgical correction.

Case description: We report a case of symptomatic temporomandibular joint herniation through the Huschke foramen in an otherwise healthy middle-aged woman who complains of left aural plenitude and intermittent bloody otorrhea for a month. The patient was studied with temporal bone computed tomography and magnetic resonance imaging. While the patient was being studied, there was a complete self-resolution of the mass in the external auditory canal, which we treated with a topical antibiotic and corticosteroid ear drops. Imaging confirmed the existence of a Huschke foramen. Along with the patient, we decided to observe her closely as an outpatient.

Conclusion and clinical significance: This report highlights the importance of studying certain external canal masses with imaging, especially in the anteroinferior location, before gross manipulation.

Keywords: Huschke foramen, Mass, Temporomandibular joint.

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Introduction/Background

Huschke foramen, or foramen tympanicum, describes an uncommon anatomic variant of a persistent bony defect connecting the anteroinferior aspect of the external auditory canal (EAC) to the temporomandibular joint (TMJ).[1] Most cases are asymptomatic and studies reported the prevalence varies between 4.6 and 20%.[2,3] When symptomatic, the most common presentation is watery otorrhea due to a parotid gland fistula.[4] This anatomic variant makes a person prone to infection and/or tumor spread from the EAC or TMJ to the infratemporal fossa and higher risk of TMJ arthroscopic complications.[5] This congenital defect may represent a true challenge in the differential diagnosis when the soft tissue from the TMJ is herniated along the EAC, which is an extremely rare event.[6]

Case Description

We report a case of a 55-year-old healthy woman complaining of left aural plenitude and intermittent bloody otorrhea for 1 month. She also complained of occasional left otalgia during mastication. She had a history of chronic otitis media in the right ear with an old hearing deficit, but no auditory complaints on the left. On the otoscopy, we found an easily bleeding mass protruding from the anteroinferior wall of the left EAC hiding completely the tympanic membrane (TM). Rinne and Weber testing pointed to a conductive hearing loss on the right, according to her antecedents. No other abnormalities were found during the examination. We achieved hemostatic control of the friable mass with a single and cautious application of chemical cauterization with silver nitrate and prescribed a corticosteroid plus antibiotic ear drops for a week (drops composition: 0.250 mg/mL fluocinolone acetonide, 10,000 IU/mL polymyxin B sulfate, 3.50 mg/mL neomycin sulfate, and 20.00 mg/ mL lidocaine hydrochloride three drops three times a day). We asked for a temporal bone computed tomography (CT) and audiometry/impedancemetry and reassessed the patient within 3 weeks. On the second appointment, the complaints were null, the left TM was normal and there was a small vascular polyp arising from the anteroinferior wall of the EAC with no bleeding. "The audiogram and impedance results on the left were unremarkable (Fig. 1)." "The noncontrast CT showed a left bony defect on the anteroinferior aspect of the EAC and a soft tissue mass protruding from the TMJ through this defect, which we presumed as congenital after a further study with magnetic resonance imaging of the TMJs,

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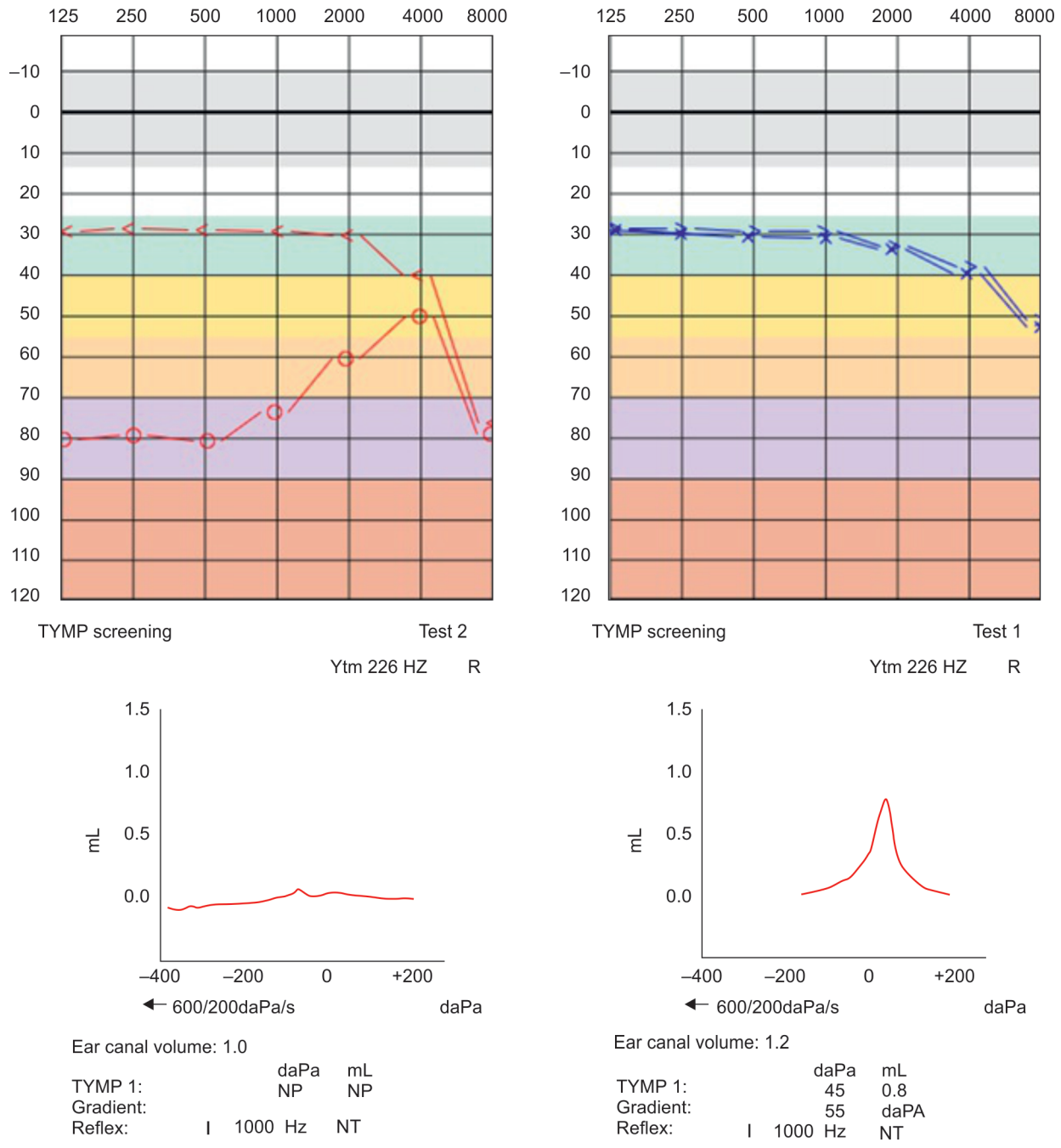


Fig. 1: Tonal audiogram and impedancemetry

revealing a probable Huschke foramen and no other remarkable findings (Figs 2 and 3)." The patient is currently asymptomatic and her EAC is normal. Along with the patient, we decided to observe her closely as an outpatient.

Discussion

Foramen tympanicum is a developmental defect located on the anteroinferior aspect of the EAC. Before 5 years of age, it gradually narrows and completely closes, but sometimes it fails to close and a persistent tympanic bone dehiscence arises.[6]

Huschke foramen is usually asymptomatic and is more common in females being reported in up to 20% of the population, mainly in Asians.[1] However, TMJ herniation through the Huschke foramen is an extremely rare entity, and less than 30 cases have been reported so far in the literature.[7]

A high-resolution cone-beam CT is the preferred imaging modality for the evaluation of this anatomic variant.[8]

Treatment options depend on the presenting symptoms and the patient's willingness to undergo surgical correction. Initial conservative management with acetic acid and/or isopropyl alcohol can be used and, if not sufficient, further surgical

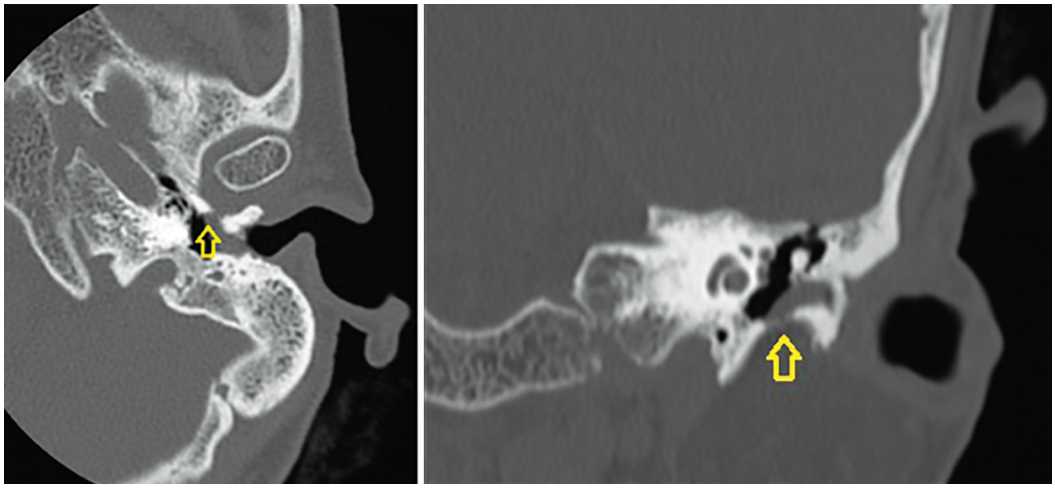


Fig. 2: Noncontrast temporal bone CT. Yellow arrows show the bony defects on coronal and axial planes

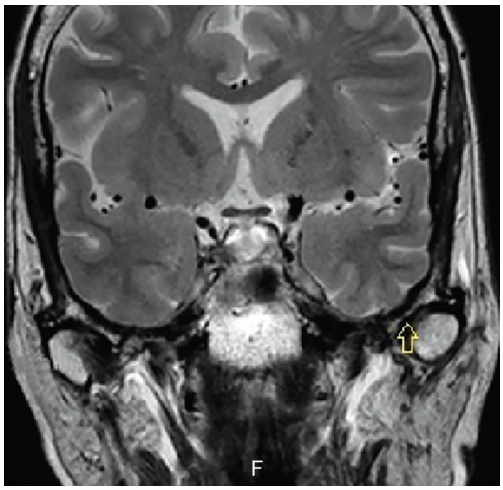


Fig. 3: Magnetic resonance image of the TMJ—coronal plane

exploration and closure of the defect are advised.[7] Cartilage, perichondrium, and synthetic materials, such as polypropylene and titanium mesh, have already been used.[9] Results of different approaches have not been published yet due to the scarcity of reported cases.

Conclusion/Clinical Significance

In conclusion, care should be taken when manipulating EAC masses, especially in the anteroinferior location. Before a biopsy, we should have in mind the possibility of a TMJ herniation through the Huschke foramen. In order to reduce iatrogenic lesions and further damage of the TMJ components, radiology exams can be very helpful in determining the size and extent of the defect.

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