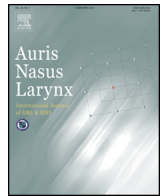




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Bilateral spontaneous symptomatic temporomandibular joint herniation into the external auditory canal: A case report and literature review

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ABSTRACT

Spontaneous temporomandibular joint (TMJ) herniation is the entity of protrusion of the retrodiscal contents of the TMJ into the external auditory canal (EAC) through a persistent Huschke's foramen. There have been a number of reports of spontaneous TMJ herniation, but there are no reports of bilateral symptomatic TMJ herniation. We report a case of a 70-year-old man who complained of a crunching sound in both ears during mastication. Examination showed bulging from the anterosuperior wall of the EAC on each side when the patient opened his mouth, which pushed the tympanic membrane medially. Bony defects in the corresponding area were seen on computed tomography. We describe a very rare case of bilateral spontaneous TMJ herniation that caused symptoms by having a direct impact on the tympanic membrane.

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1. Introduction

The temporomandibular joint (TMJ) is an articulation consisting of the temporal bone and mandible. The glenoid fossa that articulates with the mandibular condyle is a part of the tympanic and squamous portion of the temporal bone. The posteromedial wall of the fossa is formed by the anterior wall of the bony external auditory canal (EAC). Defects in this wall are a potential route for spread of inflammation, neoplasm, and herniation of the TMJ.

In 1987, Hawke et al. reported on a patient with bilateral spontaneous asymptomatic TMJ herniation, in whom the defects were thought to be congenital in origin [1]. They

hypothesized that a persistent Huschke's foramen (HF) was the pathway. Since then, there have been a number of reports concerning spontaneous TMJ herniation and much research interest has been focused on persistent HF. However, to date there have been no reports of bilateral herniation. We present a case of bilateral spontaneous symptomatic TMJ herniation with a review of the literature.

2. Case report

A 70-year-old man presented with a 2-year history of a crunching sound in both ears during mastication. The crunching sound did not occur during other movements. The sound was heard in both ears, and was louder on the right side than on the left. He did not complain of otalgia, otorrhea, ear fullness or hearing difficulty, and denied any chronic systemic illness such as diabetes, hypertension or autoimmune disease. There was no history of head trauma or previous ear surgery or disease. He had class III malocclusion and mandibular prognathism.

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On otoscopic examination, there was no abnormality of the tympanic membrane in the right ear, however there was a small bulge protruding from the anterosuperior EAC (at the 1 o'clock position) adjacent to the tympanic annulus when the patient's mouth was closed (Fig. 1A). The protruding bulge pushed directly onto the short process of the malleus, causing the tympanic membrane to move medially (Supplemental video). With the mouth open, the lesion retracted and, the tympanic membrane returned to the normal position (Fig. 1B). The same phenomenon was observed at the 11 o'clock position in the left ear (Fig. 2). The pure tone average at 500, 1000, 2000, 3000 Hz was 25 dB in the right ear and 30 dB in the left ear. Computed tomography (CT) of the temporal bone with a slice thickness of 0.6 mm was performed with the mouth closed. Bony defects of the anterosuperior wall in each EAC were confirmed (3.8×2.8 mm on the right, 3.1×2.5 mm on the left; axial \times sagittal, at widest length). The medial margins of these defects were located at the tympanic annulus. Soft tissues were seen to herniate through these bony annulus. Soft tissues were seen to herniate through these defects on both sides and to be in contact with the short process of the malleus when the mouth

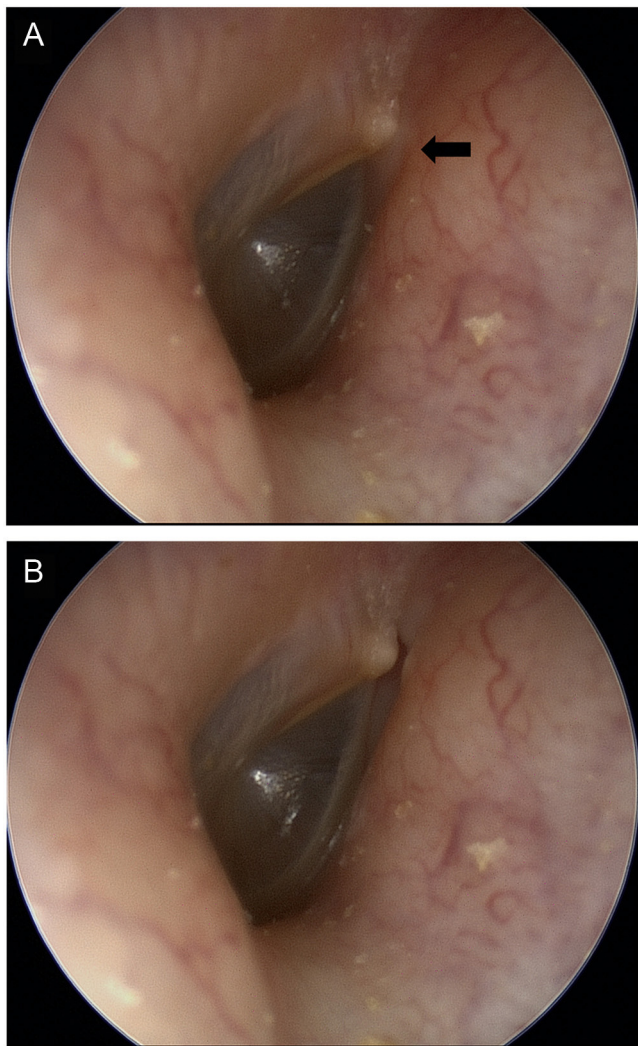


Fig. 1. (A) Endoscopy demonstrates bulging (arrow) in the right external auditory canal at the 1 o'clock position. The lesion is pressing directly on the short process of malleus, and moving the tympanic membrane medially. (B) The lesion retracted when the patient opened his mouth.

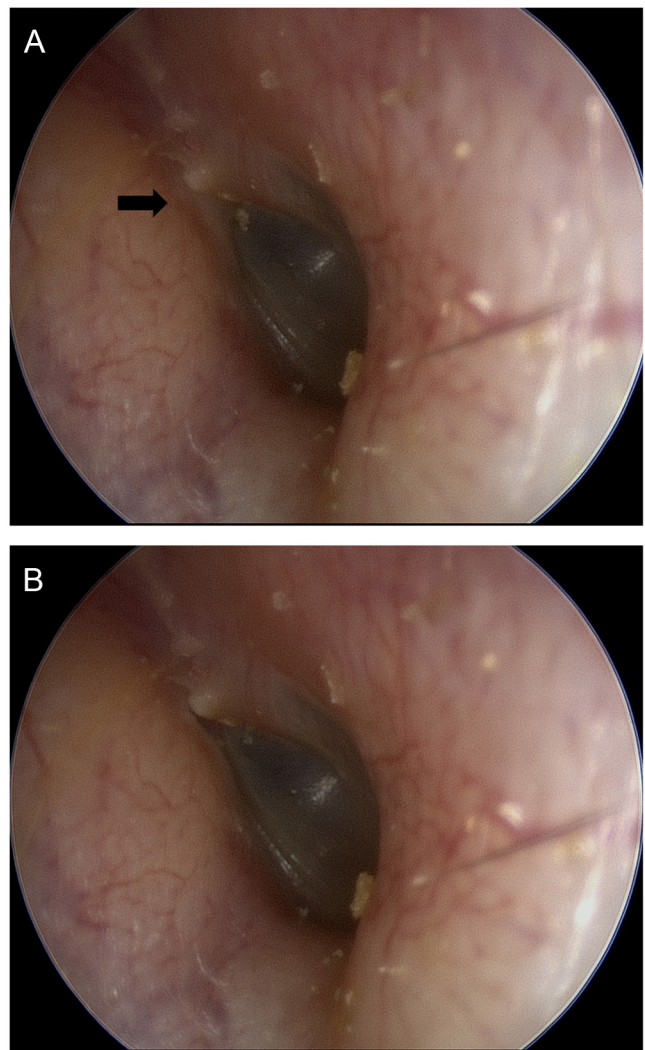


Fig. 2. (A) A bulging (arrow) is shown at the 11 o'clock position in the left ear. (B) The protrusion retracted when the mouth was open and the tympanic membrane returned to its normal position.

was closed (Fig. 3A and B). They could not be seen with the mouth open (Fig. 3C and D). No abnormalities were detected in other parts of the temporal bone.

We explained the cause of the crunching sound to the patient and advised that surgery could correct the protrusions. The patient declined surgery because the noises were not sufficiently bothersome, so we subsequently recommended he avoid chewing vigorously. The patient's symptoms and bulging have not worsened during the 2 years of follow-up.

3. Discussion

TMJ herniation can occur through a defect in the anterior wall of the EAC caused by inflammation, cholesteatoma, trauma or otologic surgery, but can also occur without any pathology. Spontaneous TMJ herniation is now accepted to be the result of prolapse of the retrodiscal contents of the TMJ through a persistent HF that is widened by mastication over a long period of time. Symptoms are usually absent, but if present tend to be non-specific, e.g., tinnitus, conductive hearing loss, otalgia, otorrhea and aural fullness [2]. Most cases do not

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