

SINUS SIGMOID FISTULA IN PATIENTS WITH TINNITUS

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Dear Sir,

A 55 year-old man presented with a left pulsatile tinnitus for 6 months, with insidious onset and progressive course. No otalgia, otorrhea, vertigo or hearing loss were present. No previous symptoms and nor family history of deafness. Otoscopy and pure tone audiometry were normal.

A magnetic resonance imaging (MRI) scan of the cerebellopontine angle and internal auditory canals (IACs) showed a left temporal cortical bone irregular defect (Fig. 1, and 2). The same lesion evidenced no modifications in both T1 and T2 slices. The patient also underwent a MRI with an angiographic reconstruction of the circle of Willis, showing a left vascular abnormality (Fig. 3). The differential diagnosis is centered on paraganglioma, sinus sigmoid fistula, tortuous internal carotid artery and jugular bulb variant. The final diagnosis was a sinus sigmoid fistula.

The onset of tinnitus may be caused by a wide variety of diseases. Dural arteriovenous fistulas (DAVFs) account for 10-15% of all intracranial arteriovenous malformations (1), and are an uncommon cause of objective tinnitus (2,3). These lesions are composed of numerous abnormal connections between the arterial vessels and the venous sinuses or veins (4). They usually occur after trauma, surgery, or venous sinus thrombosis. According to the classification of Borden (5) there are three types of DAVFs, depending on the cortical venous drainage and cortical flow, being the present case a dural fistula type I.

Digital subtraction angiography (DSA) remains the "gold standard" for the assessment of DAVFs morphology and hemodynamic. However, there are some limitations using this method due to the risk of "silent" embolisms, the costs, and the worsening of neurological conditions (6). Other studies such as Farb et al (7) revealed that time-resolved magnetic resonance angiography using 3-Tesla scanner, appears to be an useful method in DAVFs diagnosis compared to DSA, even as a screening study. In the present case, the MRI was used to determine the vascular malformation, showing a hypodense lesion both in T1 and T2 slices, in relation to the sigmoid sinus producing a cortical left temporal bone defect. A magnetic resonance angiography using 3-Tesla scanner evidenced the localization of the vascular malformation and the vasodilatation of the perimesencephalic veins due to the left sigmoid communication.

FIGURES



Figure 1. MRI, axial T1 slices showing a dural left fistula and a temporal cortical bone defect.



Figure 2. MRI, axial T2 slices showing a dural sigmoid sinus fistula in relation to a cortical bone defect.

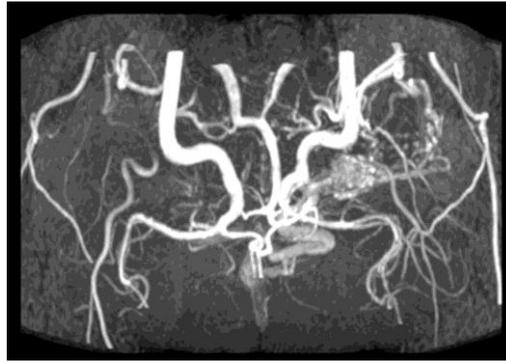


Figure 3. Magnetic resonance angiography with reconstruction of the circle of Willis. A dural left sigmoid sinus fistula and a perimesencephalic veins dilatation are observed.

A treatable underlying etiology can be identified in most pulsatile tinnitus (8). Sigmoid sinus dural arteriovenous malformations are uncommon vascular lesions for which complete cure may be difficult to obtain. A wide variety of treatments for these lesions include observation, arterial compression, surgical resection, and endovascular embolization (10). DAVFs are dynamic lesions that can thrombose or increase flow. In case of poor tolerance to the tinnitus or progression of the lesion, selective embolization of the fistula would be indicated.

In the present case, the patient presented tinnitus fluctuation with a progressive decrease after 2 months therefore it was not necessary to perform any therapeutic intervention.

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