

Results

Case

In addition to our literature search, we added one case of a 33-year old female referred to the VU University Medical Center Amsterdam, The Netherlands, because of a left sided PSA. The PSA had been encountered during middle ear surgery elsewhere, upon which the surgery had been aborted. The patients' complaints consisted of a progressive hearing loss and pulsatile tinnitus in the left ear since two years. Pre-operative otoscopy showed no abnormalities. Pure-tone audiometry identified a mixed type hearing loss with a Fletcher index of 55 dB and a conductive component of 32 dB (figure 1A). High resolution CT imaging of the petrous bone showed absence of the foramen spinosum on the left side, a small canaliculus exiting the canal of the internal carotid artery posterolaterally, and a linear structure coursing through this canaliculus and over the promontory. The internal carotid artery had no aberrant course. No alternative explanation for the conductive hearing loss was identified. A second transmeatal middle ear inspection was performed during which the PSA was identified, with its typical trajectory over the promontory and through the obturator foramen of the stapes, entering the fallopian canal superior to the stapes (figure 2).

First, the artery was elevated from its bony sulcus on the promontory. A mild bleeding occurred just inferior to the oval window, which was controlled by electro-coagulation with a bipolar forceps. After electro-coagulation the artery was transected and its remnants were elevated from the oval window niche. However, the mobility of the stapes remained impaired. Subsequently, the stapes superstructure was removed and a stapedotomy was performed using a 0.6 mm diamond Skeeter Microdrill (Medtronic Xomed Inc., Jacksonville, Florida, USA) followed by the introduction of a titanium stapes prosthesis (K-piston, Kurz GmbH, Dusslingen, Germany), which was attached to the long process of the incus. Postoperative PTA showed a hearing loss with a Fletcher index of 25 dB and thus the hearing loss was improved by 30 dB

(figure 1B). The complaints of tinnitus had disappeared. During a 1-year postoperative follow-up period no complications were seen.

Patient characteristics

Of the 17 patients, 14 were women (15 ears) and 3 were men. The age of the patients ranged from 14 to 68 years (mean 32 years) Of the 18 ears, 7 were right ears and 11 were left ears.

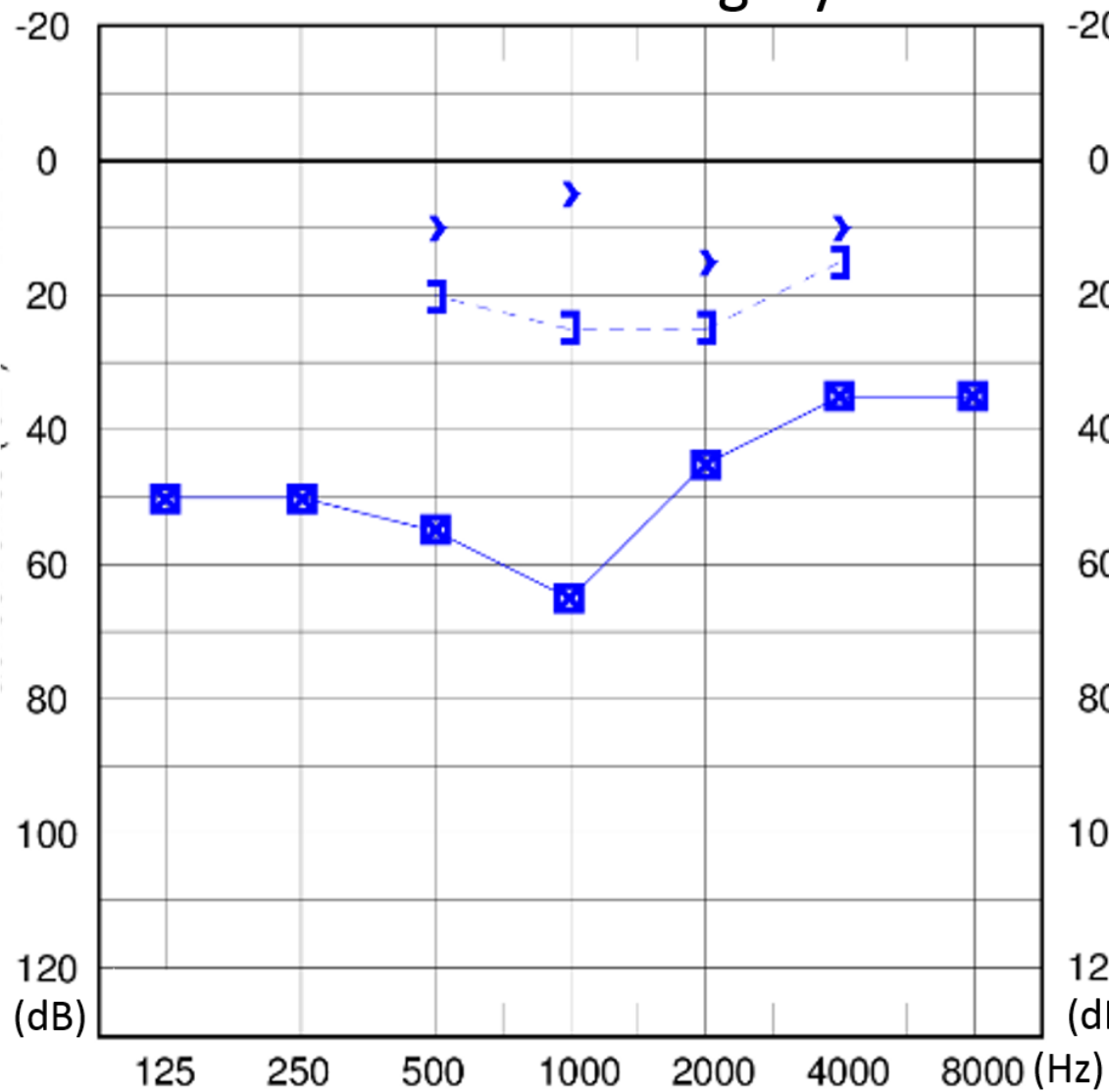
Clinical presentation

In all cases complaints of hearing loss were present. In patients in which audiometry was performed (11/18), the average hearing loss was 52 dB hearing level (HL)(range 15 to 70 dB). The average air-bone gap could be evaluated in 11/18 patients, and was 35 dB (range 12 to 65 dB). Pulsatile tinnitus in the affected ear was found in 6/18 ears, in 6/18 it was described to be absent, and in 6/18 patients pulsatile tinnitus was not mentioned (Table 1). Other symptoms that were described were otalgia (1/18) and non-pulsatile tinnitus (1/18)(10,15). On otoscopy, a middle ear mass was seen in 4 patients (4,7-9).

Fig. 1. An audiogram of the left ear showing (A) the pre-operative and (B) the post-operative hearing loss.

Fig. 2. Peroperative view of a persistent stapedia artery (PSA). A transmeatal look at the left middle ear after development of a tympanomeatal flap. I = PSA, II = stapes, III = long process of the incus, IV = promontory.

A Before surgery



B After surgery

