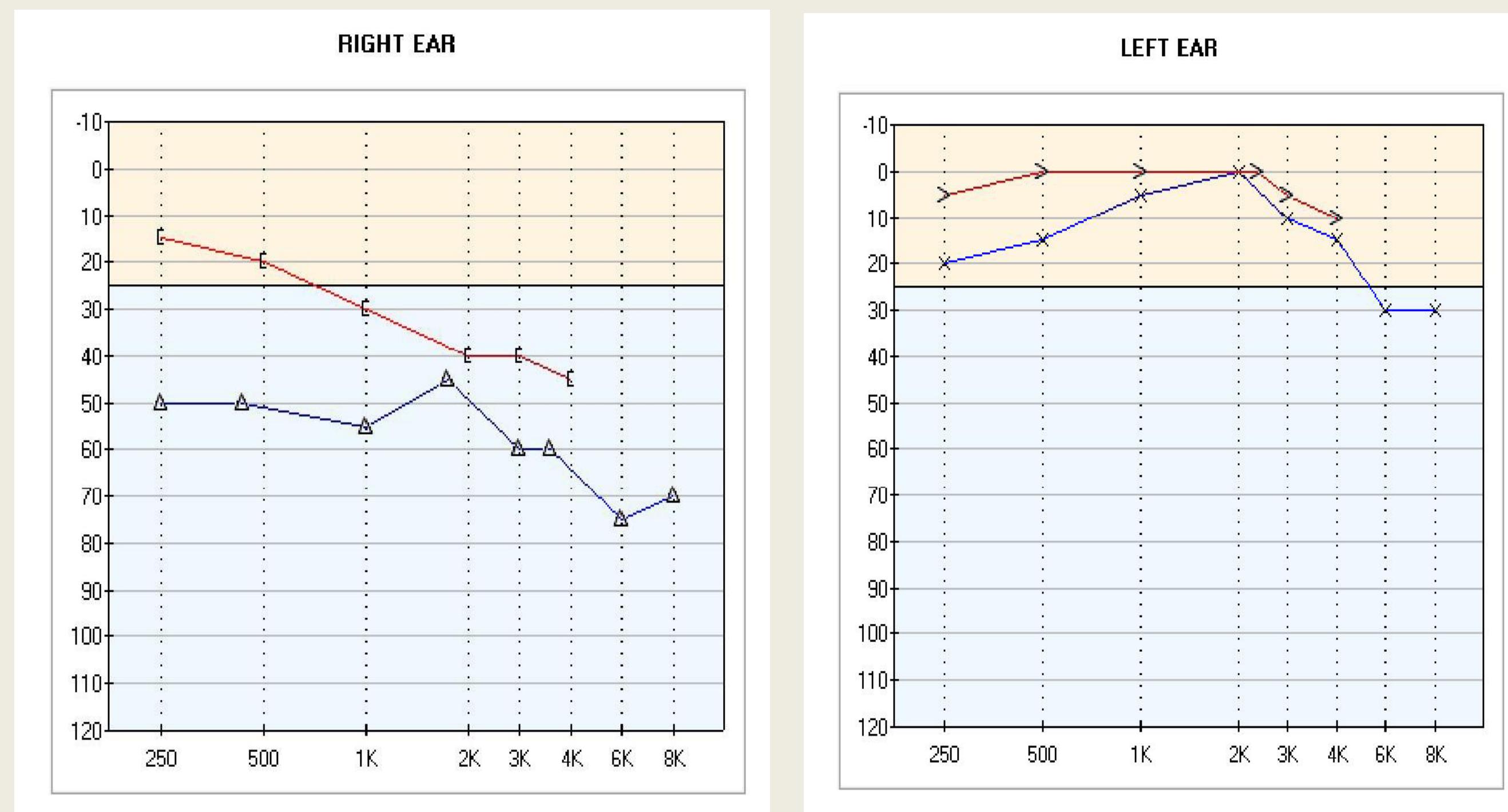


## Enlarged Vestibular Aqueduct Causing Right Sided Conductive Hearing Loss and with Superior Semicircular Canal Dehiscence in Contralateral Ear

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### INTRODUCTION

Enlarged Vestibular Aqueduct (EVA) is the most common inner ear malformation associated with sensory hearing loss. EVA is associated with both syndromic and non-syndromic hearing loss. EVA associated with non-syndromic hearing loss usually unilateral. Hearing loss is usually sensorineural however it can be conductive or mixed, and the loss may be stable or fluctuating. Third window abnormalities are defects in the integrity of the bony structure of the inner ear, classically producing sound-/pressure-induced vertigo (Tullio and Hennebert signs) and/or a low-frequency air-bone gap by audiometry. Both EVA and superior canal dehiscence ear malformations can act as a mobile third window.



Audiogram 5/3/2012 showing mixed hearing loss on the right with 25-45 db air-bone gap

### Case

We present a 43 year old female who presented in 2011 with a many year history of right sided slowly progressing hearing loss. Patient had previously been recommended to undergo middle ear exploration in 2003 for conductive hearing loss, but declined at that time. Repeat audiogram showed relatively stable right sided mixed hearing loss. Patient was found to have a moderate, pan frequency, flat mixed hearing loss, with a 25-45 dB air bone gap. Patient underwent a right middle ear exploration for presumed otosclerosis. Patient was found to have an intact ossicular chain without any stapes fixation, incudomalleolar fixation, or evidence of otosclerosis. Patient underwent post-operative CT temporal bone to evaluate for ear abnormalities which showed an enlarged right sided vestibular aqueduct and a contralateral left sided superior canal dehiscence. On further questioning patient endorsed mild third window symptoms in her left ear. Patient described mild autophony of the left ear and Valsalva induced vertigo. Patient was not significantly bothered by her third window symptoms and elected to not pursue surgical repair.

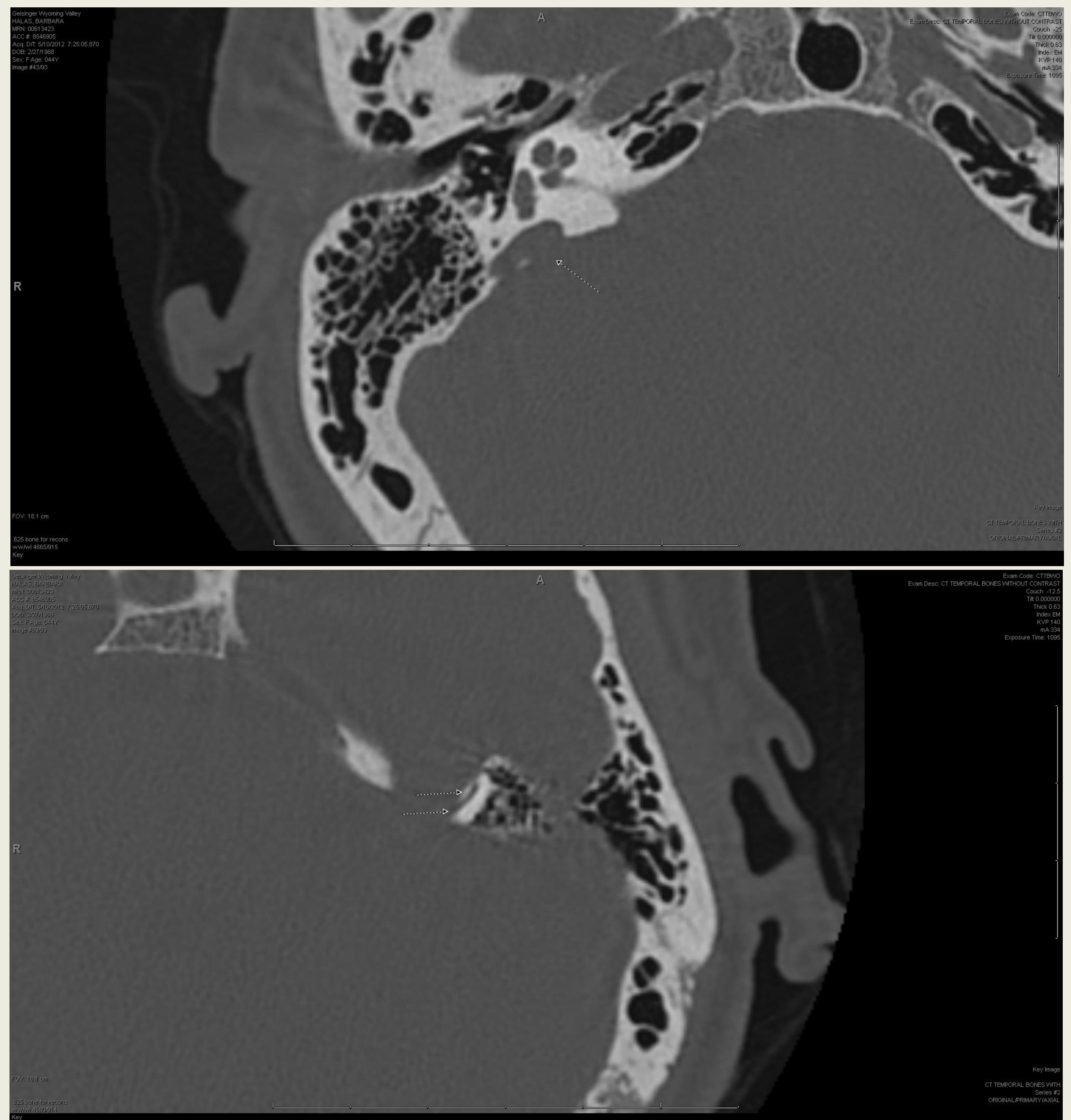


Figure 1. CT Temporal bone showing left sided enlarged vestibular aqueduct  
Figure 2. CT Temporal bone showing large right sided superior canal dehiscence

### CONCLUSIONS

Enlarged vestibular aqueduct abnormality can present in adulthood and mimic other more common ear pathologies such as otosclerosis. In patients who undergo middle ear exploration and are found to have mobile intact ossicular chain. CT temporal bone should be performed to evaluate for possible enlarged vestibular aqueduct as the cause of the conductive hearing loss.

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