Good Vibrations

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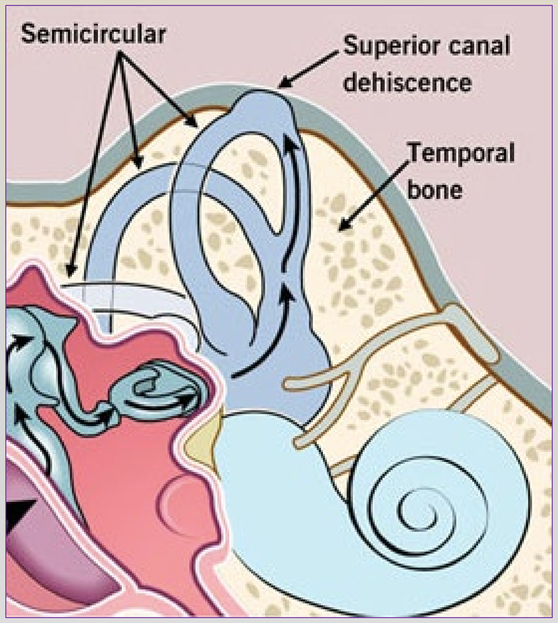
INTRODUCTION

Tuning fork testing (Rinnes and Webers tests) can be an effective clinical tool for initial assessment of hearing loss, particularly unilateral hearing loss[2,4]. These tests can be used to help distinguish between conductive and sensorineural loss. The sensitivity and specificity of tuning fork testing (Rinnes) for detecting conductive hearing loss ranges widely from 40% to 90% and 50% to 100%, respectively[5]. It is important, however, to note the potential element of patient selection bias with the majority of studies pertaining mainly to elderly patients. Alternatively, studies have shown the Weber test to correctly lateralize sudden sensorineural hearing loss in 78% of patients when compared with audiogram results[6].

Canal dehiscence (Fig.1) is an opening in the bone covering the semicircular canals of the inner ear[1,3,7]. Dehiscence can be a result of a congenital defect, trauma or infection. Symptoms can include vertigo, fullness/pressure sensation in the ears, autophony, sensitivity to sounds, and oscillopsia[1,3].

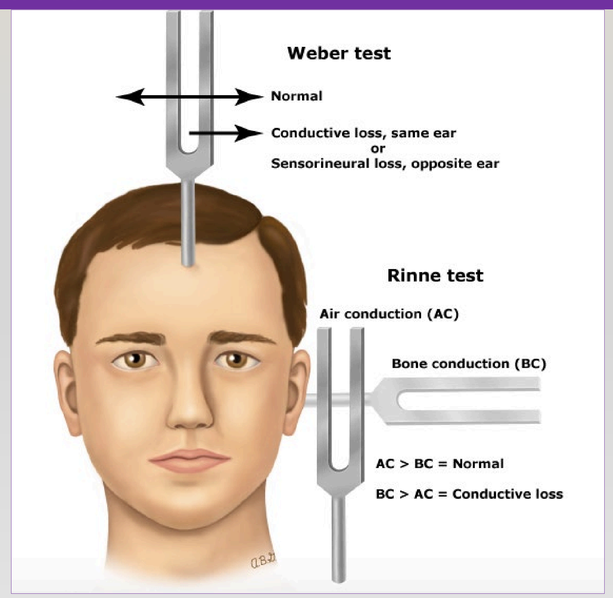
Figure 1. Superior Canal Dehiscence[3]



CASE DESCRIPTION

A 29 y.o. male college student presented to clinic as a new patient for evaluation of right sided hearing loss with associated vertigo, oscillopsia, and tinnitus that had been progressively worse over the last three months. The patient had a remote history of intravenous drug use and head trauma within the last 12 months. He was not taking any medications and denied fevers, neck pain, neck stiffness, vision changes, rash, lymphadenopathy or unilateral weakness. Physical exam, including otoscopic exam, cranial nerves, muscle strength, coordination, and gait testing were unremarkable. A Rinnes and Webers test (Fig.2) conducted in clinic suggested a right sensorineural hearing deficit which was repeated by a second clinician with the same findings. The patient was initially screened for syphilis and HIV which were negative. Blood counts and chemistry panel were within normal range. A trial of meclizine did not improve symptoms. The patient was referred for pure tone audiometry which was normal and for an MRI brain which suggested superior semicircular canal dehiscence. A follow-up temporal bone CT scan was recommended and confirmed the diagnosis. The patient was referred to Otolaryngology- head and neck surgery. He underwent surgical repair of the defect which resulted in symptomatic improvement.

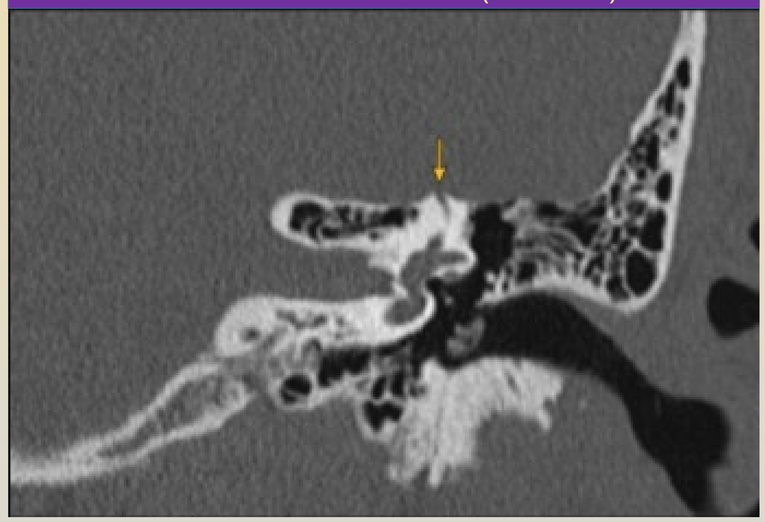
Figure 2. Evaluation of Hearing Loss, Weber & Rinne Tests[4]



DISCUSSION/CONCLUSION

This case illustrates the value of the Rinnes and Webers test as efficient and inexpensive tool in the initial work up of sudden unilateral hearing loss in a young patient. Tuning fork testing can be useful in the appropriate clinical setting to guide further diagnostic testing.

Figure 3. CT Coronal Bone Window with Semicircular Canal Dehiscence (at arrow)[7]



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