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Teaching Video NeuroImages: An Uncommon Cause of Hearing Loss

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Consent and Ethics Review:

The patient has provided her written consent to use of images that display the findings on CT scan and on the video. She has demonstrated a complete understanding that this will be used for educational purposes in medical journals.

Our institute does not require IRB approval for submission of images and case reports.

Author Contributions:

Dr. Waleed Siddiqui: review of the literature, drafting of the case report and final approval

Dr Maria Byrne: critical review and final approval

66-year-old female presented with right sided hearing loss, insidious in onset. Otoscopic examination showed pulsation of tympanic membrane in seated position (video) which diminished upon lying down. CT venogram of auditory canal showed dehiscent right jugular bulb along hypotympanic surface (Figure 1 and 2). A dehiscent jugular bulb develops due to absence of sigmoid plate separating the bulb from middle ear. It appears as blue mass behind tympanic membrane which may distend with Valsalva or internal jugular vein compression. Affected individuals, while often asymptomatic can experience conductive/sensorineural hearing loss, tinnitus or vestibular dysfunction (1). The patient is followed with imaging periodically for disease progression. Over 10 years her hearing has been stable. Neurologists should be familiar with otoscopic appearance of auditory canal dehiscence as tinnitus and vestibular dysfunction is a common presentation. Treatment involves reassurance and follow-up with serial imaging. Surgical or endovascular intervention is reserved for intolerable symptoms (2).

Appendix 1: Authors

Name	Location	Contribution
Dr Waleed Tariq Siddiqui	Griffin Hospital, 130 Division Street, Derby, CT, 06418	Acquisition of data and figure illustrations, drafting of the manuscript and final approval
Dr Maria Byrne	Griffin Hospital, 130 Division Street, Derby, CT, 06418	Clinical care of patient, critical review of manuscript and final approval

[AZ 6.17.2021] 171609 Video --<http://links.lww.com/WNL/B463>

[AZ 6.18.2021] 171609 Teaching Slides -- <http://links.lww.com/WNL/B464>

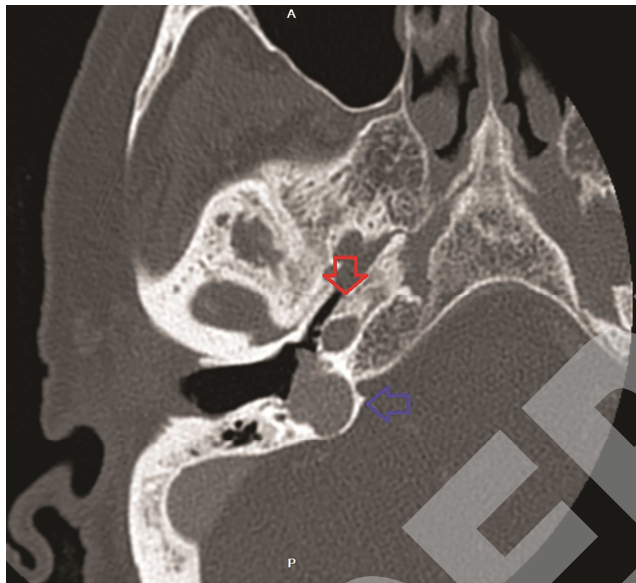
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1. Graham MD. The jugular bulb: its anatomic and clinical considerations in contemporary otology. *Laryngoscope*. 1977 Jan;87(1):105-25.
2. Che Ab Rahim NA, Saniasiaya J, Kulasegarah J. Dual retrotympanic aural mass. *BMJ Case Rep*. 2021 Apr 12;14(4):e241591.

Figure Legends:

Video: Otoscopic examination of the auditory canal showing a pulsatile tympanic membrane.

CT Venogram Axial View (Figure 1): Internal Carotid Artery (red arrow) and high riding right jugular bulb (blue arrow) with bony dehiscence that protrudes into the middle ear



CT Venogram Coronal View (Figure 2): dehiscence of right jugular bulb (blue arrow) with small diverticulum abutting the umbo of the malleus and opacifying the round window.



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