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Imaging case of the month: Jugular bulb diverticulum uncovering the internal auditory canal

Iaccarino I*; Bozzetti F§; Bacciu A; Falcioni M

Otorhinolaryngology and Otoneurosurgery Department, University Hospital of Parma, Parma, Italy

***Corresponding Author(s): Ilaria Iaccarino**
UOC Otolaryngology and Otoneurosurgery, University Hospital of Parma, Via Gramsci 14, 43126 Parma, Italy
Tel: 0039 (0) 5217-03372,
Email: ilariaiaccarino@gmail.com

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Case report

A 78-year-old woman presented to the emergency department after a head trauma secondary to accidental tumble. She had no neurological signs but she complained facial ache. Incidentally, TC reveled a left Jugular Bulb Diverticulum (JBD), which reached the Internal Auditory Canal (IAC), eroding the posterior lip of the porus (Figure1A-C & Figure 2).

The findings in the external auditory canal, middle ear and internal ear were normal bilaterally. Otoscopic evaluation was normal and tonal audiogram showed bilateral symmetric sensorineural hearing loss. She denied tinnitus, vertigo and dizziness.

JBD is a rare vascular anomaly defined as an irregular outpouching or protrusion of the vessel that may project into the middle era cavity, the mastoid cavity or medially into the petrous portion of the temporal bone [1] with the latter location more commonly encountered. It is probably underreported because it is often asymptomatic. However, JBD and other vascular anomalies are important to detect before middle ear surgery [2]. From literature review, the female-to-male ratio and the left-to-right ratio were both approximately 2 to 1. The cause remains uncertain, but the diverticulum may be accompanied by seventh and/or eighth cranial nerve symptoms [3].

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TC scan can easily detect JBD that stretches up from the dome of the jugular bulb, surrounded by smooth bone, and this anomaly may not be confused with other diagnosis. However, in presence of bony eroding diseases in contact with the diverticulum, its presence may be undetected if additional investigations are not achieved. JBD may not be discovered by standard magnetic resonance imaging unless an abnormal flow pattern exists. On the contrary magnetic resonance venography can clearly demonstrate JBD, but is not routinely performed, if not in presence of clinical indications [3].

Only 2 cases of JBD involving the IAC are described in the English literature: Fujimoto et al [3] reported a patient with conductive hearing loss and subclinical vestibular dysfunction, while Park's patient [4] presented with sudden hearing loss and vertigo.

Figures

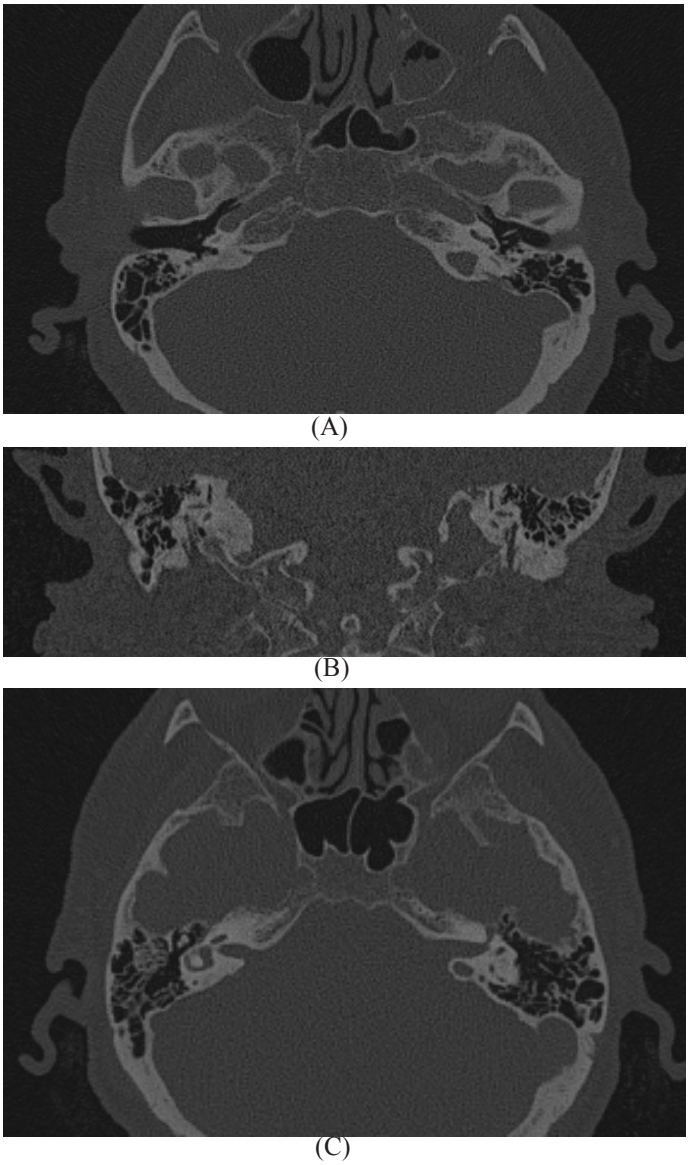

Figure 1: High resolution CT images, bone window, (A) axial image showing JBD at the level of the basal turn of the cochlea (A), eroding the posterior lip of the porus of the IAC (B), and posterior to the IAC at the level of the common crus (C). JBD: jugular bulb diverticulum. IAC: internal auditory canal.

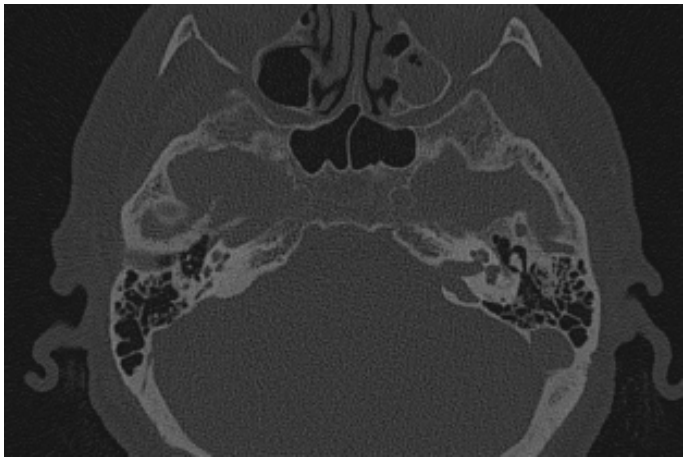

Figure 2: High resolution CT images, bone window; coronal image showing the JBD protruding superiorly from the dome of the jugular bulb. JBD: jugular bulb diverticulum.

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