High Riding Jugular Bulb: A Rare Entity of Vascular Disease

Molina-DeHaro MA.\textsuperscript{1,2}, Gómez-González, C.\textsuperscript{3}, Elizondo-Villarreal JH.\textsuperscript{2}, Figueroa-Sánchez JA. \textsuperscript{1,2}

1. Tecnologico De Monterrey, Instituto De Neurología Y Neurocirugía, TecSalud. Monterrey, México.
2. Tecnologico De Monterrey, Escuela De Medicina Y Ciencias De La Salud. Monterrey, México.
3. Fundación Universitaria Sanitas, Bogotá, Colombia.
We (the authors) DO NOT have any financial or organizational relationships with commercial interests or other entities.

We declare that the information here shown as well as recommendations, are based on clinical evidence that is accepted within the profession of medicine.

All scientific research referred to on this work in support or justification of a patient care recommendation, is accepted by standards of experimental design, data collection and analysis.
Introduction

The jugular bulb is a venous structure located in the jugular fossa on the temporal bone, close to the inner ear (1); which receives drainage from both intracranial and extracranial components.

A high-riding jugular bulb (HRJB) is a cephalic extension of the jugular bulb, being located around 2mm of the internal auditory canal or to the level of the superior tympanic annulus (1).

In most of the cases, the sigmoid plate is intact (1); but there are variants were there is dehiscence of the sigmoid plate causing ear related symptoms (2).

Most of the cases are asymptomatic, but because of the aberrant anatomy and turbulent blood flow (1), the patients can refer different symptoms like dizziness, conductive and/or neurosensorial hearing loss, vertigo and pulsatile tinnitus (3).

This work has the intention to expose the HRJB, its treatment and to report a case.
Methodology

A 28 y/o. female came to outpatient clinic because of a self-audible pulsatile bruit on right ear during the past 4 years.

This bruit exacerbates during physical activity and Valsalva maneuver, but returning to basal during rest.

The patient did not had any other neurological or hearing symptoms.

At PE, the tympanic membrane was intact. No mass or abnormal color was noted during inspection.
A high-riding jugular bulb is a common vascular anomaly, found in 2.4-7% of temporal bones.

Otoscopically, this is seen as a **blue mass behind an intact tympanic membrane**, which may become distended on valsalva or ipsilateral jugular compression (5).

The management of this disease is **typically conservative** (5).

There has been **reports about procedures** for treatment of this disease like the **jugular vein ligation**, but this is only for a certain group of patients with high rate of adverse outcomes (4).
Results

A CTA was done on the patient finding a right HRJB, complemented with angiography showing right predominance of the venous drainage.

The patient was treated conservatively because of risk of disturbances on venous drainage, and the predominance of drainage on the right side.

On the follow up, the patient had no symptoms and the bruit was almost gone, showing that the treatment with medication is a good option on patients with difficult surgery or likely to have bad outcomes from procedures.

Image 2: CT-Angio, showing the right HRJB (red circle) versus the normal jugular bulb (blue circle).
The HRJB is a relatively rare entity that most of the times is asymptomatic, being an incidental finding on CT.

Furthermore, there is not much literature available about this topic.

Most of the patients present with dizziness and demonstrable hearing loss; with a red-purple mass, sometime visible, behind the tympanic membrane.

These patients usually have a good outcome when either the surgical or conservatively treatment is chosen with mild to no sequel.

New intravascular procedures start to appear with the first reports showing good results for the patients with almost no risks after the procedure (6).

It is important to report and gather more information of cases about this disease to evaluate different treatments (either surgery or endovascular), because there is no definitive consensus and classification for the HRJB treatment.
Summary Points

Most of the times is asymptomatic, being an incidental finding on CT.

Most of the symptomatic patients present with dizziness and demonstrable hearing loss.

Patients usually have a good outcome when either the surgical or conservatively treatment is chosen.

New endovascular treatments start to appear.

There is no definitive consensus and classification for the HRJB treatment.
References


