# Jugular Foramen Chondrosarcoma Masquerading as Intracranial Venous Thrombosis

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## Introduction

Chondrosarcomas (CSAs) are rare, slow-growing, locally aggressive malignancies originating from multipotent mesenchymal cells or embryonic cartilaginous remnants. CSAs of the skull base are rare, accounting for 0.15% of head and neck neoplasms and 6% of skull base tumors [1].

Eighteen CSAs arising from the jugular foramen (JF) have been reported in the English literature [1-3]. Here, we present a unique case of CSA of the JF with intravascular invasion into the jugular venous system that was treated with a multidisciplinary surgical approach.

## Case Presentation

A 54-year-old male with well-controlled HIV presented with one year of dysphagia, dysphonia, and imbalance. Examination revealed left uvular deviation, right tongue deviation, and right shoulder weakness. Imaging with CT and MRI (Image 1/Image 2) revealed a right JF mass with concern for schwannoma or paraganglioma.

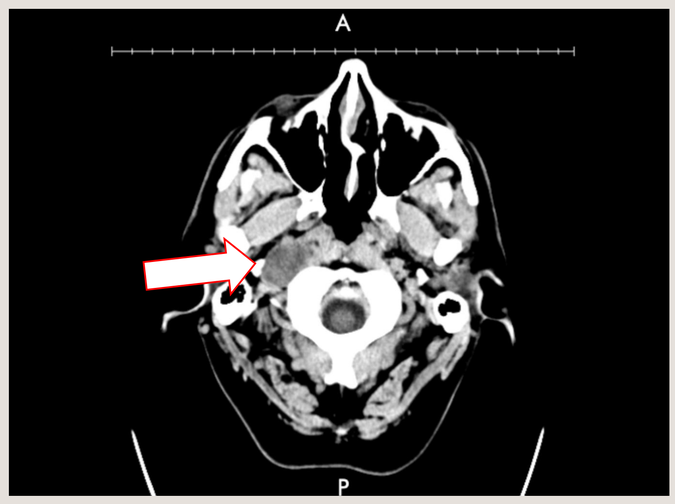


**Image 1**: Non-contrast brain CT

## Case Presentation Continued

He underwent a modified infratemporal and transcervical approach for excision with neurotology, neurosurgery, and head and neck surgical oncology.

The tumor was infiltrating the mastoid, eroding the posterior fossa endolymphatic sac, and posterior semicircular canal, invading the sigmoid sinus, and completely filling the jugular bulb and internal jugular vein. Histopathology confirmed grade 2 CSA.

The tumor was grossly resected and removed from the vasculature. The posterior semicircular canal was plugged, and the sigmoid sinus was packed. The patient's hearing and facial function were preserved. His cranial nerve deficits recovered, including the resolution of dysphagia with clearance for regular diet after swallow therapy. He had post-op vertigo and nystagmus and underwent vestibular rehabilitation. He is being observed with the option of radiosurgery in case of recurrence.

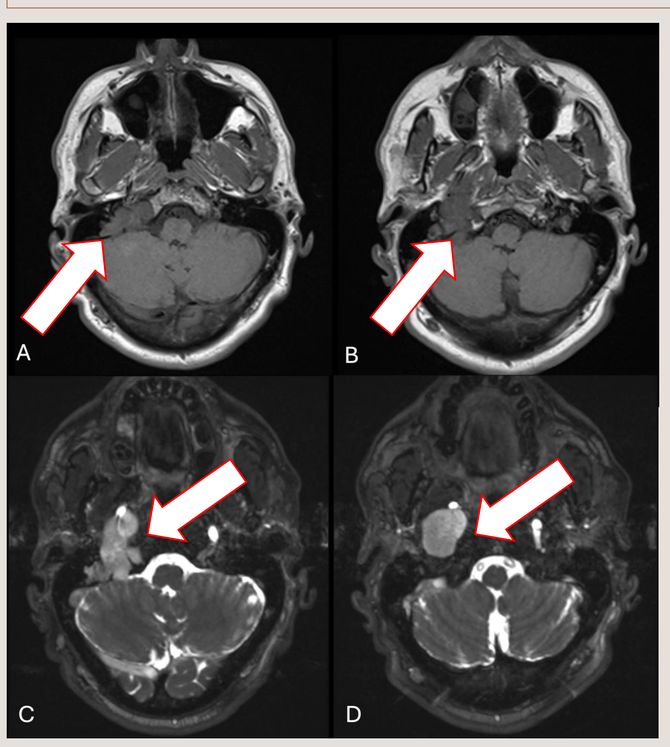


**Image 2**: T1-weighted (A/B) and T2-weighted (C/D) brain MRI

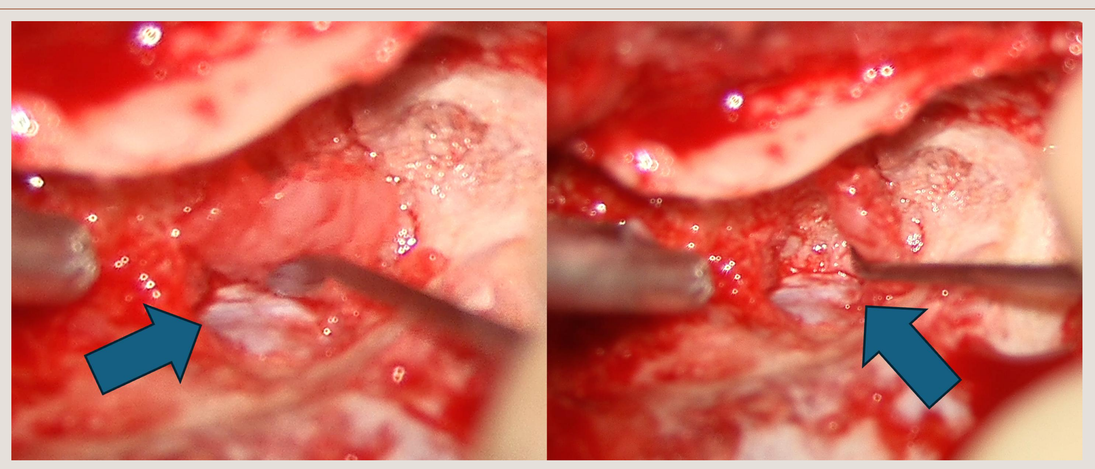

**Image 3**: Intraoperative photos demonstrating removal of the tumor from the posterior fossa dura where it was invading the endolymphatic sac and duct.

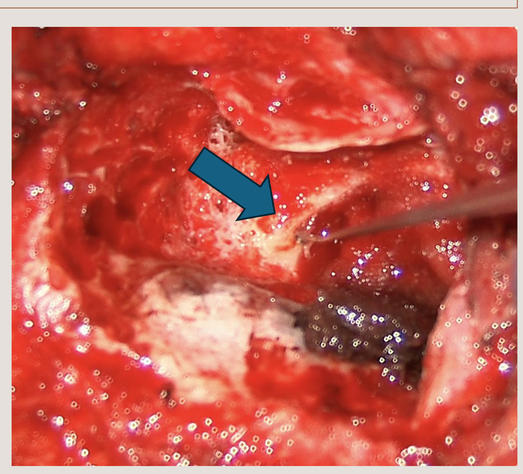

**Image 4**: Intraoperative demonstration of posterior semicircular canal plugging after removal of the invading tumor.

## Review and Conclusions

- It is important to distinguish **primary CSAs** arising in the JF from those **secondarily spread to the JF**, the former of which is much rarer with limited data regarding treatment protocols and patient outcomes [1].
- Most patients present with **various lower cranial nerve deficits** [1].
- Generally, CSAs primarily arising in the JF have a **favorable prognosis** where data is available [1-3].
  - Nine (50%) patients were disease-free at their last follow-up, and another two (11.1%) patients demonstrated residual tumors on imaging without further growth [1-3].
- **No JF CSAs reported in the literature have metastasized**. One (5.5%) patient died secondary to pneumonia in the postoperative period, and one (5.5%) experienced recurrence five years after surgery and died secondary to a brainstem infarct [1-3].
- CSAs primarily arising from the JF are rare, with limited treatment protocol and outcome data. We present a case successfully managed with a **multidisciplinary surgical approach**, leading to **gross total resection with no perioperative complications**.

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**References**