

Glossopharyngeal schwannoma

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Section: Neuroradiology

Area of Interest: Neuroradiology brain

Procedure: Diagnostic procedure

Imaging Technique: MR

Special Focus: Neoplasia Case Type: Clinical Cases

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Patient: 86 years, female

Clinical History:

A 86-year-old woman presented to our hospital complaining of vertigo, tinnitus and gait ataxia dating back 6-7 months. There was history of hypertension and hypothyroidism under medical treatment. No hearing loss or dysphagia was admitted. She was investigated with magnetic resonance imaging (MRI) which revealed the mass.

Imaging Findings:

MRI revealed a well-demarcated, round, solid mass in the right cerebellomedullary cistern, which was hypointense on T1-weighted images (T1WI) and hyperintense on T2-weighted images (T2WI). The mass was conspicuously enhanced on contrast administered T1-weighted image. Based on clinical and imaging features, a diagnosis of schwannoma of the IX or X nerve was made. The patient underwent left retromastoid suboccipital craniectomy and total excision of the tumour. The tumour was found to be attached at the ninth cranial nerve. At the surgery, a large, soft, cystic mass with a fragile capsule was found, occupying the cerebellomedullary cistern. Histopathology of the mass showed Antoni A and Antoni B areas typical of schwannoma.

Discussion:

Neurinomas or schwannomas represent approximately 7-10% of all primary intracranial tumours. [1] The cerebellopontine angle is the most frequent site of origin and the eighth nerve is the most commonly involved. Rarely are other cranial nerves involved, in descending order of frequency it is the fifth nerve, seventh nerve and twelfth nerve. [2]

The usual symptoms of glossopharyngeal schwannomas include hearing loss, tinnitus, vertigo, gait ataxia, headache, nystagmus, hoarseness, palate-pharyngeal and facial hypoesthesia, rarely papilloedema and dysphagia. [3] Symptoms may not manifest until the tumour attains a fairly large size. However, since the posterior fossa is a small compartment, multiple cranial nerves may be affected simultaneously. Palsies of the ninth cranial nerve are unusual and symptoms of ninth nerve dysfunction may not become apparent until there is bilateral involvement. [4] The clinical presentation and radiological findings closely mimic acoustic schwannomas, and the identification of the nerve of origin of the tumour often cannot be established preoperatively. [2] The preoperative clinical evaluation can lead to a suspected diagnosis of involvement of the cerebellopontine or even cerebellomedullary angle and possibly

the jugular foramen, but is otherwise not specific. Radiologic workup, including Computed Tomography (CT), angiography, or plain X-ray, can localise the lesion to the jugular foramen, but again, does not distinguish the particular nerve of origin of the tumour. [5]

Samii and Tatagiba classified tumour extension in relation to the radiological and surgical features into Type A, B, C and D. Type A tumour being primarily located at the level of cerebellopontine angle with minimum enlargement of jugular foramen, type B tumour primarily in jugular foramen with intracranial extension, type C primarily being an extracranial tumour with extension into jugular foramen and type D being a dumb bell-shaped tumour with both intra and extracranial components. [6]

Differential Diagnosis List: Glossopharyngeal schwannoma, Acoustic neurinoma, Schwannoma of the X/XI cranial nerve, Meningioma

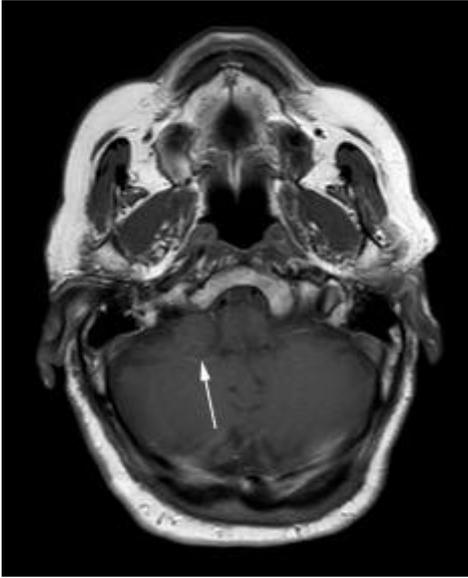
Final Diagnosis: Glossopharyngeal schwannoma

References:

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Figure 1

a



Description: Axial T1-weighted image at the level of the jugular foramen demonstrates a homogeneous extra-axial soft tissue, hypointense, round mass centered in the right cerebellomedullary angle. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

Figure 2

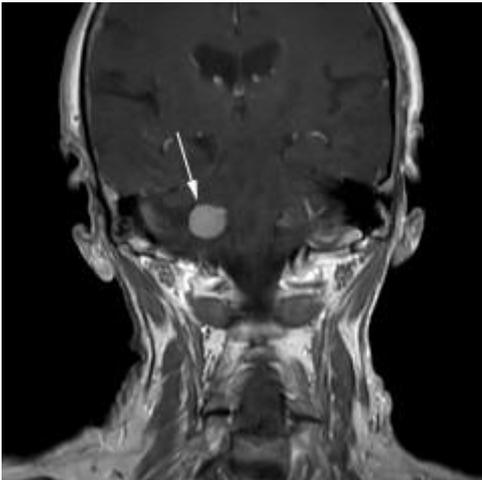
a



Description: Post gadolinium axial T1-weighted image at the same level demonstrates intense and homogeneous enhancement of the well-demarcated, round mass in the right cerebellomedullary angle.

Origin: Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

b



Description: Post gadolinium coronal T1-weighted image shows the intensely enhancing mass in the right cerebellomedullary angle. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

Figure 3

a



Description: Axial T2-weighted image at the same level shows the homogeneous, hyperintense, round mass in the right cerebellomedullary angle. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

b



Description: Coronal T2-weighted image shows the homogeneous, hyperintense, round mass in the right cerebellomedullary angle. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

Figure 4

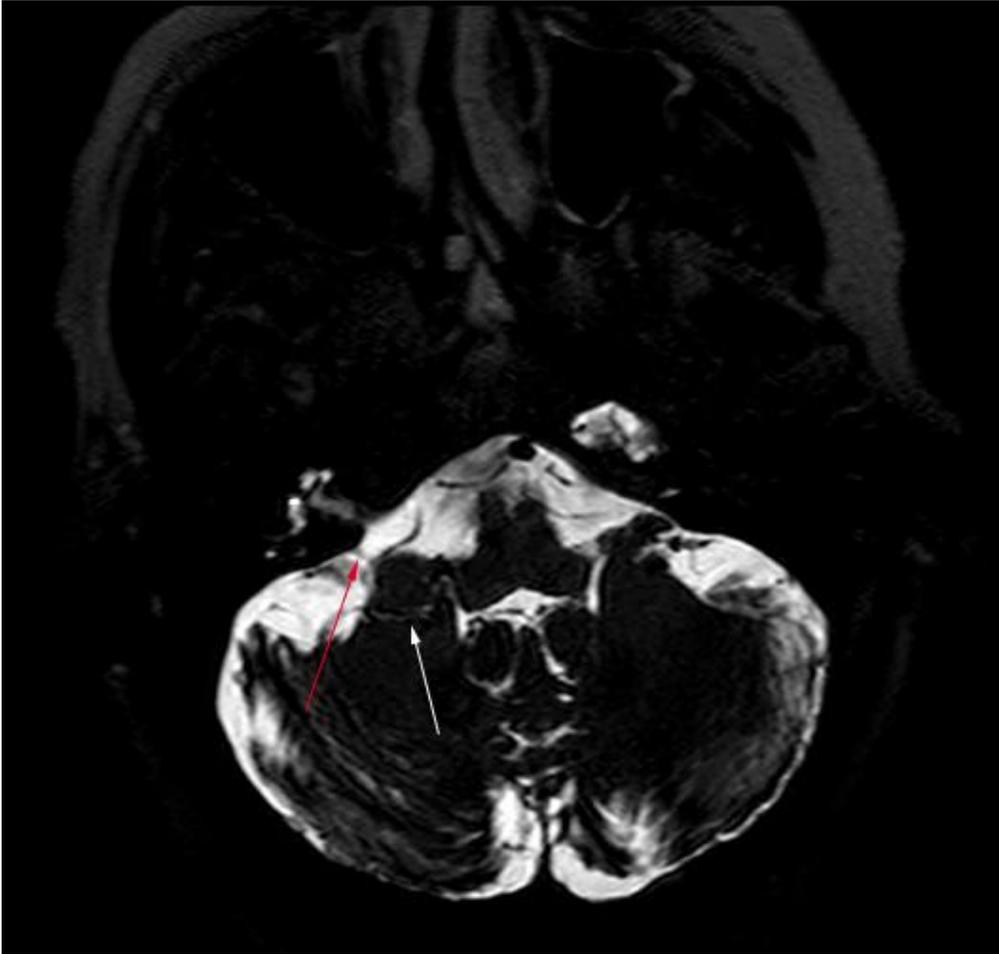
a



Description: Axial fluid-attenuated inversion recovery (FLAIR) image at the same level demonstrates high signal intensity of the mass. **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

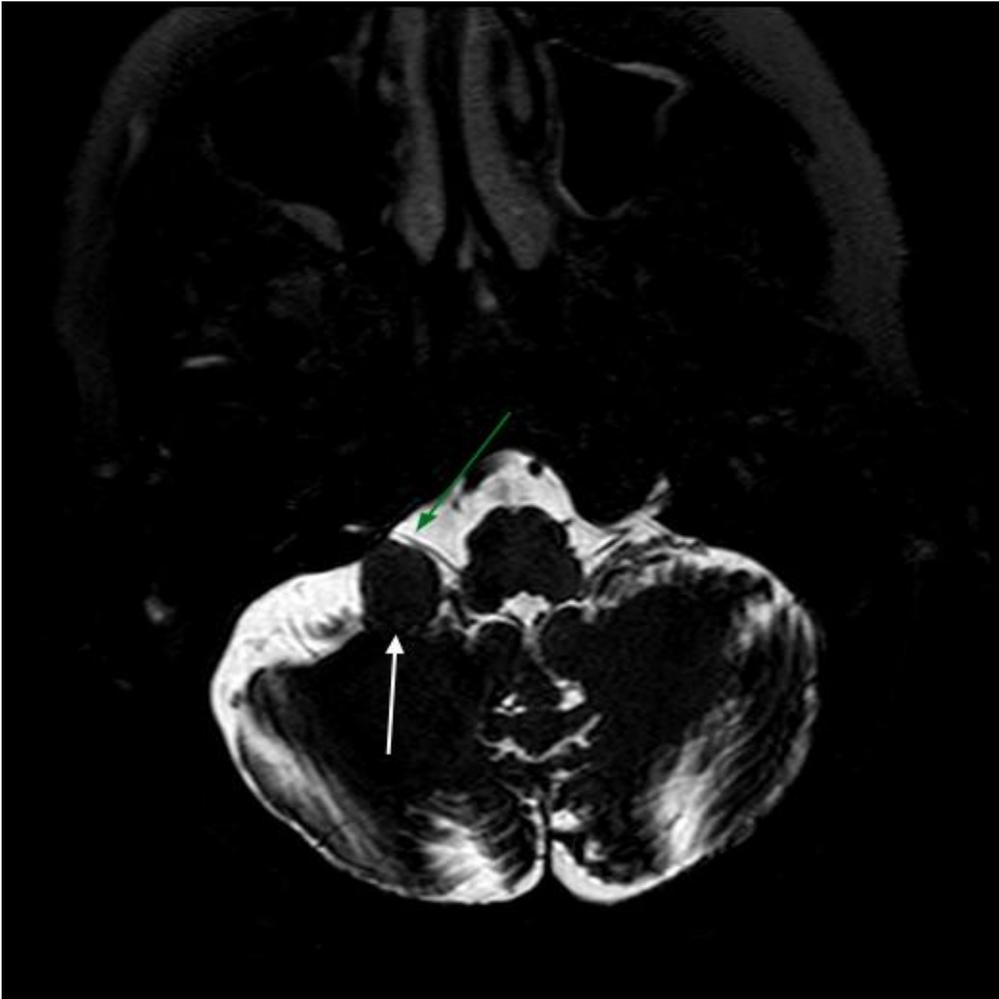
Figure 5

a



Description: Axial T2-weighted 3D Drive image demonstrates the cisternal portion of the glossopharyngeal nerve (red arrow) exiting the mass (white arrow). **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece

b



Description: Axial T2-weighted 3D Drive image. The vagus nerve (green arrow) can be seen anterior to the lesion (white arrow). **Origin:** Department of Radiology, Papageorgiou General Hospital, Thessaloniki, Greece