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Midline Suboccipital Subtonsillar Approach in Semisitting Position for Resection of Jugular Tubercle Meningioma: 2-Dimensional Operative Video

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Abstract

We present a case of a large jugular tubercle meningioma that was removed through a midline suboccipital subtonsillar approach in semisitting position. The patient is a 49-year-old woman with chronic, medication-resistant cephalgias but devoid of any subjective focal neurological deficit. On magnetic resonance imaging (MRI), an extra-axial lesion, originating from the left jugular tubercle was discovered. There was significant obliteration of the peripontine cisternal space, and compression of the adjacent pontomedullary junction; the lesion also extended into the left jugular foramen.

On physical exam, an absent gag reflex was noted on the left, as well as a moderate deviation of the uvula to the contralateral side (partial Vernet's syndrome).

A gross-total resection was achieved, histopathology confirmed a World Health Organization (WHO) grade I angiomatous meningioma with a low-proliferation index. The patient was discharged home 4 days after surgery with intact function of the lower cranial nerves (CN) following immediate and complete resolution of the preexisting partial CNs IX and X deficits. At 2-year follow-up, there was no indication of intradural residual or recurrence.

In summary, the midline suboccipital subtonsillar approach is a simple and effective tool with limited morbidity in the armamentarium for the microsurgical management of pathologies residing in the posterior cranial fossa or the craniocervical junction. Major limitations exist for lesions extending above the internal acoustic canal or those of fibrous consistence featuring widespread adhesion to the ventral brainstem or vascular encasement. Provided the necessary anesthesiological precautions and intraoperative procedures the semisitting position is safe and effective.

The link to the video can be found at: https://youtu.be/bbVXagwhDCo.

Keywords

- suboccipital subtonsillar approach
- jugular tubercle
- meningioma
- jugular foramen
- semisitting position
- operative video

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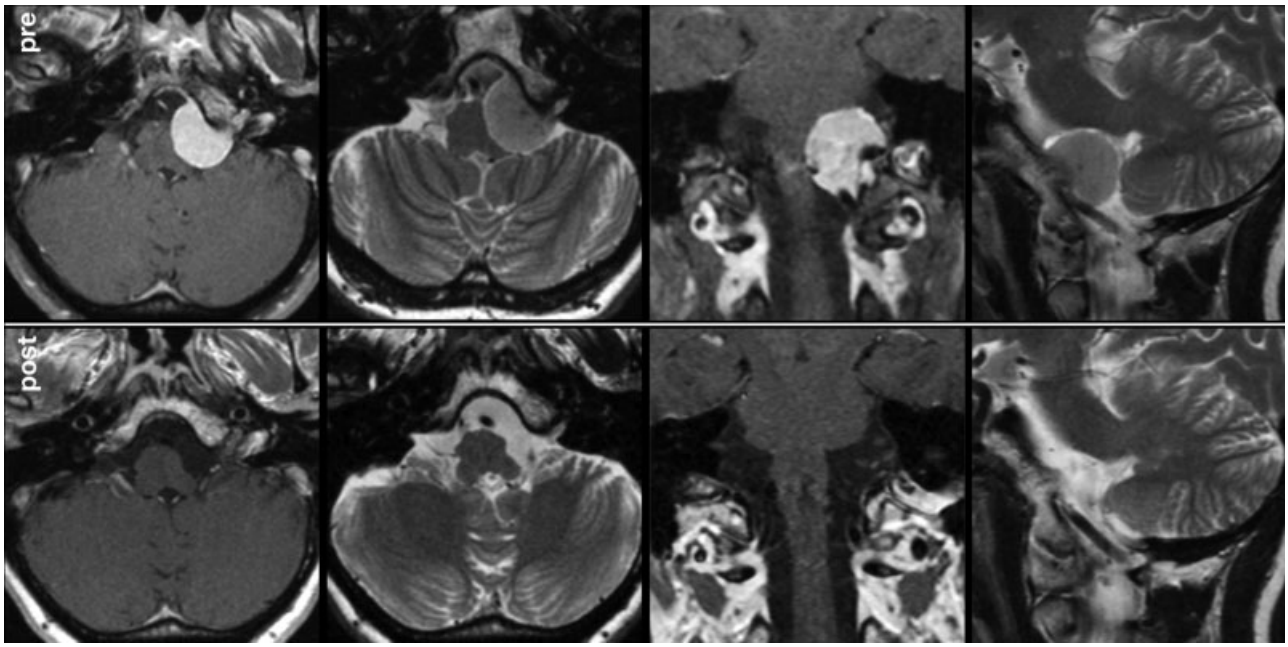

Fig. 1 Pre- and postoperative MRI studies of the meningioma which originates from the left jugular tubercle, occupies substantial cisternal space, and compresses the adjacent pontomedullary junction. MRI, magnetic resonance imaging.

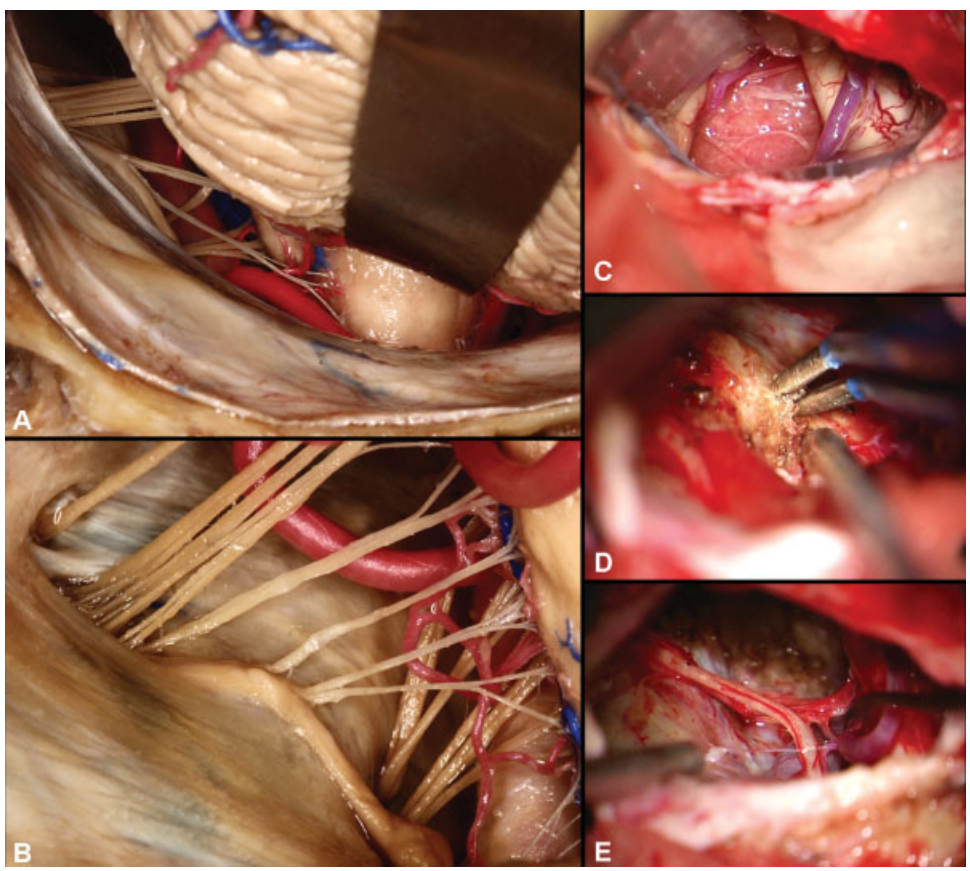

Fig. 2 Anatomical dissections (fixed, silicone-injected human cadaver): **(A)** left-sided suboccipital subtonsillar approach, **(B)** neurovascular structures around the jugular foramen and the hypoglossal canal. Operative still images of a left-sided suboccipital subtonsillar approach: **(C)** between the cerebellar tonsil and the medulla the meningioma is visualized, **(D)** bipolar coagulation of the dural attachment on the jugular tubercle, **(E)** after complete microsurgical excision with preservation of the adjacent neurovascular structures, here the combined craniospinal trunk of the accessory nerve and the telovelotonsillar segment of the posterior inferior cerebellar artery (PICA).

Disclosures
None. The authors have no personal, institutional, or financial interest in any of the materials, drugs, or devices described in this article.

Conflict of Interest
None declared.

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