



Video Abstract

Combined petrosal approach for resection of petroclival chondrosarcoma: Microsurgical 2-D video

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ABSTRACT

Background: Petroclival lesions pose a significant neurosurgical challenge due to involvement or close proximity to important neurovascular structures. Chondrosarcomas are rare lesions that can affect these areas.

Case Description: A 24-year-old male with 3 months history of poor coordination, imbalance, left-sided face hypoesthesia, facial palsy House-Brackmann Grade 2, and 6th cranial nerve palsy with diplopia. Hearing was preserved. Preoperative images showed a 5.5 cm multilobulated enhancing extra-axial mass centered in the left petroclival region with extension into middle and posterior fossa causing severe (Stage 3) brainstem compression.^[1] After a lengthy discussion of treatment options, the patient consented for the procedure. We performed a presigmoid retrolabyrinthine combined petrosal approach. We used cranial nerves monitoring (VII, VIII, IX, X, XI, XII), frameless stereotaxy, and a lumbar drain. Due to the tumor size and location (petroclival region with extension into the posterior and middle cranial fossa), we chose this approach to achieve a maximal safe resection of the tumor and preserve hearing. Alternative approaches of use are expanded middle fossa with transcranial extension or expanded endonasal approach. The selected approach achieved wide exposure of the tumor which was highly vascular. The tumor was carefully dissected off the brainstem, cranial nerves (IV, V, VI, VII, VIII), and basilar artery trunk. A gross total resection was achieved (Multimedia 1). The patient did well after surgery and was extubated on postoperative day (POD) 1 and the lumbar drain removed on POD 5. Pathology reported low-grade chondrosarcoma (WHO grade I). At 3 months follow-up, the patient improved neurologically, including facial nerve weakness (House-Brackmann Grade 1) except for his left 6th cranial nerve palsy which mildly improved.

Conclusion: Petroclival chondrosarcomas are rare tumors that are usually treated with surgical resection followed by stereotactic radiosurgery. The tumor size, location, and extension dictate approach selection. For lesions involving the petroclival region with extension into the middle fossa and posterior fossa, the combined petrosal approach is reasonable.

[Video 1]-Available on:

www.surgicalneurologyint.com

Annotations^[1]

- 1) 0:00:00 – Clinical presentation
- 2) 0:00:19 – Positioning

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- 3) 0:00:25 – Petrosal approach
- 4) 0:01:17 – Superior petrosal sinus section and tentorium section
- 5) 0:02:54 – Tumor resection
- 6) 0:04:25 – Closure
- 7) 0:04:33 – Pathology and outcome

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Declaration of patient consent

Patient's consent not obtained as patients identity is not disclosed or compromised.

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Carlson ML, O'Connell BP, Breen JT, Wick CC, Driscoll CL, Haynes DS, *et al.* Petroclival chondrosarcoma: A multicenter review of 55 cases and new staging system. *Otol Neurotol* 2016;37:940-50.

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