

Fully endoscopic resection of cerebellopontine angle meningioma

Fully endoscopic resection can be used with excellent clinical results as an alternative to the traditional open [retrosigmoid approach for cerebellopontine angle meningioma](#)^{1) 2)}.

A [retrosigmoid craniotomy](#) is done. Upon dural opening, the endoscope is inserted into the operative field along the petrotentorial junction. Cerebrospinal fluid drainage provides a wider space for introduction of the endoscope and surgical instruments. Traditional microsurgical techniques are used during the entire procedure.

Key points

Careful examination of preoperative studies is needed to identify anatomical peculiarities.

Patient positioning: the head must be gently flexed and its vertex gently tilted toward the floor.

Neurophysiologic monitoring and intraoperative navigation.

Craniectomy: partial exposure of the transverse and sigmoid sinuses.

Curvilinear dural incision reflected laterally to minimize the risk of sinus injury.

Opening the cerebellomedullary cistern for CSF drainage and cerebellar relaxation.

Dynamic endoscopy enhances depth perception and must be performed by a team with experience in endoscopic intracranial surgery.

Traditional microsurgical techniques have to be applied during the entire operation.

Multilayer reconstruction, including watertight dural closure.

Meningiomas causing brainstem shift are not suitable for endoscopic resection³⁾.

Case series

Eleven consecutive patients who underwent fully endoscopic resection of a CPA meningioma. Main Outcome Measures Hearing preservation, based on the American Association of Otolaryngology-Head and Neck Surgeons score as well as facial nerve preservation base on the House-Brackmann (HB) score. In addition, the extent of resection and complication rates was studied. Results All 11 patients underwent successful gross total resection, Simpson grade 2, of their meningioma, seen both intraoperatively and on postoperative imaging. Overall, 100% of patients maintained normal facial nerve function (HB 1/6). Audiometric testing revealed that 10 of 11 patients maintained either stable or improved hearing postoperatively based on Committee on Hearing and Equilibrium Guidelines for the Evaluation of Hearing Preservation in Acoustic Neuroma grade with the remaining patient retaining serviceable hearing. Tumor size ranged from 0.5 to 2.5 cm (mean: 1.54 cm). Mean operative time was 166 minutes (range: 122-207 minutes); estimated blood loss averaged 54.5 mL. Hospital length of stay ranged from 2 to 6 days (mean: 3.1 days), and a superficial [wound infection](#) was the

only complication seen in one patient. ⁴⁾.

1) ⁴⁾

Setty P, D'Andrea KP, Stucken EZ, Babu S, LaRouere MJ, Pieper DR. Fully Endoscopic Resection of Cerebellopontine Angle Meningiomas. *J Neurol Surg A Cent Eur Neurosurg*. 2015 Jul 27. [Epub ahead of print] PubMed PMID: 26216738.

2) ³⁾

Vaz-Guimaraes F, Gardner PA, Fernandez-Miranda JC. Fully endoscopic retrosigmoid approach for posterior petrous meningioma and trigeminal microvascular decompression. *Acta Neurochir (Wien)*. 2015 Apr;157(4):611-5; discussion 615. doi: 10.1007/s00701-014-2332-1. Epub 2015 Jan 18. PubMed PMID:25596641.

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