



# Clinoidal Meningioma with Cavernous Sinus Invasion

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## Abstract

We present a 49-year old female presenting headache and progressive right eye visual loss in the last 6 months. Magnetic resonance imaging showed a large clinoidal meningioma on the right side, invading the superior, lateral and medial aspects of the cavernous sinus, the optic canal, and the clinoidal segment of the internal carotid artery (ICA).

A crani-orbital approach was performed. The anterior clinoid process was removed extradurally to achieve devascularization of the anterior clinoidal meningioma, followed by the peeling of the middle fossa to decompress V2 and open the superior orbital fissure. We open the dura in a standard fronto-temporal flap to access the lower portion of the skull base allowing retractorless dissection. We complete the removal of the anterior clinoid process and optic strut through an intradural approach. It allows safer dissection of the clinoidal segment of the ICA and avoids its injury by adherent and hard consistency tumor.

Intraoperative neurophysiological monitoring, sharp dissection, and avoiding the use of bipolar coagulation when dissecting the cavernous sinus are essential to minimize the risk of cranial nerve injury. We also like to point that cranial nerve deficit caused by surgical manipulation without primary lesion of the nerve can be recovered postoperatively.

The link to the video can be found at: <https://youtu.be/ozUCsnUGxyM>.

## Keywords

- meningioma
- anterior clinoid
- cavernous sinus
- sphenoid wing



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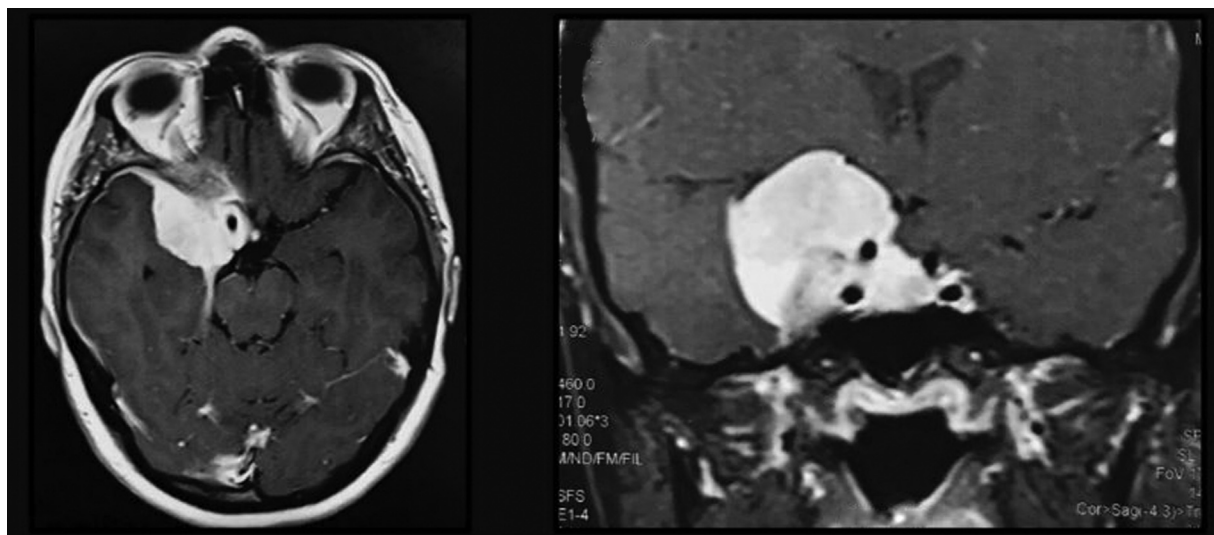
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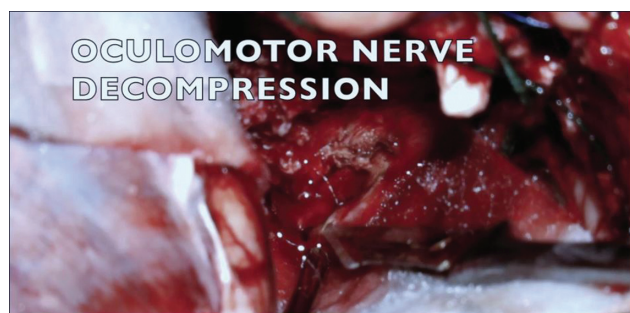
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**Fig. 1** Axial and coronal magnetic resonance imaging show a large clinoidal meningioma on the right side, invading the superior, lateral and medial portion of the cavernous sinus, the optic canal and circumferential involvement of the internal carotid artery. It extends also to the temporal floor.



**Fig. 2** Intraoperative image demonstrating sharp dissection of the oculomotor triangle to release the third nerve.

#### Note

The manuscript has not been previously published or submitted elsewhere for review.

#### Conflict of Interest

None declared.