

Intracranial meningioma surgery

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General information

[Meningiomas](#) are often very bloody. [Preoperative embolization](#) and autologous blood donation may be helpful for specific tumors. General principles of meningioma surgery:

1. early interruption of the [blood supply](#) to the tumor
2. internal decompression (using [ultrasonic aspirator](#), [cautery](#) loops...)
3. dissection of the tumor [capsule](#) from the brain by cutting and coagulating vascular and arachnoid attachments while infolding the tumor into the area of decompression with minimal retraction on adjacent brain
4. removal of attached [bone](#) and [dura](#) when possible.

Indications

[Intracranial Meningioma Surgery Indications.](#)

Preoperative embolization of intracranial meningioma

[Preoperative embolization of intracranial meningioma.](#)

Position

As usual, the head should be elevated $\approx 30^\circ$ above the right atrium.

For meningiomas involving the superior sagittal sinus (SSS):

- for tumors involving the anterior third of the SSS: supine semi-sitting position
- for tumors of the middle third of the SSS: lateral position with the side of the tumor down, the neck tilted 45° toward the upward shoulder
- for tumors of the posterior third of the SSS: prone position.

Sinus involvement

Greenberg IMHO

Attempting to occlude or bypass the middle third of the superior sagittal sinus involved with meningioma is treacherous. Even in expert hands, there is significant risk of venous infarction/sinus occlusion with 8% morbidity and 3% mortality, and complete removal is still not assured. Venous drainage may occur through the dura adjacent to the sinus, in the skin, bone of the skull and even the tumor itself may participate. It is almost always preferable to leave residual tumor and consider treating it with radiation therapy than to precipitate venous infarction.

Meningioma surgery - Are we making progress? ¹⁾.

Main goal of meningioma surgery is to obtain the complete tumor [resection](#) in order to reduce the recurrence rate but preserving or improving the patient's neurological functions ²⁾

In many cases this is a difficult achievement, because of the risk of damages to arteries, sinuses, cranial nerves or other neighbors relevant structures. Surgical morbidity and mortality are mainly related to tumor location and volume ³⁾.

see [Intraoperative ultrasound in intracranial meningioma](#).

see [5-aminolevulinic acid fluorescence guided resection of intracranial meningioma](#).

Duraplasty

[Duraplasty](#) using a nonsutured [graft](#) and sutured [dural repair](#) exhibit similar [postoperative outcomes](#) for patients undergoing supratentorial [meningioma surgeries](#). Although [dural sutured](#) grafts may sometimes be necessary, nonsutured graft reconstruction for most supratentorial meningioma resections may suffice. The decreased operative time associated with nonsutured grafts may ultimately result in cost savings. These findings should be taken into consideration when selecting a

dural [reconstruction](#) technique for supratentorial meningioma ⁴⁾

Outcome

see [Intracranial meningioma surgery outcome](#).

Complications

[Intracranial meningioma surgery complications](#)

References

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