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Surgical Anatomy & Approach Selection: Case Images & Positioning

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Abstract: ***Tentorial meningiomas are intracranial tumors arising from the tentorium cerebelli, presenting significant surgical challenges due to their proximity to critical neurovascular structures, venous sinuses, cranial nerves, cerebellum, and brainstem. Their anatomical location and extension into the supratentorial or infratentorial compartments influence surgical planning and the selection of an appropriate operative approach. This case-based presentation examines the surgical anatomy, preoperative assessment, patient positioning, and microsurgical strategies involved in managing tentorial meningiomas. Particular emphasis is placed on magnetic resonance imaging and venous imaging to evaluate tumor attachment, compartmental extension, vascular relationships, and potential involvement of the transverse and sigmoid sinuses. Surgical approaches, including occipital, suboccipital, combined supratentorial-infratentorial, retrosigmoid, and presigmoid corridors, are considered according to tumor location and surrounding anatomical structures. Careful preoperative planning, preservation of venous drainage, appropriate patient positioning, and tailored surgical exposure are essential considerations for minimizing neurological complications. The discussion highlights the importance of individualized operative strategies, meticulous microsurgical dissection, and postoperative assessment in the management of these complex lesions. Comprehensive documentation of surgical findings, extent of resection, histopathological characteristics, and clinical outcomes remains necessary for evaluating treatment effectiveness and guiding subsequent management.***

Keywords: Tentorial Meningioma, Microsurgical Management, Surgical Anatomy, Preoperative Planning, Venous Sinus Preservation

Background & Objective
Tentorial meningiomas arise from the tentorium cerebelli and may extend into the supratentorial compartment, posterior fossa, or both. Their surgical management is shaped by tumor location, relationship to the transverse/sigmoid sinuses and torcula, and proximity to the brainstem, cerebellum, cranial nerves and major vessels.

Objective
To present the clinical, radiological and operative decision-making in a tentorial meningioma, emphasizing positioning and tailored exposure.

Tentorial meningiomas are commonly described by their relation to the tentorial edge and their supratentorial / infratentorial extension. The approach should provide a safe line of sight while protecting venous drainage and adjacent neurovascular structures.

Potential corridors, selected by anatomy:
- Occipital / suboccipital or combined supra-/infratentorial exposure
- Retrosigmoid or presigmoid corridor for selected lateral lesions
- Supratentorial routes for selected incisural or tentorial-surface lesions

The supplied figure suggests a combined lateral occipital–suboccipital concept; confirm the actual operative approach for this case.

Clinical Presentation
- Age/ Sex: 50Y/Female
- Presenting symptoms and duration: Headache for 2 Months
- Neurological examination: WNL
- Relevant comorbidities / prior treatment: None
- Preoperative functional status: No Neurological Deficit

Clinical Pearl
No cerebellar signs,
No cranial nerve deficits

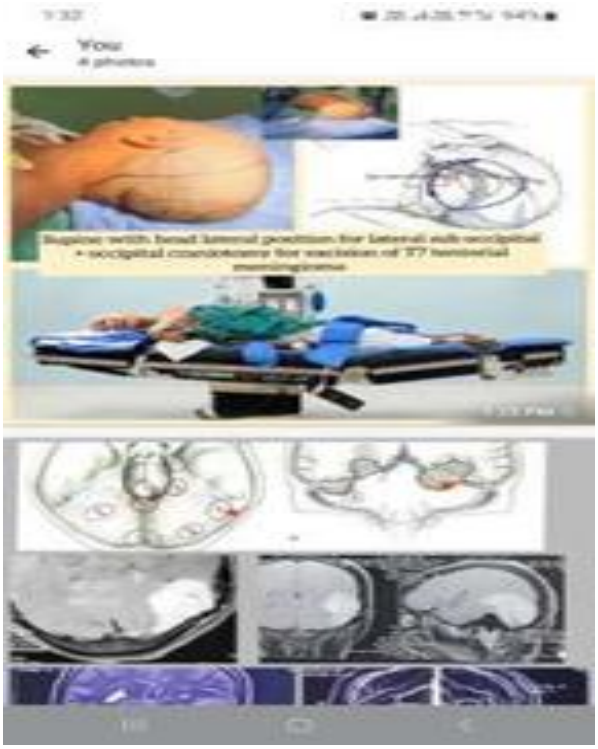


Figure 1: Supine, head turned laterally; proposed lateral suboccipital + occipital exposure shown in supplied reference image.

Date of surgery: 11/09/2026
Surgeon/ team: Dr. K. B. Shankar, Dr. Sushant Dutta, Dr. Apoorva Chugh
Extent of resection: GTR
Simpson grade 3 Intraoperative complications: None
Neuromonitoring: not used

Radiology & Work-Up

MRI brain with gadolinium:

- Site of dural attachment: tentorial surface
- Maximum dimensions: [55× 42× 40mm]
- Supra-/infratentorial extension: both
- Edema, mass effect and hydrocephalus: significant perilesional edema with mass effect, but no hydrocephalus
- Brainstem / cranial nerve / vessel relationship: none

MR venography / venous imaging:

- Transverse and sigmoid sinus patency: patent
- Torcular involvement / collateral drainage: no tprcular involvement

Preoperative Planning

- Review thin-slice contrast MRI in axial, coronal and sagittal planes.
- Define tumor epicenter, dural attachment and compartments involved.
- Assess venous sinus invasion versus compression; preserve critical venous outflow.
- Select exposure according to lateral/medial position, extension and vascular anatomy.
- Discuss risks, expected extent of resection and alternatives with the patient.

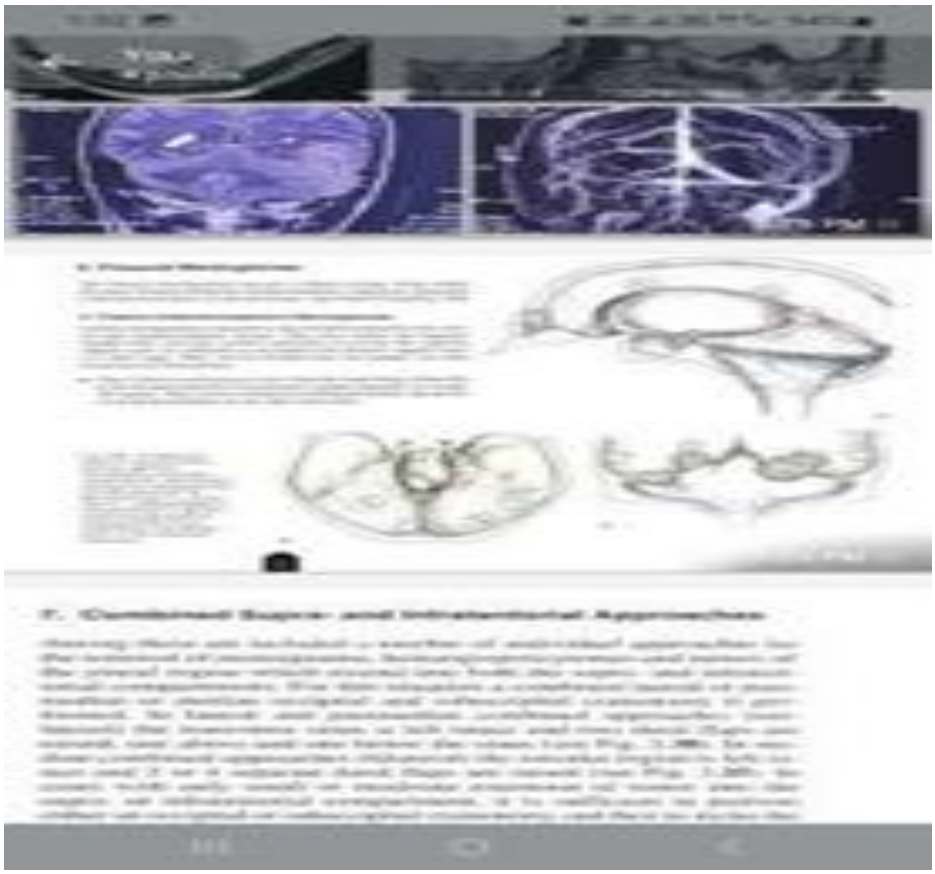


Figure 2: Supplied images include tentorial topography and MRI/MRV screenshots. Replace with original DICOM exports for publication-quality labeling.

Postoperative Course & Follow-Up

Planned approach: Supine, head turned laterally; lateral suboccipital + occipital
Position: Supine, head turned laterally
Craniotomy / craniectomy: lateral suboccipital + occipital craniectomy
Intraoperative findings: Highly vascular tumor
Resection: gross total resection

Closure

Histological diagnosis: grade 2 meningioma
WHO CNS grade (current classification): grade 2 meningioma
Immunohistochemistry / molecular markers, if performed: -
Ki-67 / proliferative index: -

Immediate neurological status: intact
Postoperative MRI (timing): 3 months postop
New deficits / CSF leak / venous complications / other events: none
Discharge status and date: neurologically intact
Adjuvant radiotherapy / radiosurgery: -

Take-Home Messages

- Map venous anatomy before selecting the corridor.
- Tailor exposure to tumor epicenter and compartmental extension.
- Record extent of resection, pathology and longitudinal outcome.