



Anesthetic Management of Vaginal Delivery in a Pregnant Patient with Symptomatic Intracranial Meningioma

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Background

Intracranial meningiomas in pregnancy present unique challenges for obstetric anesthetic management. Symptomatic cases are rare and require a multidisciplinary, individualized approach.

Key considerations:

- The safety of neuraxial anesthesia
- The conduct of labor, including second-stage pushing
- The optimal timing of delivery relative to surgical intervention

Case Presentation

We present the anesthetic and obstetric management of a pregnant patient with a symptomatic intracranial meningioma who underwent vaginal delivery under epidural analgesia prior to postpartum tumor resection.

Clinical Findings

- 39-year-old G4P3003, 34+6 weeks gestation
- Presenting complaint: several-month history of left-sided vision loss — initial painless loss of central vision progressing to total left-sided vision loss
- Brain MRI: extra-axial mass along the central-to-left planum sphenoidale/tuberculum sellae region, $\sim 2.2 \times 1.9 \times 1.3$ cm, consistent with intracranial meningioma
- Lesion caused compression and lateral displacement of the pre-chiasmatic left optic nerve and abutted the left ventral surface of the optic chiasm
- Ventricles, cisterns, and sulci age-appropriate; no midline shift, intracranial hemorrhage, or extra-axial collection
- Neurologic symptoms limited to progressive visual deficits

Multidisciplinary discussion: neurosurgery, maternal-fetal medicine, and obstetric anesthesia → decision to proceed with induction of labor and delivery prior to neurosurgical intervention



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Case Management				
Presentation	MRI Findings	MDT Discussion	Induction & Delivery	Postpartum Day 5 & Outcome
34+6 weeks gestation - Progressive left-sided vision loss	- Extra-axial mass ~2.2×1.9×1.3 cm - No midline shift - Optic nerve compression	Neurosurgery, MFM & OB Anesthesia consensus: delivery before neurosurgery	- Labor induced at 35 weeks - Vaginal delivery under epidural analgesia	- Left craniotomy - No residual tumor on MRI 7–8 mm subdural collection - Minimal mass effect - No midline shift or hydrocephalus

Anesthetic Management & Rationale

Epidural Analgesia for Labor and Delivery

- Neurological deficits were stable and focal in nature
- The intracranial lesion was characterized as having only localized mass effect — conferring minimal risk of herniation in the event of inadvertent dural puncture during neuraxial anesthesia placement or with Valsalva during delivery
- Imaging-based risk assessment supported the safe use of neuraxial anesthesia in this patient

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Discussion

- This case highlights anesthetic, obstetric, and neurosurgical considerations in the management of a pregnant patient with a symptomatic intracranial meningioma, a tumor whose growth is significantly influenced by the hormones of pregnancy
- Key factors supporting the management plan: (1) analysis of neurological deficits and (2) imaging characterization of intracranial lesion
- This case underscores the importance of individualized, imaging-based risk assessment and multidisciplinary collaboration when considering neuraxial anesthesia and delivery planning in patients with intracranial pathology

Conclusion

Epidural analgesia for vaginal delivery can be safely performed in select parturients with intracranial meningioma when guided by individualized, imaging-based risk assessment and multidisciplinary collaboration. This case supports a patient-specific approach that balances maternal neurologic safety with optimal obstetric outcomes.