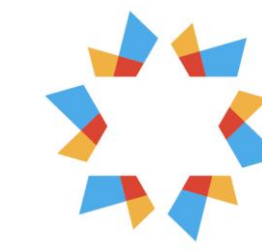


When the Aqueduct Is Closed: Anesthetic Decision-Making for Cesarean Delivery in Non-Communicating Hydrocephalus

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Background: Aqueductal Stenosis & Anesthetic Considerations

Pathophysiology

- ❖ Blocked CSF flow from 3rd to 4th ventricle
- ❖ Causes triventricular hydrocephalus
- ❖ Alters intracranial compliance

Anesthetic Risks

- ❖ Fixed skull volume (Monro-Kellie doctrine)
- ❖ Neuraxial techniques induce dangerous CSF shifts
- ❖ Risk of severe pressure gradients and herniation

Anesthetic Management

- ❖ General Anesthesia (GA) avoids CSF perturbation
- ❖ Regional fascial plane blocks added for analgesia
- ❖ Provides effective, opioid-sparing pain control

CEREBROSPINAL FLUID (CSF) PATHWAY: AQUEDUCTAL STENOSIS

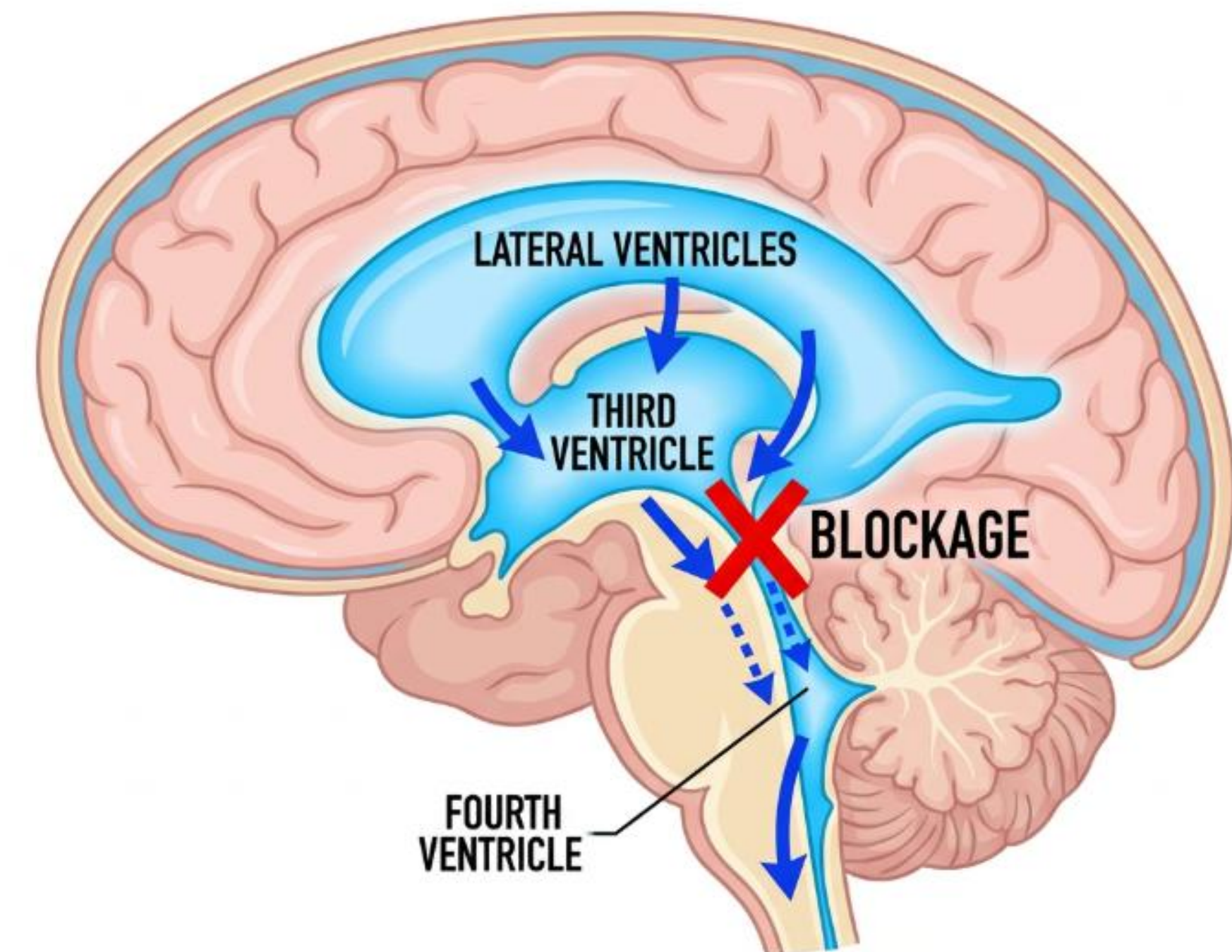


Figure: Disrupted CSF circulation pathways in obstructive hydrocephalus

The Case: Elective Repeat Caesarean Delivery

Patient Profile & Planning

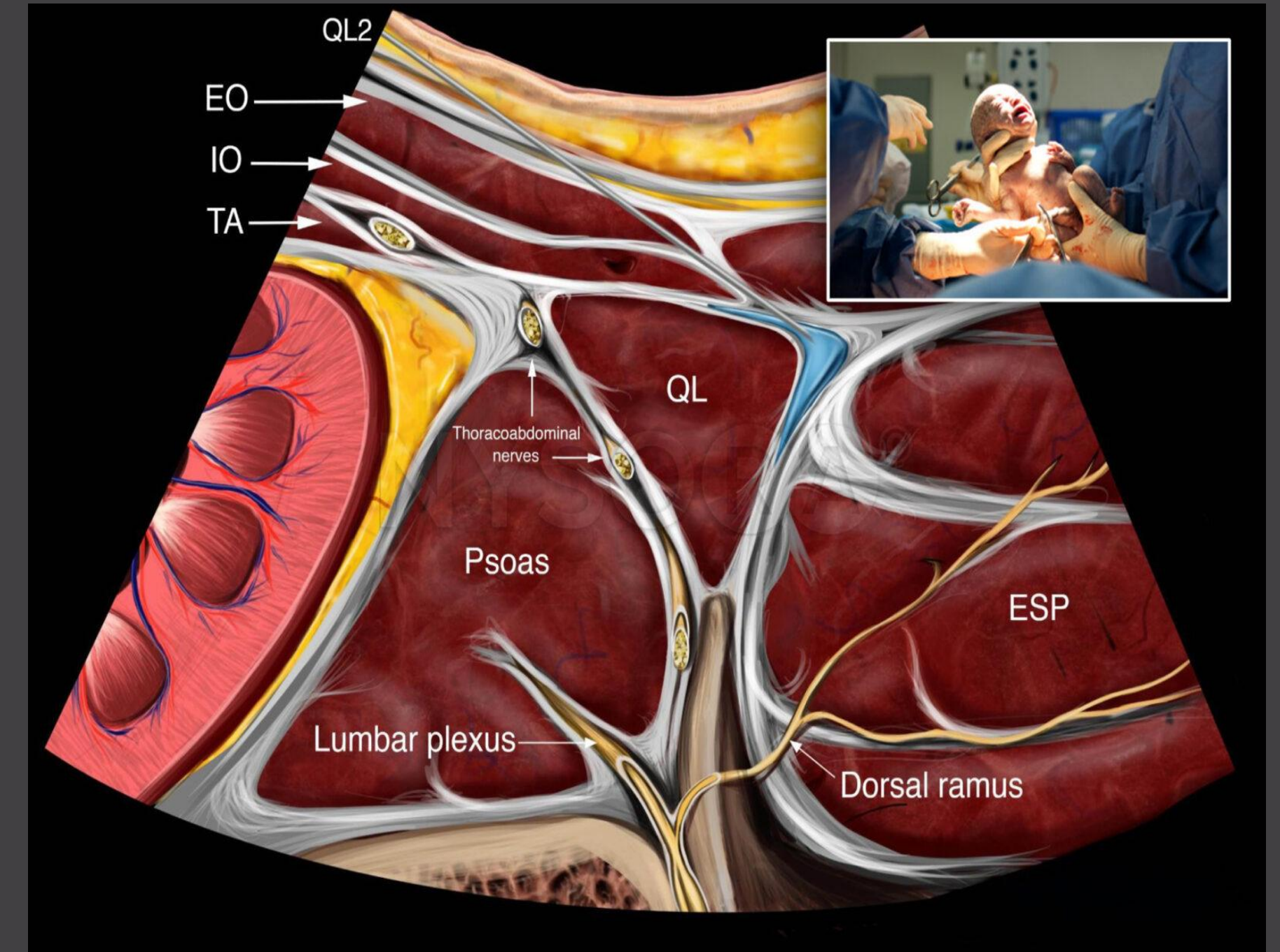
- **Patient:** 39 year old G3P1 at 39+6 weeks gestation
- **Diagnosis:** Congenital aqueductal stenosis with compensated triventricular hydrocephalus
 - serial MRI stable
 - no signs of raised ICP & no CSF diversion.
- **PMHx/PSHx:** hypothyroidism, iron deficiency, prior Cesarean (2023) under GA due to neuraxial concerns.

Anesthetic Plan and Rationale

- **Multidisciplinary decision** for general anesthesia (GA) given obstructed CSF pathways and theoretical neuraxial risk.
- **Opioid-sparing analgesia:** bilateral ultrasound-guided posterior quadratus lumborum (QL) blocks + multimodal regimen.

Course and Outcome

- **Uncomplicated induction and surgery;** QL blocks placed after surgical closure.
- **Satisfactory analgesia** with minimal opioids



NYSORA. Comparing posterior quadratus lumborum block and intrathecal morphine for pain relief after scheduled cesarean section [Internet]. 2024 [cited 2026 Apr 4]. Available from: <https://www.nysora.com/education-news/comparing-posterior-quadratus-lumborum-block-and-intrathecal-morphine-for-pain-relief-after-scheduled-cesarean-section/>

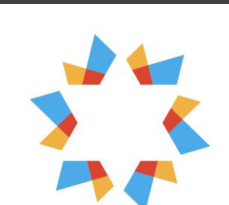
Teaching Points & Clinical Takeaways



- ❖ **Assess Neuraxial Risks:** Evaluate potential for CSF pressure gradients.
- ❖ **Utilize General Anesthesia:** A safe alternative when neuraxial is contraindicated.
- ❖ **Implement Multimodal Analgesia:** Add QL blocks for opioid-sparing pain relief.
- ❖ **Collaborative Care:** Multidisciplinary planning and shared decision-making are essential.

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