

Case

Our patient is a 43-year-old G3P2 at 33 weeks gestation who presented for urgent repeat cesarean delivery due to contractions. She was positive for amphetamines on presentation and had multiple comorbidities.

Single-shot spinal anesthetic was delivered with a 25-gauge Pencan needle without difficulty. Delivery was uncomplicated. Four hours post-operation, patient remained in PACU due to persistent lower extremity numbness and paralysis. Evaluation confirmed dense T10 sensory and motor deficits.

Course of Action

- Prompt workup for spinal cord compression by hematoma
- MRI, if available, or CT lumbar spine
- Neurology consult
- Vigilant monitoring (False negatives on imaging have occurred)

Prolonged spinal anesthesia in a patient with lumbar stenosis and amphetamine use

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Expected duration of spinal anesthesia with hyperbaric bupivacaine

Plain	90-110 min
With Epinephrine	100-150 min

Differential diagnosis

- Neuraxial hematoma
- Direct trauma
- Drug error
- Transient radicular irritation (primarily sensory)
- Anterior spinal artery syndrome (primarily motor)
- Prolonged anesthetic (*diagnosis of exclusion*)

Clinical Outcome

- MRI: Negative for acute pathology. Severe L5-S1 disc herniation with 7 mm canal protrusion and moderate canal stenosis.
- Gradual resolution of symptoms was reassuring. There was complete resolution at sixteen hours post-spinal.

Neal JM, Bernards CM, Hadzic A, Hebl JR, Hogan QH, Horlocker TT, Lee LA, Rathmell JP, Sorenson EJ, Suresh S, Wedel DJ. ASRA Practice Advisory on Neurologic Complications in Regional Anesthesia and Pain Medicine. Reg Anesth Pain Med. 2008 Sep-Oct;33(5):404-15.
Yentis SM, Lucas DN, Brigante L, Collis R, Cowley P, Denning S, Fawcett WJ, Gibson A. Safety guideline: neurological monitoring associated with obstetric neuraxial block. Anaesthesia. 2020; 75: 913-919.
Higuchi H, Hirata J, Adachi Y, Kazama T. Influence of lumbosacral cerebrospinal fluid density, velocity, and volume on extent and duration of plain bupivacaine spinal anesthesia. Anesthesiology. 2004; 100:106-14.

Discussion

- Lumbosacral canal stenosis likely contributed to 16-hour duration of spinal anesthesia due to decreased CSF volume and delayed diffusion of local anesthetic.
- We identified no literature on how systemic vasoconstrictors (such as methamphetamines) affect the duration of neuraxial anesthesia.

Conclusion

- While rare, neuraxial hematoma is the most common cause of permanent post-neuraxial spinal cord injury.
- Permanent damage may occur in 8-12 hours.
- Evaluation is indicated if patient is unable to perform straight leg raise at 4 hours from last dose.
- New or progressive deficits after initial recovery are pathognomonic for neuraxial hematoma.