

Background

High neuraxial block, or high spinal, is the most frequent serious complication in obstetric anesthesia.¹

It is characterized by excessive cephalad spread of local anesthetics, either through the intrathecal or epidural route. This leads to an uncomfortable sensation of tingling fingers, shortness of breath, and may eventually result in respiratory insufficiency, apnea, and ultimately in cardiac arrest.²

Learning Objective

To develop a succinct differential and effective interventions for peripartum post-spinal seizure-like activity.

Case Presentation

34-year-old G3P1011 female at 39w4d gestation. Scheduled for elective cesarean section due to severe fetal growth restriction at her prenatal clinic visit.

The patient was brought to the OR where spinal anesthesia was placed at L4 – L5 level containing 12mg bupivacaine, 15mcg fentanyl, 0.1mg morphine, and 0.1mg epinephrine.

Shortly after lying supine, the patient became diaphoretic and complained of shortness of breath with chest pain, diaphoresis, and hypotension to 43/32.

The patient then proceeded to have seizure-like activity characterized by shaking posturing of arms and altered consciousness that resolved spontaneously in less than one minute.

Perioperative Management

The hypotension was treated with IV epinephrine, a 2000mg bolus of magnesium sulfate was administered, and a STAT cesarean delivery was initiated. Shortly after an uncomplicated delivery, the patient began experiencing similar symptoms and became hypotensive. The spinal anesthesia level at that time was T2-T3. Her symptoms improved with reverse Trendelenburg positioning.

Differential Diagnosis and Work-Up

Differential Diagnosis	Convulsive Syncope	New-onset Seizure	Pre-eclampsia
Reasoning	Likely secondary to a high spinal. Prodrome of hypotension with shortness of breath and chest pain support this differential.	Bupivacaine has been linked to seizure activity ³ , but unlikely given the low dose. The lack of prior ictal risk factors makes this differential less likely.	Limited prenatal care makes blood pressure tracking throughout pregnancy unavailable, thus cannot rule out an indolent case of pre-eclampsia. However, low suspicion for an eclamptic seizure due to lack of elevated prenatal blood pressure.
Workup	Reverse Trendelenburg positioning.	Neurology consulted. CT and MRI showed no evidence of acute hemorrhage, mass, or hydrocephalus, ruling out any structural etiologies.	2000mg bolus of Magnesium Sulfate and STAT cesarean delivery.

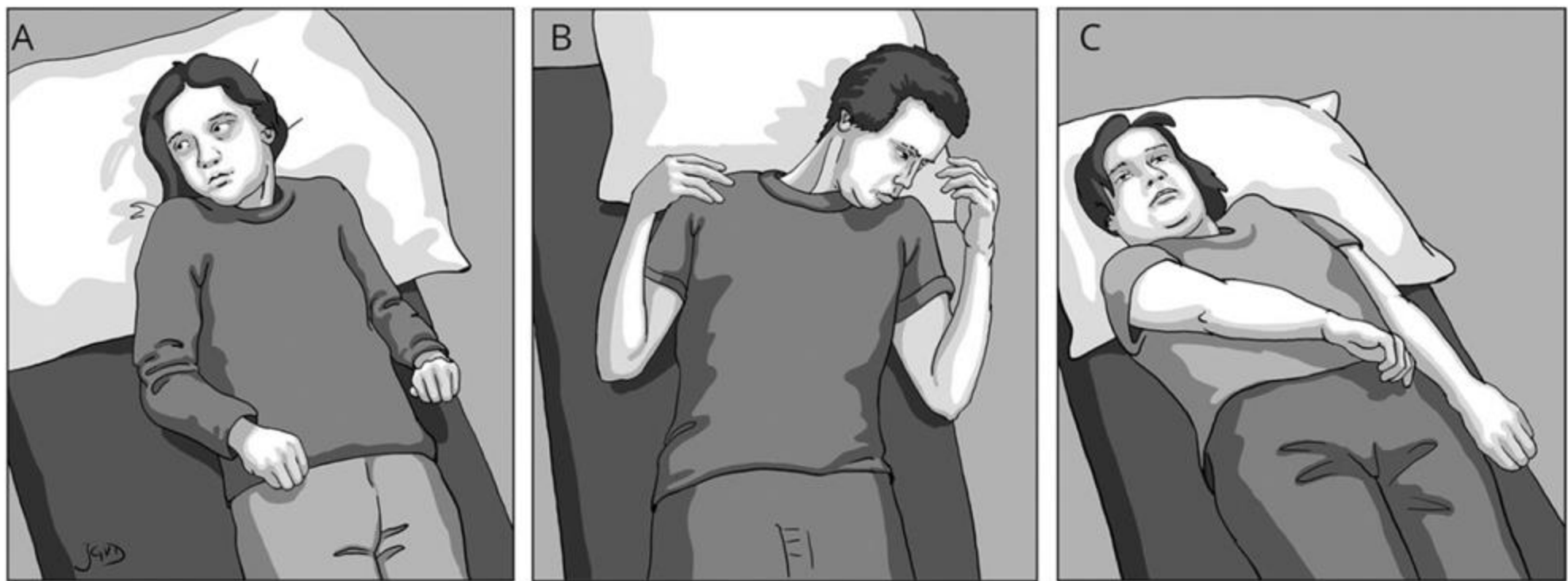


Figure 1. ⁴

Figure 1 shows the motor presentation of convulsive syncope, similarly to the patient who experienced decorticate-like posturing, rather than actual seizure induced shaking.

Discussion

Though the etiology of this patient's seizure-like activity was likely secondary to a high spinal causing hypotension, all possible differentials had to be emergently covered. Although rare, spinal anesthesia does carry the risk of developing generalized tonic-clonic seizures, respiratory depression, and loss of consciousness³. Bupivacaine has more central nervous system and cardiovascular system side effects than newer local anesthetics such as levobupivacaine and ropivacaine⁵, so it is possible that the seizure activity was related to the bupivacaine toxicity, though unlikely given the dose.

The pathophysiologic mechanisms underlying convulsive syncope encompass alterations in the autonomic nervous system leading to reduced cardiac output, vasodilatation, and bradycardia, finally resulting in low blood pressure and cerebral hypoperfusion.⁴ A recent study that evaluated the difference in motor symptoms in convulsive syncope vs convulsive seizure found that the syncope cases were notable for loss of tone, while this was not observed in any convulsive seizure.⁴

This case shows an uncommon emergent complication during a routine procedure whose differential results in multiple necessary interventions. In this case, the priority was to deliver the baby since, regardless of the etiology, the fetus was not being properly perfused.

References

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