

# Grand Mal Seizure Following Standard Epidural Test Dose

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- Epidural test dosing in obstetrics is designed to detect inadvertent intravascular or subarachnoid injection while minimizing risk to the mother and fetus
- The standard test dose of lidocaine 45 mg with epinephrine 15 mcg is considered safe and effective
- We present a rare case of seizure following standard epidural test dosing in a parturient

# Case Presentation

A 36-year-old primigravida presented for labor induction, requesting analgesia

→ An epidural was placed in the sitting position using loss of resistance to air

→ Initial dosing consisted of bupivacaine 0.125% with fentanyl 2 mcg/mL, given in two 3 mL boluses through a Tuohy needle. A 19G Springwound multi-port epidural catheter was threaded, with negative aspiration for blood and CSF

Within seconds of a standard test dose, the patient reported dizziness, followed by right leg jerking that progressively involved more of her body

→ She became slow to respond and experienced seizure activity  
→ Lorazepam 2 mg IV was administered; however, seizures recurred

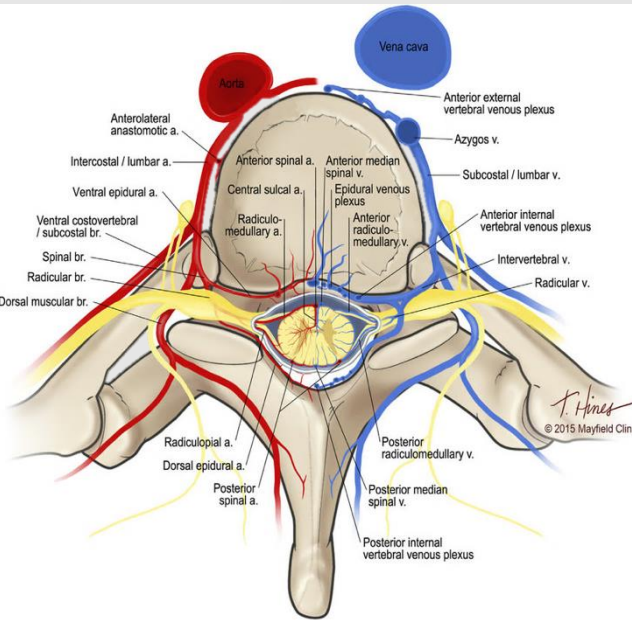
→ Given the urgency, the obstetric team proceeded with emergency cesarean delivery under general anesthesia. The fetus remained stable throughout

After intubation with propofol and succinylcholine, the neonate was delivered with 9/10 APGAR scores

→ The surgical course was uneventful. The patient was extubated and fully responsive

→ A post-operative seizure evaluation was negative

# Discussion



- Despite negative aspiration, systemic local anesthetic toxicity immediately following the test dose likely caused the seizure
- Aspiration is unreliable (+ blood aspiration has a 97.9% specificity, however, sensitivity of only 44.7%)
- The standard test dose (lidocaine 45mg given through the catheter) is well below the known toxic threshold as was the small dose of bupivacaine (7.5mg) given through the Tuohy needle earlier. Bolus dosing of lidocaine 100 mg or bupivacaine 25 mg have been described as safe "signs and symptoms" IV test doses
- Previous reports of seizures following a standard test dose are scarce
- Two cases exist in non-obstetric literature: one after a cervical transforaminal injection proven to be intraarterial (vertebral artery) and another following a lumbar epidural in a 50 kg patient
- The radicular spinal arteries are contiguous with the vertebral and basilar arteries, making lumbar intraarterial injection a possible mechanism for toxic levels in the brain
- Additionally, seizure activity has been reported in patients receiving epidural ropivacaine despite subtoxic systemic concentrations, suggesting possible individual sensitivity to local anesthetics

## Conclusion

- **Seizure after epidural test dosing is extremely rare but must be considered a possibility**
- **Anesthesia providers should remain vigilant and prepared to manage such an event, including helping to coordinate higher levels of care and disclosing the events to the patient/family**

## References

