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Unexpected High Epidural Anesthesia In a Patient with Epidural Placed In Head Down Knee Chest Prone position

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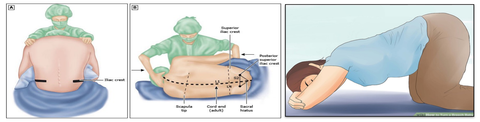
Introduction

Epidural anesthesia is a type of neuraxial anesthesia; local anesthetic (LA) is injected into the epidural space to anesthetize the spinal nerve roots that traverse the space.

Use: Anesthesia of abdominal, pelvic, and lower extremity procedures and, less commonly, thoracic procedures.

Epidural analgesia most common procedure for labor analgesia.

Positions: Sitting, Lateral, Prone, Knee chest head down position.



Technique: Single-shot or continuous epidural analgesia/anesthesia.

Adverse Effects: For labor and delivery are generally very safe, but all interventions are associated with adverse effects.

Local anesthetic systemic toxicity, inadequate anesthesia, motor block, high neuraxial block, postdural puncture headache, pneumocephalus, spinal epidural hematoma, respiratory depression, backache, postpartum neuropathy, severe infection — epidural abscess and meningitis.

Total or High spinal anesthesia can be a complication of epidural anesthesia in obstetric patients.

Signs: Dyspnea, weak grip strength, unable to phonate, respiratory compromise, hypoxemia, hypotension, and cardiac arrest.

Case Description

- A 29 year old, G6P2123, at 40 weeks gestation presented in labor and was admitted for TOLAC..
- No comorbidity, except h/o gestational thrombocytopenia and one prior cesarean section.
- Patient was in **head down, knee chest position** due to fetal heart decelerations and requested epidural.
- **Position of patient:** head down- knee chest.
- **Technique-** "Loss of resistance to saline" at the L3-L4 intervertebral space on first pass, 20 G catheter inserted and after negative aspiration fixed at 10 cm.
- Following a negative test dose an infusion of 0.125% bupivacaine with fentanyl 2mcg/ml was started at the rate of 10 ml/hr.

15 Minutes later: Call for **Emergency Cesarean Section**:

- Epidural level at T8, 10 ml of 3% chloroprocaine given through the epidural catheter.
- **5 minutes later:** Level at T6, another 5 ml of 3% chloroprocaine given.
- Patient turned to supine position from head down knee chest in OR.
- **10 minutes later:** The patient had difficulty speaking and breathing. Hand grip assessment was 4/5.
- Assisted bag mask ventilation with 100% oxygen started.
- Aspiration through epidural catheter returned only 3 ml of injected drug.
- Patient's blood pressure was maintained with intravenous phenylephrine.
- To relieve her anxiety 2 mg of midazolam were given intravenously.
- **30 minutes later:** The patient regained her upper extremities strength and voice back and was happy to see her healthy baby.
- Patient was stable and transferred to the PACU on oxygen through nasal cannula.
- **2 days later:** she was discharged without any problems.
- **Follow-up:** At 6wks follow up she was completely healthy.

Conclusions

- Performing epidural analgesia in the knee-chest prone position served as an innovative solution for placement of neuraxial anesthetic in this case and the knee-chest position may become necessary in labor to mitigate fetal heart rate decelerations [1].
- It can avoid general anesthesia.
- Both left lateral and knee chest are compatible for neuraxial anesthesia. Decision should be based on fetal heart rate and placental blood flow [2] .
- The incidence of high epidural block associated with obstetric anesthesia is not known. It may be very rare but can have an expected side effect in certain positions.

References

[1]. Bamberger PD, Birnbach DJ. Lumbar epidural anesthesia initiated in the knee-chest position. Reg Anesth. 1991 Jul-Aug;16(4):240-1.
[2] Ginosar, Y., Weiniger, C., Elchalal, U. et al. Emergency Cesarean delivery for umbilical cord prolapse: the head-down, knee-chest prone position for spinal anesthesia. Can J Anesth 55, 612–615 (2008).
Picture Source: Kleinman W, Mikhail M. Spinal, epidural, and caudal blocks. In: Clinical Anesthesiology, 4th ed, Morgan GE, Mikhail MS, Murray M (Eds), McGraw-Hill, New York 2006. p.289.