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Segmental sparing during epidural analgesia for labor and during continuous spinal anesthesia for cesarean section

Presenting Author: Debebe Fikremariam MD
Presenting Author's Institution: West Virginia University School of Medicine - Morgantown, WV
Co-Authors: Stephen M Howell MD - West Virginia University School of Medicine - Morgantown, WV

Introduction: A 28 year old G1 at 40 weeks gestation received a lumbar epidural for labor analgesia. An infusion of 0.125% bupivacaine with fentanyl, produced loss of sensation to pin-prick to T8 with sparing on the patient’s left side above T11. The patient’s pain was not adequately controlled and a cesarean section was eventually required for failure to progress.

Anesthetic Management: It is unwise to try to establish surgical anesthesia with a dysfunctional epidural. A high dose of local anesthetic may fail to provide surgical anesthesia. We decided to remove the existing epidural and proceed with combined spinal epidural (CSE). A CSE can be desirable in this setting because the dosage of spinal anesthetic can be reduced to lessen the risk of high neuraxial block and the epidural catheter allows epidural bolus dosing if required.

The epidural catheter was removed and a CSE was attempted. Unfortunately, the dura was inadvertently punctured with an 18G Hustead needle. An intrathecal catheter was inserted and dosed incrementally with isobaric 0.25% bupivacaine. Cerebrospinal fluid could be freely aspirated from the catheter at all times. After 20 mg of intrathecal bupivacaine, several non-anesthetized dermatomes remained on the left side between T6 and T11. Above T6, the patient had loss of sensation to pin-prick to at least C8 bilaterally. The patient had a dense motor block of both lower extremities. The surgeon agreed to infiltrate local anesthetic made the incision more on the right side with minimal extension to the left. The block was augmented with intrathecal fentanyl, 75 mcg. The patient tolerated the procedure well and did not require additional medications.

Discussion: The segmental sparing after both epidural and spinal anesthesia makes us believe that some physical barrier prevented a uniform neuraxial block. This phenomenon has been attributed to a number of anatomic variations such as epidural septa, spinal trabeculae, arachnoid septa, sub-dural catheter placement, and tumors. We suggested that the obstetricians consider an MRI of the thoracolumbar spine to look for pathologic conditions and anatomic abnormalities. No abnormal findings were identified on MRI of the thoracolumbar junction. There are many reports in the literature of inadequate epidural block or failed spinal anesthesia. Inadequate epidural block can result from transforaminal escape of the epidural catheter or obstructive barrier in the epidural space. A failed spinal can be secondary to inadequate dose, inappropriate drug, technical failure, anatomical abnormalities, or maldistribution of the local anesthetic. In the absence of anatomic abnormalities or physical barriers, this segmental sparing during epidural analgesia and during continuous spinal anesthesia is difficult to explain.