Successful epidural catheter placement in a case of severe pediatric scoliosis for lower extremity surgery

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ABSTRACT:
Managing lower extremity post-operative pain in the pediatric patient with scoliosis may be challenging due to the technical limitations of neuraxial anesthesia. Here we present a case of successful epidural catheter placement in a patient with severe idiopathic scoliosis and review the options available for regional anesthesia and catheter placement.

A four year old girl with a history of developmental delay and dysplasia of the hip and knee presents for open reduction of the Right hip and Left patellar realignment. The patient was born at full term with mild infantile scoliosis, but by the time of her reestablishment of care 19 months later her spinal curvature (measured by Cobb's angle) had worsened to >75 degrees. Neuraxial anesthesia in this case remains the best option for pain control, as it supplies the patient with bilateral lower extremity analgesia while sparing the high volumes of local anesthetic needed for dual peripheral nerve blockade. Perioperatively, the patient's spinal anatomy was externally delineated and an epidural catheter was successfully placed under general anesthesia in the lateral position with spinal traction and cooperative communication with the orthopedic surgeon. Correct anatomic placement was verified by loss-of-resistance technique. Although fluoroscopy was available for further imaging, its use was not necessary. The patient's pain was well controlled with a continuous epidural infusion, and the catheter was removed on post-operative day three with imminent patient discharge.

LEARNING OBJECTIVES:
- Express the cardiopulmonary changes associated with increasing severity levels of scoliosis.
- Discuss the technical challenges imposed on neuraxial placement by severe scoliosis.
- Appraise available imaging and technological modalities for guidance in pediatric epidural catheter placement.
- Collaborate with orthopedic consultation during preoperative planning for difficult neuraxial placement in severe scoliosis.