

INTRODUCTION

Scoliosis is an abnormal lateral curvature of the spine that affects about 2-3% of the general population, with a higher prevalence in women.¹ Usually diagnosed in late childhood or early adolescence, treatment mainly consists of observation, bracing, or in some instances, surgery.

Dwyer instrumentation was developed in 1969 and used until the early 1990's for surgical repair of lumbar scoliosis with a Cobb angle of more than 45 degrees, or rapidly progressing curvature.²

Following screw insertion transversely through each vertebra, a titanium cable would be applied to the convexity of the curvature to provide traction and correction of the scoliosis.^{3,4}

Dwyer instrumentation and Harrington rods were previously the main methods of scoliosis repair.⁵

We present a case of labor epidural placement in a patient with Dwyer instrumentation through the use of ultrasound identification of the epidural space.

PATIENT HISTORY

- 40 years old female, G1P0, referred at 35 weeks for pre-operative assessment due to severe scoliosis repaired as a teenager.
- Reports mild physical limitations (bending forward, side twisting)
- PMHx: Scoliosis diagnosed as a child, otherwise negative
- PSHx: Dwyer Instrumentation (1991) and Harrington Rod insertion (1994). (Instructed at the time to avoid any neuraxial procedure)
- Neurosurgery consulted for input.
- Different options discussed with patient including neuraxial technique, remifentanyl PCA, nitrous oxide.



Figure 1. Anteroposterior radiograph of thoracic and lumbar spine

CLINICAL COURSE

- Admitted to labor and delivery at 39 weeks gestation.
- Upon patient request of labor epidural analgesia, patient placed in sitting position for scan (Rivanna: Accuro Ultrasound used for lumbar anatomy) for entry point localization and neuraxial placement.
- Following sterilization with Chlorhexidine, L3-L4 interspace accessed with Tuohy needle 3 cm left of midline with medial angulation at a depth of 7 cm via LOR to air technique.
- CSE attempted but aborted due to negative CSF return, flexible wire-bound catheter inserted and secured at 13 cm. Following negative aspiration, test dose was administered followed by 5 mL bolus of 0.25% bupivacaine. PCEA initiated (12 mL continuous, 8 mL bolus every 10 min with 0.0625% bupivacaine with 2mcg/mL fentanyl).
- Pain relieved within 15 minutes (9 to 4 using VAS score); Right-lower quadrant pain persisted (T11 dermatome) and only mildly relieved with additional bolus dosing.
- Delivery of healthy 2860g female baby after one hour with APGAR 9 and 9



Figure 2. Lateral radiograph of Thoracic and Lumbar spine

DISCUSSION

Dwyer instrumentation, an early approach to surgical repair of scoliosis, was eventually replaced by newer techniques, with the most recent use occurring in the early 1990s.

Scoliosis and instrumentation are associated with increased difficulty in neuraxial technique, and increased incidence of patchy or unilateral blockade following block placement.⁷ Neuraxial ultrasound, however, may assist in both placement and eventual efficacy,⁸ especially in patients with difficult to identify landmarks or scoliosis.

In this case, radiographic images were used along with ultrasound for identification of the epidural space. Notwithstanding identification and access of the epidural space, previous spinal surgery can still compromise the effectiveness of epidural analgesia due to the presence of instrumentation itself and the potential for epidural fibrosis post-repair.⁹



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