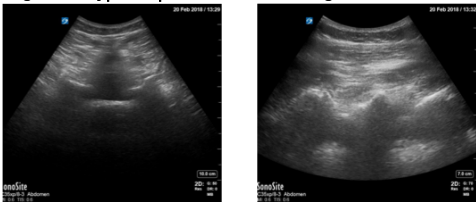


Introduction

- Epidural placement in the pediatric population is most commonly performed using a blind landmark-based technique
- Can be prolonged if the patient has variant anatomy such as scoliosis, kyphosis, lordosis, or obesity
- Use of ultrasound guidance for epidural placement may increase success rates and decrease onset time of neuraxial anesthesia in the pediatric population^{1,5}

Figure 1. Typical spine ultrasound images



Left: Transverse sonogram or "the bat"

Right: Paramedian sagittal oblique sonogram or "the saw"

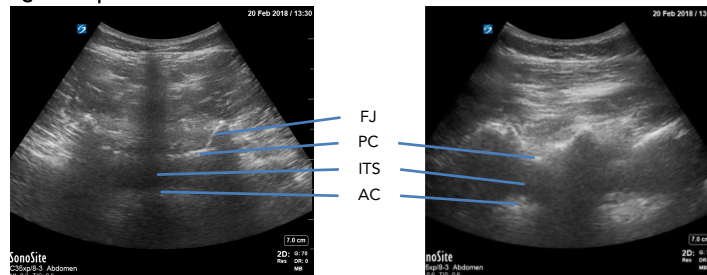
Why use ultrasound for epidural placement?

- Decrease Duration
- Increase comfort
- Decrease number of needle passes and associated trauma and complications
- Transform difficult epidurals into easy epidurals

Case Description

- 17 year old, 141 kg male (BMI 44kg/m²) with a history of testicular cancer presented for transabdominal retroperitoneal lymph node dissection (incision xiphoid to pelvis)
- Multidisciplinary decision was made to place an epidural for analgesia
- Pre-procedural ultrasound mapping of the spine was planned due to patient's morbid obesity

Figure 2. Spine ultrasound with identified structures



Left: Transverse sonogram. Right: Paramedian sagittal oblique sonogram.

FJ: Facet joint, PC: Posterior complex, ITS: Intrathecal space, AC: Anterior complex

- Despite optimal positioning, the spinous processes were unable to be palpated by three different providers
- A 5 minute ultrasound exam was used to visualize pertinent anatomy using techniques described in literature³
- Epidural space was identified with LOR to saline at 8.5 cm as measured by ultrasound after a single needle pass
- Procedure duration was less than 4 minutes
- On postoperative day 1, the patient rated his pain 0/10 with a bilateral sensory block from T6-T11

Discussion

- When faced with suspected difficult epidural placement, the use of ultrasound technology to better evaluate vertebral spaces can be used for more accurate needle placement^{1,2,3,4,5}
- As the childhood obesity rate increases, the pediatric anesthesiologist may be increasingly faced with challenging epidurals without palpable landmarks
- Potential benefits of pre-procedural mapping include decreasing number of epidural attempts and decreasing valuable operating room time

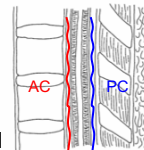
Key Terms

Anterior Complex (AC):

Anterior dura + posterior longitudinal ligament + vertebral body

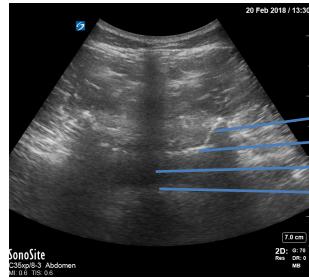
Posterior Complex (PC):

Ligamentum flavum + epidural space + posterior dura



References

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- Kil, H, et al. Regional Anesthesia and Pain Medicine, 2007.
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FJ
PC
ITS
AC

