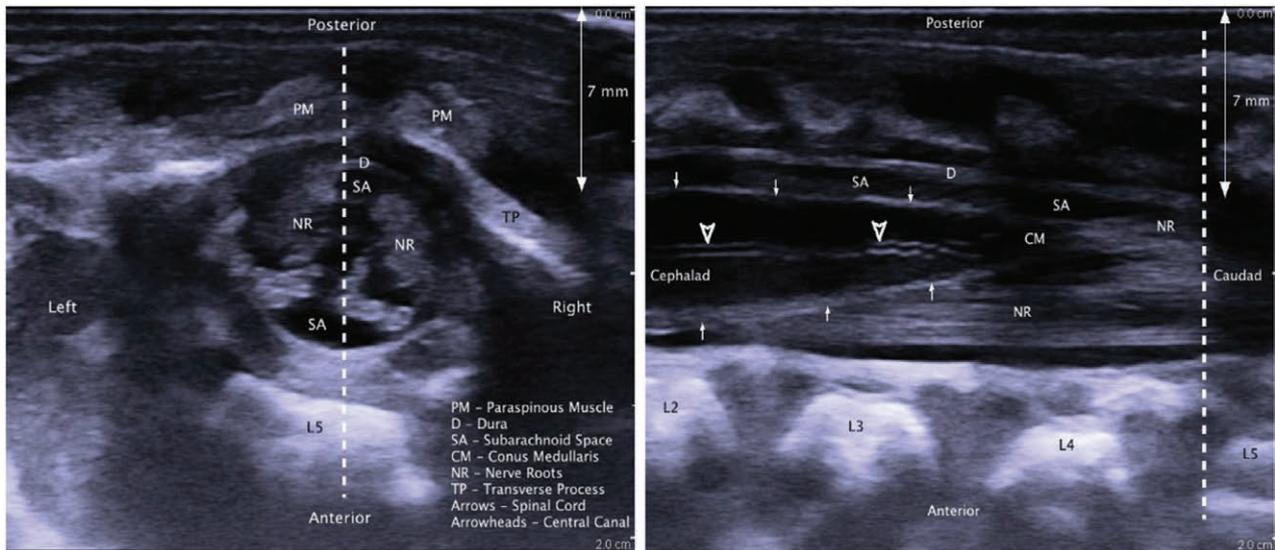


Images in Anesthesiology: Use of Ultrasound to Facilitate Neonatal Spinal Anesthesia

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TRADITIONAL landmark identification of the lumbar intervertebral spaces for spinal anesthetics is often imprecise. This is significant in infants who have a more caudally positioned conus medullaris and smaller distances to critical structures. The lack of dense ossification of the spine offers large acoustic windows for ultrasound imaging of the relevant anatomic structures.¹

We present the ultrasound images of a 2-month-old preterm 1.5-kg infant who underwent bilateral inguinal hernia repair under a spinal anesthetic. The ultrasound image of the infant spine was imaged in the axial and sagittal planes using a 3.45-cm 18-MHz linear probe on a BK3000 machine (18L5 probe; Analogic Corporation, USA). The sagittal view was obtained to determine the level of spinal cord termination (L3 to L4), identify the intervertebral space for dural puncture (L4 to L5), and measure the skin-to-dura distance (7 mm). The axial view was used to ensure that the needle would be below the spinal cord and confirm the skin-to-dura distance. The dotted line in the axial view corresponds to the probe position used to obtain the sagittal view and *vice versa*. The awake state of the infant made real-time imaging difficult, and ultrasonography was used solely for preblock scanning. The spinal was performed, and the case proceeded uneventfully.

Ultrasonography facilitates the identification of the intervertebral space devoid of fixed neural components before placement of a spinal. Preprocedural assessment of the spine may prevent excessive needle insertion depth, improve the first-pass success rate, and decrease the risk of complications.² Ultrasound may improve the care of infants receiving spinal anesthetics.

Competing Interests

The authors declare no competing interests.

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References

1. Lowe LH, Johaneck AJ, Moore CW: Sonography of the neonatal spine: Part 1, Normal anatomy, imaging pitfalls, and variations that may simulate disorders. *AJR Am J Roentgenol* 2007; 188:733–8
2. Tsui B, Suresh S: Ultrasound imaging for regional anesthesia in infants, children, and adolescents: A review of current literature and its application in the practice of extremity and trunk blocks. *ANESTHESIOLOGY* 2010; 112:473–92

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