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Thoracoscopic and Ultrasound Guidance for Optimization of Medication Spread during Thoracic Paravertebral Nerve Blockade

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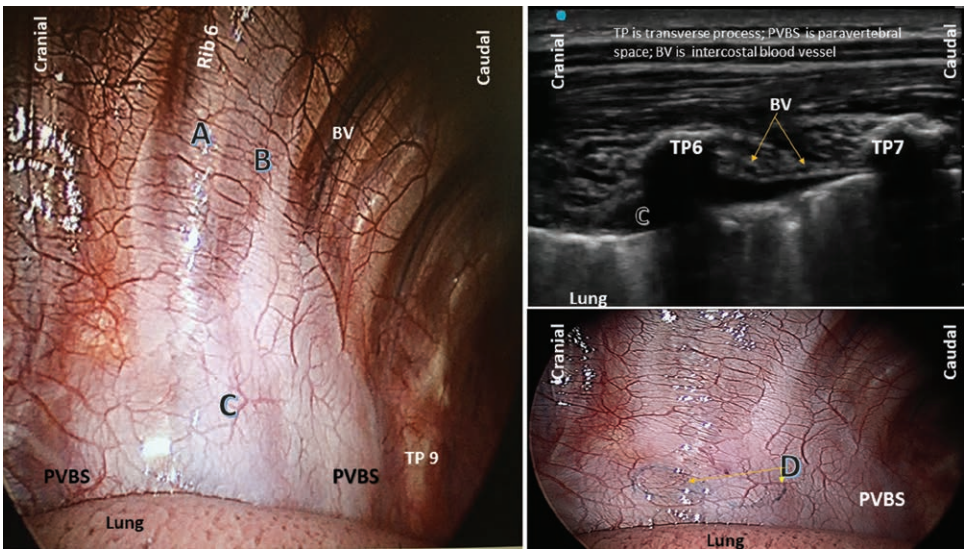

MEDICATION spread after transverse ultrasound-guided thoracic paravertebral block has been studied in cadavers[1] and on volunteers with magnetic resonance imaging[2] and it can be highly variable. Ultrasound-guided thoracic paravertebral block can be performed under direct thoracoscopic visualization to monitor the dynamic spread of medication to achieve optimal anesthetic coverage and confirm correct catheter placement.

We present images of a 17-yr-old boy (52.9 kg) who had a T6 ultrasound-guided thoracic paravertebral block catheter placed as described by Boretsky *et al.*[3] Correct needle and catheter placement into the paravertebral space was confirmed with simultaneous sonographic (See video, Supplemental Digital Content, http://links.lww.com/ALN/B771) and thoracoscopic visualization (See video, Supplemental Digital Content, http://links.lww.com/ALN/B770). Initially, 10 ml saline was injected into the paravertebral space, but spread was seen only over one single intercostal space (*A*). Injection of an additional 15 ml ropivacaine led initially to more caudal intercostal spread (*B*), which was then followed by further filling (*C*) of the paravertebral space. A heart-shaped bulge of the parietal pleura was observed, which remained consistent after more saline was injected through the catheter in an attempt to achieve an even wider distribution. As seen with the thoracoscope, a total of two intercostal spaces (6 to 7) and four paravertebral levels (T5 to T8) were covered after injection of 0.5 ml/kg medication. The medication preferentially distributed in the caudal direction rather than cephalad within the paravertebral space. In contrast to previous reports[1] and to our own experience, the catheter (*D*) was easy to place and could be seen coiling in the paravertebral space at the desired level (T6). Our thoracoscopic and ultrasound-guided thoracic paravertebral block approach helped understanding of dermatomal mapping and confirmation of correct paravertebral catheter placement.

Competing Interests

Dr. Visoiu is a consultant at Hospira (Lake Forest, Illinois). The remaining author declares no competing interests.

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References

1. Cowie B, McGlade D, Ivanusic J, Barrington MJ: Ultrasound-guided thoracic paravertebral blockade: A cadaveric study. Anesth Analg 2010; 110:1735–9
2. Marhofer D, Marhofer P, Kettner SC, Fleischmann E, Prayer D, Schernthaner M, Lackner E, Willschke H, Schwetz P, Zeitlinger M: Magnetic resonance imaging analysis of the spread of local anesthetic solution after ultrasound-guided lateral thoracic paravertebral blockade: A volunteer study. Anesthesiology 2013; 118:1106–12
3. Boretsky K, Visoiu M, Bigeleisen P: Ultrasound-guided approach to the paravertebral space for catheter insertion in infants and children. Paediatr Anaesth 2013; 23:1193–8