



Can unilateral erector spinae plane block result in bilateral sensory blockade?

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To the Editor,

We read with great interest the recently published article, “Mechanism of the erector spinae plane block (ESPB): insights from a magnetic resonance imaging study” by Schwartzmann *et al.*¹ The ESPB has been used for a wide range of indications including acute and chronic pain management.² The site of surgery and expected postoperative pain distribution are usually the main determining factors in deciding whether to perform either a bilateral or unilateral ESPB.³ Although anatomical studies and radiological imaging techniques have investigated the spread of local anesthetic, there is considerable discrepancy among these studies.⁴

Using magnetic resonance imaging, Schwartzmann *et al.* confirmed the contralateral spread of local anesthetic by showing the circumferential spread of local anesthetic into the epidural space with a unilateral ESPB.¹ Nevertheless, until now, there has been no documented clinical case supporting this finding. In our clinical practice of over 300 ESPBs, we have been routinely using these blocks in several operations as a postoperative analgesia technique for more than two years. We have been conducting a study in patients receiving an ESPB

whereby dermatome mapping is performed by an assessor blinded to side of the ESPB injection. Herein, we present a unilateral ESPB with unexpected bilateral sensory spread confirmed by a blinded assessor.

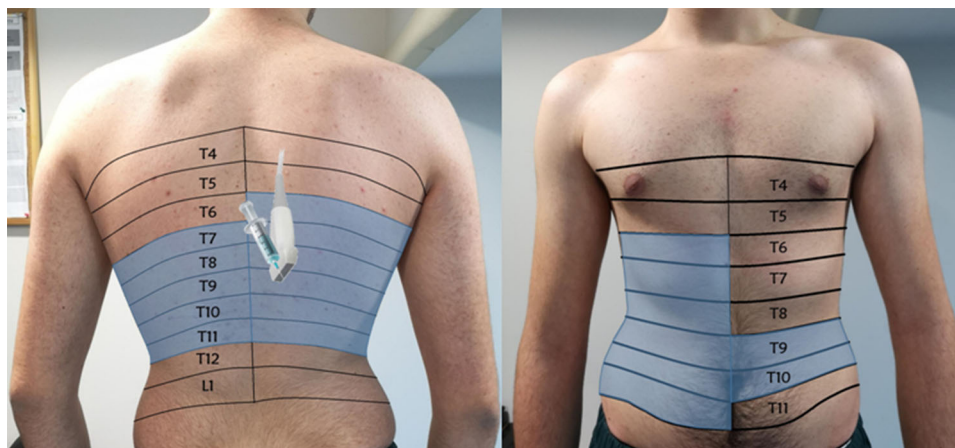
A 58-yr-old male patient with no history of prior spinal surgery underwent open nephrectomy. At the end of the operation, a right ultrasound-guided ESPB was performed with a needle insertion point guided by placing the ultrasound probe 3 cm lateral to the T9 spinous process in a longitudinal parasagittal orientation to visualise the transverse process. A 5-cm 21G needle (BRAUN Stimuplex A®, Germany) was inserted using an out-of-plane technique parallel to the sagittal plane directly over the transverse process, with 15 mL bupivacaine 0.25%, 7.5 mL lidocaine 0.5%, and 7.5 mL normal saline (total volume 30 mL) injected. The injection was done after the confirmation of the needle-tip location by hydrodissection with 2 mL of 0.9% NaCl. The sensory block was assessed by pinprick two hours after block injection. The sensory involvement was between T6 and T11 in the right-dorsal dermatomes and the ventral dermatomes. Unexpectedly, spread of the sensory block was shown between T7 and T11 in the left-dorsal dermatomes and between T9 and T10 in the ventral dermatomes (Figure). The block extended anteriorly to the mid-abdominal line. The final sensory block assessment was completed after six hours following block injection and showed continuing effect in all the same dermatomes.

We suggest that a bilateral sensory block after a unilateral ESPB injection is an uncommon but possible finding. This was formerly reported in a radiological imaging study¹ and hypothesized in a clinical case presentation,⁵ but until now, never confirmed in a clinical dermatome analysis.

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Figure Demonstration of bilateral dermatomal analysis



The contralateral sensory block was more extensive in the dorsal area whereas in the thoracoabdominal area and was limited in the T9–10 dermatomes. A possible explanation for this observation might be the contralateral spread of local anesthetic through the epidural space to involve the dorsal rami through an alternative pathway to the posterior vertebral structures.

The major factors resulting in a bilateral spread after unilateral block could possibly be related to the volume and concentration of the local anesthetics, as well as the structural variations of patient's paravertebral muscles and fascia. Further anatomical and radiological studies may be needed to explain the bilateral sensorial block caused by unilateral ESPB.

Conflicts of interest None declared.

Editorial Responsibility This submission was handled by Dr. Hilary P. Grocott, Editor-in-Chief, *Canadian Journal of Anesthesia*.

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