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Is Paravertebral-Epidural Spread the Underlying Mechanism of Action of Erector Spinae Plane Block?

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Erector spinae plane block (ESPB) is an ultrasound (US)-guided regional anaesthesia technique. The proposed mechanism of action of ESPB is local anaesthetic spread in a cephalocaudal direction within the fascial plane deep to the erector spinae muscle (ESM) in paraspinal region and towards paravertebral space through inter-transverse soft tissue (1, 2). It remains unclear how the block provides somatic and visceral blockade (3).

Computed tomography (CT) image (Figure 1) shows radio-opaque contrast spread deep to ESM, retrolaminar spread medially, paravertebral spread and posterior epidural spread through the intervertebral foramina space at all levels. With a single injection, the spread was observed up to the lateral epidural space at all levels. The spread is seen across the costotransverse foramen, which could be the mechanism of visceral pathway blockade. In serial CT images, a dorsal rami path was also observed.

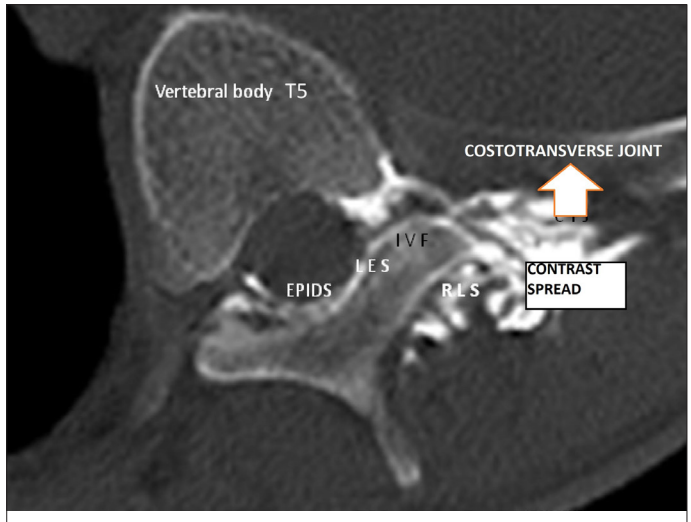

Figure 1. Computed tomography image shows radio-opaque contrast spread deep to the erector spinae muscle, a medial retrolaminar spread, paravertebral spread and posterior epidural spread through the intervertebral foramina space
EPIDS: epidural space; LES: lateral epidural space; IVF: intervertebral foramina; RLS: retrolaminar space

This CT image is of a 65-year-old male with carcinoma right lung who was suffering from severe visceral thoracic pain. Consent was obtained from the patient for using these images. US-guided ESPB was performed on right side at T5 level with 25 mL of 0.25% bupivacaine, 3 mL of iohexol (300 mg iodine/mL) and 40 mg of methylpredisolone. Pain score before injection was 8/10 and that after injection was 1/10. The dermatomal level of analgesia achieved after the block was from T2 to T7 on right side. Scan was performed 30 min after the injection.

Informed Consent: Written informed consent was obtained from patient who participated in this study.

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