

External oblique intercostal plane block: Anatomical landmark-guided technique!

Dear Editor,

Interfascial plane blocks have revolutionised the management of pain associated with abdominal surgeries, playing a pivotal role in multimodal analgesia and contributing to enhanced recovery after surgery (ERAS) protocols. The deep external oblique fascial plane or external oblique intercostal plane block (EOIPB) is the latest addition to the inventory of regional analgesia (RA) techniques with a promising effect for midline and lateral upper abdominal wall incisions. Since the maiden description by Hamilton *et al.*,^[1] ultrasound-guided unilateral or bilateral EOIPB has been used effectively for numerous indications.^[2] EOIPB may offer effective analgesia if the local anaesthetic (LA) spread is uniform and adequate, mainly when performed away from the surgical site, which is often a highly vascular area with altered wound surface pH due to inflammation. However, the unavailability of ultrasound machines or trained anaesthesiologists in ultrasound-guided RA can limit the widespread adoption of this innovative technique, potentially denying patients its beneficial effects. In response to this challenge, we present a novel anatomical landmark-guided technique for EOIPB, offering a feasible alternative to extend the analgesic advantages of this method in perioperative care.

In EOIPB, LA is deposited into the fascial plane beneath the external oblique muscle (EOM) and superficial to the sixth rib or external intercostal muscle [Figure 1a]. It targets anterior and lateral cutaneous branches of the thoracoabdominal nerves from the ventral rami of spinal nerves [Figure 1b]. The plane deep into EOM may continue downwards with the transversus abdominis plane. Clinical investigations have consistently demonstrated the engagement of T6–T10 dermatomes at the anterior axillary line and T6–T9 at the midline following EOIPB.^[2] These observations align with cadaveric studies, revealing dye staining of both anterior and lateral branches of T7–T10 intercostal nerves.^[3]

In the anatomical landmark-guided approach for EOIPB, the patient is placed in the supine position with a slightly abducted ipsilateral arm. The sixth rib can be located by two distinct palpatory methods. In the craniocaudal technique, the second rib is identified just below the clavicle, and subsequent counting facilitates localisation of the sixth rib. Alternatively, in the caudocephalad method, palpation and counting begin with the lower costal margin at the anterior axillary line, corresponding to the 10th rib. After identification, the sixth rib is traced to a point 1–2 cm lateral to the midclavicular line [Figure 1c]. Under aseptic conditions, the mobile skin and subcutaneous tissue are secured against the underlying rib to prevent needle overshooting and potential complications such as pleural, lung, or abdominal visceral injuries. Then, a nerve block needle (22-gauge, 25–50 mm, short-beveled) or blunt-tipped hypodermic needle is inserted and advanced perpendicular to the skin in all planes until it contacts the periosteum of the sixth rib [Figure 2a]. The skin-to-rib distance varies depending on the build

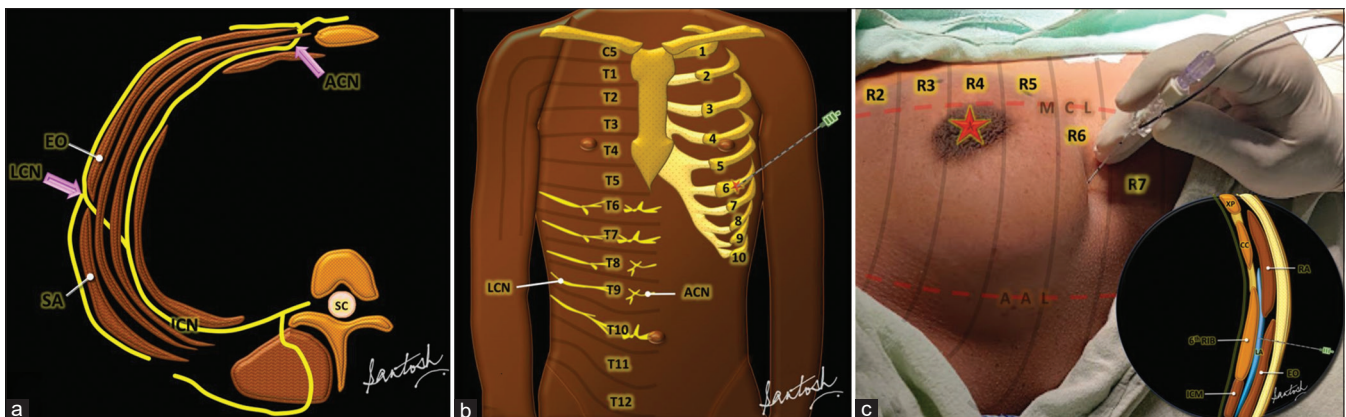


Figure 1: (a) Thoracoabdominal wall innervation and course of intercostal nerve. (b) Anterior and lateral cutaneous branches of the intercostal nerve. (c) Position of the patient, anatomical landmark and point of needle entry for external oblique intercostal plane block. AAL = anterior axillary line, ACN = anterior cutaneous nerves, CC = costal cartilage, EO = external oblique muscle, ICM = intercostal muscles, ICN = intercostal nerves, LA = local anaesthetic, LCN = lateral cutaneous nerves, MCL = midclavicular line, RA = rectus abdominis muscle, SA = serratus anterior muscle, SC = spinal cord, XP = xiphoid process of the sternum

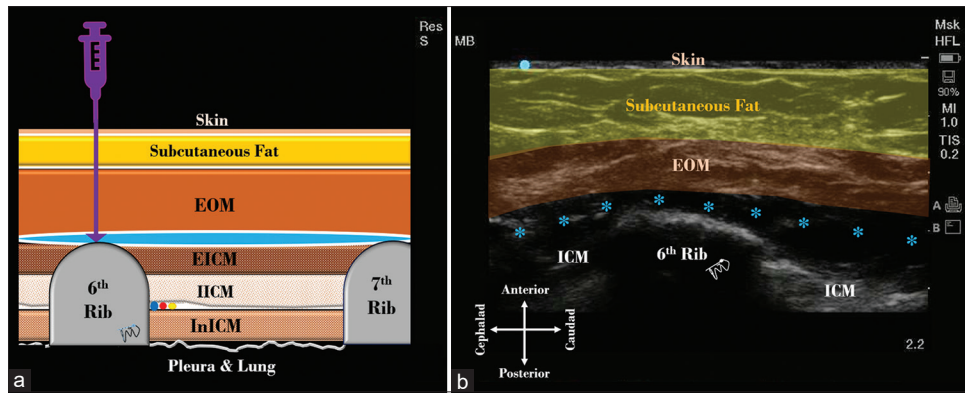


Figure 2: (a) Schematic diagram of anatomical landmark-guided external oblique intercostal plane block. (b) Post-block ultrasound image showing sonoanatomy and local anaesthetic spread (blue asterisks represent spread of local anaesthetic). EICM = external intercostal muscle, EOM = external oblique muscle, ICM = intercostal muscles, IICM = internal intercostal muscle, InICM = innermost intercostal muscle

of an individual. Upon reaching the bone, the needle tip is slightly withdrawn (1–2 mm) to avoid subperiosteal injection. At this point, the needle tip lies between EOM and the sixth rib. After confirming negative aspiration for blood or air, LA is injected in 3–5 ml aliquots. A total of 20–30 ml of 0.25% (levo) bupivacaine or 0.2% ropivacaine (\pm adjuvant) is administered [Figure 2a]. The backflow of LA from the needle hub or the end of the extension tubing upon syringe disconnection may serve as a surrogate indicator for the correct plane of drug deposition. Figure 2b illustrates the post-block ultrasound scanning to confirm the LA spread in the appropriate plane. LA disperses over multiple levels in the craniocaudal and mediolateral directions depending on the injected volume.

In conclusion, the anatomical landmark-guided EOIPB procedure stands out for its straightforwardness and simplicity in execution. Further clinical studies are necessary to substantiate its efficacy, safety and reliability, compared to the ultrasound-guided technique.

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Conflicts of interest

There are no conflicts of interest.

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