Ultrasound-guided continuous retrolaminar block in video-assisted thoracoscopic surgery in pediatric patient

The thoracic retrolaminar block (RLB) is a new regional anesthesia technique that can used as an alternative to thoracic paravertebral block. The RLB is a simpler approach than ultrasound-guided paravertebral block, which is technically difficult, time-consuming, and associated with significant hazards. We describe a case of video-assisted thoracoscopic (VATs) surgery which was carried out under general anesthesia with ultrasound-guided continuous retrolaminar block. Written and informed consent for publication was taken from the parent. A 10-year-old male child weighing 30 kg ASA I was having left hydropneumothorax with underlying collapse of left lung parenchyma with atelectatic scheduled for VATs under general anesthesia. After induction of anesthesia, in lateral position continuous retrolaminar block was performed at the level of T5 lamina. A linear USG probe ((M-Turbo, Fujifilm Sonosite, Inc, Bothell, WA, USA) was placed longitudinally in midline to identified spinous process of T5 vertebra. The ultrasound probe was move slight lateral toward the operating side to identified following structures the lamina (horse head sign of hyperechoic structure) and erector spinae muscle. The needle (PajunkE-Cath, karl-Hall-Strasse, 78187, Germany) was inserted in-plane to the probe in cranial to caudal direction toward the T5 lamina (1–1.5 cm lateral to the target spinous process), and needle tip was contacted with lamina [Figure 1]. After negative aspiration for blood and air, 0.125% bupivacaine of total volume 12 ml was injected. This made it easier to put the catheter in the intended plane [Figure 1]. Postoperative multimodal analgesia consisted of intravenous paracetamol 10 mg/kg every 6 hour combined with intermittent bolus dose of bupivacaine 0.125% 12 ml which was injected via indwelling catheter every 8 hour for three days. Numerical rating scale (NRS) at 24 h pain scores was 2. Rescue analgesia was not required. The postoperative period was uneventful, and he was discharged without the requirement of analgesia.

The main mechanism of action in the RLB for analgesia can be described the local anesthetic spreading anteriorly through the superior costotransverse ligaments into either the paravertebral space, epidural spaces, or intervertebral foramen.[1] The single shot retrolaminar block was used in pediatric patient.[2,3] The efficacy of USG-guided continuous RLB has been reported in rib fracture[4] and percutaneous nephrolithotomy[5] surgery. In comparison with the conventional paravertebral block, these reports of successful cases showed RLB to be an effective method for postoperative pain management. They are also advantageous in that they are simpler and safer techniques carried out in more superficial tissue planes, needle trajectory, and injection point that are relatively easy to visualize and farther away from the pleura. In comparison to adult patients needle visualization is better in pediatric patients. Continuous retrolaminar block as an adjunct to general anesthesia provides effective surgical analgesia and satisfactory postoperative pain control in video-assisted thoracoscopy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the legal guardian has given his consent for images and other clinical information to be reported in the journal. The guardian understands that names and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

Conflicts of interest

There are no conflicts of interest.

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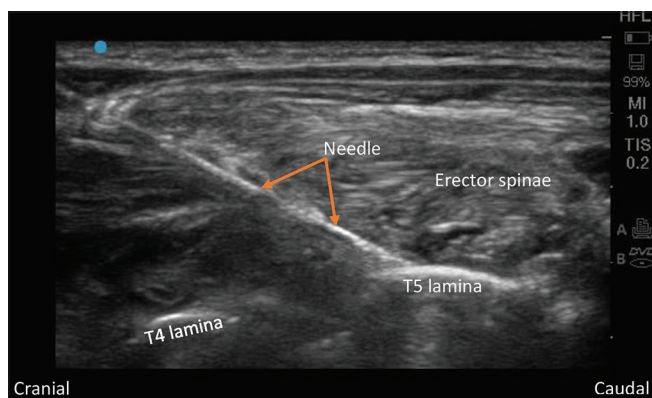E-mail: amarjeetdmch@gmail.com

Figure 1: Ultrasound-guided continuous retrolaminar block. Picture shows the entry of a needle, coming into contact with the T5 lamina

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