

Ultrasound-guided continuous costoclavicular brachial plexus block

Sir,

Continuous peripheral nerve blocks (CPNB) are used for surgical anaesthesia and analgesia during the postoperative period, treatment of complex regional pain syndrome and for treatment of phantom limb syndrome.^[1] Here, we describe continuous infraclavicular brachial plexus block through ultrasound-guided costoclavicular approach for forearm surgery. The catheter was used for intraoperative surgical anaesthesia and adequate postoperative analgesia. A 29-year-old male, American Society of Anesthesiologists status 1 (ASA 1), body mass index (BMI) = 24 kg/m² was scheduled for debridement and external fixation of left fractured proximal radius and distal ulna. Written consent was taken from the patient. After shifting to the operating room, the intravenous line was inserted, and monitors attached. The patient had severe pain on abducting the arm (numerical rating pain score 8) so we placed the patient in supine position with the arm adducted. A high-frequency linear probe (M-Turbo, Fujifilm Sonosite, Inc, Bothell, WA, USA) frequency 6–12 MHz was placed parallel and below the clavicle just medial to the coracoid processes. The probe was moved medially to locate the site where all three cords (lateral cord [LC], medial cord [MC], posterior cord [PC]) of brachial plexus (BP) were clustered together and lateral to the axillary artery. An 18G epidural Tuohy needle (Braun, Melsungen, Germany) with multi-orifice 20G epidural catheter was inserted parallel and in-plane to the probe in lateral to medial direction. The tip of the needle was positioned inferolateral to the clustered cords of BP. Following negative blood aspiration, 5 mL of 0.25% bupivacaine was injected in small aliquots for hydro dissection of tissue lateral to axillary artery Figure 1. The catheter was advanced through a Touhy needle to place it in the centre of the cords. The total length of the catheter inserted was 6.5 cm. Intraoperative bupivacaine (0.25%) at 0.25 mL/kg was administered as a bolus. The surgery lasted for 2 h and was uneventful. Postoperatively, an infusion of 0.1% bupivacaine at 0.1 ml/kg/h was started and was continued for 48 h. There was no breakthrough pain

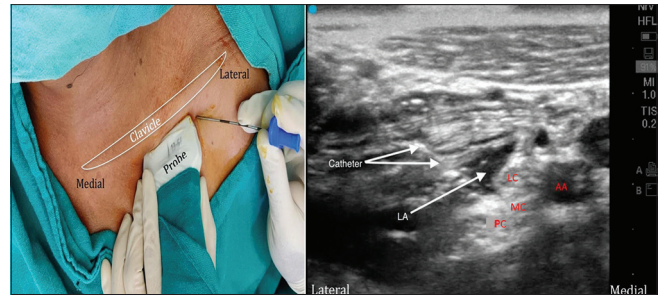


Figure 1: Ultrasound-guided continuous costoclavicular brachial plexus block

in the post-operative period (Numerical rating pain score was 3). Adverse effects like motor blockade and limb heaviness were not present in our case.

In the classical approach of the infraclavicular block (ICB) all three cords and catheter tip are not always identified because of their variable and relatively deeper locations. Catheter tip position for a continuous ICB is also controversial, although tip placement near the posterior cord is suggested.^[2] The goal of the continuous ICB using the costoclavicular approach is to place the catheter tip near the clustered cords.^[3] Costoclavicular space includes a triangular area wedged between the pectoralis major (clavicular head) and subclavius muscle anteriorly and the anterior rib cage posteriorly. Yoshida *et al.*^[4] describe a proximal approach of ICB with the blocked side arm abducted 90°. We did not abduct the arm of the patient because the patient was more comfortable in lying with his arm adducted. The only difference we found was that the plexus tends to be in a deeper position and with this position there was an increase in the thickness of pectoralis major muscle. This position can be useful in patients with acute trauma where the abduction of the upper limb will not be comfortable for the patient and in uncooperative patients. The position of the plexus in obese patients might be deeper and needs to be studied further.

Declaration of patient consent

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

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Conflicts of interest

There are no conflicts of interest.

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REFERENCES

1. Dadure C, Capdevilla X. Continuous peripheral nerve blocks in children. *Best Pract Res Clin Anaesthesiol* 2005;19:309-21.
2. Ilfeld BM, Fredrickson MJ, Mariano ER, "Ultrasound-guided perineural catheter insertion: Three approaches but few

illuminating data. *Reg Anesth Pain Med* 2010;35:123-6.

3. Wahal C, Kumar A, Pyati S. Advances in regional anaesthesia: A review of current practice, newer techniques and outcomes. *Indian J Anaesth* 2018;62:94-102.
4. Yoshida T, Watanabe Y, Furutani K. Proximal approach for ultrasound-guided infraclavicular brachial plexus block. *Acta Anaesthesiol Taiwan* 2016;54:31-2.

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