



Catheter-over-needle method facilitates effective continuous infraclavicular block

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Received: 6 June 2013 / Accepted: 18 June 2013 / Published online: 26 June 2013
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To the Editor,

We read with great interest the excellent article written by Dr. Lecours *et al.*¹ which reported an observational cohort study of all ultrasound-guided single-injection infraclavicular blocks (ICBs) performed over a two-year period at their institution. The authors observed that ultrasound-guided ICB performed with a single injection posterior to the axillary artery is a reasonably safe technique associated with a high success rate regardless of the expertise of the anesthesiologist performing the block. Experience within our institution is consistent with this observation, and we would agree strongly that ICB performed by single injection posterior to the axillary artery is safe and effective. Further, this provides an excellent approach for placement of a continuous catheter using a catheter-over-needle technique.

Here, with written consent from the patient, we report our recent experience of placing an infraclavicular catheter utilizing a 21G × 95-mm catheter-over-needle unit (MultiSet UPK NanoLine 21156-40E, Pajunk, Germany) for a planned re-implantation of thumb after a rope-related farming accident. A high-frequency linear ultrasound transducer (13-6 MHz HFL38, M-Turbo[®]; SonoSite, Bothell, WA, USA) was placed in the deltopectoral groove parasagittally, where the axillary artery and the lateral cord of brachial plexus in its lateral aspect were easily identified (Figure). After raising a local anesthetic wheal, the

catheter-over-needle unit was inserted cephalad to the probe and advanced in-plane caudally or inferiorly at approximately 45° to 60° from the ultrasound probe axis, through the pectoral muscles and toward the parasagittal plane between the axillary artery and the lateral cord. Hydrodissection with dextrose 5% in water was used to create sufficient space between the lateral cord and axillary artery to advance the needle/catheter unit into a more advantageous position, posterior to the axillary artery and directly adjacent to the posterior cord.

Once the tip of the needle was positioned, and, following negative aspiration of blood or air, 20 mL of local anesthetic was injected to open the perivascular space. The needle was removed from the outer catheter, and a flexible, 20G × 75-mm inner catheter was inserted through the cannula and Luer-locked onto the 18G catheter sheath such that both catheters were in situ. Before securing the catheter in place with a dressing (e.g., TegadermTM), a further 10 mL of local anesthetic was injected through the catheter to complete the block and confirm the spread. Instead of the planned thumb re-implantation, debridement of the thumb was performed.

In the post anesthetic recovery room, a local anesthetic infusion was commenced and continued at 1 mL·hr⁻¹ with an 8 mL bolus every hour until the next morning when the infraclavicular catheter was removed and the patient transitioned to oral analgesia. Throughout the infusion, the patient was pain-free, and the catheter remained in place with intact and dry dressings, as was our experience with an interscalene catheter placed using the catheter-over-needle method.²

We have used this approach to place five infraclavicular catheters over the last three months, and in each case, the pain management was excellent. Catheter insertion has been uncomplicated and all have been removed as planned.

Editor's Note: The authors of the article: Can J Anesth 2013; 60: 244-52, respectfully declined an invitation to submit a reply to the above Letter to the Editor.

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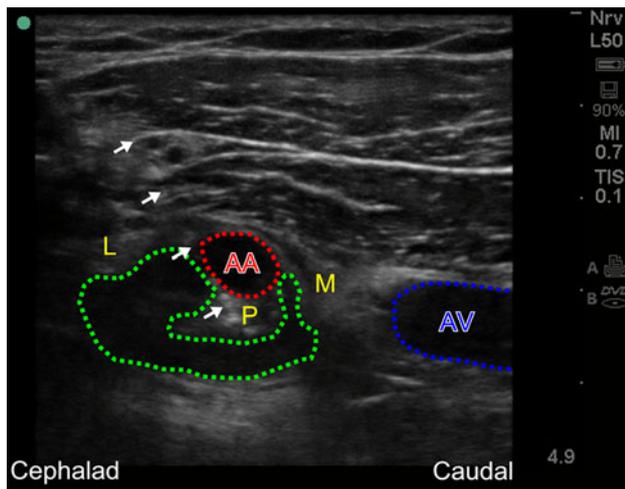


Figure Ultrasound image showing the outlines of the axillary artery (AA) and vein (AV) and the positions of the lateral (L), posterior (P), and medial (M) cords of the brachial plexus. Needle position (arrows) and local anesthetic spread (green dashed line) are indicated

Our clinical observations show that the infraclavicular approach is successful at providing analgesia for the distal forearm and hand, and it has the additional advantage of being able to secure the catheter without the risk of dislodgement. The infraclavicular approach is now one of several effective options^{3,4} for distal upper limb blockade, particularly for finger re-implantation, at our institution. Nevertheless, further studies are required to compare its efficacy with the supraclavicular approach.

In summary, the technique described here appears to offer enhanced catheter stability, likely due to a longer intramuscular catheter path and the previously described advantages of the catheter-over-needle design.²⁻⁵

Funding Dr. Tsui is supported in part by a Clinical Scholar Award from the Alberta Heritage Foundation for Medical Research (AHFMR) and a CAS/Abbott Laboratories Career Scientist Award from the Canadian Anesthesiologists' Society.

Conflicts of interest Pajunk MultiSet 211156-40E is modified and re-designed by Ban Tsui. Dr. Tsui also has a patent-licensing agreement with Pajunk.

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