



## Lower interscalene approach for elbow surgery

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### To the Editor,

It is with great interest that we read the excellent review article by Dr. Nadeau *et al.*<sup>1</sup> which provided a comprehensive overview of ultrasound-guided regional anesthesia for upper limb surgery. The authors appropriately discuss the inadequacies of interscalene block for elbow surgery and recommend supraclavicular block as the most suitable approach. We are in agreement with this recommendation; however, we would like to emphasize the value of the low interscalene approach which has been recently reported in the literature<sup>2</sup> but was not discussed in Dr. Nadeau *et al.*'s review.

The major problem of the classical interscalene approach is the long distance between local anesthetic deposition at the level of C5 and the lower trunk, which leads to sparing the ulnar nerve. The low interscalene approach overcomes this problem by depositing local anesthetic in proximity to the lower trunk of the brachial plexus (i.e., the origin of the ulnar nerve). Moreover, catheter insertion at the low interscalene level allows the catheter to be anchored by the middle scalene muscle away from the clavicle. Finally, ultrasound allows easy identification of the level at which the root of the brachial plexus divides into trunks.

To insert a catheter-over-needle assembly analgesia following elbow surgery, a high-frequency linear

ultrasound transducer (13-6 MHz HFL38, M-Turbo®; SonoSite, Bothell, WA, USA) is placed at the supraclavicular block location where the subclavian artery and the brachial plexus in its lateral aspect can be easily identified. Using a traceback approach,<sup>3</sup> the transducer is moved cephalad to capture the brachial plexus at the level where the individual trunks become better appreciated; with regard to surface landmarks, this is typically 1-2 cm above the clavicle at the base of the neck. After a local anesthetic wheal is raised, a 21G x 95-mm catheter-over-needle unit (MultiSet UPK NanoLine 21156-40E, Pajunk, Germany) is directed in-plane towards the interscalene groove between the trunks of the brachial plexus. Hydrodissection with dextrose 5% in water (D5W) is used to create sufficient space for advancement of the needle/catheter unit between the trunks, through the middle scalene muscle, but immediately lateral to the anterior scalene muscle without piercing through it. Following negative aspiration of blood or fluid, local anesthetic (10-20 mL) is used to open the space between the sheath of the interscalene groove and the trunks. The needle is removed from the outer catheter, and a flexible, 20G x 75-mm inner catheter is inserted through (Figure) and Luer-locked onto the 18G catheter sheath such that both catheters are *in situ*. Before securing the catheter in place with a dressing (e.g., Tegaderm™), D5W (1-2 mL) is injected through the catheter to confirm the spread. In this case, local anesthetic was infused for 48 hr at 1 mL·hr<sup>-1</sup> with a 6 mL bolus every hour to provide postoperative analgesia. The catheter was removed without any evidence of kinking, and the dressing remained dry and intact throughout.<sup>5</sup>

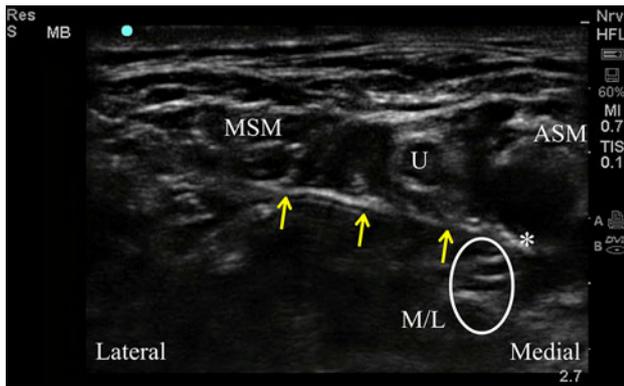
Our clinical observations show that use of the low interscalene approach is successful at providing analgesia for elbow and distal humerus surgery, and it has the additional advantage of being able to secure the catheter

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**Editor's Note:** The authors of the article: Can J Anesth 2013; doi: [10.1007/s12630-012-9874-6](https://doi.org/10.1007/s12630-012-9874-6), respectfully declined an invitation to submit a reply to the above Letter to the Editor.

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**Figure** Ultrasound image showing the inner catheter within the outer catheter (yellow arrows) positioned between the upper (U) and middle/lower (M/L) brachial plexus trunks (circled) and immediately lateral to the anterior scalene muscle (ASM). The asterisk indicates the tip of the inner catheter. MSM = middle scalene muscle

without the risk of dislodgement. We have used this approach to introduce ten lower interscalene catheters in the last two months, and all have been successful. This is now becoming the preferred approach at our institution. Nevertheless, further studies are required to compare its efficacy with the supraclavicular approach. In summary, the technique described here seems to offer enhanced catheter stability, likely due to a longer intramuscular

catheter path and the advantages of the catheter-over-needle design.<sup>4,5</sup>

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**Conflict of interest/other associations** The Pajunk MultiSet 211156-40E is modified and redesigned by Dr. Tsui. Dr. Tsui also has a patent-licensing agreement with Pajunk.

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