

## A Confirmed Case of Injury to the Long Thoracic Nerve Following a Posterior Approach to an Interscalene Nerve Block

Accepted for publication: February 28, 2013.

### To the Editor:

We read with great interest Drs. Hanson and Auyong's article<sup>1</sup> regarding the identification of the dorsal scapular and long thoracic nerves during ultrasound-guided interscalene nerve block. As a busy orthopedic ambulatory surgery center, we perform a large number of interscalene perineural catheters for shoulder surgery (to see a demonstration of our technique, see the Supplementary Video at <http://www.blockjocks.com/ka8K>). To minimize the possibility of phrenic nerve blockade, we, too, use a posterior approach for placing these catheters.<sup>2</sup>

In combination with a low-volume technique (typically <15 mL of local anesthetic), we have subjectively observed a significant decrease in the incidence of postoperative respiratory complications while maintaining a nearly 100% success rate for postoperative analgesia. We also feel that traversing the middle scalene muscle provides a relatively unobstructed path to the posterior aspect of the cervical roots within the interscalene groove and avoids many of the vital structures encountered with an anterior approach including the phrenic nerve itself, the carotid artery, and the internal jugular vein.

Drs. Hanson and Auyong mention that they are unaware of any outcome data that support injury to the dorsal scapular and long thoracic nerves related to an interscalene block. We found this article to be timely as we were recently made aware of a patient who appears to have suffered long thoracic nerve injury following shoulder surgery, presumably as a result of interscalene perineural catheter placement.

Like the authors, we were unable to identify any other confirmed cases of nerve block-related long thoracic or dorsal scapular nerve injuries in the regional anesthesia literature (although we suspect that underreporting may play a role). Nevertheless, our recent experience demonstrates the importance of the findings in this article. It remains unclear to us whether the

addition of nerve stimulation to the use of ultrasound would effectively reduce the likelihood of injury to these nerves by allowing safe needle redirection if long thoracic or dorsal scapular nerve twitch is elicited absent ultrasound visualization during needle passage. One could argue that systematic ultrasonographic with or without nerve stimulator-assisted identification of these nerves, or at the very least awareness of their presence, could help avoid adverse outcomes such as this one. We appreciate the hard work of Drs. Hanson and Auyong and look forward to any future studies related to this subject.

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### REFERENCES

1. Hanson N, Auyong D. Systematic ultrasound identification of the dorsal scapular and long thoracic nerves during interscalene block. *Reg Anesth Pain Med*. 2013;38:54-57.
2. BlockJocks. Ultrasound-guided regional anesthesia education: interscalene. <http://www.blockjocks.com/interscalene>. Accessed on February 20, 2013.

## Continuous Saphenous Nerve Block for Total Knee Arthroplasty When and How?

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### To the Editor:

We read with great interest the article by Andersen et al,<sup>1</sup> which details the potential contribution a continuous saphenous nerve block could make to a

multimodal analgesia strategy in total knee arthroplasty (TKA) patients. Using ultrasound guidance, the authors inserted a saphenous nerve catheter postoperatively at the midhigh level. The treatment group received bolus injections of 15 mL of ropivacaine 0.75% at 12-hour intervals for 2 days postoperatively.

We have conducted a small, prospective, observational study (n = 12) in our institution using a continuous saphenous nerve block in TKA patients on a fast-track protocol. We have produced equally promising results, with reduction in VAS pain scores on movement, earlier ambulation, and reduced opioid requirements. However, we placed our catheters preoperatively, and we used a continuous infusion pump postoperatively.

The authors suggested that inserting the catheter preoperatively would increase the risk of dislodgment with "vigorous movements of the leg" and application of the femoral tourniquet intraoperatively. We did not encounter this problem. We sited the catheter at the midhigh level with ultrasound guidance, and we tunneled the catheter 5 to 8 cm up the medial aspect of the thigh. We dressed the catheter with a transparent adhesive dressing and reinforced this with tape. We found that the careful application (and removal) of the tourniquet over this dressing actually reinforced the security of the catheter, and we did not experience any catheter dislodgment.

The reason that we do not favor placing the catheter postoperatively is the substantial compression dressings applied by the surgical team, often up to the midhigh level. When we site near an operative site a perineural catheter that will be indwelling for 48 hours, we observe meticulous aseptic precautions. We found it difficult to avoid contaminating the sterile field with the surgical dressings postoperatively. Moving the site of catheter insertion more proximally may increase the risk of motor weakness from femoral nerve block, a potentially serious complication.<sup>2</sup>

The authors report that they chose intermittent boluses for "practical reasons." We would argue that, in routine clinical practice, a catheter that needs to be accessed and bolused on 6 different occasions over 3 days is open to drug or dosing errors, increased risk of infection, and missed doses. We used an elastomeric pump (Easypump C-bloc RA; B. Braun, Melsungen, Germany), with a volume of 400 mL, to infuse