

Costoclavicular Approach to the Supraclavicular Fossa: Journey behind the Dark Side of the Moon (Clavicle)

To the Editor:

I read with interest the report of the use of the costoclavicular space to access the supraclavicular area for a continuous catheter technique,¹ and I commend the authors for their innovative work. It highlights three main questions about supraclavicular catheters: Is there a high catheter displacement rate, is it the most efficacious catheter site, and is the approach described safe?

Displacement rates for perineural catheters range from 5%² up to 40%.³ A literature search reveals that a small case series of supraclavicular catheters⁴ showed a displacement rate of 10% using the ultrasound-guided lateral to medial approach, which is at the lower end of published rates.

Mariano *et al.*⁵ found that an infraclavicular catheter provided superior analgesia both in the postanesthesia care unit and during the first 24 h after surgery and allowed for less opioid narcotic compared to a supraclavicular catheter. A small retrospective study found no difference in overall failure rate between infraclavicular and supraclavicular catheters respectively at 24 h.⁶ I would argue that a supraclavicular catheter is not superior to an ultrasound-guided infraclavicular catheter for postoperative analgesia.

Lastly, is the approach described safe? One of the main advantages of ultrasound is the ability to see the needle at all times. This advantage is lost when the needle is blindly advanced behind bone (clavicle). The necessity of keeping the needle out of harm's way is described here as advancing the needle while "rubbing against the clavicular periosteum, toward the corner pocket" before the needle tip "finally appears as a hyperechoic dot in the ultrasound image" in the supraclavicular fossa. This seems a little like the Apollo space missions where there was loss of radio contact while orbiting the dark side of the moon, and a wait period for contact to resume. As the authors mention, the greatest challenge is to "avoid puncture of the pleura and subclavian vessels," which are potentially devastating complications. It is my opinion that this approach is not simpler, more efficacious, or safer than existing techniques.

Competing Interests

The author declares no competing interests.

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In Reply:

We appreciate Dr. Aldwinckle's interest in our report¹ describing the technique of insertion of a supraclavicular catheter through an infraclavicular entry point. With this approach to the brachial plexus we aim for the fixation of an infraclavicular-access catheter using the flat surface of the pectoral musculature cited by Jeng and Rosenblatt² and the effectiveness of a supraclavicular single shot, leaving the tip in the corner pocket.³

Regarding safety, the rate of pneumothorax during what was described as the "Apollo space mission" is 0 in our 452 cases collected. At our hospital, a teaching center in the practice of regional anesthesia, approximately 2,000 annual supraclavicular blocks (single shot) are performed. A substantial number of brachial plexus catheters also are placed at the supraclavicular level. The usual approach, lateral to medial supraclavicular access, was used years ago, but its rates of displacement were high, as described in the bibliography Dr. Aldwinckle cited. Infraclavicular catheter insertion, instead, was annoying for the patient due to the depth of the structures involved and had an irregular performance despite placing the dorsal tip toward the artery. About 8 yr ago, a hybrid method (the one we originally reported) was conceived, which combined the advantages of infraclavicular access (better fixation) with that of the supraclavicular (more effective block). Since it began to be used, the rate of vascular punctures has not exceeded 2%.

In 2015, Charbonneau *et al.*⁴ described an access inverse to ours: from the supraclavicular space to the infraclavicular.