



To the Rescue: Use of a Supraclavicular Peripheral Nerve Catheter for Post-operative Pain Management After Pediatric Elbow Surgery



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CASE PRESENTATION

14-year-old female with a history of generalized anxiety disorder and a left elbow supracondylar fracture s/p prior closed reduction pinning and subsequent scar debridement with ulnar nerve transposition now presenting for an elective left elbow ulnar nerve neurolysis and arthroscopic contracture release.

BACKGROUND

- Peripheral nerve catheters have increasingly been recognized as an option for multimodal management in pediatric surgery.^{1,2}
- While peripheral nerve catheters can provide adequate postoperative pain relief, long-term use of catheters may carry risk.³
- Our case presents the use of a supraclavicular nerve catheter in a pediatric patient who had ongoing pain despite prolonged use of an infraclavicular nerve catheter placed at the time of surgery.

CASE

Pre-operative Course:

- Regional techniques were used in this case given the need for postoperative pain control that would allow the patient to remain alert enough to perform extensive arm manipulations after surgery.
- Decision to place an infraclavicular nerve catheter was based on:
 - its effective coverage of the ulnar nerve with decreased incidence of adverse events compared to the supraclavicular approach that provides similar coverage.⁴
 - stability of the infraclavicular catheter with decreased risk of migration with physical therapy.⁵
- Patient required premedication with oral midazolam prior to placement of the peripheral IV line and the infraclavicular nerve catheter.

Intra-operative Course:

- Placement of an ultrasound-guided infraclavicular nerve block and catheter prior to the induction of general anesthesia. Remainder of the intraoperative course was uncomplicated.

Post-operative Course:

- The infraclavicular catheter was set to infuse bupivacaine 0.1% continuously at 6mL/hr.
- Pediatric team aimed to transition to oral medications beginning on postoperative day 3. However, efforts to wean the bupivacaine infusion were limited by:
 - inadequate analgesia at the surgical site when the bupivacaine doses were decreased.
 - inadequate coverage of the peripheral block at the elbow, possibly due to anatomical variation from previous nerve transpositions.
 - nausea and constipation with the addition of oral opioids.
- By the end of the week, there was concern that prolonged use of the catheter may impose infection risk.

CASE RESOLUTION

- After discussion with the orthopedic surgical team, the patient, and her mother, the infraclavicular catheter was removed on postoperative day 7 and replaced with a supraclavicular peripheral nerve catheter.
- This allowed for ongoing analgesia until the patient was able to tolerate a trial of oral pain medications.
- The supraclavicular catheter was removed on postoperative day 12.

CLINICAL RELEVANCE

This case demonstrates the safe and effective use of a supraclavicular nerve catheter to replace an infraclavicular catheter in a young patient who otherwise had inadequate pain relief without peripheral nerve blocks, while minimizing potential risks of prolonged catheter use.

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