



Prevention of Postoperative CRPS

Emily Williamson, MD¹; Robert Garrett, DO;

¹Department of Anesthesiology, University of Kansas Medical Center, Kansas City, Kansas



BACKGROUND

- Complex regional pain syndrome (CRPS) is characterized by severe pain affecting the limbs, usually after an inciting event.
- CRPS is divided into two types by the absence (type I) or presence (type II) of known nerve injury.
- CRPS is challenging to treat.
- Preoperative regional anesthesia has been proposed to prevent surgical-induced CRPS.

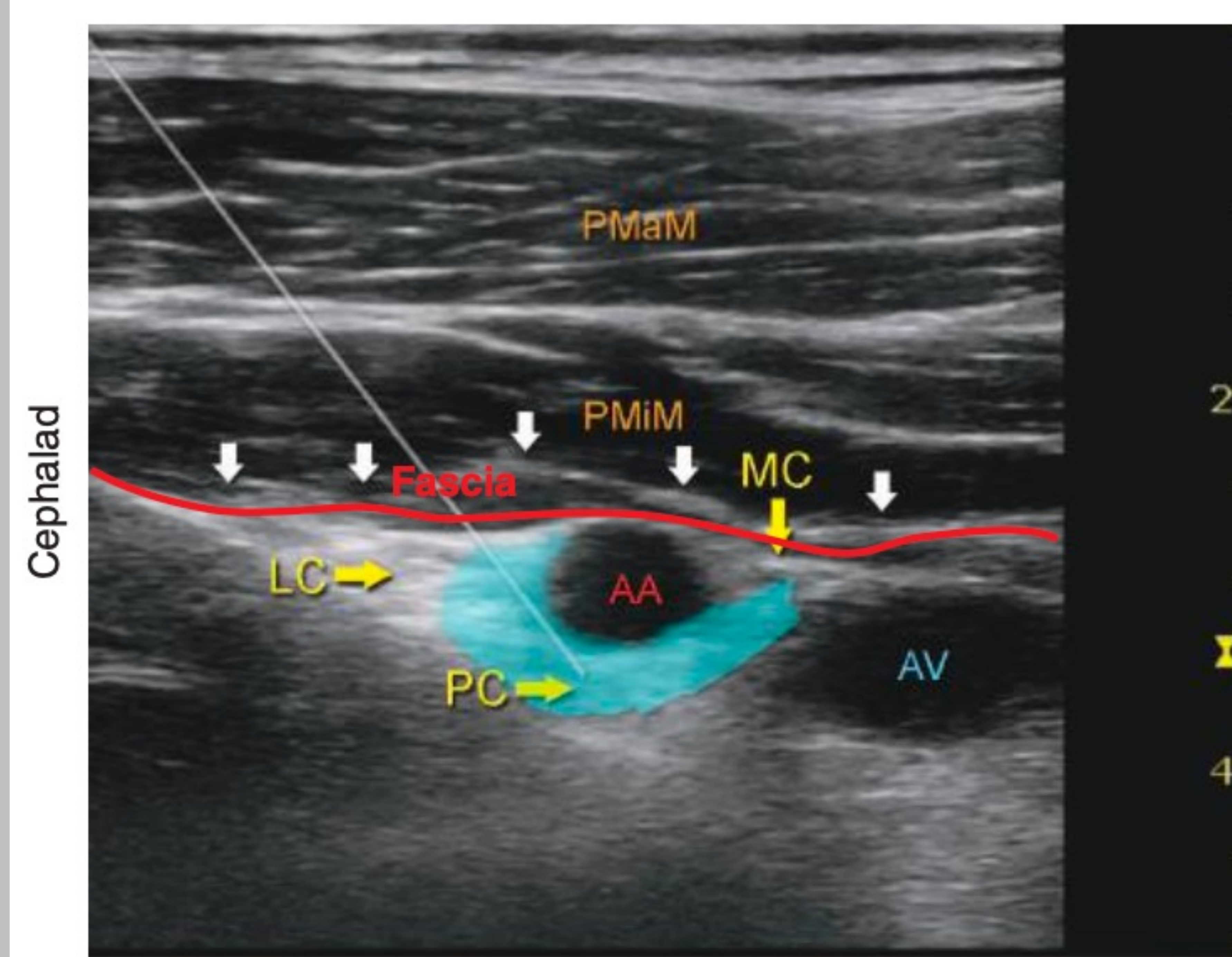
HYPOTHESIS

- Preoperative peripheral nerve catheter (PNC) placement is a method to prevent development of postoperative CRPS after orthopedic surgery.

METHODS

- A 64-year-old female with past medical history of CRPS type II presented with left wrist ulnocarpal impaction syndrome and scheduled for ulnar shortening osteotomy.
- Patient previously developed CRPS of the first digit of the right lower extremity after toe surgery in May 2021.
- The day prior to surgery, ultrasound guided left infraclavicular block was performed with 20 mL of 0.2% ropivacaine, along with placement of nerve catheter.
- An infusion of 0.2% ropivacaine was started at 6 mL/h via elastomeric pump and patient was discharged home.
- The next day, prior to incision, 15 mL of 0.5% ropivacaine was administered through the infraclavicular catheter.
- Post-operatively, the patient was discharged home and the infusion of 0.2% ropivacaine was continued.
- Patient was contacted with daily phone call until the infusion was complete.
- The nerve catheter was removed without complication on post-operative day 3.

RESULTS



Infraclavicular block

Figure showing an ultrasound image demonstrating an ideal needle path for the infraclavicular brachial plexus block. The blue-shaded area mimics an ideal spread of local anesthetic around the axillary artery (AA) and reaches all three cords of the brachial plexus (the lateral cord [LC], posterior cord [PC], and medial cord [MC]) below the fascia (red line) of the pectoralis minor muscle (PMiM), pectoralis major muscle (PMAm), and axillary vein (AV) [4].

RESULTS

- During a follow up phone call about 8 weeks after surgery, patient reported no postoperative pain until the nerve block wore off after catheter removal.
- Patient does have hypersensitivity at the incision, but no redness like after the toe surgery.
- Patient reported that she was glad she received the nerve block and is hopeful of not developing CRPS

DISCUSSION

- Up to 16.4% of CRPS cases occurred due to surgery [3].
- The majority of postsurgical CRPS cases occur after orthopedic procedures [3].
- This is supported by reports of patients developing postsurgical CRPS after receiving general anesthesia, but not after regional anesthesia with neuraxial or brachial plexus block [2].
- Regional anesthesia provides sympathetic blockade, but the optimal timing and duration of regional anesthesia has yet to be determined [3].

CONCLUSION

- Preoperative regional anesthesia by continuous PNC may be helpful in preventing postoperative CRPS in patients at high risk of developing CRPS.
- Further studies should be done to determine the efficacy and optimal timing of PNC.

REFERENCES

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