



Management of Ischemic Thumb Using a Median Nerve Catheter

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Introduction

- Ischemic and reperfusion pain can be severe and challenging to manage.
- There are limited case reports demonstrating the use of continuous nerve catheters for reperfusion pain (1)
- This case report highlights the use of a continuous median nerve catheter in a patient with critical thumb ischemia, focusing on the challenges of anticoagulation and site selection for regional blocks.

Case

- 32-year-old female with PMHx of scleroderma, Raynaud's phenomenon, and antiphospholipid antibody syndrome presented with severe ischemic pain in the right distal thumb (see.
- Admitted for an alprostadil infusion and systemic anticoagulation..
- Refractory pain despite oral oxycodone, hydromorphone PCA, acetaminophen and gabapentin
- **Day 1:** INR supratherapeutic at 4.2. Median nerve block was performed with 9mL 0.5% bupivacaine. Effects lasted ~5 hours.
- **Day 2:** Axillary nerve block performed with 20mL of 0.25% bupivacaine. Effects lasted ~2 hours
- **Day 3:** Goal supratherapeutic INR now 5.2. Continuous median nerve catheter was placed using 20G Braun Insyte IV catheter.
 - Median nerve PNC provided substantial initial pain relief and decreased opioid requirements, however pain returned ~24 hours later.
- **Day 4:** Due to the lack of improvement in ischemia and severe pain, patient opted to discontinue alprostadil and pursue outpatient amputation of the ischemic digit. PNC was removed.

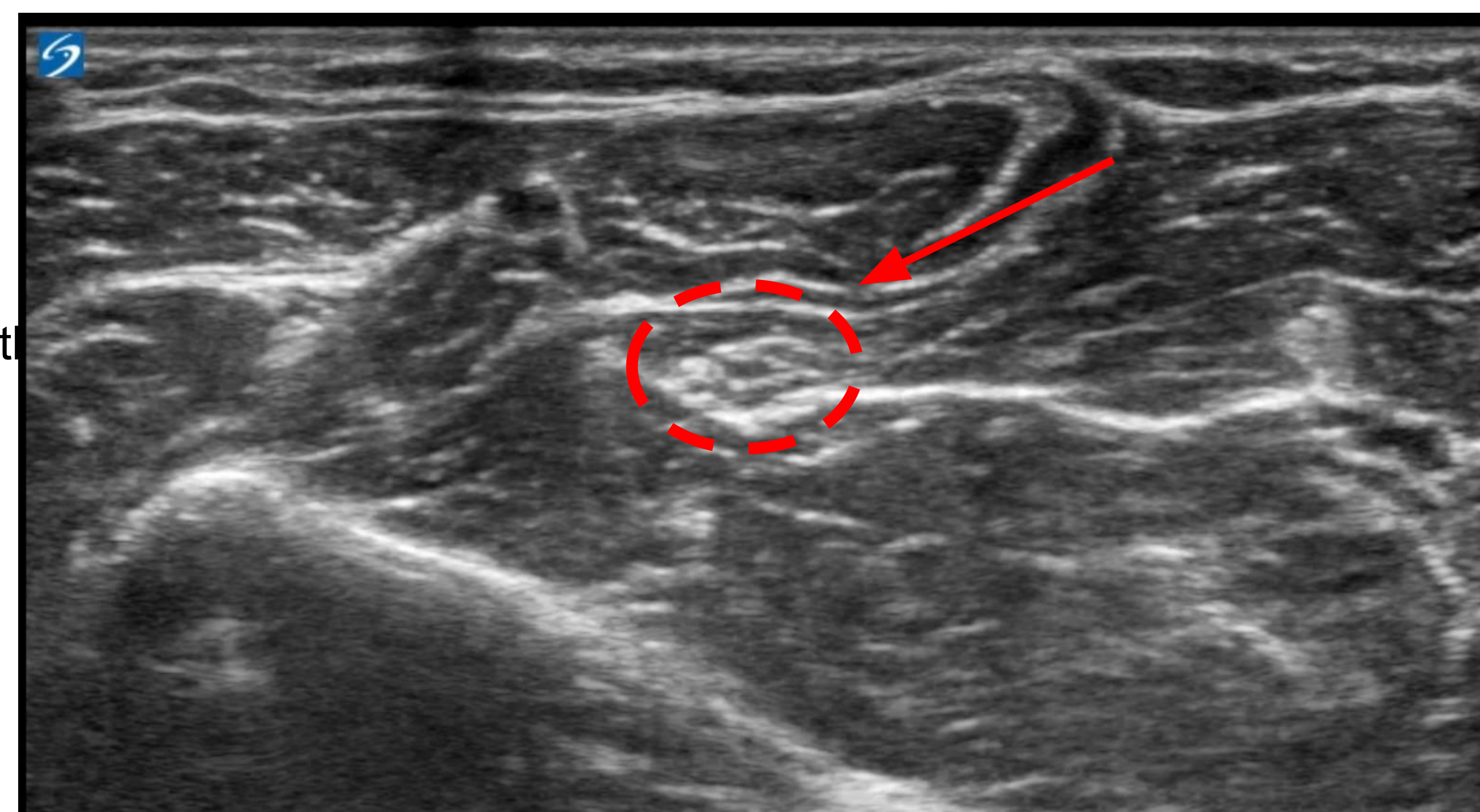


Figure 1: Ultrasound image of median nerve at forearm



Figure 2: Images of patient's ischemic right distal thumb

Discussion

- Managing ischemic and reperfusion pain in patients with systemic conditions and anticoagulation presents significant challenges.
- Elevated INR levels increase bleeding risks, requiring careful selection of regional techniques. In this patient, the goal was to maintain a supratherapeutic INR.
- We chose a median nerve catheter due to the compressibility of the site, making it a safer alternative to proximal approaches in the setting of a supratherapeutic INR.
- Isolated median nerve catheters are an uncommon therapy, with only one case found in the literature (2), but can be used successfully for targeted pain relief in select cases.
- Targeted regional anesthesia is a valuable option for reperfusion pain.
- The patient's decision to discontinue alprostadil reflects the complex balance between pain control and definitive ischemic management.

Conclusion

The use of a continuous median nerve catheter proved a valuable, albeit temporary, strategy for managing refractory ischemic and reperfusion pain. This case underscores the importance of tailoring pain management to systemic and procedural risks while balancing patient preferences and overall treatment goals.



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Citations:

1. Szerb J, Persaud D. Long current impulses may be required for nerve stimulation in patients with ischemic pain. Can J Anaesth. 2005 Nov;52(9):963-6. doi: 10.1007/BF03022059. PMID: 16251563.
2. Maxwell BG, Hansen JA, Talley J, Curtin CM, Mariano ER. Ultrasound-guided continuous median nerve block to facilitate intensive hand rehabilitation. Clin J Pain. 2013 Jan;29(1):86-8. doi: 10.1097/AJP.0b013e318246d1ca. PMID: 22751029.