

Intralipid Administration with Complete Reversal of Peripheral Nerve Blocks: A Case Report

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Background

- Intravenous lipid emulsion (ILE) is a well-established therapy for local anesthetic systemic toxicity (LAST)
- Accumulating case reports suggest that ILE may also reverse established peripheral nerve blockade independent of systemic toxicity¹⁻³
- Proposed mechanisms include lipid sequestration and altered tissue pharmacokinetics of amide local anesthetics

Case Presentation

- 59-year-old woman undergoing ankle hardware removal
- PMHx of asthma, rheumatoid arthritis, lumbar radiculopathy, GERD, seizures, chronic low back pain, fibromyalgia
- Anesthesia plan: GA + single shot popliteal sciatic and single shot adductor canal block
- Prior to OR, reported progressive sensory changes consistent with preliminary block onset
- Formal sensory testing deferred

Anesthetic Course

- No hemodynamic response to surgical incision; persistent hypotension and bradycardia without arrhythmia, requiring significant vasopressor support
- Concern for possible local anesthetic toxicity due to persistent hypotension → intravenous lipid emulsion (100 mL)
- Hemodynamics did not improve following lipid administration but instead stabilized after reducing anesthetic depth and administering IV fluids

Images

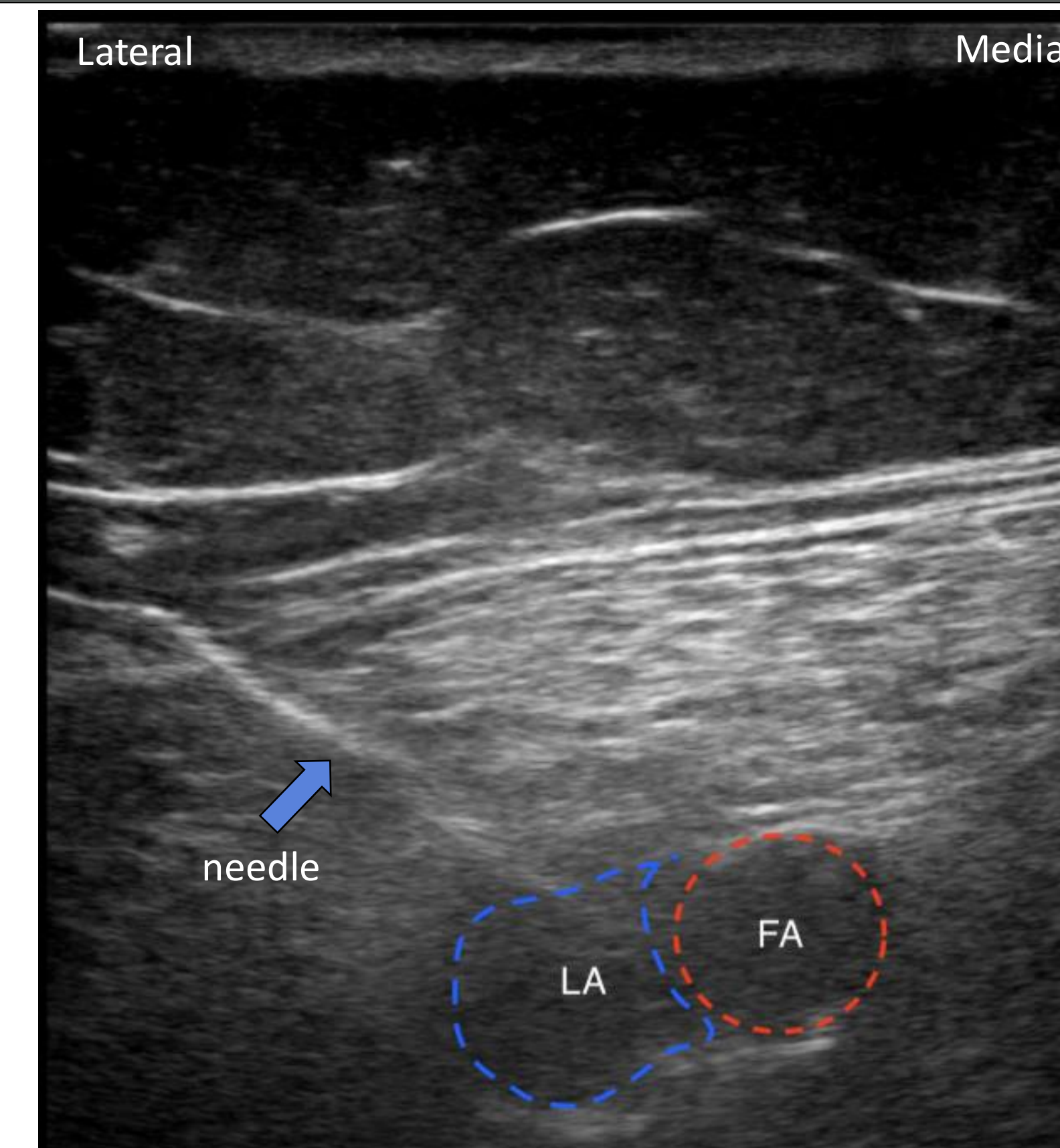


Figure 1. Ultrasound image of adductor canal block visualizing the femoral artery (FA) and local anesthetic (LA) spread

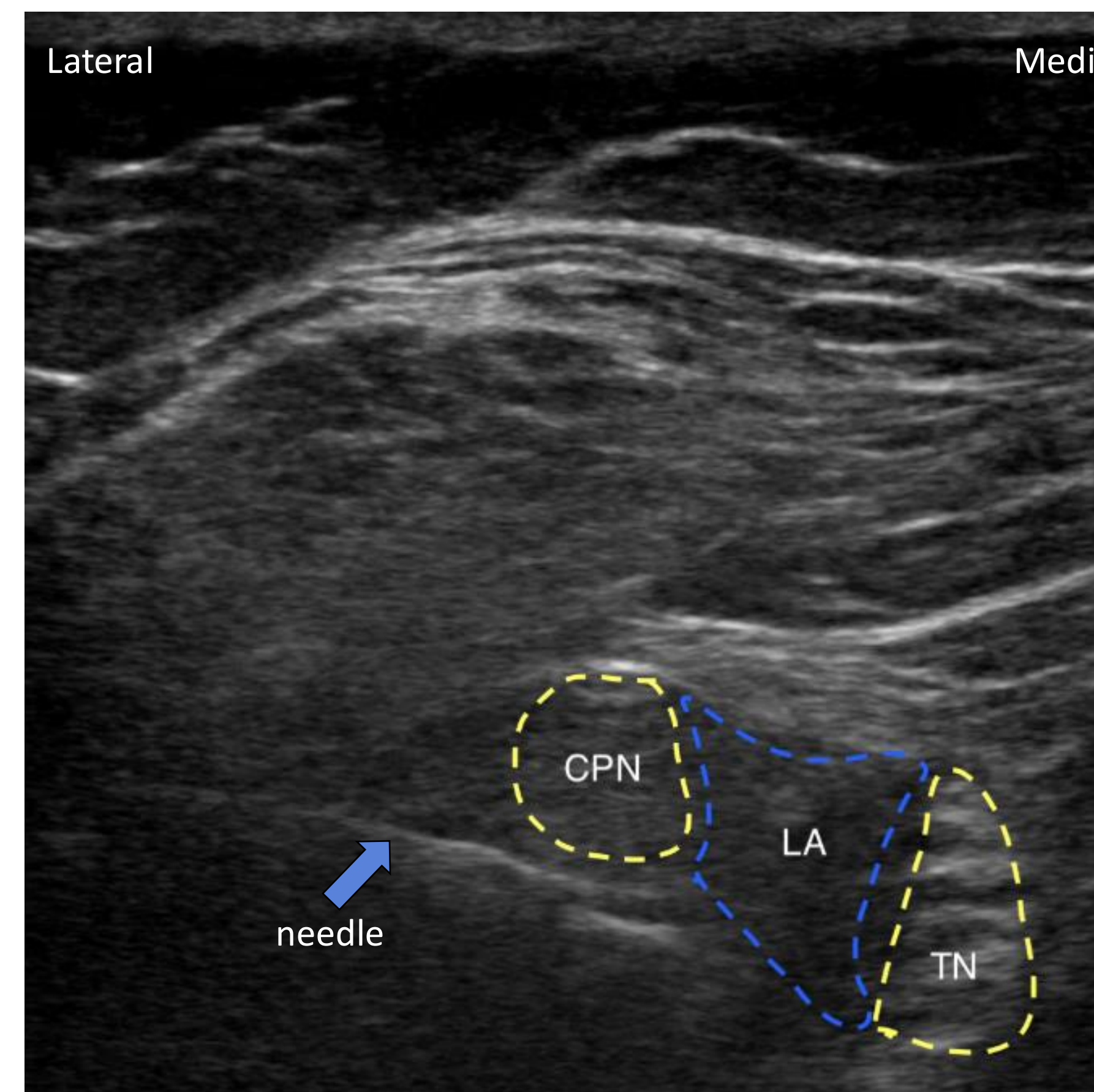


Figure 2. Ultrasound image of sciatic nerve block at the level of the popliteal fossa visualizing common peroneal nerve (CPN), tibial nerve (TN), and local anesthetic (LA) spread

Postoperative Course

- Hemodynamically stable in PACU
- Following a 90-minute surgery and 28 minutes after intraoperative intralipid administration, patient reported significant lower extremity pain with full return of sensation
- Neurologic examination in both block territories demonstrated intact sensation to pinprick and cold, with equivalency when compared to non-blocked lower extremity
- Normal motor strength without residual dermatomal deficits

Discussion

- Resolution of sensory blockade within 30 min of ILE suggests a potential lipid-mediated reversal of peripheral nerve block
- Two independently administered blocks in the same patient demonstrated full resolution of sensory and motor blockade
- The absence of lipid-responsive hemodynamic changes and preserved block efficacy prior to ILE argue against systemic toxicity and favor a pharmacokinetic interaction at the neural level
- Prior data suggest lipid sequestration may reduce effective anesthetic concentration, though effects are inconsistent⁴⁻⁵

References

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