

Suspected Early CRPS After Ulnar Nerve Revision Surgery: 60-Day Peripheral Nerve Stimulation for Pain and Functional Recovery



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BACKGROUND

Complex Regional Pain Syndrome (CRPS) is a disabling pain condition that often follows trauma. CRPS type II (CRPS-2) is defined by the presence of continuing regional pain with **confirmed peripheral nerve injury**, and it can progress rapidly from acute inflammatory features to chronic sensorimotor and trophic changes with substantial functional loss. Early recognition and targeted interventions are therefore critical to reduce long-term disability and improve outcomes.

CASE

51-year-old male with a history of left ulnar nerve injury and prior repair underwent revision surgery in August 2024, including carpal tunnel release, Guyon’s canal release, intra-neural mass excision, and anterior interosseous nerve (AIN) transfer. Postoperatively, he developed constant, throbbing pain, ulnar-sided numbness, neck pain, and impaired coordination, exacerbated by cold and activity. Examination revealed medial forearm allodynia, reduced grip strength, 3/5 intrinsic hand strength, positive Tinel’s signs at carpal and cubital tunnels, and a positive Spurling’s test. Cervical MRI showed mild degenerative changes without nerve compression. Although vasomotor changes were absent, clinical findings raised concern for early complex regional pain syndrome (CRPS).

A 60-day temporary PNS system targeting the ulnar nerve was placed. By week 4, the patient reported 50% pain relief, improved hand use, reduced neck pain, increased therapy engagement, and enhanced work function. Therapy remains ongoing, with continued functional gains observed.

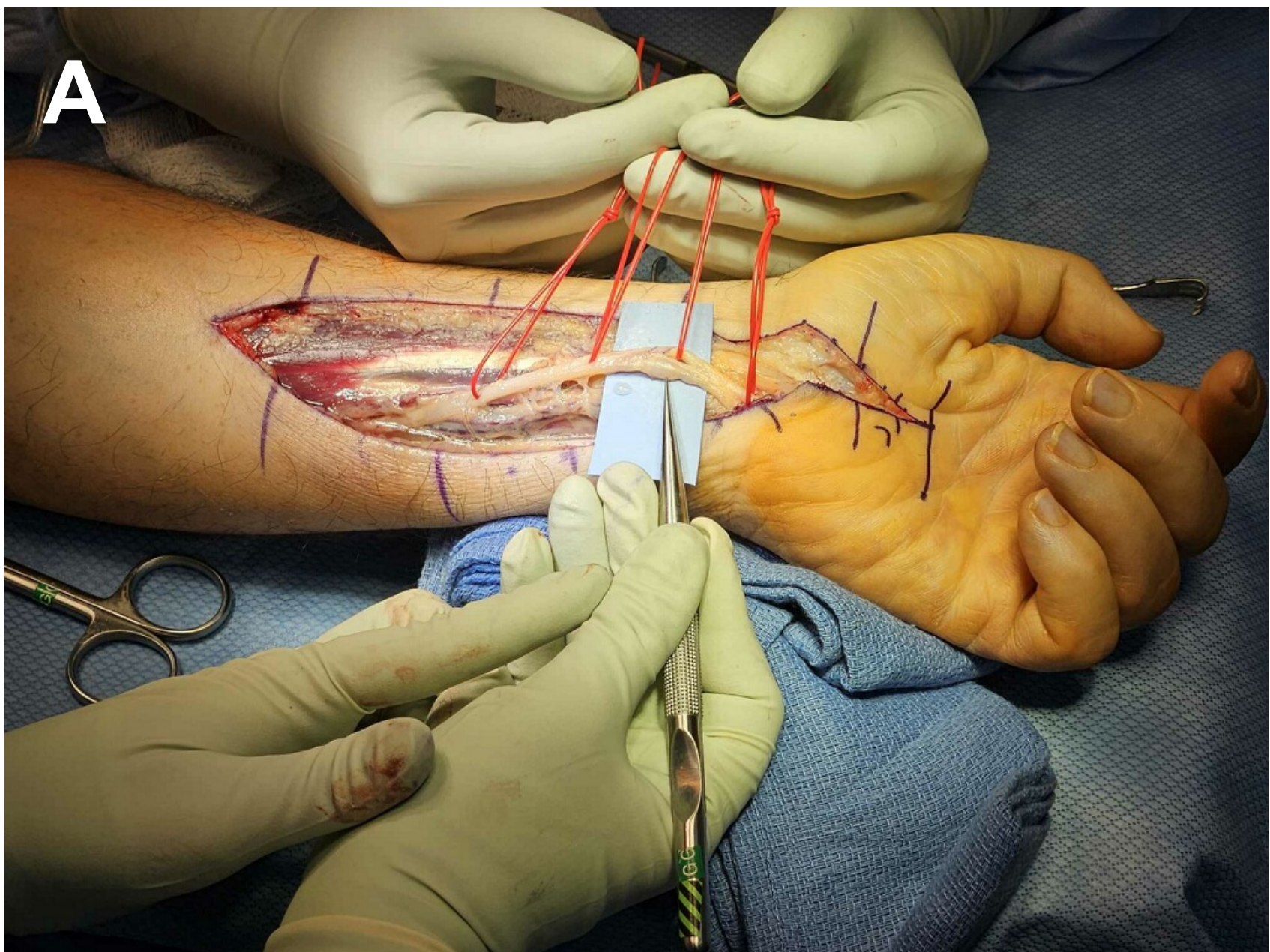


Figure A: Ulnar nerve surgery with metal pin indicating ulnar sheath tumor

Figure B: Ultrasound guided ulnar nerve block with needle placement above ulnar nerve

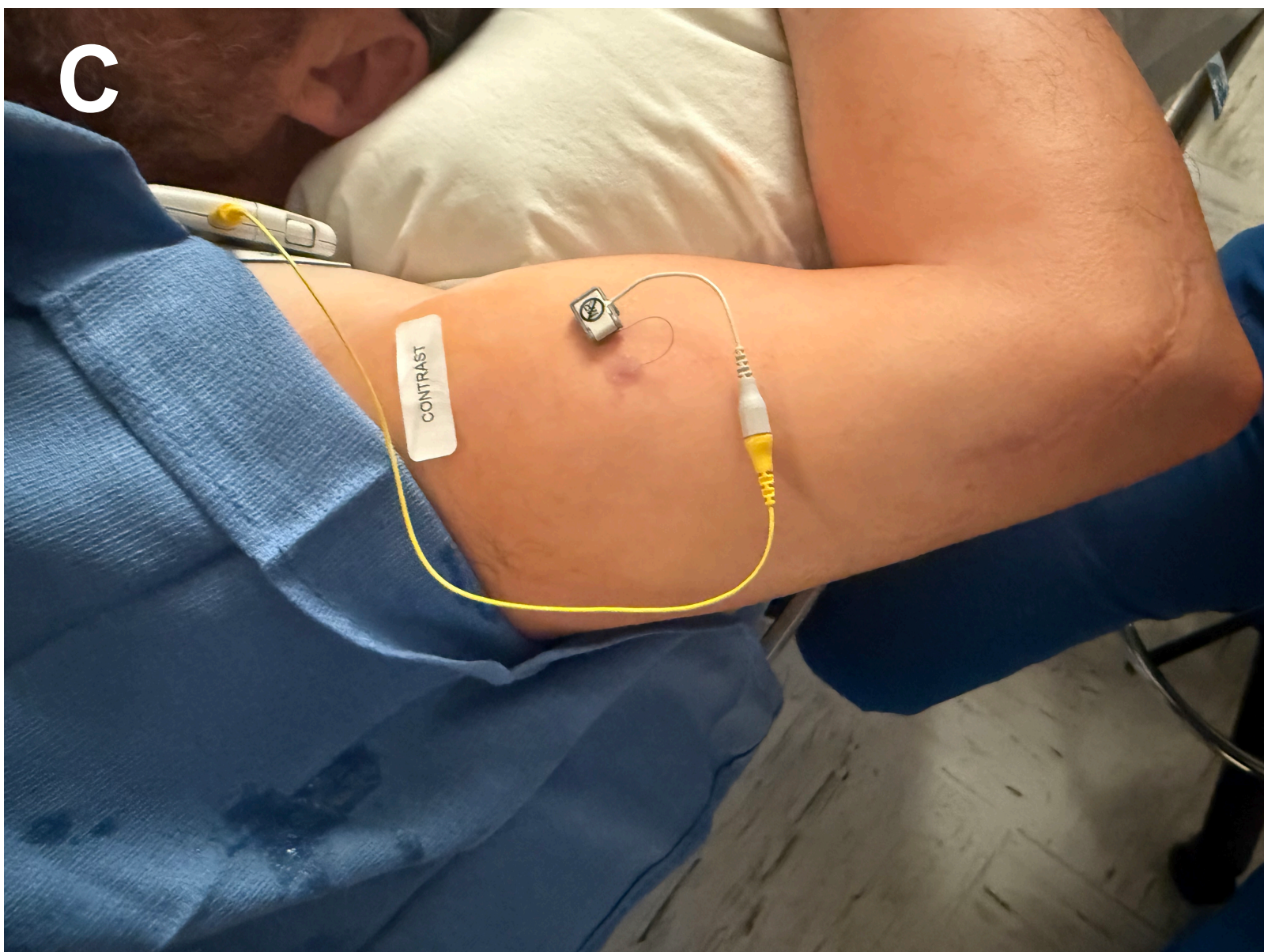


Figure C: 60-day Peripheral Nerve Stimulator final lead placement

DISCUSSION

This case demonstrates management of ulnar neuralgia with early CRPS-like symptoms following complex nerve reconstruction, with pain, cold sensitivity, allodynia, and motor deficits attributed to peripheral nerve dysfunction. A diagnostic block confirmed the etiology, and 60-day PNS led to significant pain relief and functional improvement. Early PNS use may prevent pain chronification and support rehabilitation. In this patient, targeted ulnar PNS enabled meaningful gains by week 4, aligning with Malibu guidelines emphasizing function-restoring interventions.

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