COLUMBIA

Infraclavicular Approach for Peripheral Nerve Stimulator for Cubital Tunnel Syndrome

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INTRODUCTION

- Cubital tunnel syndrome (CuTS), the second most common compressive neuropathy of the upper extremity, can result in neuropathic pain and functional impairment
- Surgical decompression and transposition are standard treatments, but patients may develop persistent or recurrent neuropathic pain.
- PNS is an option for refractory neuropathic pain, yet targeting strategies for ulnar neuropathy remain undefined.

MATERIALS/METHODS

- We present a single-patient case report of infraclavicular PNS placement for refractory cubital tunnel syndrome.
- Informed consent was obtained from the patient. As the case report is devoid of patient identifiable information, it is exempt from IRB review requirements as per Columbia University Medical Center policy.

CASE REPORT

- 25-year-old left-hand-dominant man developed chronic medial elbow pain radiating in the ulnar nerve distribution after a proximal ulna fracture in 2023.
- Symptoms included electric shock–like pain, hypersensitivity, and functional limitation despite physical therapy and gabapentin.
- He underwent ulnar nerve decompression in 2023 and ulnar nerve transposition in November 2024, with recurrent severe pain reaching 9/10 NRS after each procedure.

Infraclavicular approach to **PNS** provided immediate & sustained complete pain relief for **refractory CuTS**

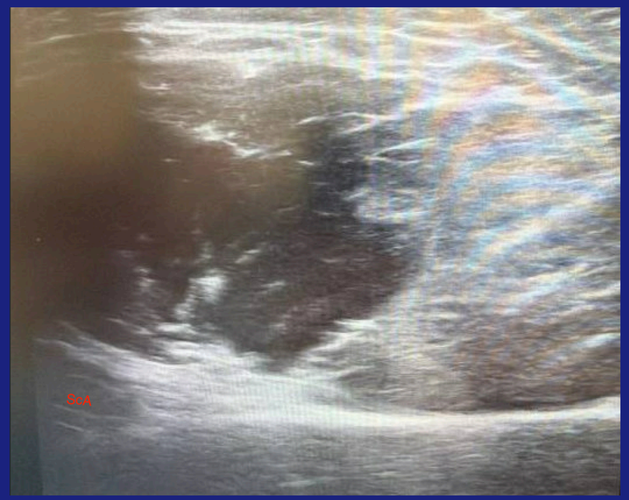


Image 1. Ultrasound guided infraclavicular peripheral nerve stimulator placement performed in the operating room in March 2026. ScA – Subclavian artery.



CASE REPORT

- Following peripheral nerve stimulation implantation, he had immediate complete pain relief (0/10 NRS) with restoration of full elbow range of motion and function.
- The device remained in place for 60 days without lead-related complications.
- At follow-up after lead removal, he maintained complete pain resolution, 5/5 strength, intact sensation, and no functional limitations.

DISCUSSION

- Case highlights the successful use of an infraclavicular approach to PNS for refractory CuTS following failed surgical intervention.
- Targeting the brachial plexus proximally offers several advantages over distal ulnar nerve stimulation, including avoidance of scarred operative fields, improved lead stability in the setting of elbow motion, and broader neuromodulatory coverage of the ulnar distribution [1-3].
- Proximal stimulation may modulate afferent signaling before distal entrapment sites, potentially enhancing efficacy [1-3].
- The patient's complete and sustained response following a positive diagnostic nerve block supports the role of careful patient selection and proximal neuromodulation strategies in focal neuropathies.

REFERENCES

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