

Peripheral Nerve Stimulation of the Radial Nerve for Refractory Complex Regional Pain Syndrome Type 2: A Case Report



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Introduction

- Peripheral nerve stimulation is well-documented treatment for radial nerve neuropathy, among other indications
- However, use for refractory complex regional pain syndrome type 2 by radial nerve not well established
- This case highlights refractory complex regional pain syndrome afflicting radial nerve distribution, and successful treatment with radial permanent peripheral nerve stimulator
- Our case shows success of permanent peripheral nerve stimulator in treating radial nerve pain associated with CRPS Type 2
- It is one of few to discuss PNS for radial nerve CRPS, providing insights into a novel treatment option where there is lack of literature for managing CRPS with radial nerve involvement.

Methods

- As case report is devoid of patient-identifiable information, it is exempt from IRB review requirements as per hospital policy

Case Report

- 35-year-old female, with history of uterine fibroids, migraine headaches and irritable bowel syndrome, presented with pain to right forearm, radiating to right hand and fingers.
- Ongoing for year following an intravenous cannula placement done for a myomectomy
- Pain persisted and increased in severity and within two months she could not use her right hand effectively

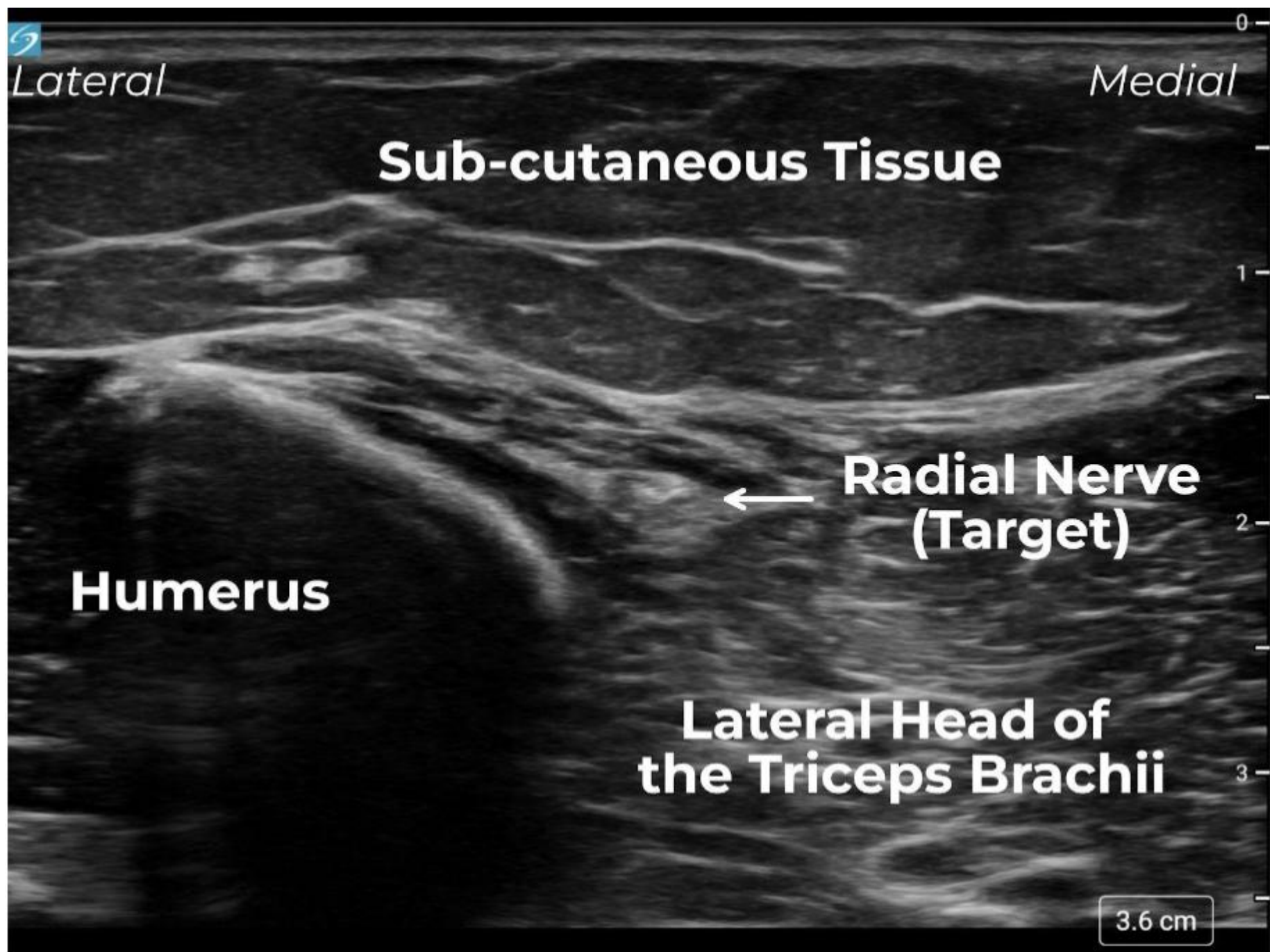


Figure 1 Radial Nerve Target on Ultrasound

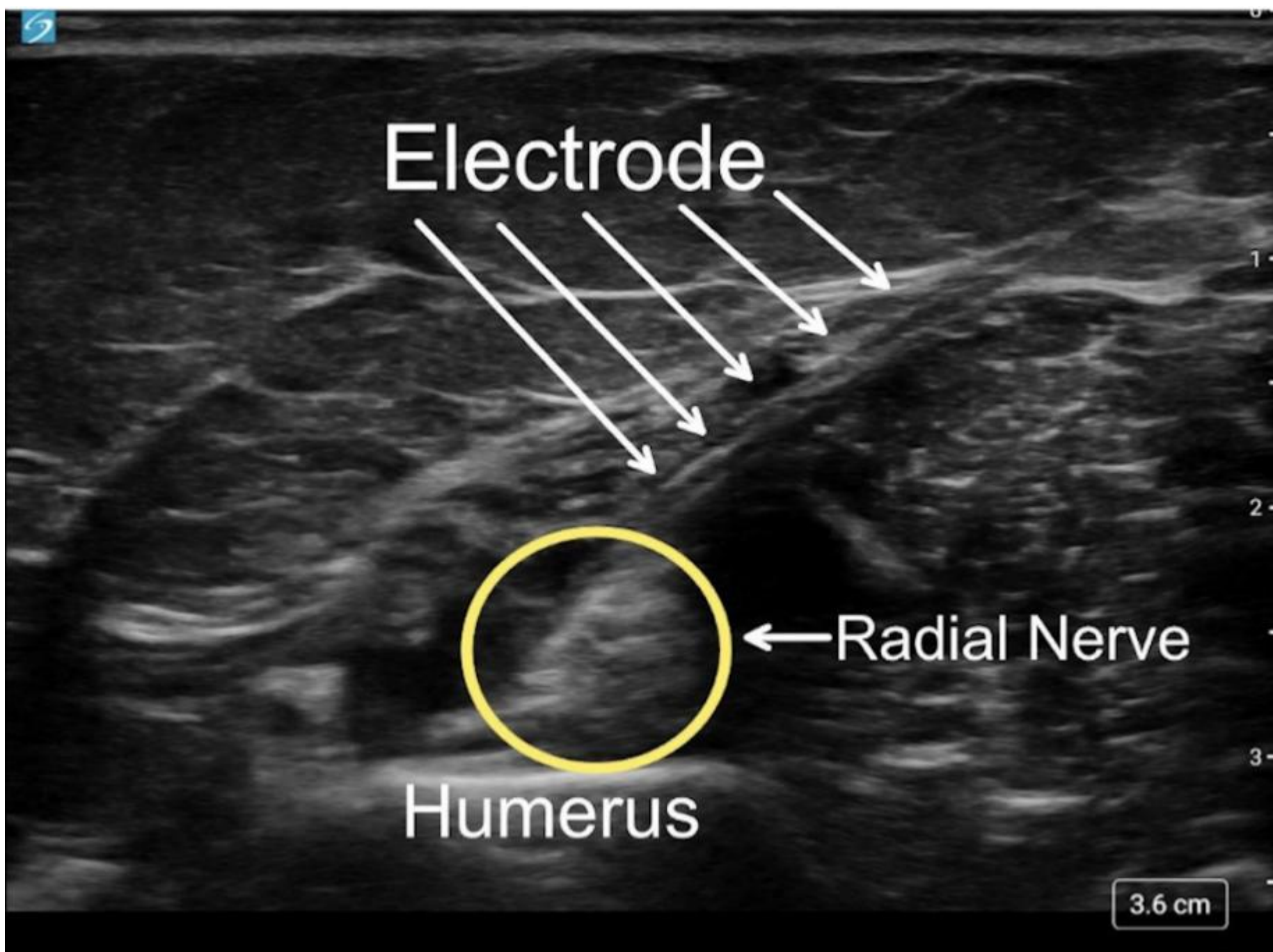


Figure 2 Radial Nerve Electrode Confirmation on Ultrasound

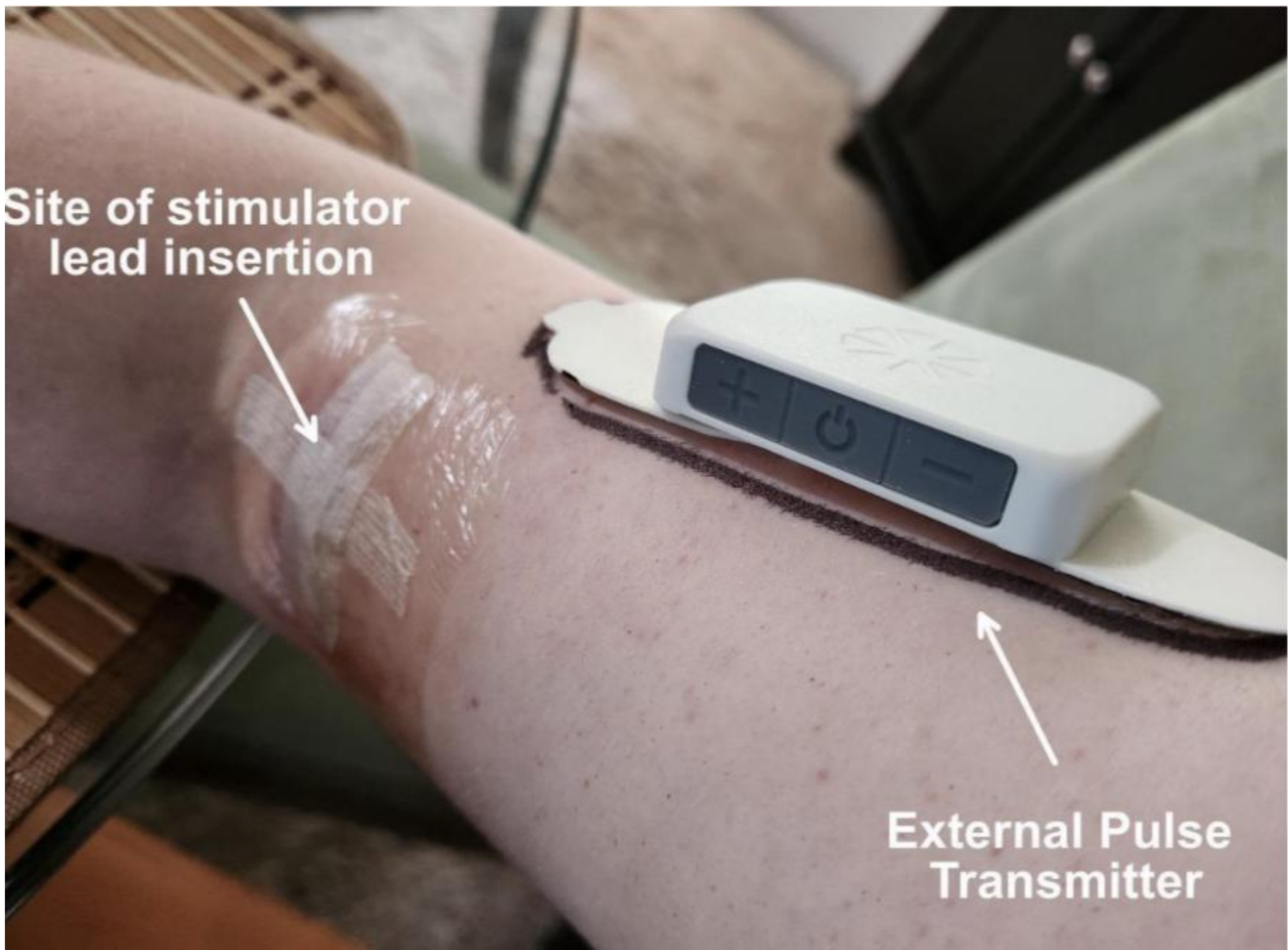


Figure 3 External Stimulate Lead and Pulse Transmitter Placement

Case Report

- Diagnosed with CRPS Type 2 and prescribed gabapentin, minimal relief.
- Physical therapy and transcutaneous electrical nerve stimulation (TENS), both no benefit. Heat compresses and ketamine, which did not help.
- Superficial radial and median nerve blocks temporarily provided more than 80% pain relief
- Stellate ganglion block was trialed and less effective
- Agreed to right radial nerve PNS trial in lower third of the arm, performed using Bioventus StimRouter based on response diagnostic radial nerve blocks
- Post-trial, she reported more than 80% pain relief, providing significant functional improvement
- Returned one week later for implantation of permanent PNS
- One-month follow-up, average pain score reduced to 3/10, and her flare-up pain reduced to 6/10
- Pain relief was when PNS was active and once unit was turned off, her pain would return to its usual level of severity.

Discussion

- Radial peripheral nerve stimulation can be effective for refractory upper extremity CRPS
- Lack of literature on radial peripheral nerve stimulation for CRPS
- We offer an approach that clinicians in future can consider when managing patients with upper extremity CRPS suspected to be related to radial nerve. However, more robust literature on peripheral nerve stimulator use in radial nerve pain is warranted
- Well-designed studies should be conducted to support radial peripheral nerve stimulation, especially in CRPS

References

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