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## CASE

A 40-year-old female 8 years status post right median nerve decompression for pronator teres syndrome with subsequent neuroma resection 4 years later presented with chronic severe allodynia, paresthesias and hyperpathia in the volar distal 2/3rd of her forearm and thenar eminence.

She tried a variety of neuropathic pain medications without improvement. Physical examination was significant for prominent allodynia in the prior described distribution. On ultra-high frequency ultrasound (UHF US) examination at 48 MHz, a neuroma was identified along the lateral antebrachial cutaneous nerve (LABCN) (Figure 1).

LABCN block provided 95% relief (Figure 2). A SPRINT<sup>®</sup> peripheral nerve stimulator was placed under ultrasound guidance. Four days after placement, she had 60% pain relief. Thereafter, she underwent neuroma excision and TMR with intraoperative confirmation of UHF US characteristics (Figures 3 and 4). At 4 weeks after neuroma resection, her average pain was a 1 to 2 out of 10.

## IMAGES

FIGURE 1: UHF US long axis view of LABCN neuroma continuity

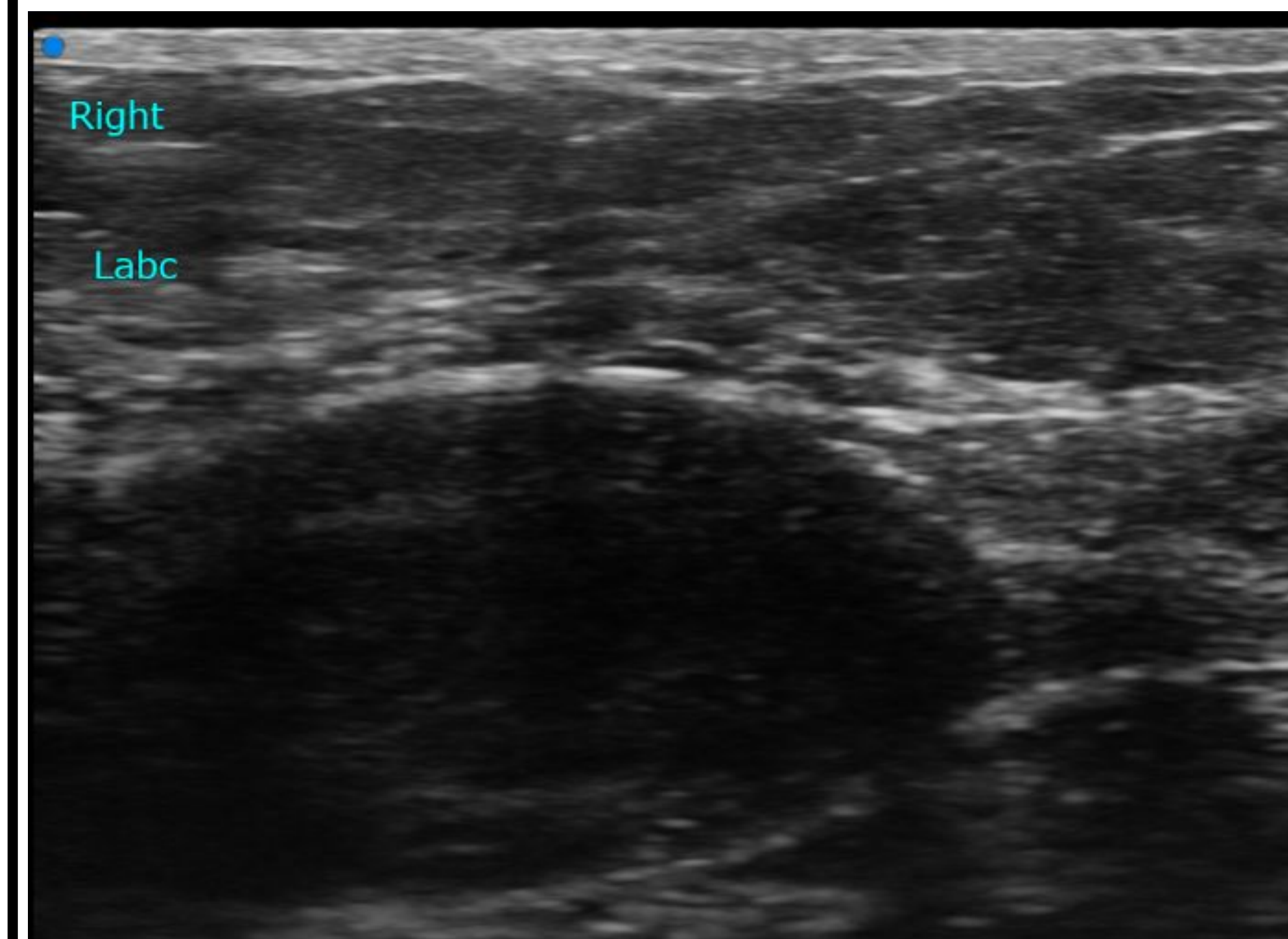


FIGURE 2: UHF US short axis view of LABCN block

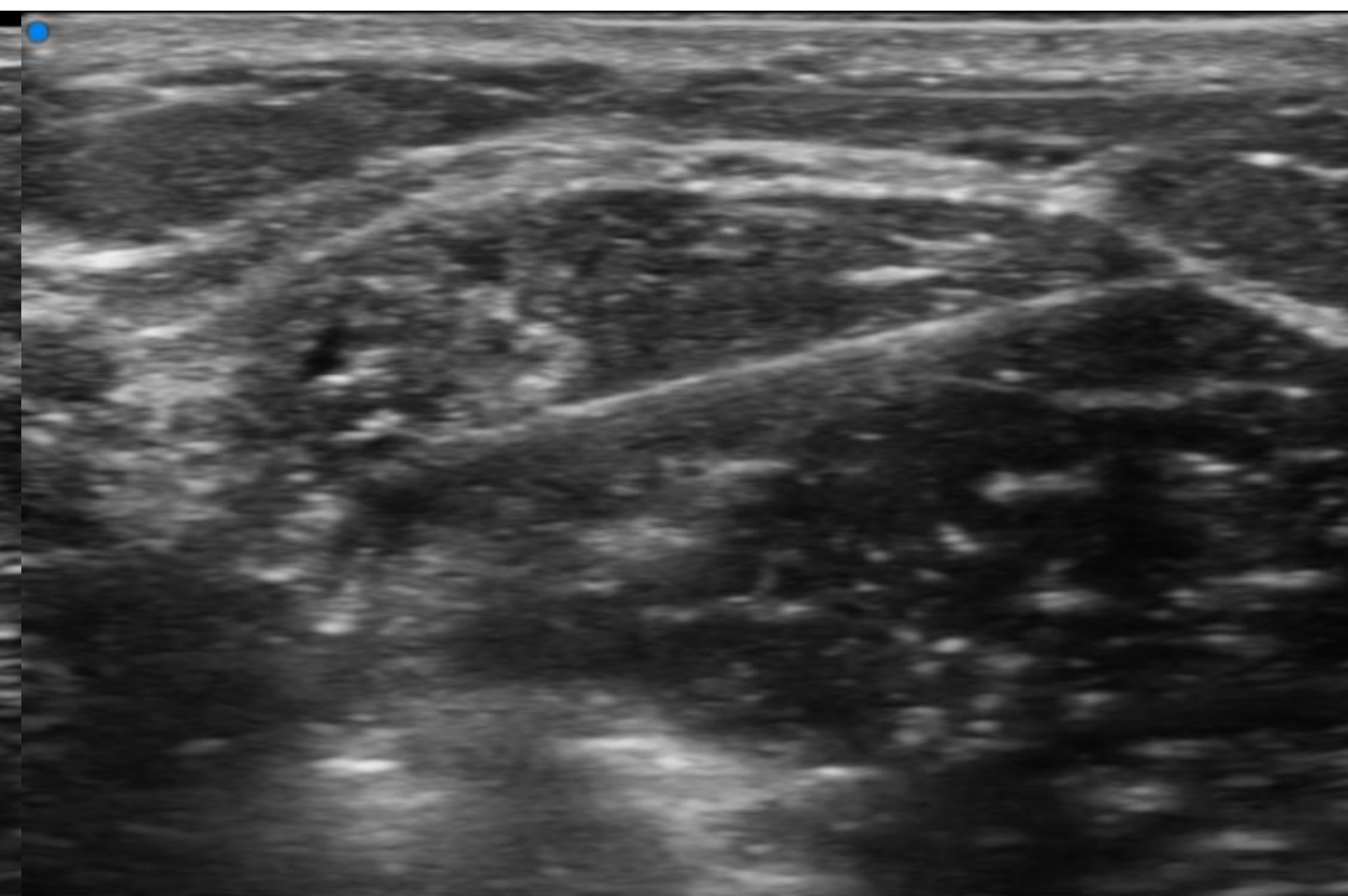


FIGURE 3: Intraoperative LABN neuroma demonstrating continuity

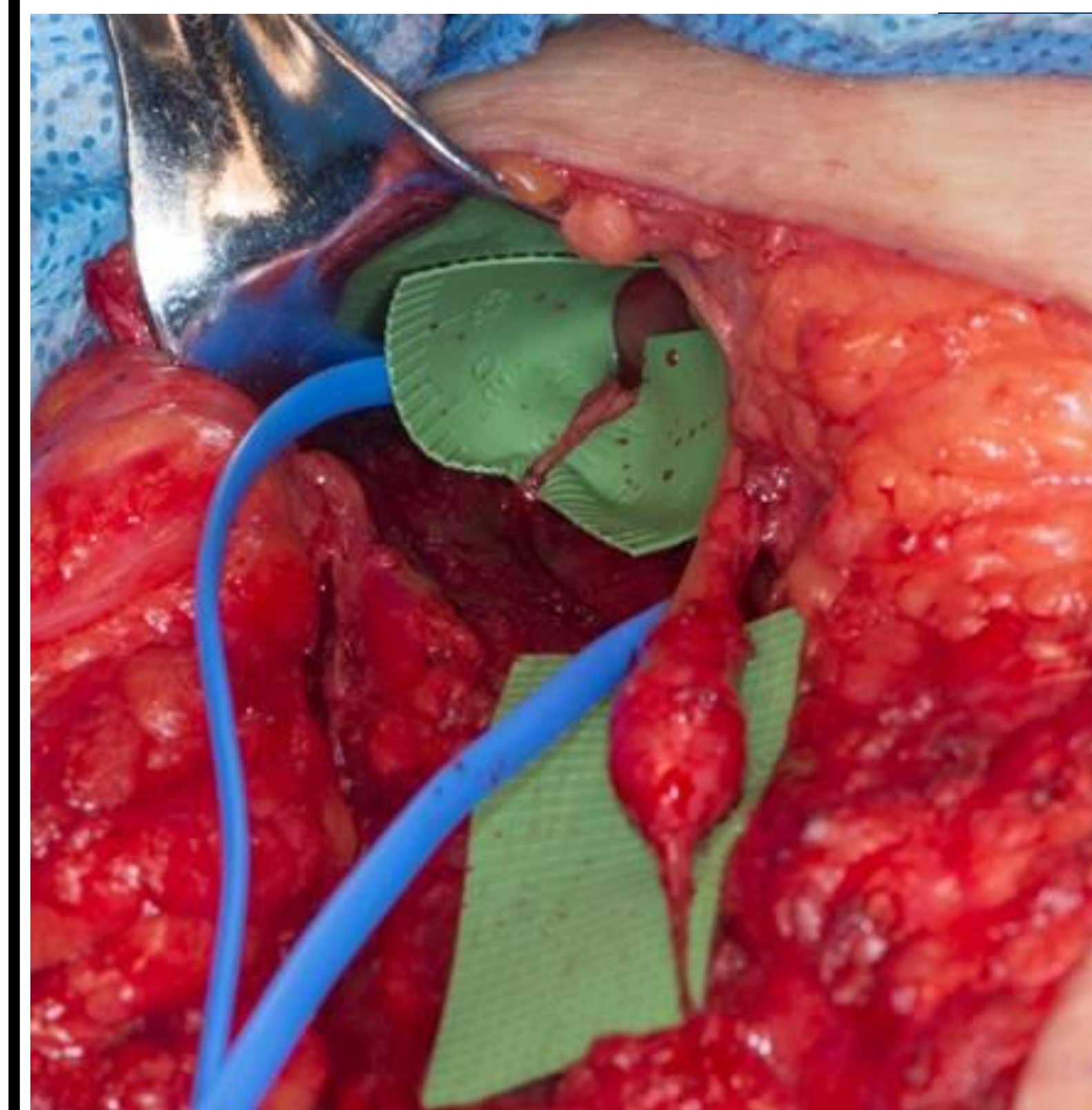


FIGURE 4: Intraoperative LABCN neuroma with measurement



## DISCUSSION

Ultra-high frequency ultrasound (UHF US) was able to accurately characterize the anatomy of our patient's LABCN neuroma, targeting the surgeon's approach to a precise region. UHF US is a new technology that can be used to identify nerve injuries which were previously unidentifiable, moving the field of interdisciplinary peripheral nerve injury management forward.

Peripheral nerve stimulation, a treatment previously applied to low back pain, shoulder pain, pelvic pain, migraines, cluster headaches, and chronic neuropathic pain, has not yet been adequately evaluated as a treatment for peripheral nerve injury.

## CONCLUSION

This patient responded well to our novel treatment protocol of UHF US surgical planning, PNS placement, and neuroma resection with TMR. Peripheral nerve stimulation's application to chronic neuroma-related pain in combination with surgical resection and TMR is an area in need of study.

## REFERENCES

1. Deer TR, et al. A Systematic Literature Review of Peripheral Nerve Stimulation Therapies for the Treatment of Pain. Pain Med. 2020;21(8):1590-1603.