

Introduction

- The COVID-19 pandemic, has had profound impacts on global health, primarily targeting the respiratory system.
- Emerging evidence suggests a significant neurological component, including headaches to severe complications like stroke and encephalitis.
- Peripheral nerve injuries, including mononeuropathies, present unique diagnostic and therapeutic challenges (1).
- We present a case of tibial nerve mononeuropathy as a consequence of COVID-19, highlighting the novel application of Peripheral Nerve Stimulation (PNS) for effective management.

Case Presentation

- 43-year-old female, history of hypertension, diabetes, depression, and anxiety, presented with persistent neuropathic pain in her right foot following a severe COVID-19 infection in 2020.
- **Pain:** 7/10 along the plantar surface of the right foot, extending to all five toes and the interdigital spaces. Constant paresthesia. Worsened by standing, walking, or wearing enclosed footwear.
- **Diagnosis:** No history of trauma, casting or hypovitaminosis. Well controlled DM with A1C 5.5%. Negative Lumbar MRI, EMG showing sensory>motor polyneuropathy. Symptoms **not attributable** to other physical injuries.
- **Medication management:** Gabapentin, Duloxetine, Tramadol, Memantine
- **Interventional approaches:** Lidocaine and ketamine infusion, capsaicin cream application, and a right posterior tibial nerve block), the patient experienced only limited and temporary relief.
- A trial with a Spinal Cord Stimulator was attempted but failed to offer significant pain relief.

Percutaneous Nerve Stimulation for Refractory Neuropathy Pain

Trial of Posterior tibial nerve percutaneous stimulation, a novel approach given her refractory pain status.

Trial: Placed under fluoroscopic and ultrasound guidance

Permanent implant: Ultrasound assisted placement



Fig 1: Trial lead location selection in proximity to medial malleolus



Fig 2: Trial lead deployment in proximity to posterior tibial nerve



Fig 3: Ultrasound identification of posterior tibial nerve for permanent implant

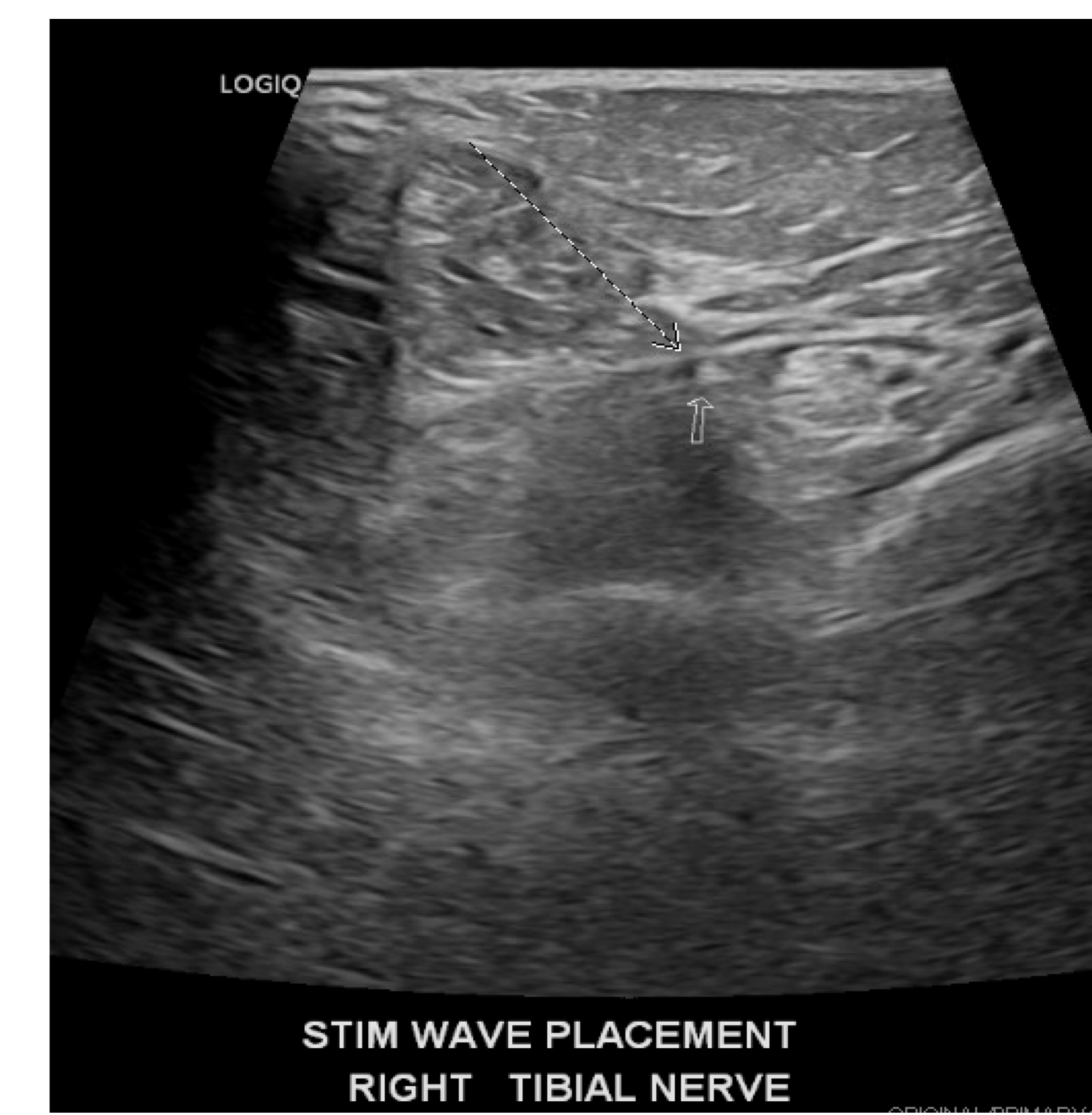


Fig 4: Ultrasound assisted placement of permanent implant in proximity to PT nerve

Results

75%

>75% pain reduction after 7 day trial period

- Activities that were once painful and challenging have become more manageable, allowing return to a more normal and active lifestyle.
- Following the success of trial, Patient opted for permanent PNS placement

Conclusions

- Peripheral nerve stimulation (PNS) proved effective for this type of refractory neuropathic pain post-severe COVID-19 (2).
- There is limited data on the literature of this use of PNS.
- This innovative approach is useful for complex cases refractory to traditional therapies, highlighting the need for personalized pain management strategies.
- The case underlines the long-term neuropathic complications from COVID-19, advocating for continued research in targeted therapies like PNS for chronic pain conditions.

References

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2. Finsterer J, Scorza FA, Scorza CA, Fiorini C. Peripheral neuropathy in COVID-19 is due to immune-mechanisms, pre-existing risk factors, anti-viral drugs, or bedding in the Intensive Care Unit. Arq Neuropsiquiatr [Internet]. 2021 [cited 2023 Dec 19];79(10):924–8. Available from: <https://pubmed.ncbi.nlm.nih.gov/34287509/>