

Introduction

- Peripheral nerve stimulators rely upon the gate control theory of pain to block nociceptive impulses from painful conditions.¹
- Peripheral nerve stimulators are generally used in refractory pain that has failed conservative measures.²
- Newer generation peripheral nerve stimulators are able to be placed using ultrasound guidance and small gauge needles, allowing for new applications in neuromodulation.³

Case

- A 41 year old female with left superficial peroneal neuropathy after a scald/burn injury in 2018
- The patient suffered 3.5% total body surface area burn to her left foot in 2018 as a work related injury. She worked as an operator at a cheese factory and was helping a new co-worker on a line who left a tub filled with 240 degree water out and she accidentally stepped into it.
- She underwent split thickness skin grafting to treat the burn. She developed sharp, stabbing, burning pain in the distribution of the superficial peroneal nerve after the injury
- On physical examination, strength was 5/5 in the lower extremities. Reflexes were 2+ in the patella and achilles. Sensory examination revealed hyperesthesia to light touch and pinprick in the on the lateral dorsal area of the left foot.
- The patient had failed multiple pharmacological modalities in treatment of superficial peroneal neuropathy including compounding cream, lidocaine infusions, and duloxetine before some success with ultrasound guided superficial peroneal nerve block.
- A peripheral stimulator was trialed with short term relief before proceeding with an implantation of a permanent Peripheral Nerve Stimulator.

Results

- The patient underwent peripheral nerve stimulator implantation successfully. Rated pain went from average of 6-7 to 4/10 in severity with downtitration of total gabapentin dose
- One year after procedure her pain continues to be improved; She has returned to work and has been deemed at end of healing.



Figure 1. XR Tib/Fib 2 views of LLE

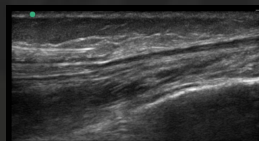


Figure 2. Longitudinal US view of PNS in situ

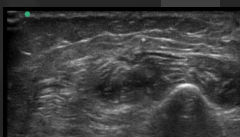


Figure 3. US Transverse view of PNS in situ

Discussion

- Peripheral Nerve Stimulation has been shown to be an effective treatment for intractable pain refractory to conservative treatment.¹
- This technique has been demonstrated to be a safe in chronic pain for at least 12 years.⁴
- Given technological advances including ultrasound guided placement, this may become a more widely adopted technique to treat refractory pain that any practitioner treating chronic pain should become familiar with.²
- To date, there have been few if any case reports to our knowledge in Peripheral Nerve Stimulators treating neuropathy due to burns.
- This treatment has allowed the patient to return to work and to reduce dosing of her medication, while maintaining efficacy.

Conclusion

- A peripheral nerve stimulator may be an effective treatment for superficial peroneal neuropathy after thermal injury that is refractory to standard treatment.

References

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