Planned Spinal Cord Stimulator Generator Explantation with Reimplantation After Significant Weight Loss

Benjamin Gill, DO, MBA; Ebby Varghese, MD
University of Missouri Department of Physical Medicine and Rehabilitation

School of Medicine
University of Missouri

Pain 2021: A Whole New World
ASRA
20th Annual Pain Medicine Meeting
November 18-20, 2021 | San Francisco, CA
#ASRAFALL21

Introduction

The effects of planned intensive weight loss, including bariatric surgery, on SCS effectiveness has not yet been established. This case series discusses two patients with planned SCS generator explantation with subsequent reimplantation following significant weight loss.

Patient Characteristics

Patient A: 48-year-old male

- Dx: Lower extremity neuropathic pain
- SCS therapy for 9 years
- Presented with a defective (failed to charge) SCS, although the device previously provided benefit
- With a planned bariatric surgery, SCS generator was removed with preservation of stimulator leads

Patient B: 50-year-old female

- Dx: CRPS
- SCS therapy for 2 years
- Presented with progressive pain at generator implant site following Roux-en-Y gastric bypass 5 months previously and reduction of over 30 kg body mass
- Underwent generator explanation with retention of stimulator leads

Results

Patient A:

- Underwent Roux-en-Y gastric bypass at 15 months after generator removal.
- Over the following 9 months (a total of 2 years following SCS generator explantation), body mass index (BMI) decreased from 55 to 37 kg/m².
- Considering weight stabilization, a replacement generator was implanted in previous pocket, utilizing the intact dorsal column stimulator leads.
- The patient reported satisfaction with implant and reduction in pain at 3 months after implantation.

Patient B:

- Continued medically supervised weight loss for one year after generator removal
- Successfully reached a BMI of 26 kg/m² from a previous BMI of 50 kg/m2.
- At one year after generator removal, a new SCS generator was implanted and connected to previous intact leads.
- Patient reported ongoing benefit from SCS at 18 months following implantation.

	Patient A	Patient B
Demographics	48 yo M	50 yo F
SCS treatment diagnosis	Lower extremity neuropathy	Complex regional pain syndrome
Duration of SCS therapy before explantation	9 years	2 years
Time without SCS	24 months	12 months
BMI change at time of re-implantation	-18 kg/m²	-24 kg/m²

This investigation was performed with the approval of the University of Missouri Human Subjects Review Board and patient consent was obtained.

Discussion

The most common reasons for SCS device explantation include inadequate efficacy, hardware discomfort, need for magnetic resonance imaging, or infection.

This is the first study reporting SCS generator explantation for planned, medically guided weight loss.

Device explantation has potential to decrease the risk of generator pocket dehiscence and/or pain at generator site during weight loss. Further, this approach (SCS generator explantation followed by a replacement implantation when the weight loss reaches a stable level) introduces opportunities for adjustments in SCS therapy such as implementation of a smaller battery or creation of a new battery site.

Conclusion

Overall, this strategy may avoid adverse consequences associated with the SCS battery during a planned, medically guided weight loss process.

References

- Dupré DA, Tomycz N, Whiting D, Oh M. Spinal Cord Stimulator Explantation: Motives for Removal of Surgically Placed Paddle Systems. Pain Pract. 2018;18(4):500-504. doi:10.1111/papr.12639
- Simopoulos T, Aner M, Sharma S, Ghosh P, Gill JS. Explantation of Percutaneous Spinal Cord Stimulator Devices: A Retrospective Descriptive Analysis of a Single-Center 15-Year Experience. Pain Med. 2019;20(7):1355-1361. doi:10.1093/pm/pny245
- Han JL, Murphy KR, Hussaini SMQ, et al. Explantation Rates and Healthcare Resource Utilization in Spinal Cord Stimulation. Neuromodulation. 2017;20(4):331-339. doi:10.1111/ner.12567
- Pope JE, Deer TR, Falowski S, et al. Multicenter Retrospective Study of Neurostimulation With Exit of Therapy by Explant. Neuromodulation. 2017;20(6):543-552. doi:10.1111/ner.12634