

Epidural Hematoma Leading to Paraplegia After Spinal Cord Stimulator Implantation: A Case Report

Karen Luna MD, Damilola Gbadebo MD, Fatma Segmen MD, Mark Caramore MD, Krishna S. Topalli MD
ODU/EVMS PM&R Residency



Introduction

Spinal cord stimulation (SCS) is an established treatment for refractory chronic pain with a favorable safety profile.

Rare complications such as postoperative epidural hematoma can cause catastrophic neurological injury, requiring urgent recognition and decompression.

We report a case of delayed epidural hematoma following SCS implantation that resulted in acute paraplegia.

Case Report

A 44-year-old female with a history of chronic low back pain, who had demonstrated significant pain relief during a prior SCS trial, underwent a partial T10–T11 laminectomy for placement of a dorsal column stimulator and rechargeable implantable pulse generator. Her immediate postoperative course was unremarkable. On postoperative day (POD) two, she was ambulating with the assistance of a walker, and was discharged home neurologically intact.

On POD three, the patient developed sudden-onset flaccid paraplegia accompanied by complete sensory loss below the T10 dermatome. She was emergently readmitted and underwent immediate surgical re-exploration. Intraoperatively, an extensive epidural hematoma spanning T8–T11 was identified. Decompressive laminectomies at T8, T9–T10, and T11 were performed, with evacuation of the hematoma and removal of the stimulator system.

Postoperative magnetic resonance imaging (MRI) demonstrated cord signal abnormalities at T7–T8 and a short-segment ventral cord abnormality at T3–T4, consistent with compressive myelopathy. The patient was subsequently admitted to inpatient rehabilitation for management of acute paraplegia complicated by neurogenic bowel and bladder. Neurological evaluation determined her classification as T2, ASIA D, according to the American Spinal Injury Association (ASIA) Impairment Scale.

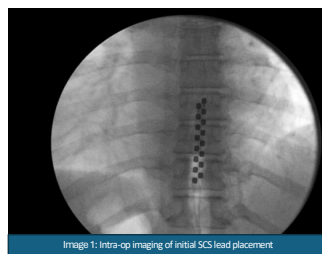


Image 1: Intra-op imaging of initial SCS lead placement

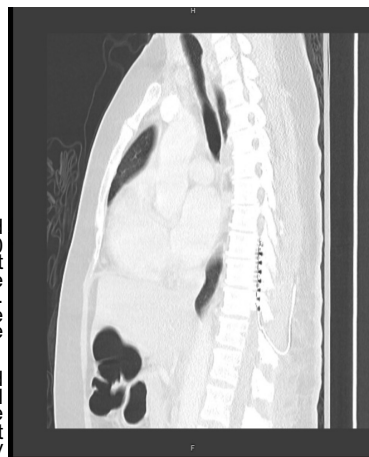


Image 2: CT image reference of SCS lead placement location



Image 3: MRI of seroma with spinal cord hyperintensities spanning T8 to T11

Discussion

Epidural hematoma is a rare but serious complication of spinal procedures, including SCS implantation.

Though incidence is low, outcomes can be catastrophic if not promptly addressed.

This case illustrates delayed neurological deterioration after discharge, emphasizing the need for patient education and close surveillance.

Emergent surgical evacuation remains the standard of care, with prognosis closely tied to timing of intervention.

Despite urgent decompression, deficits may persist, underscoring the unpredictable recovery associated with spinal cord compression.

References

1. Bendersky D, Yampolsky C. Is spinal cord stimulation safe? A review of its complications. *World Neurosurg.* 2014;82(6):1359-1368.
2. Incidence of Neuraxial and Non-Neuraxial Hematoma Complications From Spinal Cord Stimulator Surgery: Systematic Review and Proportional Meta-Analysis. West T, Driver CN, D'Souza RS. *Neuromodulation: Journal of the International Neuromodulation Society.* 2023;26(7):1328-1338. doi:10.1016/j.neurom.2022.07.005.
3. Evaluating the Incidence of Spinal Cord Injury After Spinal Cord Stimulator Implant: An Updated Retrospective Review. Hussain N, Gill J, Speer J, et al. *Regional Anesthesia and Pain Medicine.* 2022;47(7):401-407. doi:10.1136/rapm-2021-103307.