

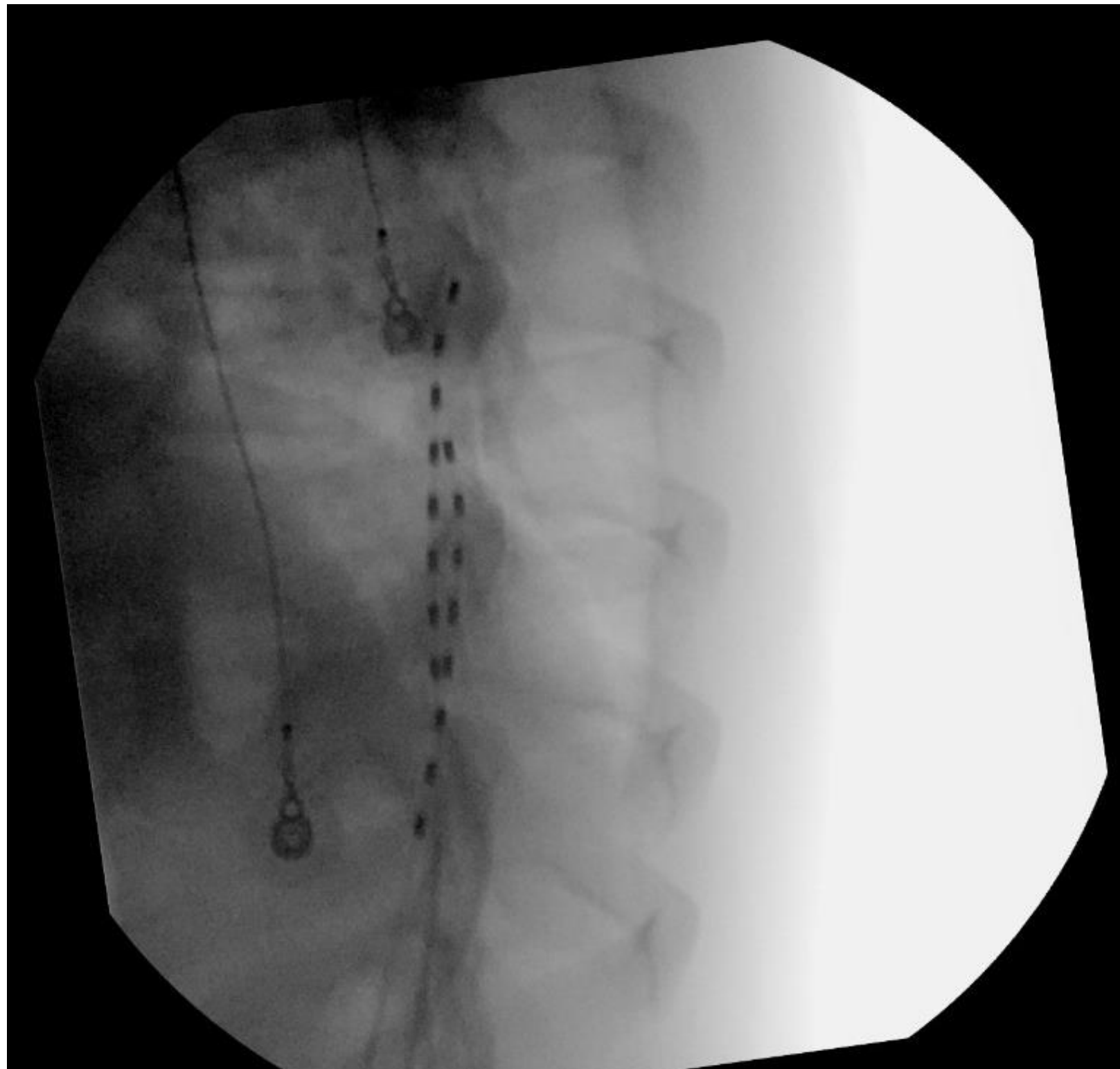
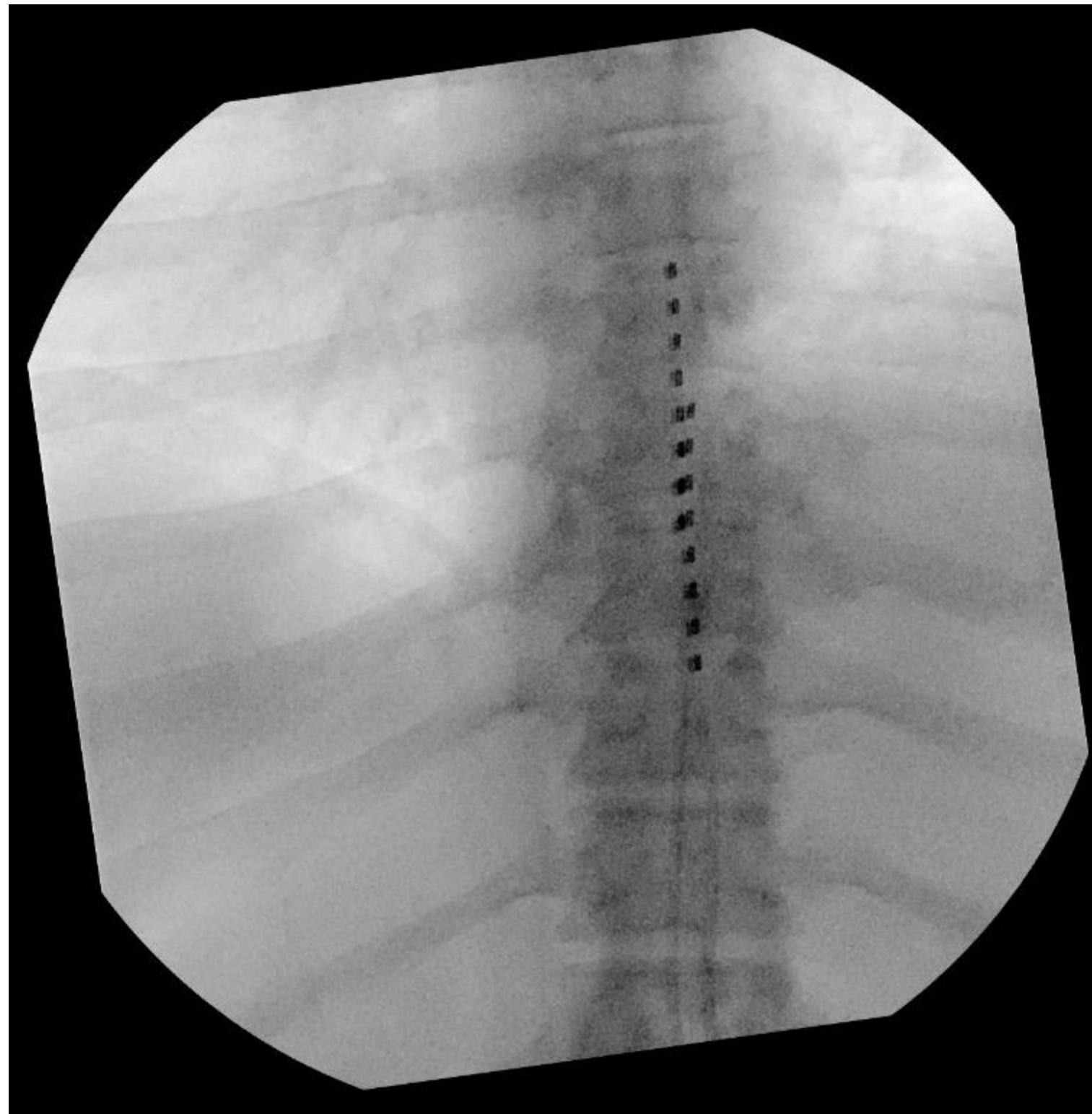
# Possible thalamic pain syndrome after a spinal cord stimulator trial: A case of exaggerated response and central sensitization

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| INTRODUCTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RESULTS/FINDINGS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | DISCUSSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| <ul style="list-style-type: none"><li>Spinal Cord Stimulation (SCS): well established treatment for post-laminectomy syndrome<sup>1</sup>.</li><li>Generally safe. Post-procedural pain is typically minor and transient.</li><li>We present a case of <b>dramatic and functionally disabling pain flare after SCS trial</b>.</li><li>Later found to have thalamic infarct.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ul style="list-style-type: none"><li>Leads removed. Neurologic function intact. Neurosurgery consulted.</li><li>Lumbar CT: no compressive lesion. Admission for inpatient pain management.</li><li>Meds included IV hydromorphone, oral methadone, pregabalin, nortriptyline, steroids, NSAIDs.</li><li>15 D post-op: <b>slurred speech. Code stroke</b>. Brain MRI: <b>Remote Right Thalamic Lacunar Infarct</b>.</li><li>Neurology consult suspected <b>chronic ischemic lesion</b>.</li><li>Discharged home on oral methadone, pregabalin, nortriptyline.</li><li>Following months: <b>L-sided pain gradually improved. R-sided pain persisted</b>. Methadone tapered, duloxetine added. Outpatient PT. Neurology suggested a diagnosis of <b>thalamic pain syndrome</b>.</li></ul> | <p>We propose a possible <b>two-hit hypothesis</b>: A previously silent thalamic infarct may have sensitized the patient’s central pain pathways. In post-thalamic pain syndrome, disruption of the spinothalamic tract leads to <b>disinhibition, hyperexcitability, and impaired pain modulation</b>. Computational models have suggested that <b>SCS may paradoxically amplify nociception via aberrant dorsal horn circuits</b><sup>2-4</sup>. This case highlights the potential for unexpected SCS responses in patients with undiagnosed central lesions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| CASE DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FIGURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | REFERENCES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"><li>51-year-old male with prior L5-S1 hemilaminectomy, microdiscectomy, transforaminal lumbar interbody fusion.</li><li>Referred for SCS due for persistent <b>right-sided radicular pain</b>, failed conservative management.</li><li>Using a wireless external neurostimulator, a right-sided lead was placed to T8, and a left sided lead to T7 under continuous fluoroscopic guidance under anesthesia.</li><li>Following immediate post-op repositioning to supine, complained of <b>severe pain down the left, previously asymptomatic leg</b>.</li><li>Brought to PACU, given pain medications.</li><li><b>SCS was turned on, found to only exacerbate pain</b>.</li><li>This case report does not contain identifiable patient information and is exempt from IRB review under NYU and NYC-HHC policy. Informed consent was obtained from the patient for academic presentation.</li></ul> | <div><div><p>Fig. 1: Lead Placement, Lateral View</p></div><div><p>Table 2: Lead Placement, AP View</p></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <ol style="list-style-type: none"><li>Pope JE, Deer TR, Sayed D, et al. The American Society of Pain and Neuroscience (ASPN) Guidelines and Consensus on the Definition, Current Evidence, Clinical Use and Future Applications for Physiologic Closed-Loop Controlled Neuromodulation in Chronic Pain: A NEURON Group Project. J Pain Res. 2025;18:531-551. Published 2025 Feb 3. doi:10.2147/JPR.S475527</li><li>Gilbert JE, Zhang T, Esteller R, Grill WM. Network model of nociceptive processing in the superficial spinal dorsal horn reveals mechanisms of hyperalgesia, allodynia, and spinal cord stimulation. J Neurophysiol. 2023;130(5):1103-1117. doi:10.1152/jn.00186.2023</li><li>Sun L, Peng C, Joosten E, et al. Spinal Cord Stimulation and Treatment of Peripheral or Central Neuropathic Pain: Mechanisms and Clinical Application. Neural Plast. 2021;2021:5607898. Published 2021 Oct 21. doi:10.1155/2021/5607898</li><li>Meyer-Frießem CH, Wiegand T, Eitner L, et al. Effects of Spinal Cord and Peripheral Nerve Stimulation Reflected in Sensory Profiles and Endogenous Pain Modulation. Clin J Pain. 2019;35(2):111-120. doi:10.1097/AJP.0000000000000661</li></ol> |

