

DIFFICULT SPINAL CORD STIMULATION LEAD PLACEMENT DUE TO THORACIC SPINAL STENOSIS IN A PATIENT WITH MULTI-LEVEL SPINAL SURGERY

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Introduction

- Spinal cord stimulators (SCS) are recognized as effective for managing chronic pain in patients with spinal stenosis following lumbar surgery. [1]
- Percutaneous lead insertion offers a less invasive alternative, reducing complications. [2]
- However, in patients with multi-level fusion and thoracic ossification of the ligamentum flavum, this method can fail.
- This case underscores the need for early, comprehensive imaging and surgical consultation in patients with complex anatomical challenges from prior surgeries or activity limitations.
- Our experience suggests that a customized SCS lead placement strategy is crucial for optimal therapeutic results

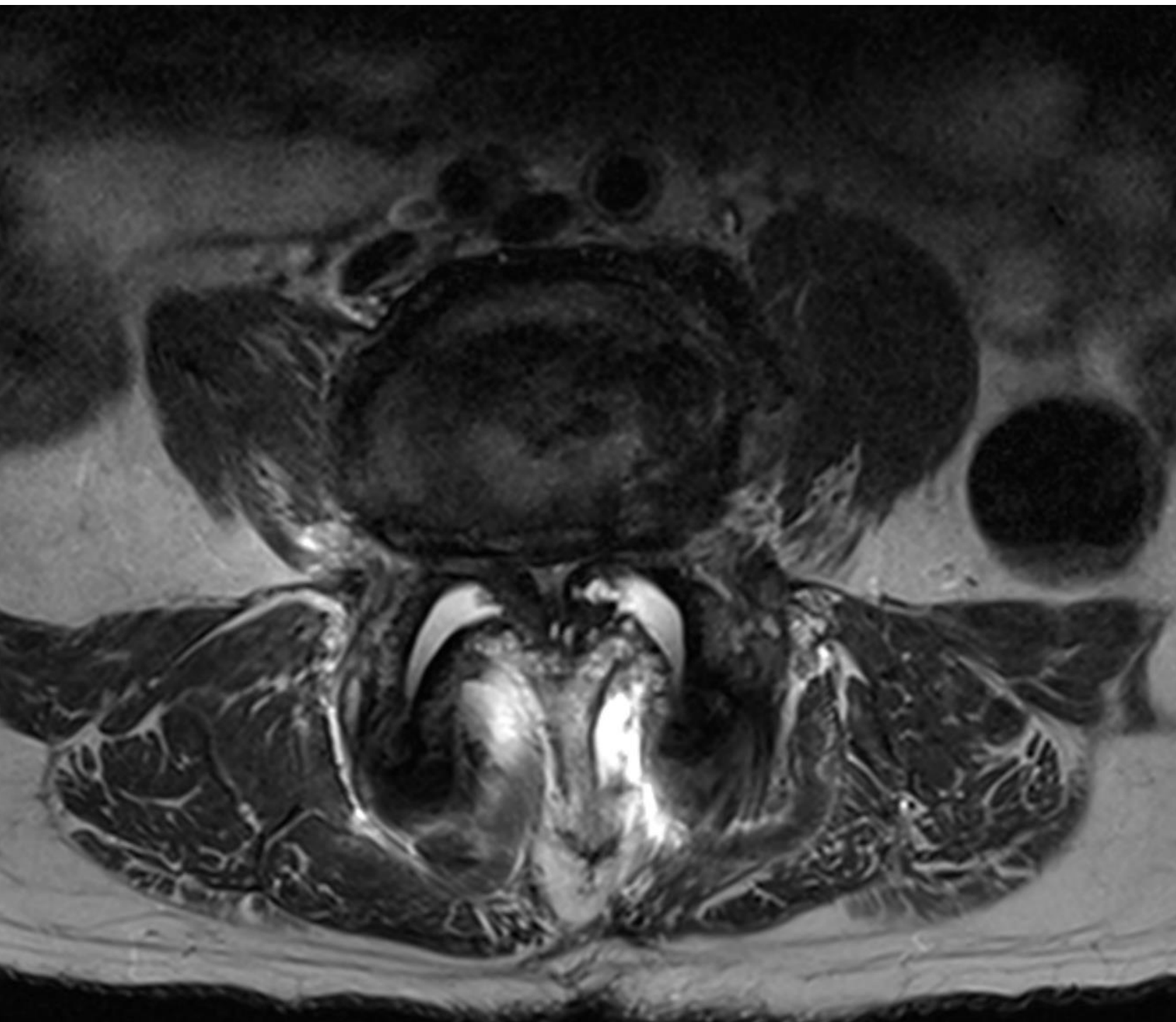
Methods

- According to Asan Medical Center policy, the case report is exempt from IRB review requirements.
- The informed consent for the publication of this case report was obtained from the patient.

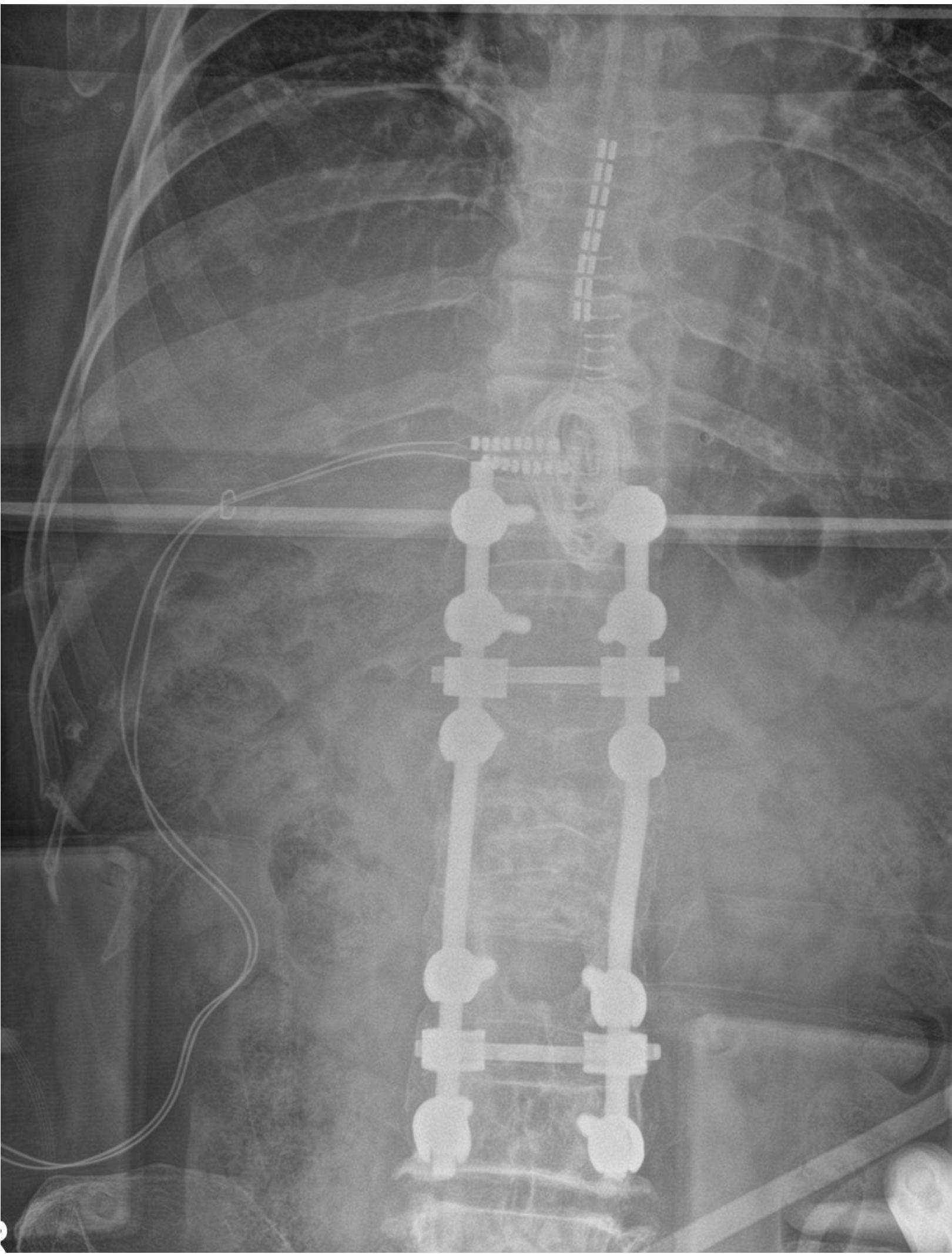
History of present illness

- A 70-year-old female with a past traumatic L3 burst fracture and subsequent T11 to L4 posterior fusion presented with persistent stabbing pain (NRS 8) in her right leg.
- Previous treatments including multiple lumbar epidural steroid injections and neuroplasty using balloon catheter were ineffective.
- Nerve conduction studies and a lumbar spinal MRI confirmed severe L4/5 spinal stenosis and diffuse lumbosacral polyradiculopathy.

Imaging



L4-5 Axial MRI of the Lumbar Spine (↑)



Plain X-ray image after surgical SCS lead placement (→)

Treatment

- An initial percutaneous attempt to place the SCS lead under local anesthesia was aborted due to epidural adhesion indicated by resistance and inadequate stimulation.
- A T9 laminectomy was performed to enable the direct insertion of the SCS lead, during which ossification and hypertrophy of the ligamentum flavum were discovered, necessitating a more extensive laminectomy than initially planned to ensure effective lead placement.
- Following the surgery, the SCS was permanently placed without complications.

Discussion

- Thoracic spinal stenosis is a rare condition that can arise from causes such as ossification of the posterior longitudinal ligaments (OPLL) and ossification of the ligamentum flavum (OLF).[3]
- This case, involving a patient with several risk factors—previous spinal surgeries, existing lumbar stenosis, advanced age, East Asian ethnicity, and significant mobility restrictions—highlights the complexities of percutaneous SCS placement due to multifocal stenosis.[4,5]
- For patients predisposed to thoracic spinal stenosis, particularly those with extensive surgical histories, updated MRI or CT scans of the thoracolumbar or entire spine are essential.
- These imaging studies not only confirm the diagnosis but also aid in planning strategic surgical interventions.
- Prompt and customized management is crucial for the successful implantation of SCS and optimal treatment of thoracic spinal stenosis.

References

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