



Contingency Planning for Lumbar Fusion Extension with IDDS In Situ

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Introduction

- **Adjacent Segment Disease** and chronic low back pain remain challenging to manage in patients with prior spinal fusion.
- **Intrathecal drug delivery systems (IDDS)** offer durable pain control for refractory cases, but their presence introduces complexity when subsequent spinal surgery is required.
- Careful **multidisciplinary planning** is essential to balance operative goals with preservation of existing pain management hardware.

Review: What is Adjacent Segment Disease?

- Adjacent Segment Disease (ASD) is a late complication **of lumbar fusion** that develops at mobile segments above or below a fused spinal segment.
- It has broad meaning and there are various abnormal processes that can result in this condition. These include: listhesis, instability, disc extrusion, herniated nucleus pulposus, stenosis, vertebral compression fracture, among others.
- There is a wide range of **incidence ranging from 5.2% to 100%** according a metanalysis of 22 studies.

Patient History

- A 55-year-old female with chronic low back pain and post-laminectomy syndrome had previously undergone a **posterior lumbar interbody fusion (L4–S1) in 2004**, which resolved radicular symptoms but left persistent axial pain.
- Conservative therapies and multiple interventional procedures (lumbar epidural steroid, sacroiliac joint, and selective nerve root injections)—provided incomplete or transient relief.
- In **2014**, an **intrathecal drug delivery system (IDDS)** was implanted for refractory pain. At the time, she described constant burning low back pain rated 7/10 with intermittent spasms and electric shocks radiating down both legs.
- The system was programmed for **continuous intrathecal morphine infusion at 100 mcg/day (1000 mcg/mL)**, resulting in sustained analgesia and restoration of functional activity over the following decade.

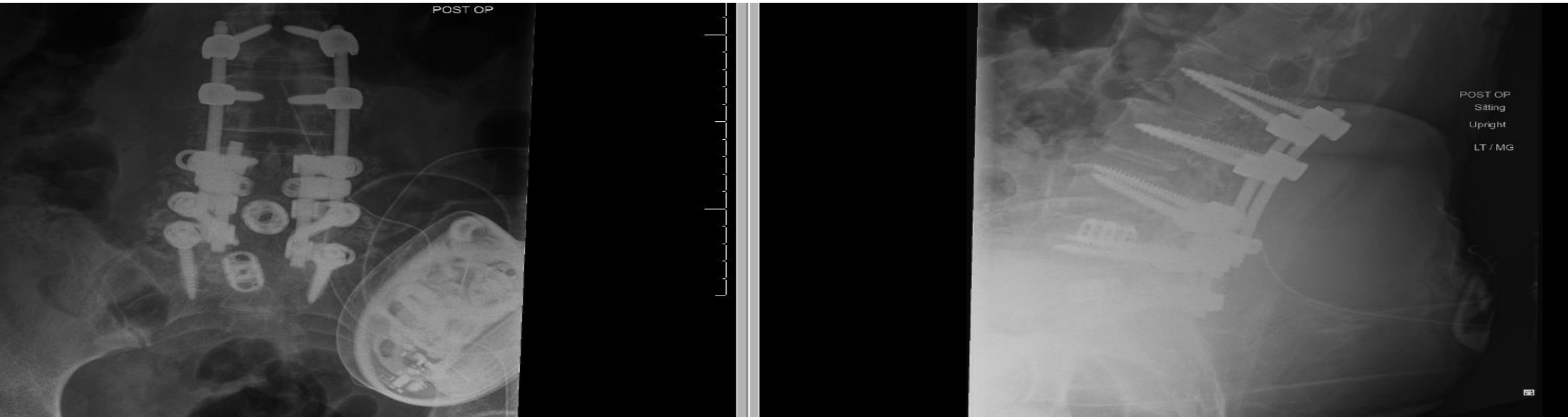
Case Details

- In **2024**, the patient developed **adjacent segment disease above the prior fusion**, presenting with **neurogenic claudication** and worsening functional limitation. Imaging revealed **severe central canal stenosis from L2 to L4** compressing the thecal sac.
- Although previously deemed a poor surgical candidate, she underwent **lumbar decompression from L2 to L4 in March 2025**.
- Intraoperative management focused on preserving the **pre-existing intrathecal catheter and pump**, which remained intact and sterile throughout the procedure.
- Postoperatively, **analgesic delivery continued uninterrupted**, and the patient experienced stable pain control without need for system revision.

2014 L3-4 Intrathecal Trial



L2-S1 Fusion Including IDDS from L4-S1 Fusion (2024)



Discussion

- This case demonstrates the feasibility of performing lumbar decompression in a patient with a long-standing intrathecal drug delivery system (IDDS).
- Preoperative planning emphasized identifying the catheter’s trajectory and **developing contingency strategies** should it be encountered or damaged intraoperatively.
- The surgical team successfully preserved the catheter entering the epidural and intrathecal space above the prior fusion, maintaining sterility and **uninterrupted analgesic delivery postoperatively**.
- **Effective communication** between pain management and surgical teams was critical to minimizing risk and ensuring device functionality.
- This case underscores the importance **of incorporating existing pain hardware into surgical planning** for revision or adjacent-level procedures.
- Preserving an **intact and functional IDDS** provides a reliable, established modality for managing postoperative and chronic pain, potentially reducing the need for new interventions or device revisions

References

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