

Migration of Surgically Implanted Spinal Cord Stimulator Leads: Laminotomy Does Not Preclude Migration

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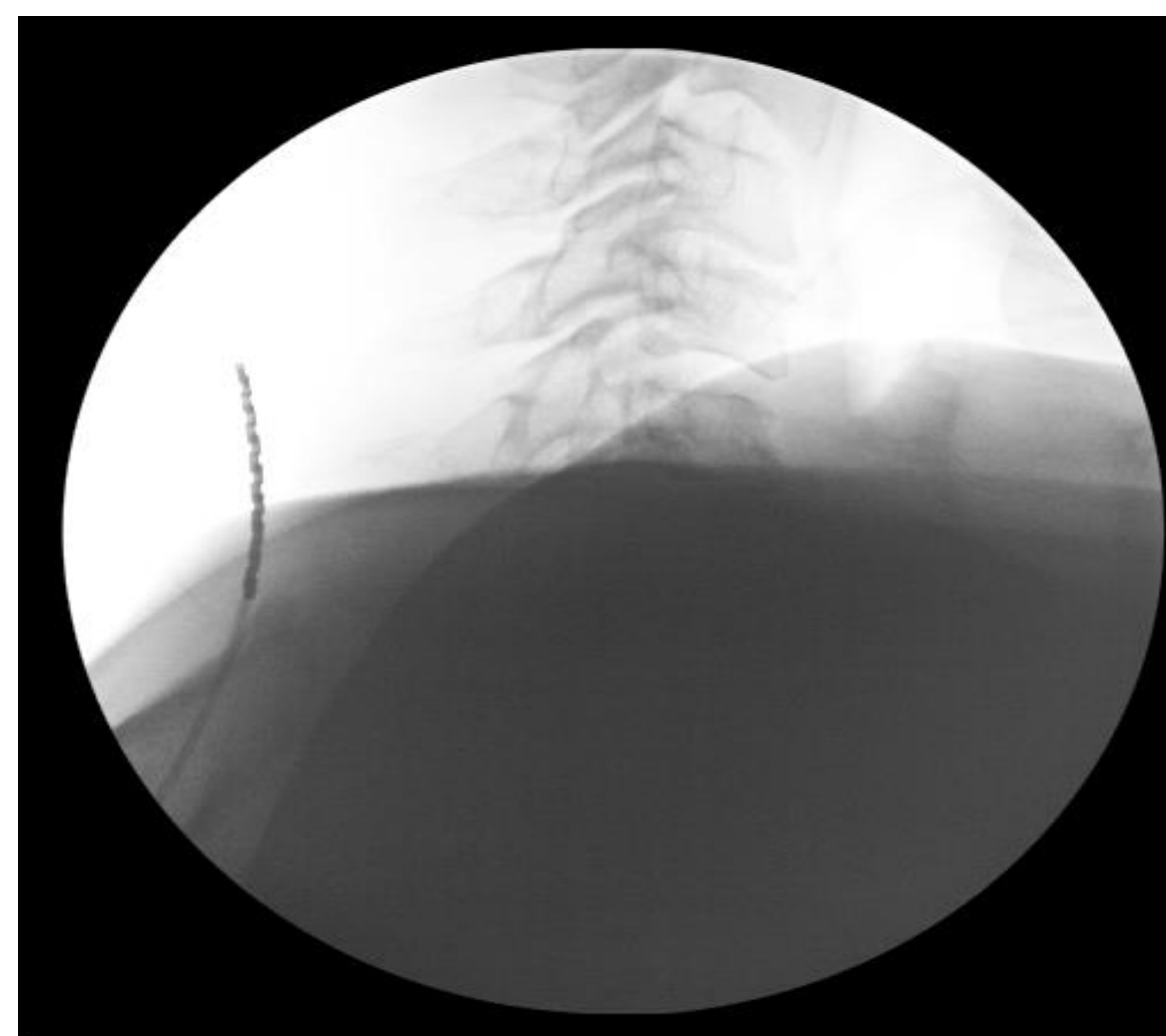
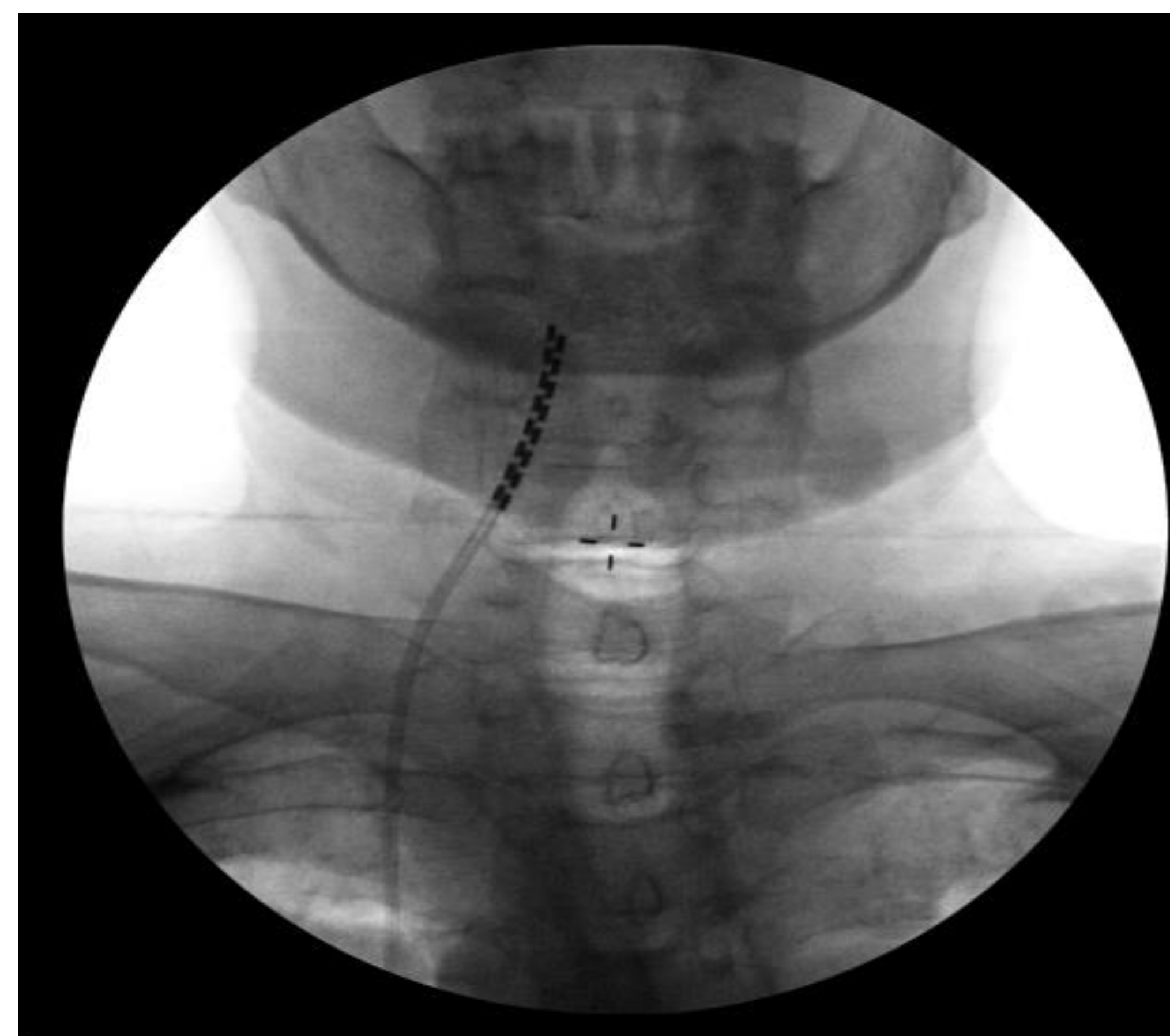


INTRODUCTION

- Spinal cord stimulators (SCS) are used for intractable low back and neck pain
 - Becoming more prevalent
- Possible complications include lead migration
- Roughly 15% of SCS require further revision (1,2)
- Migration often mitigated with surgical placement via laminotomy
 - Does not guarantee to prevent migration

CASE REPORT

- 60 yoM with back pain refractory to conservative measures (PT, CESI)
- SCS trial with 75% pain relief
- Placement of 2 paddle leads by neurosurgeon via laminotomy
 - Leads placed in the usual fashion without incident
- Subsequently, patient's pain a 2/10
- Suddenly, with no inciting incident, pain went to 6/10
- Investigated and x-ray revealed lead migration into subcutaneous space
- Revision of lead placement
- Currently with 70% improvement in pain symptoms



DISCUSSION

Lead migration and loss of therapy is one of the most commonly reported complications of Spinal cord stimulation therapy leading to inadequate pain relief, decreased patient satisfaction, and need for repeat surgery to replace leads. Previous studies have shown that rates of stimulation loss and radiographically documented lead migration are similar for both paddle leads placed via a laminotomy and percutaneously implanted leads. Time to loss of stimulation was not statistically different in either group, although there was a trend toward laminotomy leads migrating earlier. Paddle leads, though associated with higher complication rate, have significantly lower re-operation rates at 5 years(3). Typically leads tend to migrate up/down 1-2 levels in the epidural space and with advances in technology, better programming capabilities, and routine use of two leads with more contacts, recapture of stimulation is often successful. Leads also tend to migrate in the first few weeks after implantation and are expected to scar into place in 8-12 weeks. This patient's early return to an active lifestyle appears to have prompted the anchor sutures to give way leading to complete dislodgement of both leads. It may have been prudent for the spine surgeon to place paddle leads in the first place, especially since a laminotomy was performed, though this does not preclude migration and loss of therapy. Patient education both early on in the SCS discussion phase as well as reinforcement of the same during the perioperative period may contribute to better patient compliance with activity restriction until leads have a chance to scar in place. Further advances in lead securing devices and improved techniques may minimize this problem from recurring in the future.

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