A Rare Complication: A Case of Large Subcutaneous Hematoma Post-Spinal Cord Stimulator Implantation Migrating from Pocket to Paramedian Incision

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Introduction

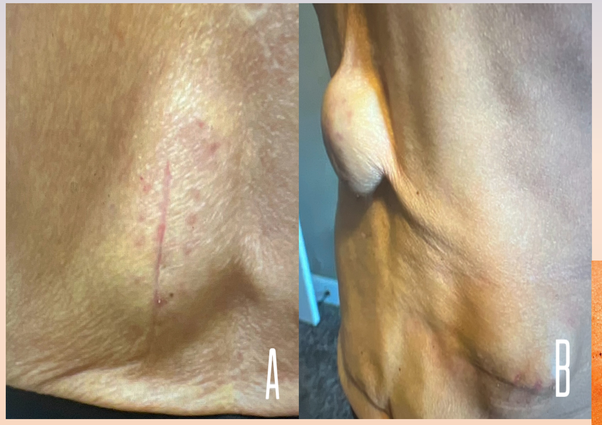
- **Chronic low back pain (CLBP)** is a global health issue leading to substantial disability despite numerous therapeutic interventions [1]. **Spinal cord stimulation (SCS)** is a prominent **non-opioid treatment** modality, efficacious for conditions **refractory to conventional therapies**[2].
- However, SCS is not devoid of **complications**: hardware-related, biological, and technical issues. Most common complications: lead migration and device malfunction. Less frequent complications: seroma, epidural abscess and **hematoma** [3-4].

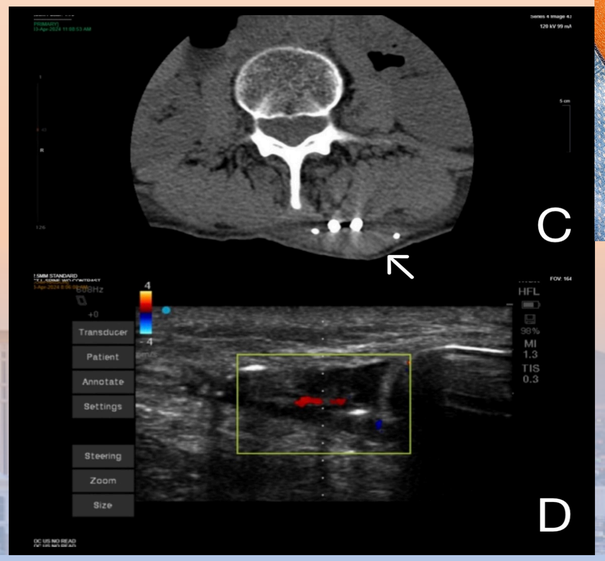
Methods

- Study Type: Case report.
- Consent: Signed consent form obtained. IRB Status: Waived.

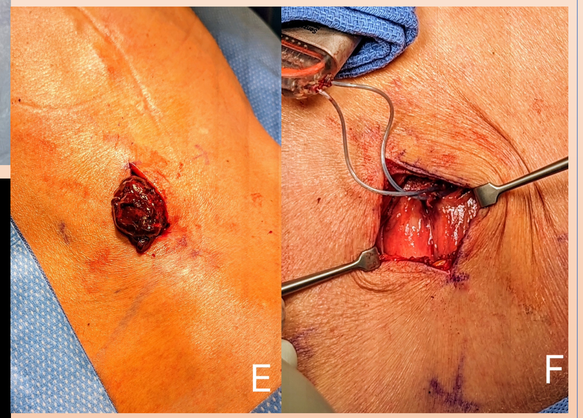
Results/ Case Report

- A **65-year-old female** with CLBP in the setting of persistent spinal pain syndrome (PSPS type 2) underwent **a high-frequency (10kHz) thoracolumbar SCS implantation** with two percutaneous stimulator **leads contacts at T8 and T9**.
- **At one-month follow-up**, the patient reported **a protruding mass at the midline surgical incision** extending **towards the IPG site**. There was evidence of localized swelling at the lumbar incision site, initially suspected to be a seroma. However, there was **substantial rapid progression overnight** that prompted further investigation (**Figure A** and **Figure B**).





- **A CT scan** revealed **mixed-density collection** around the SCS leads anchor site, suggesting possible **hematoma** or **seroma** (**Figure C**).
- **A doppler ultrasound** demonstrated **neovascularization** adjacent to the IPG pocket (**Figure D**).



- The patient was taken to the OR for **surgical exploration** of the midline incision and IPG. Intra-operative findings revealed a **paramedian subcutaneous hematoma** (**Figure E**), which required drainage and removal of a **medium-sized blood clot** at the IPG pocket and paramedian surgical incision (**Figure F**).

Discussion

- Current literature suggests that the overall infection rate associated with SCS is 2.45%, with a 0.3% rate of neuraxial hematoma. This is often characterized by acute, worsening back pain, progressive weakness and sensory deficits [5].
- In this unique case of a subcutaneous hematoma at the paramedian surgical site tracking towards the IPG site, we suspect that **mechanical stress-induced tissue injury** and **subsequent inflammatory responses** contributed to the subcutaneous hematoma formation through the interaction between the IPG and adjacent tissues.

Conclusion

- Although **less common**, this complication can still pose **significant risks** to the patient, such as **infection** and **abscess** formation **if left untreated**.
- Our patient showed **excellent progress** following the incision and drainage, with no issues noted in subsequent follow-ups.
- Therefore, careful monitoring for yellow flags and red flags signs is critical to **optimize outcomes** and **early intervention**. Management strategies depend on the hematoma size, stability and urgency.

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Conflicts of Interest Disclosure:
FZB: Declares no conflicts of interest.
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