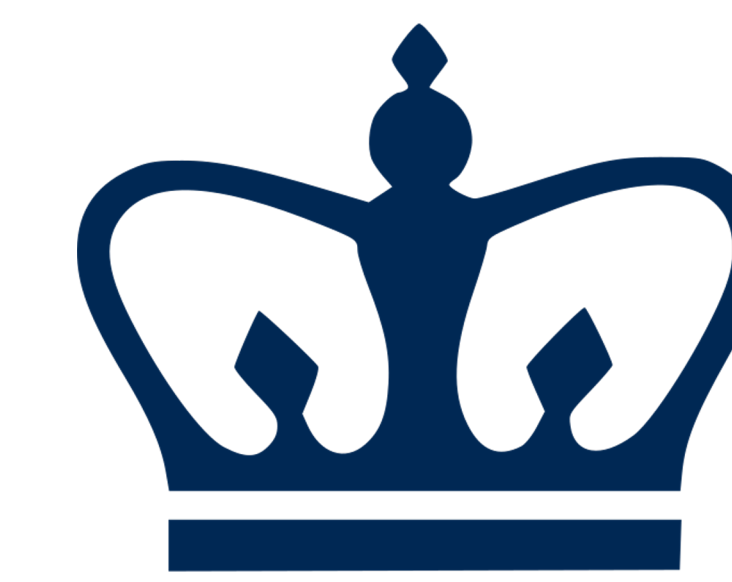


Spinal Cord Stimulator Percutaneous Lead Trial in Patient with VP Shunt: A Medically Challenging Case

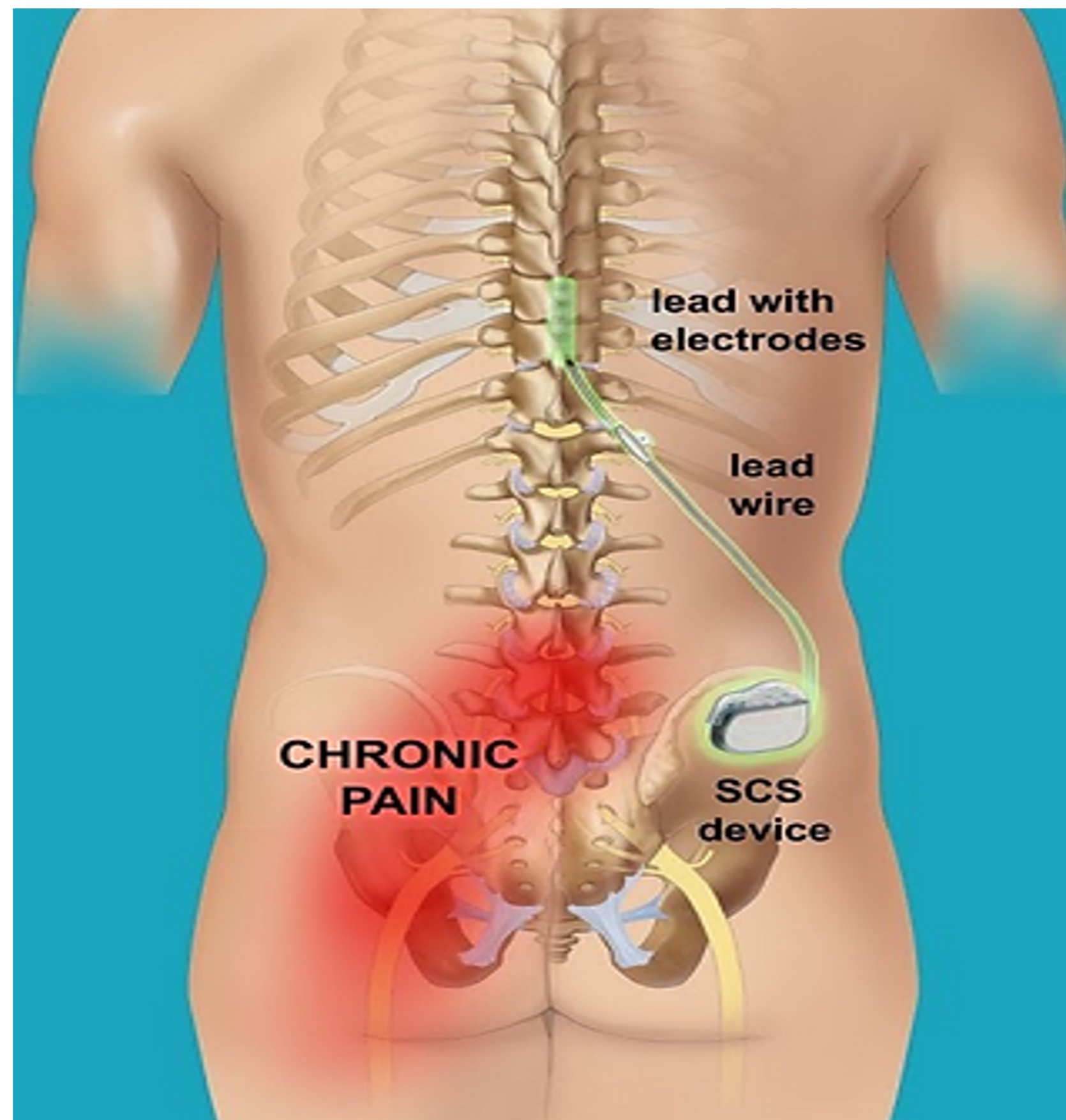
Andrew Aboujaoude¹ and Melissa Chao¹

1. Department of Anesthesiology, Division of Pain Medicine, Columbia University, New York, New York, USA.



Introduction

- Spinal cord stimulation (SCS) is used to manage complex chronic pain cases refractory to treatment options and surgical interventions.
- The generator is inserted underneath the skin and the electrodes are inserted in between the vertebrae and spinal cord.
- Pulsed electrical energy from the SCS disrupts pain signals that are transmitted to the brain.
- Patients who have neurosurgical implanted devices have more risk factors associated with further instrumentation of the spinal canal when placing the SCS.



History and Physical Exam

- 58-year-old female with past medical history of HIV on HAART, communicating hydrocephalus managed with VP shunt/revision, chronic facet arthropathy, and depression presented with refractory lower back pain radiating to the bilateral buttocks.
- Started 9 years ago without any inciting trauma or preceding events
- Described as 8/10, “aching,” “burning,” and “throbbing” pain
- Exacerbated by walking and standing, and relieved by lumbar extension
- Notable for a positive bilateral Kemp’s test
- Managed by a prior pain specialist with physical therapy, medications (NSAIDs, Tylenol, muscle relaxants, neuropathic pain medications) and interventional techniques (medial branch blocks, epidural steroid injections) without improvement and with significant side effects
- Lumbosacral radiographs with bilateral L3-S1 facet arthropathy and lumbar MRI with severe facet arthrosis without central canal or foraminal stenosis
- Not interested in trying alternative agents
- After discussion, psychological evaluation, and surgical clearance, patient elected to proceed with SCS trial

Intervention

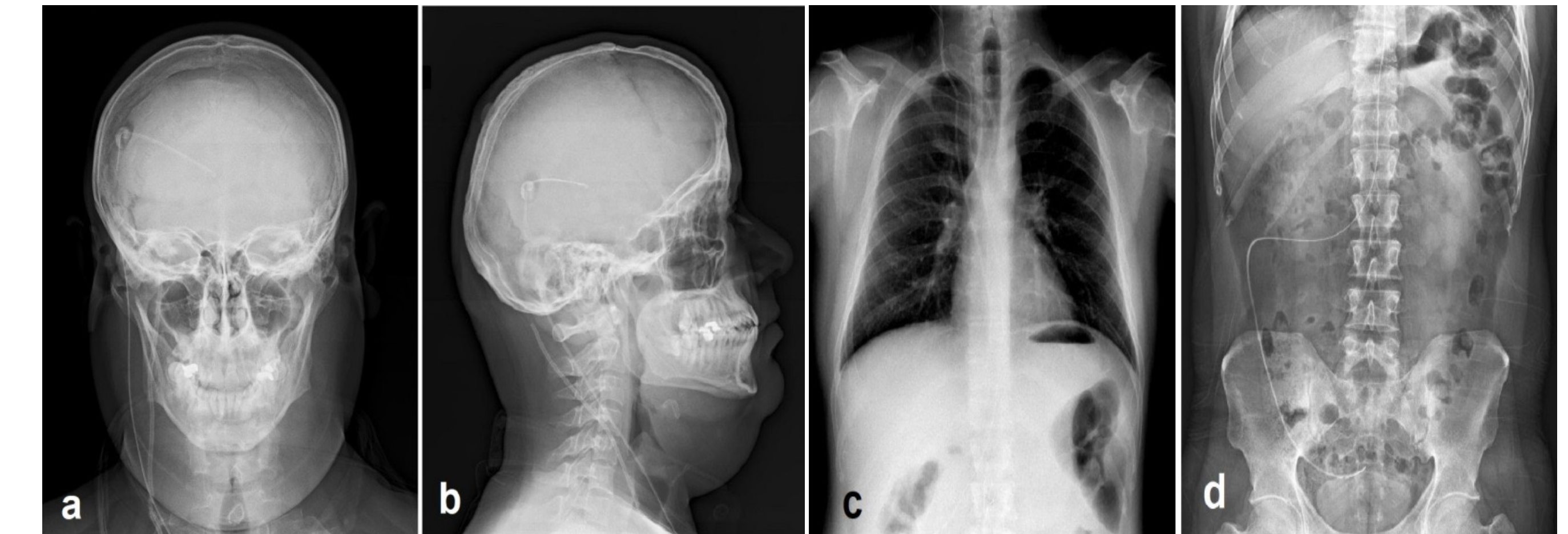
- Bilateral octopolar 10kHz SCS leads placed percutaneously into posterior epidural space using fluoroscopic guidance and connected to external pulse generator
- Left lead placed at mid-point of T7, and right lead placed at superior endplate of T8

Results

- Leads remained in place for 7 days
- Experienced significant pain relief that decreased to 1/10 rating
- Significant functional improvement after trial
- No adverse effects or consequences to include infection or compromised neural function noted
- Plans to proceed with permanent implant

Discussion

- Determining appropriate inclusion and exclusion criteria for neuromodulation can be challenging
- Guidelines recommend screening for psychiatric conditions like psychosis that could negatively impact treatment response.
- Spinal canal entry in patients with VP shunts is associated with a greater risk of infection.
- Additionally, there is an increased risk of acute spinal canal pressure increases, compromising spinal cord perfusion.



Radiographs Demonstrating VP Shunt Catheter Placement and Course

Recommendations

- Consider starting a short course of post-operative antibiotics in addition to prophylaxis during SCS placement for these patients
- Consistently evaluate for acute ICP increases from potential shunt kinking or malfunction during prone positioning for this procedure
- Consider using local anesthetics to prioritize early detection of shunt failure or changes in spinal perfusion pressure rather than sedation

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Methods

- Informed consent was obtained from the patient in this case report.
- Exempted from IRB review given lack of identifiable patient information per university policy