

SPINAL CORD STIMULATOR LEAD MIGRATION RESULTING IN BROWN-SEQUARD SYNDROME

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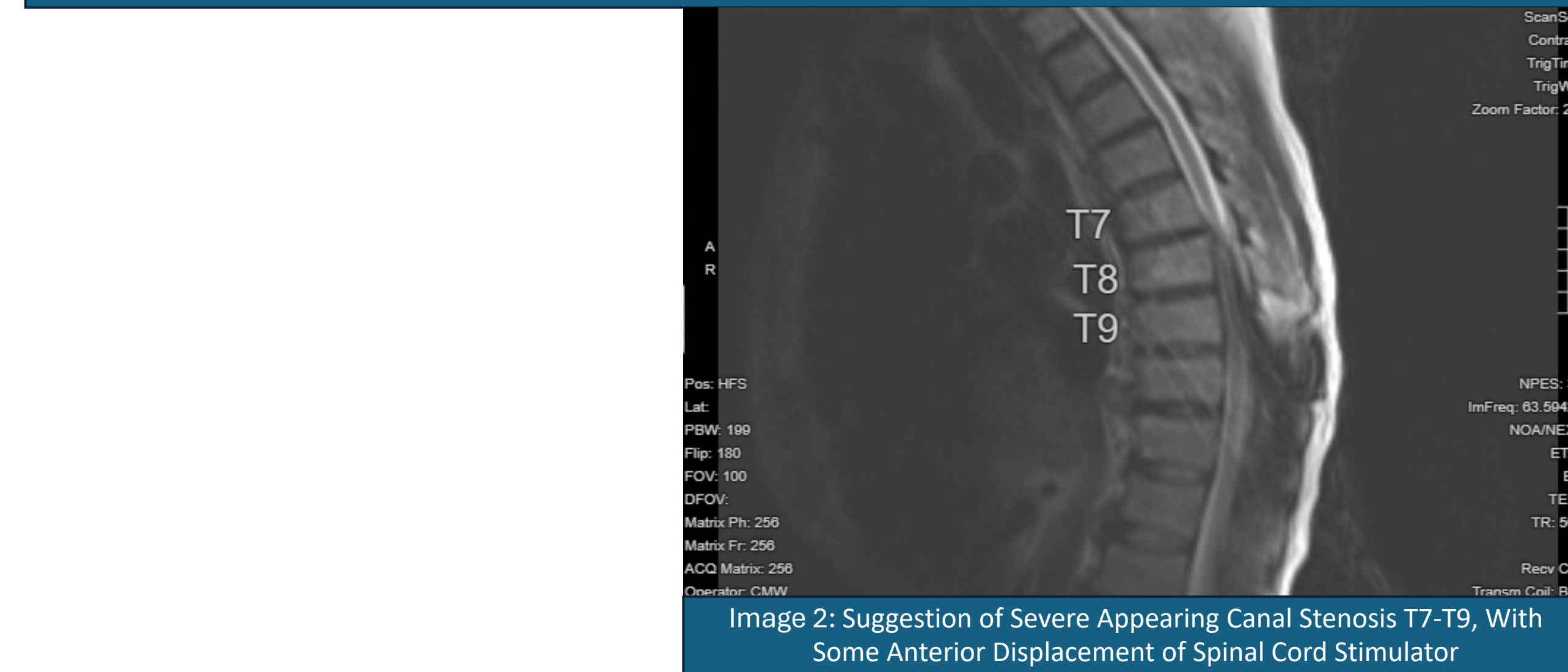
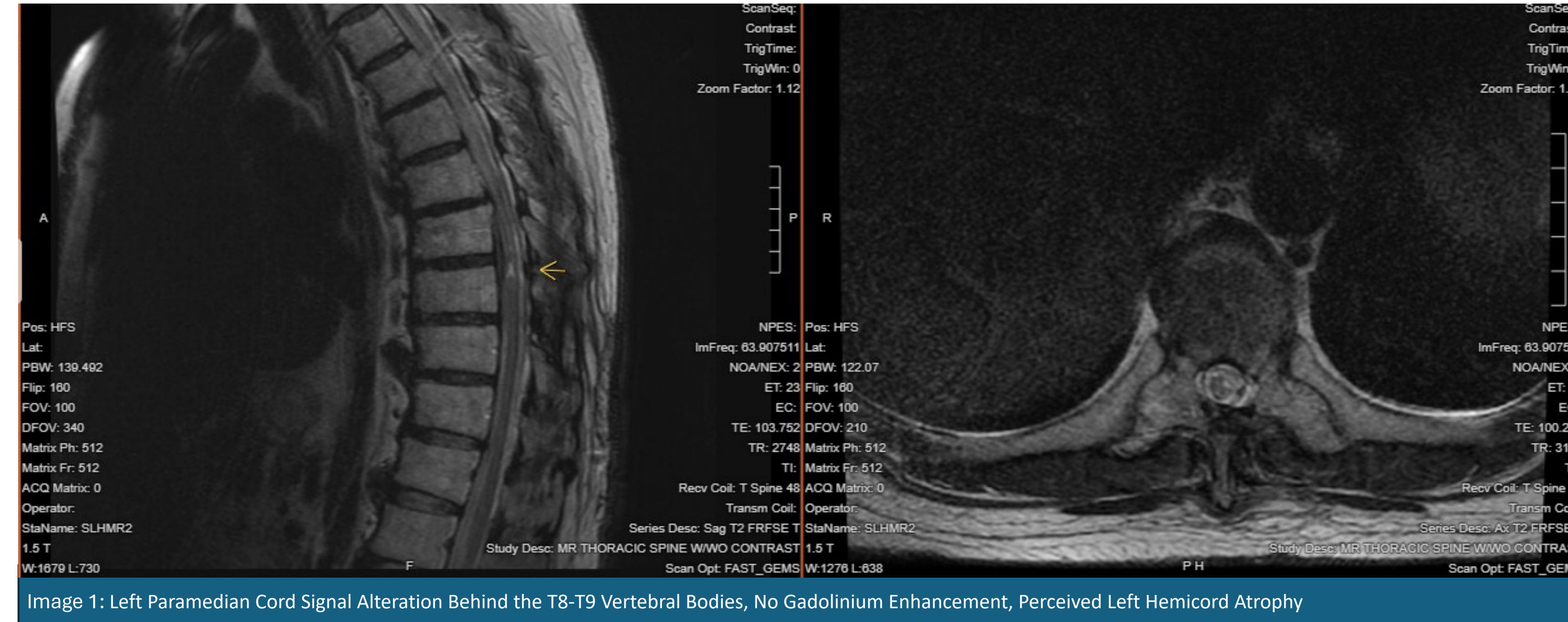
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Introduction

- Spinal cord stimulation (SCS) is considered to be a viable, cost-effective treatment of chronic pain because it reduces medical treatments, clinical visits, and opioid use.
- Though minimally invasive and reversible, SCS have several risks and complications that physicians should be aware of before offering this therapy to patients.
- The overall complication rate associated with SCS has been reported to be 31.9 to 43%.
- We report a complication of SCS, a case of lead migration that resulted in hemisection of the spinal cord and Brown-Sequard Syndrome, which, to our knowledge, is the first reported case.

Case Report

- The patient with a history of Boston Scientific WaveWriter Alpha Spinal cord stimulator (SCS) placement with Artisan MRI Surgical Leads at T8-T9, both MRI conditional, implantable pulse generator (IPG) battery replacement two months ago, and recent prostate Magnetic resonance imaging (MRI) one month ago, presented to the Emergency Room (ER) with acute left lower extremity weakness.
- Patient noted he initially felt “funny” after his MRI one month ago but ignored the feeling. Computerized Tomography (CT) revealed that the SCS leads migrated anteriorly and inferiorly.
- During exploration by neurosurgery, an abscess was noted posterior to the SCS paddles as well as surrounding the IPG, and ultimately drained with removal of SCS.
- Follow-up MRI revealed left paramedian cord signal alteration behind the T8-T9 vertebral bodies, and left hemicord atrophy.
- The physical exam was significant for decreased temperature sensation on the RLE and muscle atrophy and weakness in the LLE.



Discussion

- The most common complications of SCS are lead migration for hardware-related complications and infection for biologic complications.
- Although rare, neurological injury, including spinal cord injury, is by far the most dreaded complication of SCS.
- We initially had thought that the leads migrated due to MRI incompatibility and the static magnetic field. The patient recently had his IPG replaced for a more MRI compatible unit, but his leads were untouched. After further investigation with calls to Boston Scientific and MRI, both the IPG and the leads were MRI conditional with 1.5T and B1+rms less than or equal to ($\leq$) 3.2.
- The patient states that he felt “funny” after the MRI, which is non-specific and could be from various reasons including: heating; the radiofrequency magnetic field can induce current causing warming of the IPG and leads, mechanical effects; the static magnetic field from MRI may exert force or torque on the Spinal Cord Stimulation System, and induced stimulation; also from the radiofrequency magnetic field, potentially causing unintended or uncomfortable stimulations.
- The likely cause of the migration is from the abscess. Imaging revealed an anterior translation of the leads, and during explantation of the device, an abscess was noted posterior to the leads, which slowly pushed the leads into the spinal cord. The timeframe of one month between the MRI and the development of the symptoms supports this argument.

References

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