Thoracic Epidural Steroid Injection as a Diagnostic Tool in Complex Radicular Pain: A Case Report

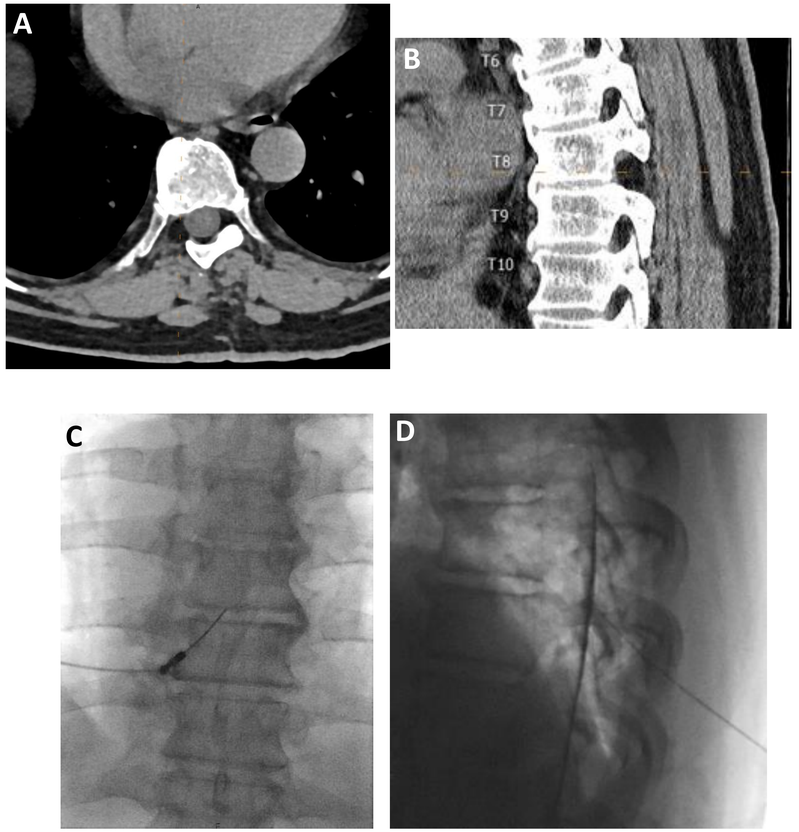
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Background

- Thoracic radicular pain can be challenging to diagnose in patients with multiple potential pain generators, including demyelinating disease, prior spine surgery, and structural spinal pathology.[1]
- Spinal epidural lipomatosis (SEL) is a rare cause of neural compression that may mimic other neurologic or musculoskeletal conditions.[2,3]
- Epidural steroid injections (ESIs) can provide both therapeutic benefit and diagnostic value by helping localize symptomatic nerve root involvement.[3,4]
- This case highlights the diagnostic role of ESIs in localizing radicular symptoms and guiding treatment management.

Case Description

- 57 year-old-male with history of multiple sclerosis, L4/5 discectomy and T8-9 right sided hemilaminectomy presented with chronic thoracic back pain that radiates down his bilateral lower extremities (R>L) that began after receiving a COVID injection.
- Onset of symptoms and comorbidities raised concern for possible inflammatory, neurologic, or post surgical generators of pain.
- MRI demonstrated post surgical and chronic demyelinating changes within the cervical and thoracic cord, as well as evidence of a SEL in the right T8-9 intervertebral foramen.
- Conservative treatments including physical therapy, corticosteroids, massage, acupuncture, medication management, and trigger point injections failed to provide meaningful relief.
- The patient then underwent two total fluoroscopic guided T8-9 ESIs which provided significant but temporary improvement of symptoms.
- Pt continued to have thoracic back pain radiating down his RLE and CT thoracic spine was completed showing known right-sided SEL at T8-9 now with neural compression.
- The patient proceeded with right sided T8-9 decompression in the setting of neural compression due to his SEL.
- The patient finished 2 weeks at acute inpatient rehab followed by outpatient rehab.
- His symptoms have since significantly improved.



A. CT axial view of thoracic spine showing R>L T8-9 epidural lipomatosis. **B.** CT sagittal view of thoracic spine showing R T8-9 epidural lipomatosis with neural compression. **C.** Fluoroscopy AP image of thoracic spine showing needle placement of the interlaminar ESI. **D.** Fluoroscopy lateral image of thoracic spine showing optimal contrast flow in thoracic epidural space.

Discussion

- In this patient, multiple sclerosis, prior T8-9 hemilaminectomy, and symptom onset following COVID vaccination created diagnostic uncertainty regarding whether symptoms were inflammatory, demyelinating, postoperative, or compressive in origin.
- Although a prior MRI identified R T8-9 foraminal SEL, imaging findings alone may not establish symptom causality because SEL can be incidental and may mimic other neurologic or musculoskeletal disorders.[2,3]
- Epidural steroid injections are traditionally used for treatment of radicular pain, but they may also provide diagnostic information by temporarily reducing nerve root inflammation and confirming the symptomatic level when pain relief follows a targeted injection.[4,5]
- The response to the two fluoroscopic guided T8-9 ESIs increased confidence that the T8-9 pathology was the primary pain generator rather than demyelinating disease progression or post op changes.
- The transient nature of symptom relief following the ESIs further suggested an ongoing structural compressive process rather than a purely inflammatory etiology.
- Subsequent CT imaging demonstrated neural compression from the known T8-9 SEL, supporting the diagnostic information gained from the injection response.
- The diagnostic clarity provided by the ESIs helped guide surgical decision-making, ultimately leading to T8-9 decompression.
- Significant postoperative functional improvement following decompression further validated localization of the patient's symptoms to the affected thoracic nerve root.

Conclusion

- This case highlights the diagnostic utility of thoracic ESIs in localizing radicular symptoms among multiple competing pain generators and guiding treatment selection, including surgical intervention.

References

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