

Atypical target level for transforaminal epidural steroid injection in case with paramedian disc herniation

Frederick D. Williams Jr., MD, Stanley Kailath, DO, Charles Kim, MD
Rusk Rehabilitation at NYU Langone Health



Introduction

This case report highlights a unique therapeutic approach to paramedian disc herniation.

Methods

Informed consent was obtained for submission of this case report, and this report is devoid of PHI.

Results/Case Report

- 73-year-old female with a history of osteopenia presented with two years of lumbar back pain radiating down the lateral aspect of her right thigh and leg.
- No traumatic injuries, weakness, bladder or bowel dysfunction, nor saddle anesthesia.
- A year ago, she received two TFESI with another physician at the L4-L5 and L5-S1 levels without significant pain relief.
- Physical therapy was ineffective in providing relief, and pain interfered in her ADLs and iADLs.
- Examination was unremarkable, with negative provocative tests, and without strength or sensory deficits.
- MRI imaging** demonstrated moderate bilateral foraminal and subarticular recess narrowing at the L4-L5 level and notably **found right paramedian disc herniation at L3-L4** which was suspected to be **in contact with descending nerve roots**.
- A fluoroscopic right L3-L4 TFESI was completed a week after the clinic visit.
- At the three-week mark, she had scaled pain resolution at 60% and more effective pain relief than prior injections.
- At the four-month follow up, symptom relief was lasting and allowed for long-term improvements in ability to complete ADLs and iADLs.

MRI Disc Herniation



Fluoroscopic Lateral Confirmation of L3-4 TFESI



Discussion

- Disc herniation can be associated with pain, weakness, or numbness in a dermatomal distribution, due to focal mechanical compression of a nerve root[1].
- Compression of the L5 nerve root due to posterolateral disc herniation often occurs at the L5-S1 level where the L5 nerve root exits through the intervertebral foramen[2].
- Notably though, **paracentral disc herniation could posteriorly compress the L5 nerve root above the exiting L5-S1 level** within the spinal canal.
- Normally, the **posterior longitudinal ligament protects against paracentral herniations**; however, anatomic variation can increase susceptibility[3].
- In this case, our patient had predominantly right lateral limb pain most consistent with an L5 distribution and had negative responses to two right-sided L4-L5 and L5-S1 TFESI.
- MRI demonstrated a paramedian disc herniation at the L3-L4 level, which led to the hypothesis that the descending L5 nerve root was compressed at this level, producing the radicular lateral limb pain.
- The right L3-4 TFESI was successful and produced 60% pain relief at the three-week interval, followed by lasting improvements in ADLs and iADLs.
- This case highlights the importance of correlating the subjective and objective findings of radicular low back pain with the lumbar spine MRI, and to consider compression of the descending spinal nerve above the level of the exiting spinal nerve, especially with MRI evidence of more central herniations.

REFERENCES

- Kreiner, D. S., Hwang, S. W., et al (2014). An evidence-based clinical guideline for the diagnosis and treatment of lumbar disc herniation with radiculopathy. The Spine Journal, 14(1), 180–191.doi:10.1016/j.spinee.2013.08.00
- Preston, D. C., & Shapiro, B. E. (2020). Electromyography and neuromuscular disorders: Clinicalelectrophysiologic-ultrasound correlations (4th ed.). Elsevier - Health Sciences Division
- Aryal V, Black AC, Jimenez A. Anatomy, Back, Posterior Longitudinal Ligament. [Updated 2023 Jul 30]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK560691/>