



Case Report

Posterior Epidural Migration of a Lumbar Disc Herniation Causing Cauda Equina Syndrome: Case Report and Brief Review of the Literature

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Abstract	Manuscript Information
<p>Background: Posterior epidural migration of a lumbar disc herniation is a rare clinical presentation; it consists of the migration of disc material around the thecal sac compressing it. The clinical presentation can vary from simple radiculopathy to cauda equina syndrome.</p> <p>Case report: That's what we report in this case of a 47 year old male with a long history of chronic lower back pain (+6 months) who was admitted for the management of numbness in his lower limbs with saddle hypoesthesia and sphincter disorder. The lumbar MRI revealed a lumbar intracanal mass lesion in the posterior epidural space at the level L2-L3 compressing the thecal sac. Surgical resection was performed right after and the pathological study revealed an intervertebral disc fragment.</p> <p>Conclusion: Lumbar disc herniations rarely migrate in the posterior epidural space, which can lead to severe neurological and functional problems and should be considered as a differential diagnosis in epidural lesions.</p>	<ul style="list-style-type: none"> ▪ ISSN No: 2583-7397 ▪ Received: 27-02-2024 ▪ Accepted: 27-03-2024 ▪ Published: 30-03-2024 ▪ IJCRM: 3(2); 2024: 119-122 ▪ ©2024, All Rights Reserved ▪ Plagiarism Checked: Yes ▪ Peer Review Process: Yes <p>How to Cite this Manuscript</p> <p>Idir Abdelilah, Aggouri Mohamed, Okacha Naama, Boulahroud Omar, Elmajdoub Youssef, Rhajdi Ali. Posterior Epidural Migration of a Lumbar Disc Herniation Causing Cauda Equina Syndrome: Case Report and Brief Review of the Literature. International Journal of Contemporary Research in Multidisciplinary. 2024; 3(2): 119-122.</p>

Keyword: Posterior epidural migration, neurological, Lumbar disc, Magnetic resonance imaging, Cauda equina syndrome

CASE REPORT

We report a case of a 47 years old male with a long history of chronic lower back pain (+6 months) who was admitted in the department of neurosurgery for the management of acute numbness with lumbar pain radiating in his lower limbs without any set area. Upon clinical examination, the patient had a

paraparesis 4/5 in both legs with saddle hypoesthesia and sphincter disorder involving urinary retention, which correlated with a cauda equina syndrome. The lumbar MRI (Figure 1) revealed a lumbar intracanal mass lesion in the posterior epidural space at the level L2-L3 compressing the thecal sac, and periphery enhanced after gadolinium injection.



Figure 1: MRI scans of the lumbar spine. (A) Sagittal T2 weighted MRI scan, (B) sagittal T1 weighted MRI scan after gado injection, (C) axial wighted T2 MRI scan, and (D) axial T1 weighted MRI scan after gado injection, showing an ovoid lesion located at the L2-L3 disc level in the posterior epidural space that present an inhomogeneous signal intensity with central hypointensity signal on T2 weighted MRI scans with a peripheral rim of enhancement on contrast T1 weighted MRI scans. The axial contrast+ T1 weighted MRI images show the trajectory of the disc fragment that migrated from the point of the ruptured disc annulus to the posterior epidural space repressing the thecal sac and the cauda equina roots.

The patient was admitted to the operating room for the resection or the lumbar lesion, an L2-3 laminectomy was performed (Figure 2) and we stumbled upon a posterior epidural lesion that looks like disc material macroscopically, not really adherent to

the thecal sac leaving a print on it after its excision. The histopathological study of the piece confirmed disc material. The patient symptoms improved and was sent home 2 days after.

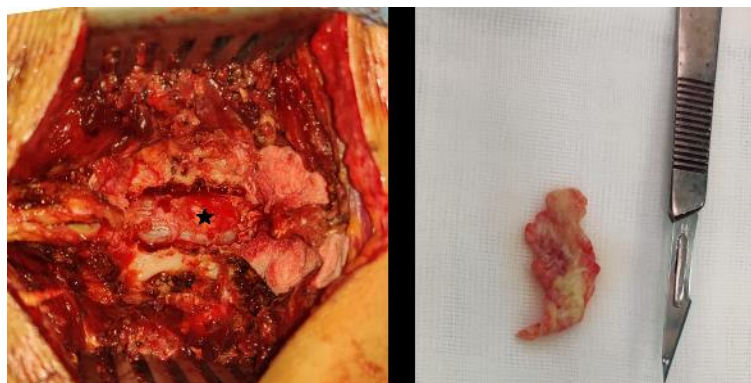


Figure 2: Intraoperative photograph of the lesion posteriorly adherent to the thecal sac after the laminectomy and its size after resection compared to a n°11 knife blade.

DISCUSSION

Disc herniation involves the displacement of disc material beyond the disc space, while migration is the movement of this material away from the site of extrusion. Sequestration occurs when the displaced material completely detaches from the original disc.^[1] Common migration patterns include caudal and paracentral, while posterior epidural migration is exceedingly rare.^[2] The first documented case of posterior epidural migration of a lumbar disc herniation (PEMLDH), described as a "posterior rotation of annulus fibrosus," dates back to 1973 and was reported by Vincenzo Lombardi.^[3]

PEMLDH has an incidence ranging from 0.27% to 1.04%, often leading to misdiagnosis.^[4] It predominantly affects middle-aged men, with a mean age of 53.11 years,^[5] and commonly involves L3-4 or L4-5 intervertebral spaces.^[6] In our case the patient had a PEMLDH at the L2-3 level which makes it even more rare.

PEMLDH has several predisposing factors such as hard labor, spinal manipulation, physical resistance and hypermobility actions, narrow congenital spinal canal, prior surgical interventions, or ligament weakness.^[5,6,7] Its exact cause is unclear, with theories suggesting anatomical barriers like the midline septum and peridural membrane impeding disc movement.^[7]

PEMLDH can exhibit a range of symptoms, including low back pain, radiculopathy, and cauda equina compression.^[8] In a clinical study, more than half of patients with PEMLDH (51.35%) presented with cauda equina syndrome,^[5] while others presented with cauda equina syndrome at a frequency of approximately 30%, and radicular pain is the most frequent symptom (54%).^[4]

The optimal imaging choice is contrast-enhanced MRI.^[6] In 80% of cases, migrated disk sequester is hyperintense on T2-weighted MRI scans and hypointense on T1-weighted MRI scans. Postcontrast rim enhancement of the lesion is usually present and is the result of neovascularization and inflammatory response^[4,6].

Upon MRI results, PEMLDH differential diagnosis is made with the other posterior epidural lesions such as metastases, malignant or benign extradural tumors, abscesses, cysts, and hematomas.^[1,5,9] Sequestered disc fragments should also be considered.^[10] Diagnosis is often delayed until post-surgery and histopathological study due to the evolving MRI characteristics over time.

The recommended treatment for Posterior Epidural Migration of Lumbar Disc Herniation (PEMLDH) involves early surgical intervention through a 1 or 2 level laminectomy, depending on the lesion's size. Typically, the disc fragment exhibits minimal adhesion to the dura mater, facilitating its complete and uncomplicated removal, which was the case with our patient. An additional discectomy may be proposed if a rent in the posterior longitudinal ligament is found during surgery.^[7]

Surgical outcomes for PEMLDH are generally positive, with patients experiencing a full recovery from lumbar-radicular pain, leg weakness, and sphincter disturbances. It's noteworthy that confusion in the literature may arise between patients presenting cauda equina compromise due to PEMLDH and those with

Cauda Equina Syndrome (CES). However, surgical outcomes for cauda equina symptoms stemming from PEMLDH appear more favorable compared to symptoms caused by traditional lumbar disc herniation (LDH).^[7]

Interestingly, the degree or duration of preoperative neurological deficits and the size of the disc fragment do not seem to dictate postoperative improvement. This information underscores the importance of early surgical intervention for PEMLDH and suggests a promising outlook for patients undergoing this procedure.^[7]

LIST OF ABBREVIATIONS

PEMLDH: Posterior epidural migration of a lumbar disc herniation

MRI: Magnetic resonance imaging

LDH: Lumbar disc herniation

CES: Cauda equina syndrome

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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