

An Unusual Case of Dorsally Sequestered Disk Mimicking Tumor with Cauda Equina Syndrome

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ABSTRACT

A 44-year-old male presented with acute onset retention of urine and low back pain. Magnetic resonance imaging (MRI) of the lumbar spine demonstrated an extradural mass extending from the lower border of the L3 vertebra to upper border of L5 vertebra. Axial imaging showed the posterolaterally located mass lesion on left side, producing significant compression and displacement of thecal sac and exiting nerve root. Following contrast administration, there was a peripheral ring enhancement. Diagnosis of extradural mass lesion was made. In view of urinary retention, urgent laminectomy was performed. The massive sequestered lumbar disk was found on an exploration that was excised completely. This resulted in prompt relief of backache. Bladder took 2 weeks for complete recovery. Here, an unusual case of sequestered dorsally placed lumbar disk mimicking tumor is presented.

Keywords: Lumbar disk, Sequestered disk, Spinal tumor.

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INTRODUCTION

Lumbar disk disease commonly results in lumbar backache, neurogenic claudication and pain in sciatic distribution. The incidence of voiding dysfunction in a case of herniated lumbar disk is about low, i.e. 1 to 18%.¹ Most common being difficulty voiding, straining, or urinary retention. This should be treated, as an emergency and patient should be operated within hours to facilitate satisfactory recovery of the bladder. In the case presented, massive dorsally sequestered lumbar disk mimicking

tumor resulted in acute retention of urine. Postsurgery, the patient recovered completely over a period of 2 weeks.

CASE REPORT

A 44-year-old male was admitted with retention of urine. He was suffering from low back pain for 1 year. He had the aggravation of backache with radiating pain in left lower limb since 2 days. In addition, he also had tingling and numbness in left thigh and leg.

Neurological examination revealed decreased touch and pinprick sensations over the lateral aspect of the left thigh. The rest of the neurological examination was normal including perianal sensation and anal tone. Straight leg raising (SLR) test was positive at 45° on the left side. There was evidence of mild tenderness over L4 and L5 spinous process with spasm of paraspinal muscles.

Radiography of the lumbar spine showed evidence of mild degenerative changes. Magnetic resonance imaging (MRI) showed an extradural mass extending from the lower border of the L3 vertebra to upper border of L5 vertebra. Axial MRI showed the lesion had surrounded and compressed dural sac from the dorsolateral aspect (Fig. 1). The lesion was isointense on T1-weighted image and iso to hyperintense on T2-weighted images. A contrast MRI demonstrated heterogeneous enhancement with peripheral ring enhancement of the lesion (Fig. 2).

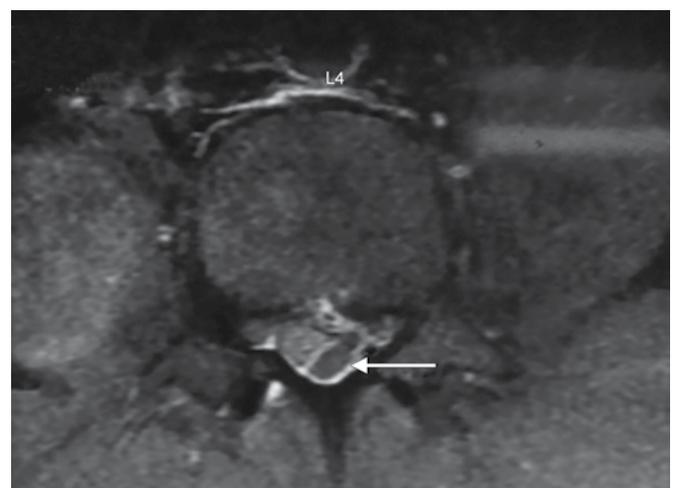


Fig. 1: Axial MRI showing lesion on dorsolateral aspect of dural sac with mass effect

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The diagnosis was extradural mass lesion or arachnoiditis was made on the basis of MRI findings.

The patient underwent an emergency L3, L4 and L5 laminectomy. Extradural mass lesion was noticed compressing thecal sac that was separated from it without much difficulty (Fig. 3). The lesion was connected with the L4 to L5 disk space. The L4 to 5 disk space was completely empty. The histological examination had confirmed the disk material with fibro fatty tissue with foci of myxoid changes and without evidence of inflammatory reaction. A final histopathological diagnosis confirmed herniated lumbar disk. Postoperative course was uneventful with satisfactory clinical recovery. His bladder function was normal at the end of 2 weeks.

DISCUSSION

Extruded disk can be sequestered or migrated. When fragment lost continuity with the disk of origin, it is called as sequestered disk. When the fragment is displaced from the site of extrusion, regardless of whether sequestered or not, it is called as migrated disk.

Sequestered disk fragments account for 28.6% of all symptomatic disk herniations.² Herniated disk fragments are known to migrate within the spinal canal cranially, caudally or laterally.³ However, posterior epidural migration of an extruded disk in the lumbar region is relatively rare. The posterior longitudinal ligament (PLL) forms the anterior epidural space between itself and the periosteum of the vertebral bodies; this is separated in the midline by the septum posticum, which prevents the movement of the herniated disk from one side to the other.^{4,5} At the level of the disk, the PLL is firmly adherent to the posterior annulus. The peridural membrane, which extends medially from the lateral edge of the PLL to the lateral wall of the spinal canal^{5,6} limits the movement of the

extruded disk fragment beyond the posterolateral corner of the dural sac. This makes it difficult for a disk to herniate posterior to the dural sac.^{5,7} The earliest report of such an occurrence was by Lombardi in 1973.⁸

A reason for such a herniation could be due to what Kuzeyli et al has suggested, that heavy labor, traction, spinal manipulation, and conditions of hypermobility may predispose the disk, to posterior migration of the fragments.⁹ The most of the cases have a history of trauma before the onset of symptoms, which supports this hypothesis. Also in all cases, prompt surgery by an open procedure with complete decompression provided good results.

Most symptomatic lumbar disk herniations are noted to be in a lateral position, with resultant nerve root irritation. The posterior migration of the disk may be expected to present clinically with isolated acute or chronic backache to significant neurologic symptoms, and to the extent of presenting as cauda equina compression.⁴

The incidence of voiding dysfunction is 1 to 18%.¹ The most common being difficulty in voiding, straining or urinary retention. Reduced bladder sensation may be the earliest finding. Later it is not unusual to see irritative symptoms, including urinary urgency, frequency (including nocturia), increased post-void residual. Less common: enuresis, and dribbling incontinence.¹⁰ Occasionally, a herniated lumbar disk may present only with bladder symptoms which may improve after surgery.¹¹ Discectomy may improve bladder function, but this cannot be assured.

Magnetic resonance imaging, especially with gadolinium administration, appears to be the method of choice for diagnosis. Sequestered fragments usually show low signal intensity on T1-weighted images, and 80% of cases exhibit high signal intensity on T2-weighted images



Fig. 2: Lesion showing peripheral ring enhancement on contrast MRI

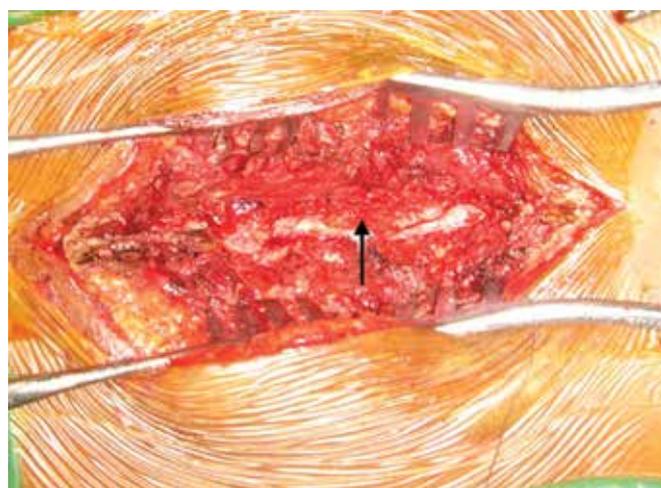


Fig. 3: Extradural mass lesion compressing thecal sac on dorsal aspect

relative to the degenerated disk of origin.¹² The high signal intensity on T2-weighted images can be explained as either the herniated material still having a higher water content than an intact disk or a reparative process leading to a transient water gain.¹² The remaining 20% had isointense signal intensity relative to the degenerated disk on T2-weighted images;¹² a similar finding was also noted in our patient. Most of the disk fragments show peripheral contrast enhancement attributed to an inflammatory response with granulation tissue and newly formed vessels around the sequestered tissue,^{13,14} as shown in the present report. On the other hand, tumors usually enhance uniformly on gadolinium MR images. But it is never associated with enhancement of the spinal meninges, which is an early characteristic finding of neoplastic lesions, such as lymphoma, neurofibroma, neuroblastoma, mesothelioma and lung cancer.¹⁵ Synovial cysts have a characteristic MRI signal intensity, and they are related to the facet joint. An epidural abscess could present as a mass with hypointensity on T1-weighted imaging, hyperintensity on T2-weighted imaging, and rim enhancement; however, the lack of associated change in the disk and adjacent endplates and the lack of clinical findings of infection suggest another diagnosis.¹⁶ Hematoma usually has isointensity or hyperintensity on T1-weighted imaging, no enhancement, and an associated trauma history.¹⁷

In our case, the lesion appeared iso to hyperintense on T2-weighted images and there was ring enhancement on contrast administration. Magnetic resonance imaging that led us to suspect a neoplastic lesion as there was no clear radiological evidence of connection of mass lesion with adjacent disk space, ventral displacement of the dura with effacement of subarachnoid space, large size and elongated shape with smooth tapering on both ends. There was significant occupation of the spinal canal by the lesion.

Emergency surgery in the form of laminectomy with discectomy is the treatment of choice if patient presents with symptoms of cauda equina syndrome. This not only increases the chance of recovery from symptoms but also helps to differentiate between disk and the other pathological lesions like tumors or infection.

CONCLUSION

Sequestered lumbar disk must be considered in the differential diagnosis of extradural mass lesions of the spinal canal especially when dorsally migrated and extends over more than one vertebral level.

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