

Intradural Lumbar Disc Herniation Associated with HIV Infection

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Rec date: Feb 09, 2016; Acc date: Mar 16, 2016; Pub date: Mar 18, 2016

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Abstract

Intradural Lumbar disc herniation (IDLDH) is a known rare subgroup, accounting for 0.3% of all disc herniation. The incidence of IDLDHs in 50-60 year olds is 2.2%, while that of 40-50 is only 0.2%. Most cases of reported intradural disc herniation (IDLDH) are in the lumbar spine (92%), especially at L4-5 level (55%) with some reports in the cervical (5%) and thoracic (3%) spine. Chronic disease process is postulated as a possible etiology of the condition in most of the cases. We present a case of IDLDH in a patient with HIV infection as a possible etiological factor.

Introduction

Intradural Lumbar disc herniation (IDLDH) is a known rare subgroup with no more than 160 cases reported since the first case in 1942 by Dandy [1-4]. Most cases occur in the lower lumbar spine especially at L4-5 level resulting from degeneration of the spine, with very few cases due to acute traumatic events [5]. We present a case of IDLDH in a patient with HIV infection as a possible etiological factor.

Case Report

A 47 years old HIV positive male presented with a three-month history of progressively worsening lower back and left sided leg pain. He experienced radiculopathy consisting of pain and numbness in the L5 dermatome. Neurological examination showed positive SLR test at 20 degrees and hypaesthesia in his left great toe, dorsum of his left foot and also in the left lateral calf. The muscle power was normal, MRC grade 5/5, in all myotomes and deep tendon reflexes were present and equal on both sides. He was not on anti-retroviral medications with viral load undetectable and CD4+ count >400.

The MRI scan of his lumbar spine demonstrated disc extrusion at the level of L4-5, compressing the left L5 nerve root (Figures 1 and 2).

As conservative treatment strategies including physiotherapy and steroid injection failed to improve his leg pain for longer duration, he was offered a microdiscectomy at the level L4/5 that was performed weeks later. After microsurgical laminotomy of L4 and flavectomy, no significant amount of the disc material was found on medialization of the dura and the nerve root. The spine surgeon noticed CSF leak anteriorly on medializing the thecal sac and concluded that part of the disc extrusion is located intradurally. The surgeon performed a minimal invasive discectomy by conservative clearing on the intervertebral disc and partial removal of the intradural disc fragment. The thecal sac and L5 nerve root was freed. At the end of the operation there was still a part of the disc fragment located intradurally. A conservative clearing of L4-5 disc space was performed with partial removal of intradural disc (Figures 3 and 4). After decompression of the L5 nerve root, the ventral dural tear was covered with a piece of TachoSil. (TachoSil® Fibrin Sealant Patch, Baxter Healthcare Corporation). The disc fragment was not sent for Histopathology as

the surgeon did not think that it would add any value to add any valuable information. The pathological process affected the dura rather than the disc itself. Patient made full recovery post-operatively with complete resolution of symptoms.

The postoperative MRI revealed residual intradural disc that had decreased significantly in size compared to the pre-operative images. As the patient was asymptomatic following the operation, no further surgery was indicated.

Discussion

Intradural Lumbar disc herniation (IDLDH) is a known rare subgroup, accounting for 0.3% of all disc herniation. The incidence of IDLDHs in 50-60 year olds is 2.2%, while that of 40-50 is only 0.2% [1]. Most cases of reported intradural disc herniation (IDLDH) are in the lumbar spine (92%), especially at L4-5 level (55%) with some reports in the cervical (5%) and thoracic (3%) spine [6-8].

One of the theories behind the pathogenesis of the IDLDH is adhesion between the posterior longitudinal ligament and the ventral dura that is more frequent at L4-5 level, due to close proximity of these structures. Chronic disease process has been postulated as a possible cause of the adhesion that may be due to congenital malformation or secondary to chronic inflammation due to disc degeneration, previous surgery or medical disorders such as rheumatoid arthritis [1,3,9]. Our patient had HIV infection that can cause inflammatory reaction which could contribute to the pathogenesis of IDLDH. Hence it could be postulated that HIV can be one of the predisposing factors for IDLDH. Few cases of IDLDH have been reported following traumatic event, which may be as a result of a large disc fragment entering the intradural space due to dural tear [9,10]. As the age increases the ventral aspect of the dura becomes thinner, which might explain the late presentation of IDLDH.

IDLDH is a distinct entity which is difficult to differentiate from other spinal abnormalities such as neurofibroma, lipoma, arachnoid cyst, meningioma, epidermoid tumor, arachnoiditis or metastasis [11,12]. It should be suspected in patients with chronic disc herniation especially if they are suffering from chronic disease process like in our patient [13]. The surgeon can have a more aggressive approach to the

management of the patient with suspected IDDH as the incidence of cauda equina syndrome is higher in this group than extradural disc herniation, accounting for about 30% and only 1% respectively [1,9,10,14].

The surgical treatment involves laminectomy or hemilaminectomy, durotomy under microscope, mobilization and removal of the intradural disc material. If it is possible, the dural defect should be repaired, however, in our case the defect was covered with a piece of Tachosil.



Figure 1: Pre-operative T2 sagittal image (High signal due to fat infiltration).

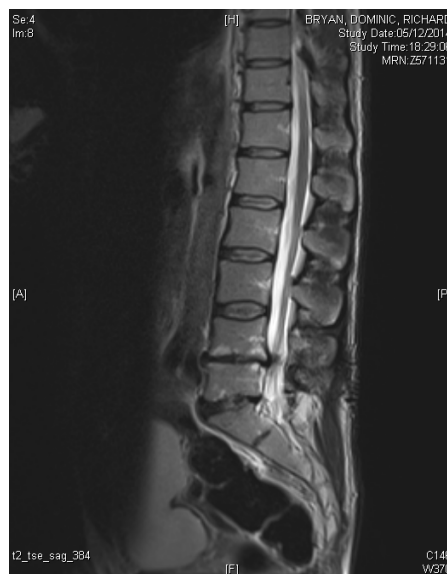


Figure 3: Post op T2 sagittal image.



Figure 2: Pre-operative axial image.

The loss of resistance from the PLL and the dura allows for massive herniation of the nucleus pulposus resulting in neurological deficit. This is especially so in the thoracic spine where the patient presents with weakness and sensory deficit.

Newer imaging modalities like CT scan and MRI with gadolinium enhancement can diagnose this condition, but is not routinely performed in clinical practice. These sequences could be requested if there is suspicion of IDDH in patients with chronic disease process. MRI scan of our patient was suspicious with evidence of thinning of the dura and signal change around the disc material due to the granulation tissue which appears as ring enhancement on Gadolinium enhancement [15-17].



Figure 4: Post op T1 axial image.

Conclusion

The Intradural disc herniation is a very rare pathology and should be suspected in few subsets of patients. Although the novel neuroradiology imaging may enable us to diagnose it preoperatively, the confirmation of the diagnosis is usually intra-operatively.

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