

Clinical Presentation Of Lumbar Disc Herniation: We Must Keep Also Limbus Fracture In Mind As A Cause

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Citation

K Deniz, O Serdar, G Arzu, T Selin, P Necmettin. *Clinical Presentation Of Lumbar Disc Herniation: We Must Keep Also Limbus Fracture In Mind As A Cause*. The Internet Journal of Neurosurgery. 2005 Volume 3 Number 1.

Abstract

A 49-year-old woman presented to Neurosurgery Clinic with a 4-month history of low-back pain radiating to her right leg. Patient's previous medical history was insignificant. There was no history of trauma. Neurological examination revealed a hypoactive Achilles reflex and a positive straight leg-raising test on the right side. Lumbosacral magnetic resonance imaging revealed that the L5-S1 intervertebral disc was herniated into the right L5-S1 foramen. The signal characteristics and the appearance of the lesion were atypical for a herniated disc. Computed tomography scanning showed a posterolateral rim fracture of the L5 inferior vertebral end-plate. The patient underwent surgery that involved wide L5 hemilaminectomy, removal of the fractured limbus, and L5-S1 discectomy.

Limbus fractures are less frequent in adults, and they tend to be misdiagnosed. Plain radiography and MRI are often inconclusive and CT is essential for the true diagnosis. Our case is a good example of Type III.

INTRODUCTION

Posterior limbus fractures represent avulsion of the ring apophysis from the vertebral body; thus, the symptoms usually imitate those of lumbar disc herniation (1). In this case, fracture was composed of lateral cortical and cancellous bone fractures.

was completely well at the latest follow-up visit, 6 months after surgery.

CASE REPORT

A 49 year-old woman presented to our outpatient clinic with a 4-month history of low-back pain radiating to her right leg. She got benefit neither from physical therapy nor from analgesics since then. There was no history of trauma. Neurological examination was significant for hypoesthesia in the right sided S1 dermatome and Achilles reflex was hypoactive. Straight leg-raising test was positive on the right at 30 degree. Plain radiographs of the lumbar spine were unremarkable. Lumbosacral magnetic resonance imaging (MRI) revealed a right L5-S1 foraminal disc herniation. Further diagnostic workup included a computed tomography (CT) scan of the lumbar spine which showed a fractured vertebral limbus posterolaterally impinging on the S1 root. The patient underwent hemilaminectomy of L5. The resection of the fractured limbus and simultaneous L5-S1 discectomy was performed. The patient was mobilized 1 day and discharged 2 days after surgery without leg pain. She

Figure 1

Figure 1: Axial MRI revealed that the L5-S1 intervertebral disc was herniated into the right L5-S1 foramen.

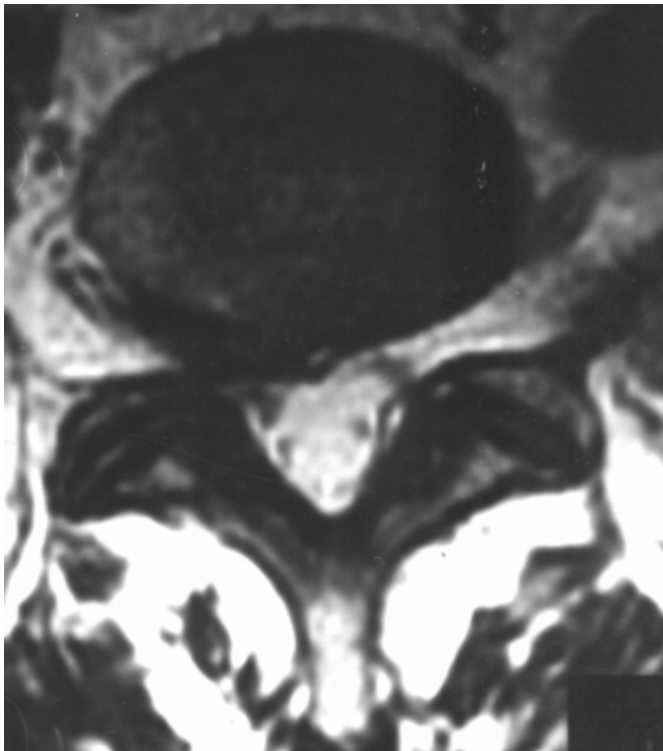


Figure 2

Figure 2: CT scanning showed a posterolateral rim fracture of the L5 inferior vertebral end-plate, with the fractured bone compressing the S1 nerve root.



DISCUSSION

Fracture of the posterior vertebral end plate is a cause of low back pain in adolescents and young adults. Clinically it resembles an acute disc prolapse with low back pain and radiculopathy. The pathogenesis of these fractures may be the fragility of the end-plate. Young patients may present after back injury but there is frequently no history of trauma (2). In this case, history of trauma was negative. Disc herniation is usually present in younger patients, but is not always found in adult cases. It may present with neurogenic claudication due to spinal stenosis in older patients. Considerable sclerosis and fibrosis may be present in older patients in keeping with fracture healing (6).

Recognition of these fractures is essential for proper planning of surgery. Plain radiographs are diagnostic in about 40% of cases (3). Plain radiography and magnetic resonance imaging are often inconclusive and computed tomography is essential for the true diagnosis (5,7). Posterior lumbar vertebral apophyseal ring fractures must be suspected when children and young adults show signs of lumbar disc herniation. The signal characteristics and the appearance of the lesion were atypical for a herniated intervertebral disc. Careful review of radiographs, supplemented by targeted computed tomography, is necessary for the correct diagnosis and management of this entity.

Accurate diagnosis and surgical technique with larger exposure are needed to resect the fractured fragments and protruded disc material for decompressing the roots and the dural sac (4,6). Treatment included a wide laminectomy, excision of the fragment, and osteosynthesis with instrumentation. In the absence of routine disc herniations, expanded standard discectomies to the superior or inferior pedicular levels allowed for the identification and removal of Type IV fractures.

At the magnetic resonance imaging, atypical signal characteristics and the appearance of the lesion for a herniated disc, we must keep the limbus fracture in mind. The posterior limbus vertebral lesions require careful diagnosis and therapy that are different from those with an ordinary lumbar disc herniation. Computed Tomography is the best method of examination, while plain roentgenograms and MR are usually negative.

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