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OLGU SUNUMU/CASE REPORT

Double crush root injury in the lumbar spine

Lomber bölgede double-crush kök yaralanması

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Abstract

Double crush root injury in the lumbar spine is a very rare condition. A 36-year-old female patient presented to our clinic with complaints of severe low back and right leg pain. Magnetic resonance imaging of the lumbar spine revealed a paramedian disc herniation at the L4-5 level and an extruded far-lateral disc herniation at the L5-S1 level. Both disc herniations were compressing right L5 root simultaneously. Microdiscectomies were performed at the L4-5 and L5-S1 levels. Postoperatively, she had complete resolution of her pain complaints.

Key words: Lumbar disc herniation, far-lateral lumbar disc herniation, double crush, microdiscectomy

Öz

Lomber bölgede double-crush kök yaralanması nadir görülen bir durumdur. 36 yaşında bayan hasta ciddi bel ve sağ bacak ağrısı şikayetleri ile kliniğimize başvurdu. Lomber omurganın magnetik rezonans görüntülemesi L4-5 sağ paramedian ve L5-S1 ekstrede far-lateral disk herniasyonlarını gösterdi. Her iki disk herniasyonu da eş zamanlı sağ L5 köküne baskı yapıyorlardı. L4-5 ve L5-S1 mesafelerine mikrodiskektomiler uygulandı. Ameliyat sonrası dönemde hastanın şikayetleri tamamen düzeldi

Anahtar kelimeler: Lomber disk hernisi, far-lateral disk hernisi, double-crush, mikrodiskektomi

INTRODUCTION

Definitive association of radiating leg pain with the intervertebral disc herniation was established by the breakthrough work of Mixter and Barr in 1934¹. Their report described symptoms which indicate neural compression in the lumbar spinal canal. Macnab first described far-lateral lumbar disc herniation (FLLDH) in 1971 emphasizing the compression of the corresponding exiting root located at the same level unlike the classical lumbar disc herniations². We describe a rare case of L4-5 paramedian and L5-S1 far-lateral disc herniations which were compressing right L5 root simultaneously in this report.

CASE

A 36-year-old female patient admitted to our clinic

with complaints of severe low back and right leg pain for the last 3 weeks. Her physical examination revealed a positive straight-leg raise test at 30 degrees on the right side. She had weakness of the right ankle in dorsiflexion (4/5) and dysesthesia through the dermatoma of the right L5 root. Deep tendon reflexes were preserved and the patient had no atrophy, fasciculations or upper motor neuron signs.

Magnetic resonance imaging (MRI) of the lumbar spine revealed a paramedian disc herniation at the L4-5 level (Figure 1) and an extruded far-lateral disc herniation at the L5-S1 level (Figure 2). Both disc herniations were right sided and compressing the right L5 root.

We performed microdiscectomies at the L4-5 and L5-S1 levels (Figure 3). Median approach for L4-5 level and paramedian approach for L5-S1 level were performed. And spine instrumentation was not

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preferred because there was no sign of instability in the preoperative and peroperative course. Large sequestered far-lateral disc herniation was removed at the L5-S1 level and an extensive foraminotomy was performed to the right L5 root.

Postoperatively, she had complete resolution of her complaints except for the incisional pain. She was discharged on the second day postoperatively and she had no recurrent or new complaints at 1-year-follow up

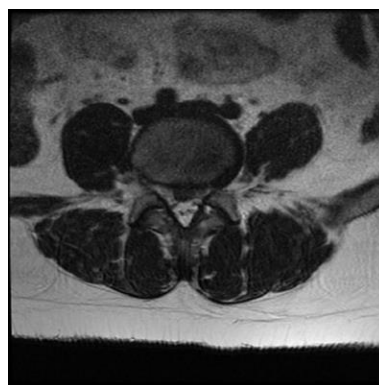


Figure 1. Preoperative MRI images. (a) Sagittal and (b) axial T2-weighted images revealing a paramedian disc herniation at the L4-5 level.

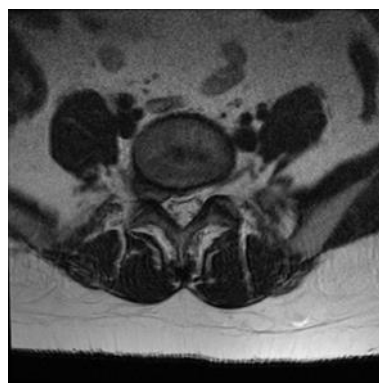


Figure 2. Preoperative MRI images. (a) Sagittal and (b) axial T2-weighted images revealing an extruded far-lateral disc herniation at the L5-S1 level.

DISCUSSION

Low back pain is the most common health problem in the population between the ages of 20 and 50 years³. Lumbar disc herniations (LDHs) represent one of the most common surgical causes of low back pain. Male gender, familial predisposition, mechanical injuries (e.g. trauma) and smoking are the main risk factors for LDHs⁴. Plain radiographs, computed tomography and myelography can be used in the diagnosis of LDHs. However, MRI is the gold standard scan technique for LDHs. They are classified as central, posterolateral, foraminal and

far-lateral disc herniations according to their location in the MRI scans.

The most common type of LDH is the posterolateral herniation in which the disc herniates just lateral to the posterior longitudinal ligament and compresses the traversing root as it exits the dura⁴. FLLDHs are relatively rare and they account only 7-12% of all disc herniations. These lesions affect the superiorly exiting root, culminating superior nerve root syndromes⁵. As an example; a classical L4-5 posterolateral herniation compresses L5 root while a L4-5 far-lateral disc herniation compresses L4 root and produce L4 root complaints.

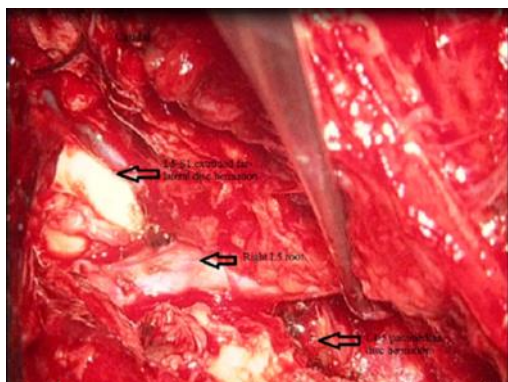


Figure 3. Intraoperative image revealing that both disc herniations compressing the right L5 root simultaneously

Although LDHs may locate in the entire lumbar vertebral column, L5-S1 and L4-5 herniations represent 95% of all cases⁴. However, FLLDHs generally affect the high lumbar levels. The most commonly involved levels are the L3-4 and L4-5 intervertebral spaces⁵. The chief complaint of a patient with lumbar disc herniation is commonly back pain radiating to the leg which may be aggravated by standing, sitting, pulling, pushing, bending, or twisting. Motor, sensory and sphincter deficits and loss of deep tendon reflexes may be detected according to the affected root injuries. In the physical examination, the straight-leg raise test or test of Lasègue is the examination method commonly used to reveal the patient's pain symptoms. When 30 degrees or more straight leg elevation reproduces the ipsilateral sciatica, Lasègue test is assumed to be positive. Reproduction of pain on the contralateral side is referred to as the crossed

straight-leg raise test. The straight-leg raise test is highly sensitive but not particularly specific, whereas the crossed straight-leg raise test exhibits high specificity but low sensitivity in the diagnosis of disc herniation⁶.

In conclusion, we report a rare case of two adjacent level disc herniations which were affecting the same root simultaneously. According to our literature review, this is the first reported case of double crush root injury in the lumbar spine. Two of the herniated discs were producing symptoms at the same time and the clinical findings were merging. An elaborate radiological assessment is very important in the diagnosis of such cases as we presented in this report.

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