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SPONTANEOUS REGRESSION OF SEQUESTRATED LUMBAR DISC HERNIATION: CASE REPORT

KENDİLİĞİNDEN KAYBOLAN SEKESTRE LOMBER DİSK HERNİSİ: OLGU SUNUMU

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SUMMARY

Disc herniations are the most common degenerative diseases in vertebral disorders that most often require surgery. They are mainly seen in the lumbar region, followed by the cervical and thoracic regions. Despite the development of minimally invasive surgical methods for the treatment of disc herniation, many of them are treated conservatively and medically. Spontaneous regression of disc herniation is rare during conservative treatment, but with the widespread use of magnetic resonance imaging, the number of these cases is increasing. Here, we describe a case that did not accept surgery for lumbar disc herniation, and had spontaneous regression of the intervertebral disc after six months of follow-up.

Considering these results, patients who have no neurological deficit or acceptable radiculopathy with disc herniation could be treated with conservative methods and medical therapy. Additionally, morphological spontaneous regression of sequestrated disc fragments can be observed radiologically.

Key words: Spontaneous disc regression, Lumbar disc hernia, Lumbar discopathy.

Level of evidence: Case report, Level IV

ÖZET

Disk herniyasyonları omurganın en çok görülen ve en sık ameliyat edilen dejeneratif hastalığıdır. Lomber bölge başta olmak üzere servikal ve torakal bölgede de sıklıkla karşımıza çıkmaktadır. Son zamanlarda gelişen minimal invaziv yöntemlerle cerrahi tedavinin artmasına rağmen konservatif ve medikal tedavi en sık başvurulan tedavi yöntemleridir. Herniye disk materyalinin konservatif tedavi sırasında kendiliğinden kaybolması ender bir durum olmakla beraber manyetik rezonans görüntülemenin yaygın kullanılması nedeni ile artan sayıda olgular bildirilmektedir. Bu olgu sunumunda operasyonu kabul etmeyen ve konservatif yöntemler uygulanan bir hastada 6 ay sonra kaybolan disk hernisi incelenmiştir.

Bu çalışmanın verileri ışığı altında, nörolojik sekelin olmadığı ve radikülopatinin kabul edilebilir düzeyde olduğu disk hernisi vakaları, ameliyat edilmeden medikal ve konservatif tedavi yöntemleri kullanılarak klinik iyileşme sağlanabilir ve sonucunda radyolojik olarak disk fragmanlarının morfolojik gerilemesini gözlenebilir.

Anahtar kelimeler: Kendiliğinden kaybolan disk, Lomber disk hernisi, konservatif tedavi.

Kanıt Düzeyi: Olgu sunumu, Düzey IV.

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INTRODUCTION

After the first report of ablation treatment for lumbar disc hernia in 1934 by Mixter and Barr, Love reported disc resection with ablation in 1939 [13,15]. Discectomy surgeries have subsequently been improved and become popularized. Neurological symptoms developing due to intervertebral disc hernia can increase without surgical intervention, and they can decrease with conservative methods[1,22]. Many studies have shown that intervertebral disc hernia can spontaneously regress, or that conservative treatment is mostly suitable for intervertebral disc hernia[2,4,18,19].

Disc regression was first observed with computerized tomography by Guinto in 1984 [6]. In 1985, spontaneous disc regression was shown with magnetic resonance imaging (MRI) by Teplick and Haskin[21]. While spontaneous intervertebral disc regression is most commonly observed in the lumbar region, it can be also observed at lower frequency in the thoracic region[11].

In this case report, a lumbar disc case that was thought to be sequestered from the L4–5 level behind the L5 corpus is presented, and the spontaneous regression process and mechanism are discussed.

CASE PRESENTATION

A 45-year-old male patient was admitted due to right leg pain in October 2013. When his sagittal and axial lumbar MRIs were evaluated, a disc hernia was observed, sequestered behind the L5 corpus and the closed right S1 foramen (Figure-1 and 2).

In the physical examination, the right Laseque sign was found to be positive at 30˚, and no neurological sequelae were detected on motor examination.

Surgery was suggested to the patient but he did not accept. The patient was asked to come for regular follow-up, and spontaneous regression of the sequestered disc hernia was observed in a lumbar MRI taken at month six (Figure-1 and 2).

It was stated that his clinical complaints had reduced over time during the six months. In a physical examination performed at the follow-up, no pain in the right leg and no limitation of movement were observed.

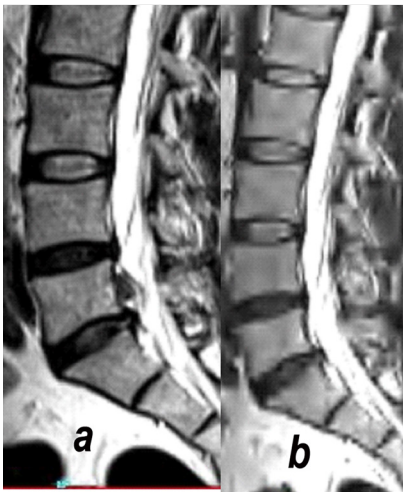

Figure-1. a) Sequestered disc behind the L5 corpus in sagittal MRI section, **b)** no disc was observed in the image after 6 months

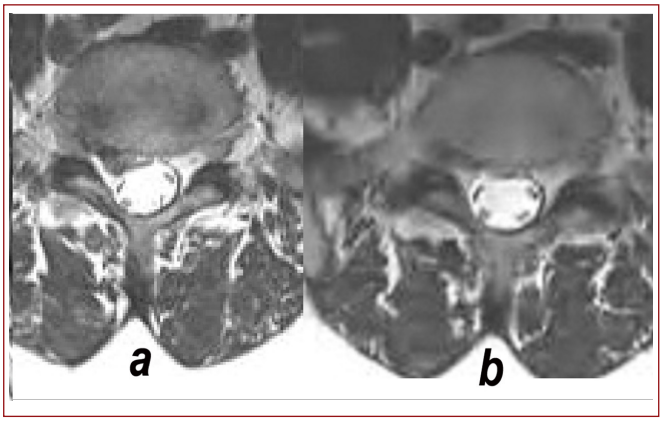

Figure-2. a) Sequestered disc observed at the opening of the L5 right foramen in axial MRI section, **b)** no disc was observed in the section after 6 months

DISCUSSION

In this case, an independent and spontaneously regressed lumbar disc herniation was observed. The patient was treated with conservative methods due to refusal of surgery, and spontaneous regression of the disc hernia was observed in a follow-up MRI. The clinical symptoms of the patient reduced, dependant on this regression. It seems that extruded and sequestered lumbar disc hernias can regress. Cases of spontaneous regression are generally detected in follow-up after six months to one year. However, there are some cases of spontaneous regression in a shorter time, such as after two months[17].

MRI is the most important radiological method to

observe herniated disc fragments and regression. Many MRI studies show that the larger the herniated disc fragment is, the faster regression can occur[23]. Sequestered free fragments are regressed more frequently than subligamentous fragments.

In the literature, there are many cases of lumbar disc hernia with spontaneous regression without surgical intervention[10,14,16,17,20]. Regression of the herniated disc can occur at many levels.

The mechanism of spontaneous regression is still not fully understood. There are three popular hypotheses in the literature. In the first hypothesis, it is suggested that the herniated disc re-enters the intervertebral space. The second suggests that the herniated disc material becomes gradually dehydrated and shrinks. The last, most accepted hypothesis is that the herniated disc material causes an inflammatory reaction and is degraded by phagocytes. It seems that vascular structures around the disc play an important role in regression. A large quantity of vascular structures increases the amount of phagocytes migrating to the region, and the inflammatory reaction will speed up[9]. In addition, it is has been suggested that matrix protein synthesis and increased cytokine levels provide spontaneous regression.

In our case, regression of the herniated disc depended on the water content of the disc material, shrinking due to dehydration, and an inflammatory reaction process. Although observation of regression in MRIs of many patients is correlated with a decrease in the clinical symptoms, morphological and radiological findings are not compatible in some cases[3,12]. This inconsistency can be due to compression signs resulting from compression of the adjacent neural tissues by the herniated fragments and the increased inflammation.

Intervertebral disc hernias are considered a foreign substance in the epidural region. Many studies show that the immune system senses this disc material as foreign and destroys it. Hirabayasi et al. showed that many vascular structures coming from the epidural fat tissue infiltrated the disc material[8]. Granulation tissue primarily occurred, followed by scar tissue.

Doita et al. found more endothelial growth factor (EGF) in extruded disc material compared with small protruded discs[5]. In a study on mice, Haro et al. showed that chondrocyte enzymes (matrix metalloproteinase-3) supported by macrophages play an important role in disc regression[7]. These studies show that the role of macrophages is quite important in the resorption mechanism and cytokine release mechanism required for endothelial cell proliferation. Interleukin-1 and TNF-alpha secreted by macrophages are the most important factors during the pro-inflammatory process.

In conclusion, clinical recovery with medical conservative methods without surgery can be obtained in disc hernia cases with no neurological sequelae where the radiculopathy is at an acceptable level, and hence morphological regression of the disc fragments can be observed radiologically.

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