



## LUMBAR INTRADURAL DISC HERNIA: A CASE REPORT

### LOMBER İNTRADURAL DİSK HERNİSİ: OLGU SUNUMU

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#### SUMMARY

Although intradural disc herniations are rare, they should be kept in mind because of the difficulties in diagnosis and treatment. The incidence of intradural disc herniation is between 0.27% and 0.33% in all discs. In this article, a patient who received surgery with diagnoses of spondylolisthesis and lumbar disc herniation, seen to be an intradural disc herniation during the operation, is discussed in the light of the literature. Magnetic resonance imaging (MRI) should be taken in suspected cases.

**Key Words:** Intradural disc hernia, lumbar disc hernia, enhanced lumbar MRI

**Level of evidence:** Case report, Level IV

#### ÖZET

İntradural diskler nadir görülmelerine rağmen, tanı ve tedavi aşamasındaki zorluklar nedeniyle dikkat edilmesi ve akılda tutulması gereken bir durumdur. Görülme sıklığı tüm disklerde % 0.27 ile % 0.33 arasındadır. Bu yazıda, listezis ve lomber disk hernisi tanılarıyla operasyona alınan ve operasyon sırasında intradural disk hernisi olduğu izlenen bir hasta, literatür bilgileri eşliğinde tartışıldı. Şüphelenilen vakalarda kontrastlı manyetik rezonans görüntüleme (MRG) çekilmesinin gerektiği fikri elde edildi.

**Anahtar Kelimeler:** İntradural disk hernisi, lomber disk hernisi, kontrastlı lomber MRG

**Kanıt Düzeyi:** Olgu sunumu, Düzey IV

## INTRODUCTION:

Although intradural disc hernias are rarely seen, they should be kept in mind due to their difficult diagnosis and treatment. Intradural disc hernia is defined as the rupture of the nucleus pulposus, annulus fibrosus, posterior longitudinal ligament (PLL) and dura mater of the intervertebral disc, and passage of the free fragment to the subdural space<sup>8</sup>. It was first defined by Dandy in 1942 (2). The incidence is between 0.27% and 0.33% in all discs<sup>7</sup>.

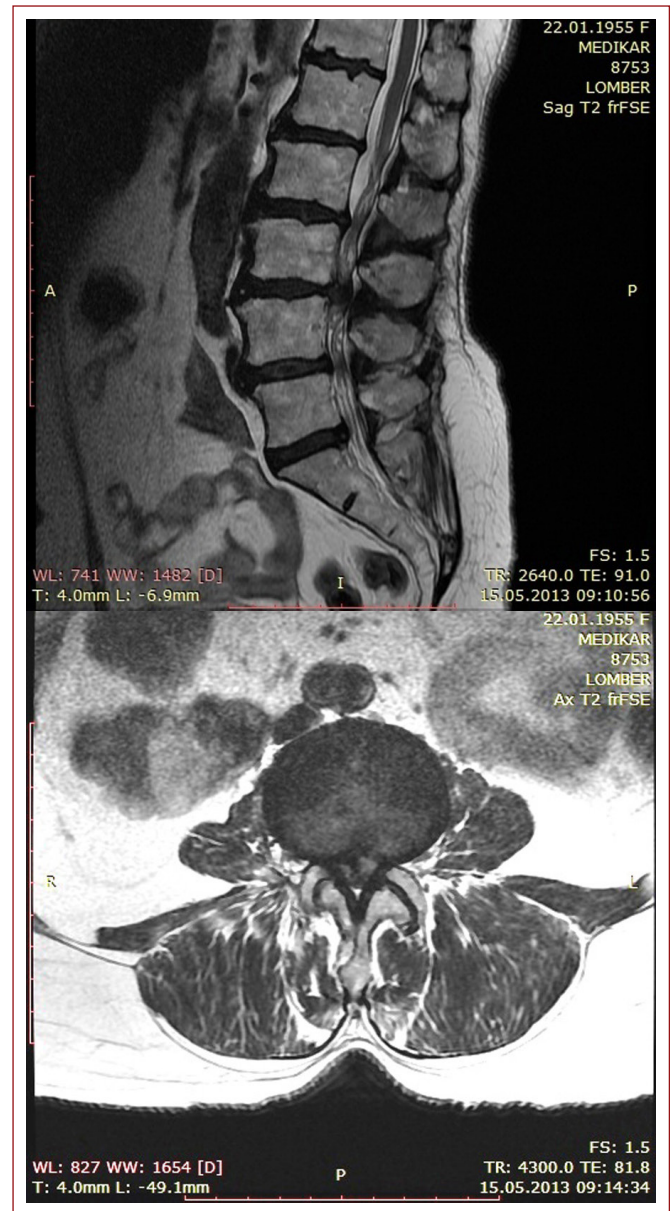
3% of reported cases in the literature are in the cervical region, 5% are in the thoracic region and 92% are in the lumbar region. 55% of intradural disc hernias seen in the lumbar region are at the L4–5 level, 16% at the L3–4 level, and 10% are at the L5–S1 level. It is commonly observed between the ages of 50 and 60. 76% of cases are male<sup>8</sup>.

In the differential diagnosis of prolapsed intervertebral disc disease, intradural disc herniations should be considered if signs have recently become worse, in particular, and if the intraoperative findings are not compatible with the signs of MRI without contrast material. In this article, a patient who received surgery due to diagnoses of spondylolisthesis and lumbar disc hernia, for whom an intradural disc hernia was observed during the operation, is discussed in light of the literature.

## CASE PRESENTATION:

A 58-year-old female patient was admitted due to lower back pain and pain in both legs that was worse on the left for two years. On examination of the patient, neurological claudication symptoms were present, with the bilateral tibialis anterior muscle strength 4/5, bilateral pain in the Valleix's points, and hypoesthesia at the left L4 and L5 dermatomes. On evaluation of lumbar MRI and direct X-rays, spondylolisthesis at L3–4 and L5–S1, and disc hernia at L3–4 were detected (Figure-1).

L1–S1 posterior stabilization and L3–4–5 total laminectomy were performed. Autogenous grafts at the L3–4 and L5–S1 levels and transforaminal interbody fusion (TLIF) were applied. When viewed from the left side for L3–4 discectomy, dural connection of the disc material and adhesion to the dura was detected. With minimal incision of the dura, the disc material was removed (Figure-2).



**Figure-1.a)** preoperative sagittal and **b)** axial MRIs of the patient.

CSF leakage from the dural space was monitored. The space was closed with fat graft. No CSF leakage was observed. At day 1 after surgery, the wound was clean, a neurological examination was normal and there was no leg pain. Therefore, the patient was discharged and asked to return for follow-up. In follow-up at month 3 after surgery, neurological examination of the patient was normal and there was no leg pain. There was no need for follow-up MRI due to the absence of pain after surgery.

## RESULTS:

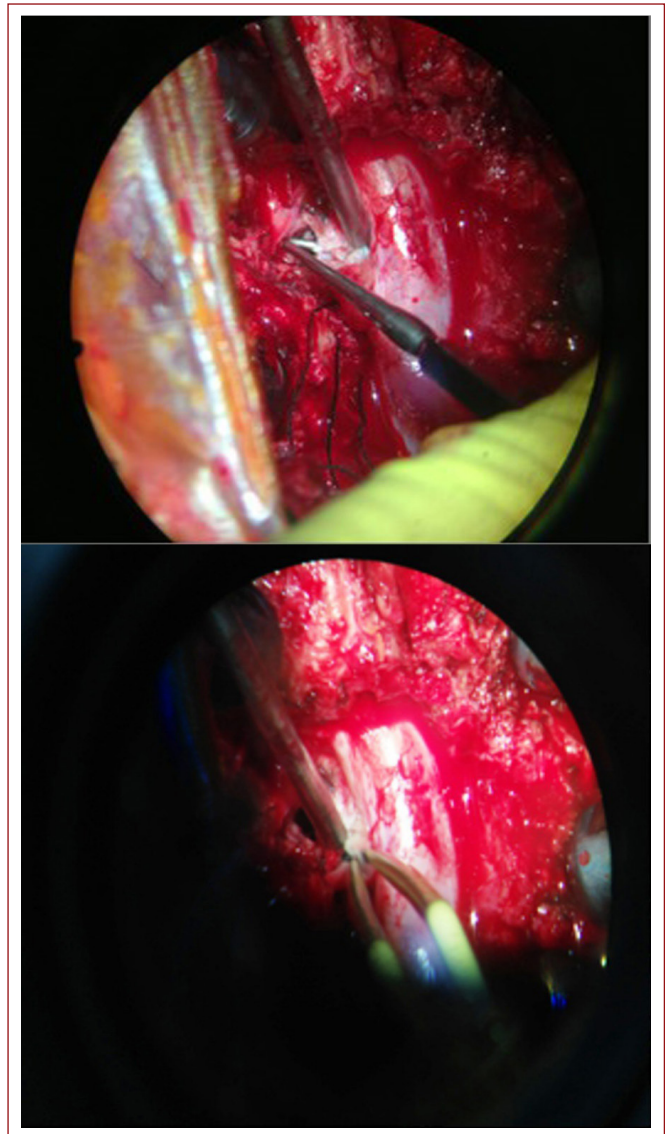
Although free disc fragments are observed in radiological images and the distance is accurate under fluoroscopy control, intradural disc hernia should be considered if disc material is not in the epidural region during surgery or when an intradural mass with environmental contrast is observed in preoperative examinations. Because intradural discs generally enter the intradural space from the anterior or antero-lateral part of the dura, primary suturing of the dura is generally impossible after removal of the disc material. In this case, immobilization with fat grafts, tissue glues, and CSF fistula procedures, when necessary, provided successful results.

## DISCUSSION:

Although the pathogenesis of lumbar intradural disc hernias is still not understood, they are generally related to massive adhesion between the anterior dura mater and PLL. Repetitive minor trauma or surgical approaches can cause these adhesions<sup>3,8</sup>. Mass lesions causing compression on the nerve root, and cauda equina syndrome, should be considered in the differential diagnosis. Studies have been conducted to understand the pathogenesis of intradural disc herniation, and reasons such as adhesions between the dura mater and PLL, and necrosis of the dura mater under long-term pressure, have been suggested. A preoperative diagnosis of intradural disc hernia is very difficult. The common observation of intradural disc hernia at the upper levels of the lumbar vertebrae has been explained by the narrowing of the upper levels of the canal<sup>5</sup>.

According to a study that included 40 cadavers, Blikra reported dense adhesions at the L4–5 level and loose adhesions at the L3–4 and L5–S1 levels (1). While there were no adhesions at other levels in this study, loose adhesions with a rate of 2% were reported at the L2–3 level in a study by Parke<sup>6</sup>.

Intradural disc hernias radiologically mimic spinal tumors. There are two types of intradural disc hernias: in type A, the disc is inside the dural sac, and in type B, the disc is inside the dural sheath but does not enter the epineurium<sup>4</sup>. Our case was evaluated as type A. In the literature, 80% of intradural disc hernias cause lower back pain or sciatalgia, and the onset time is reported between one and nine months.



**Figure-2.** Images of the patient during surgery.

In myelography, it is seen to be compatible with an intradural mass view, and the passage of contrast material to the intradural space can support the diagnosis. In our case, intradural disc hernia was not considered from the preoperative radiological imaging. Contrast material can be used in suspected cases. After application of contrast, it is generally accepted that scar tissue is stained while disc material is not stained. However, it has been shown that the herniated material can have environmental staining, and the whole part can be stained due to granulation tissue reaching the disc center in chronic patients. Vascularized disc material is also strongly stained after the application of contrast<sup>7</sup>. Contrast involvement was not evaluated in our case because an enhanced MRI was not taken preoperatively.

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If there is an extruded disc fragment in the preoperative lumbar MRI and the disc material cannot be found in the epidural region during surgery, intradural disc hernia should be considered. Also, if a lumbar extruded disc is present in imaging without contrast and there are doubts with regard to the intradural space, the addition of enhanced imaging to examinations can be helpful for a differential diagnosis.

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