



Case Report

Intradural Disc Herniation Mimicking a Spinal Tumor

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Summary

Intradural disc herniation is a rare pathological condition. The exact pathogenesis of intradural disc herniation is not known yet. Although contrast-enhanced MRI scans are useful to differentiate a herniated disc from other lesions, misdiagnosis is common. We describe a 43-year-old man with a 5 year history of low back and right leg pain. He reported a sudden exacerbation of these symptoms for a month. Magnetic resonance imaging revealed a mass-like lesion with peripheral contrast enhancement at the level of L5-S1. Right L5 hemilaminectomy was performed, and intradural disc fragment was removed after longitudinal durotomy. Intradural disc herniation must be kept in mind in the differential diagnosis of intradural mass.

Key words: Intradural disc herniation, spinal tumor, surgery

Spinal Tümörü Taklit Eden İntradural Disk Herniasyonu

Özet

İntradural disk herniasyonu nadir bir patolojik durumdur. İntradural disk herniasyonunun patogenizi kesin olarak henüz bilinmemektedir. Kontraslı MRG görüntüleri herniye diski diğer lezyonlardan ayırmada yararlı olsada, yanlış tanı sıklığı 5 yıldır bel ve sağ bacak ağrısı şikayeti olan 43 yaşında erkek hasta sunduk. Hasta semptomlarının son bir aydır aniden şiddetlendiğini söylemektedir. MRG görüntülerinde L5-S1 seviyesinde periferik kontrast tutan kitle görünümlü lezyon tespit edilmiştir. Hastaya sağ L5 hemilaminektomi yapıldı ve intradural disk fragmanı longitudinal duratomiyle çıkartıldı. İntradural disk herniasyonları intradural kitlelerin ayırıcı tanısında akılda bulundurulmalıdır.

Anahtar Kelimeler: İntradural disk herniasyonu, spinal tümör, cerrahi

INTRODUCTION

Intradural disc herniation is a rare complication of disc disease and comprises 0.26-0.30% of all herniated discs^(1,9). It was first described in 1942 by Dandy and more than 150 cases have been reported since then⁽⁹⁾. In all, 92% of intradural disc herniation were found in the lumbar region and only 10% of them occur at the L5-S1

level⁽³⁾. The most affected site is L4-L5 (55%)^(3,9). The exact pathogenesis of intradural disc herniation is not known yet. This is a rare condition that preoperative diagnosis is believed to be essential for an adequate approach and can cause failed back surgery, so it must be considered in the differential diagnosis of mass lesion causing lower back pain, radiculopathy or cauda equina syndromes.

In this report, we present a case of intradural lumbar disc herniation mimicking an intradural extramedullary spinal tumor at L5-S1 level which was diagnosed preoperatively.

CASE PRESENTATION

A 43-year-old man was admitted to our hospital with a 5 year history of low back and right leg pain. He reported a sudden exacerbation of these symptoms for a month. He had no history of previous lumbar spine surgery, infection or trauma. Neurological examination was normal except for a positive straight leg raising test. Magnetic resonance imaging revealed a mass-like lesion, measuring 3.5x1.5x1.5 cm at the level of L5-S1. The lesion was homogenously iso-intense on non-contrast MRI scans. On the contrast enhanced MRI

scans, there was peripheral enhancement of the lesion which is typical for a herniated disc (Fig. 1).

A right L5 hemilaminectomy was performed and no significant extradural lesion was identified after laminectomy. The dura mater was swollen and adhesion between the dura and posterior longitudinal ligament was seen. A hard mass could be palpated on the dural sac. A longitudinal durotomy was performed. A ruptured disc fragment was identified and removed. The durotomy was repaired. An anterior dural tear was seen intraoperatively but could not be repaired. The patient was discharged 3 days after the surgery after an uneventful postoperative period.



Figure 1: A-B. T2 weighted sagittal and axial images. The arrow shows the extruded fragment. C-D. Contrast enhanced T1 weighted images showing peripheral enhancement of lesion (arrow).

DISCUSSION

Intradural disc herniation which is thought to be rare, is mostly seen in fifth decade⁽³⁾. Although the physiologic and pathologic features of intradural disc herniation are not clear. Several predisposing factors have been identified: a) adhesion between the annulus fibrosus, posterior longitudinal ligament and dura matter; b) congenital narrowing of the spinal canal with less epidural space; c) congenital or iatrogenic fineness of the dura mater⁽⁴⁾ An anatomical investigation revealed dense non-separable adhesions of the ventral dura to the posterior longitudinal ligament at the L4-5 level in eight of 40 cadavers⁽²⁾. It was suggested that adhesions formed congenitally or caused by trauma, surgery, inflammation, osteophytes or disc protrusion fixed the dural sac⁽⁸⁾. In our case, adhesion between the dura and the posterior longitudinal ligament was present.

The case history is not specific for intradural disc herniation, but prolonged history of back and leg pain with cauda equina syndrome, can suggest the existence of intradural disc herniation. Cauda equina syndrome has an incidence of 30% in the literature⁽⁴⁾. Interestingly, our patient had an essentially normal neurologic examination.

Lumbar intradural disc herniation must be considered in the differential diagnosis of neurofibroma, lipoma, meningioma, epidermoid tumor, arachnoid cyst, arachnoiditis or metastasis⁽¹⁾. Contrast-enhanced MRI scans are useful to differentiate a herniated disc from these lesions. Peripheral enhancement around the non-enhancing disc fragment is commonly seen on contrast MRI. However in acute disc herniation cases, the ring enhancement could not be seen because the granulation tissue has not yet developed. MRI findings of intradural disc herniation are a) gas within the spinal canal; ⁽⁶⁾ b) a beak-like mass with the ring enhancement in the

intervertebral space, which pointed to abrupt loss of continuity of the posterior longitudinal ligament⁽⁵⁾; c) Increased signal intensity on T2 weighted scans surrounding the herniated disc, which points a sharp, beak-like appearance⁽⁷⁾. Although MRI with contrast is useful, misdiagnosis is common. In our case, the lesion was homogeneously iso-intense on both T1 and T2 weighted MRI scans and on contrast there was peripheral enhancement of the lesion, which is typical for an intradural disc herniation. This led us to consider intradural disc herniation, though an intraspinal tumor could not be ruled out.

At surgery, swelling of the dural sac and root, adhesion between the posterior longitudinal ligament and the dura matter, absence of herniated disc fragment should consider the intradural disc herniation to a neurosurgeon. Accurate microscopic dissection of nerve rootlets after durotomy and removal of the intradural ruptured disc fragment must perform in surgery. The dural defect must be repaired to prevent cerebrospinal fluid leakage.

D'Andrea et al.⁽⁴⁾ reported that the prognosis of intradural disc herniation is related to the complete removal of the herniated disc, duration of the symptomatology, association of cauda equine syndrome and the history of previous surgery.

In conclusion, the potential presence of an intradural disc herniation should be kept in mind when the posterior longitudinal ligament is discontinuous and there is peripheral ring enhancement of an intradural lesion demonstrated by MRI. The preoperative diagnosis is important for success of the surgery and the avoidance of failed back syndrome.

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8. *Isla A, Roda JM, Bencosme J, Alvarez MP, Blazquez MG. Intradural herniated dorsal disc: Case report and review of the literature. Neurosurgery 1988; 22(4):737-739.*
9. *Liu CC, Huang CT, Lin CM, Liu KN. Intradural disc herniation at L5 level mimicking an intradural spinal tumor. Eur Spine J 2011;20(Suppl 2):326-29*

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REFERENCES

1. *Aydın MV, Özel S, Sen B, Erdogan B, Yildirim T. Intradural disc mimicking: a spinal tumor lesion. Spinal Cord 2004;42:52-54*
2. *Blikra G. Intradural herniated lumbar disc. J Neurosurg 1969;31:676-79*
3. *Choi JY, Lee WS, Sung KY. Intradural lumbar disc herniation-Is it predictable preoperatively? A report of two cases. The Spine Journal 2007;7:11-117*
4. *D'Andrea G, Trillo G, Roperto R, Celi P, Orlando ER, Ferrante L. Intradural lumbar disc herniations: the role of MRI in preoperative diagnosis and review of the literature. Neurosurg Rev 2004;27:75-80.*
5. *Hida K, Iwasaki Y, Abe H, Shimazaki M, Matsuzaki T. Magnetic resonance imaging of intradural lumbar disc herniation. J Clin Neurosci 1999; 6:345-347*
6. *Hidalgo-Ovejero AM, Garcia-Mata S, Gozzi-Vallejo S, Izco-Cabezon T, Martinez-Morentin J, Martinez-Grande M. Intradural disc herniation and epidural gas: something more than a casual association? Spine 2004; 29:E463-E467*
7. *Holtas S, Nordstrom CH, Larsson EM, Pettersson H. MR imaging of intradural disk herniation. J Comput Assist Tomogr 1987;11:353-356*