

Olgu Sunumu

Intradural Disc Herniation Presenting with Acute Onset Bilateral Isolated Foot Drop

Bülent GÜÇLÜ¹, Mehmet TİRYAKİ¹, Erdal GÜR¹, Deniz GÜLABİ²

¹S.B. Kartal Dr. Lütü Kırdar Eğitim ve Araştırma Hastanesi, Beyin Cerrahisi Kliniği, İstanbul

²S.B. Kartal Dr. Lütü Kırdar Eğitim ve Araştırma Hastanesi, Ortopedi ve Travmatoloji Kliniği, İstanbul

Intradural disc herniation is a rare entity that occurs most frequently in the lumbar spine. Most often it is diagnosed intraoperatively. Acute onset of bilateral foot drop due to intradural disc herniation without any sign of the cauda equina syndrome is also extremely rare. We described a case of a 41-year-old male who presented to us with acute onset bilateral foot drop without any sign of the cauda equina syndrome. He had previously been diagnosed as having multiple-level intervertebral herniations and managed conservatively. He was admitted to the emergency room with acute onset bilateral foot drop. Lumbar MRI revealed multiple-level disc herniations and extruded disc fragment at L2-L3 level. L2 and L3 laminectomies were performed and a hard intradural mass was palpable. On opening the dura a fragment of intervertebral disc was found with a small defect in the anterior dura.

The fragment was removed and the dura was sutured. The patient recovered well from the surgery. Intradural disc herniation must be considered in the differential diagnosis of acute onset bilateral foot drop without any sign of the cauda equina syndrome.

Keywords: Bilateral foot drop, intradural disc herniation, lumbar disc, surgery

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Ani Gelişen Bilateral İzole Düşük Ayak ile Gelen İntradural Disk Herniasyonu

İntradural disk herniasyonu en sık olarak lomber omurgada oluşan ender bir durumdur. Genellikle intraoperatif olarak tanı konur. İntradural disk herniasyonu nedeni ile ani gelişen ve kauda ekuina sendromu bulguları eşlik etmeyen bilateral izole düşük ayak çok enderdir. Biz kauda ekuina sendromu bulguları eşlik etmeyen ani gelişen bilateral düşük ayak ile gelen 41 yaşında bir erkek olguyu sunduk. Hastaya daha önce çok seviyeli intervertebral disk hastalığı tanısı konmuş ve konservatif olarak takip ediliyordu. Hasta acil servise ani gelişen bilateral düşük ayak yakınması ile başvurdu. Lomber MRG incelemesinde çok seviyeli intervertebral disk ve L2-L3 seviyesinde ekstrude disk fragmanı tesbit edildi. L2 ve L3 laminektomi yapıldı ve sert bir intradural kitle palpe edildi. Dura açıldığında anterior durada küçük bir yırtıkla birlikte intervertebral disk parçası bulundu.

Parça çıkarıldı ve yırtık dikildi. Hastanın durumu cerrahiden sonra düzeldi. İntradural disk herniasyonları kauda ekuina sendromu bulguları eşlik etmeyen ani gelişen bilateral düşük ayak hastalığının ayırıcı tanısında akılda tutulmalıdır.

Anahtar kelimeler: Bilateral düşük ayak, intradural disk herniasyonu, lomber disk, cerrahi

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Yazışma adresi: Doç. Dr. Bülent Güçlü, S.B. Kartal Dr. Lütü Kırdar Eğitim ve Araştırma Hastanesi, Beyin Cerrahisi Kliniği, Maltepe / İstanbul

e-mail: guclubulent@hotmail.com

Intradural disc herniation (IDH) was originally described by Dandy in 1942 ⁽⁴⁾. IDH comprises only 0.26-0.30% of all disc herniations, and it occurs more often in the lumbar region ^(1,5). The preoperative diagnosis of intradural disc herniation is not easy, and requires contrast-enhanced MRI of the spine. Most patients with IDH are first diagnosed as having intervertebral disc disease and therefore the work up of these patients lacks contrast enhanced MRI. Mostly the finding of intradural disc comes as a surprise for the unprepared surgeon. Acute onset of isolated bilateral foot drop due to disc herniation is extremely rare. We present an extremely rare case with intradural disc herniation manifesting with acute bilateral isolated foot drop without any sign of the cauda equina syndrome.

CASE REPORT

A 41-year-old male presented to emergency room with sudden onset of bilateral foot drop. He was working in building a new hospital next to the emergency room. After having bilateral leg pain he suddenly developed bilateral foot drop. He did not have any sign of the cauda equina syndrome. His history revealed that he had multiple disc herniations and was followed conservatively. On examination the patient had severe pain lower back radiating to both lower limbs, and he also had bilateral weakness of foot at dorsiflexion. An unenhanced MRI of the lumbar spine revealed multiple intervertebral disc herniations, and a large left extruded disc herniation at L2-L3 level. Intraoperatively L2 and L3 laminectomies were performed and a hard intradural mass was palpable at L2-L3 level. When the dura was opened, posteriorly displaced nerve rootlets were seen. Anterior to rootlets the disc fragment was seen and then the disc fragment was excised. Small defect was noted on the anterior dura. Dura was

closed primarily and nerve root decompression was ensured. The postoperative period was uneventful and the patient was discharged on the third postoperative day. Postoperatively patient recovered smoothly and pedal movements started immediately after surgery.

DISCUSSION

IDH is defined as the displacement of intervertebral disc nucleus pulposus into the dural sac. It is frequently associated with symptoms worse than the regular lumbar disc herniation. There is a higher incidence of cauda equina syndrome (CES) in IDH than in extradural herniations ^(2,10,14). IDH occurs more often in the lumbar region (92%), followed by thoracic (5%), and cervical (3%) regions. ^(3,5). The most frequently L4-5 (55%), then L3-4 (16%) and L5-S1 (10%) are affected ¹⁾.

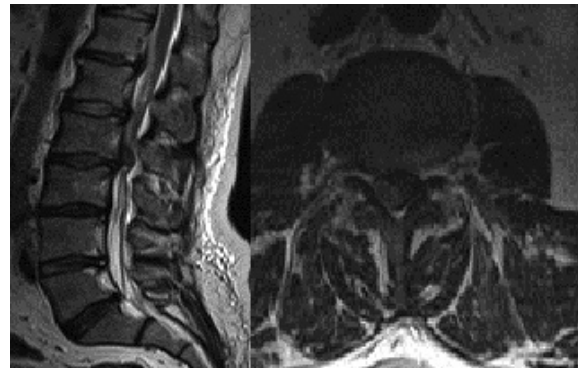


Figure 1. Left: T2W sagittal MRI image showing a L2-L3 herniated disc. Right: T2W axial MRI image showing a left L2-L3 herniated disc.

IDH formation requires perforation of the annulus fibrosus, the posterior longitudinal ligament and the dura mater ⁽⁸⁾. Adhesions between the annulus fibrosus, posterior longitudinal ligament, duramater, congenital and iatrogenic fineness of the dura mater and congenital narrowing of the spinal canal with less epidural space may contribute to the formation of IDH ^(1,3,12). Blikra

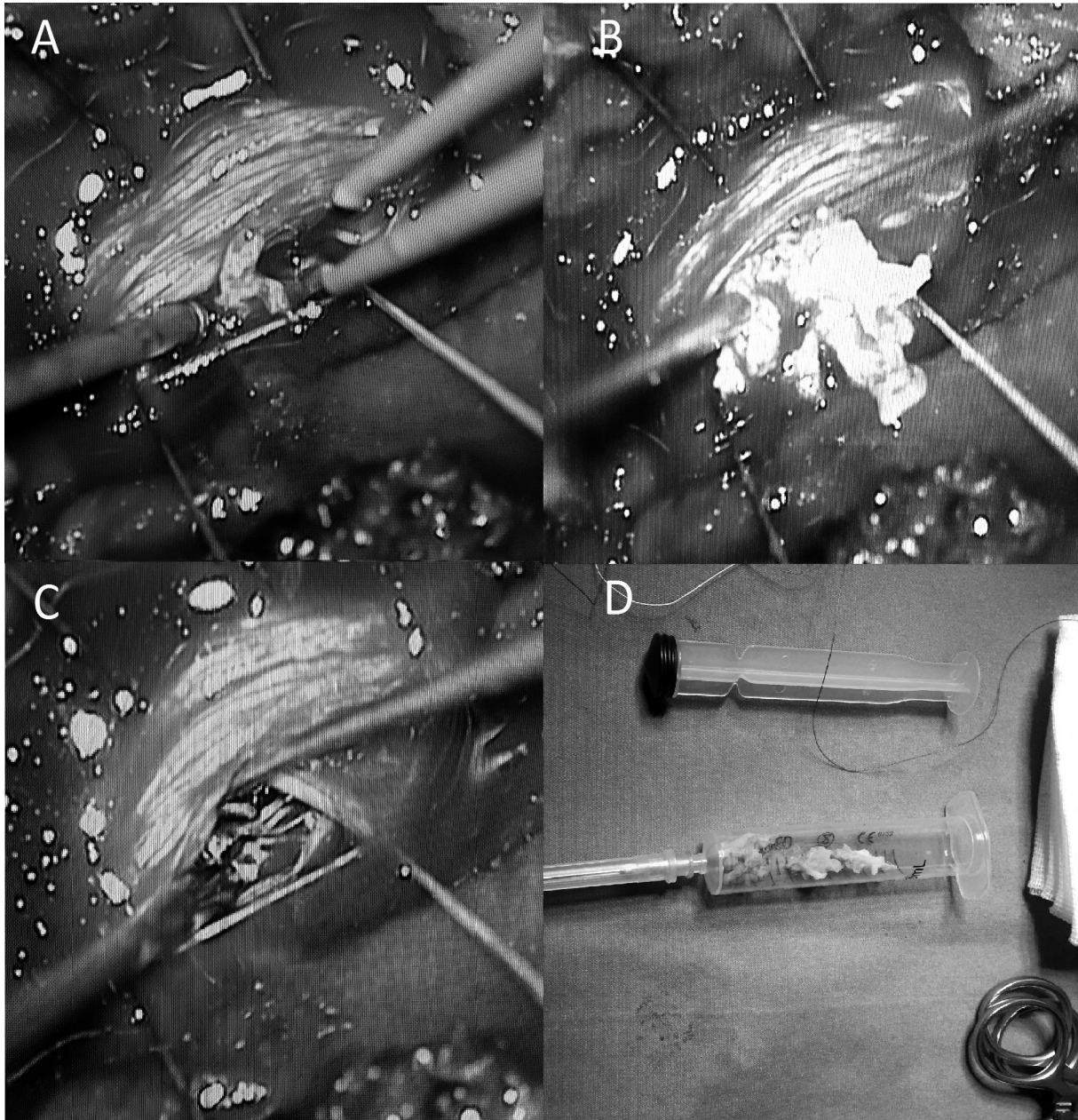


Figure 2. A: Intraoperative aspect of the intradural disc herniation displacing nerve rootlets posteriorly.
B: Intraoperative photograph showing removal of intradural disc fragment between nerve rootlets.
C: Intraoperative photograph showing a small defect on the anterior dura.
D: Photograph showing removed disc fragments.

demonstrated presence of firm anatomic adhesions between the anterior wall of the dural sac and the posterior longitudinal ligament at the L4-L5 level ⁽²⁾. The herniated disc would perforate the annulus fibrosus, the PLL and the dura mater as if they were one structure producing IDH.

Contrast-enhanced MRI scans are essential both to diagnose and differentiate an IDH from a disc space infection or tumor ⁽⁶⁾. Peripheral enhancement around the disc fragment is commonly seen on contrast MRI. The enhancement pattern of the intradural disc fragment is variable. Acute cases of IDH can pose problem because there is

no granulation tissue hence no enhancement. The MRI finding of an intradural lesion raises several diagnostic doubts that must be considered and resolved with differential diagnosis, which includes neurinoma, meningioma, ependymoma, and dermoid. Neurinoma and meningioma both have homogeneous enhancement and they are clearly different from the ring enhancement of intradural herniations. An important issue to be considered in differential diagnosis is posterior epidural migration of herniated disc fragment which may also have a ring enhancing pattern on contrast enhanced MRI ⁽¹³⁾.

Treatment of IDH is basically surgical removal of ruptured disc material. The dura and root must be carefully explored to remove IDH. Cauda equina syndrome and sphincter disease have an incidence of 30% of all reported cases ^(3,7). In some cases the disc protrudes intradurally to compress a single root and shows symptoms of single root compression. Intradural disc herniation above the conus medullaris seems to bring on neurologic dysfunctions more rapidly ⁽¹¹⁾. Acute onset of bilateral foot drop, without any sign of the cauda equina syndrome is very rare with disc herniation ⁽⁹⁾. In our case we did not recognize that the patient had IDH and contrast-enhanced MRI scans were not performed preoperatively. Intraoperatively we palpated a hard intradural mass. To our knowledge, our case is the first presented case of acute bilateral foot drop without any signs of cauda equina syndrome caused by L2-L3 disc herniation. Intradural disc herniation must be considered in the differential diagnosis of acute onset bilateral foot drop without any sign of the cauda equina syndrome.

CONCLUSION

Intradural disc herniation is a rare variant of a

very common disease. Cauda equina syndrome is more commonly seen with IDH than usual disc herniations. However acute bilateral foot drop, without any sign of the cauda equina syndrome is very rarely seen with IDH. Patients with acute bilateral foot drop, without any sign of the cauda equina syndrome should be evaluated very carefully, and lumbar MRI with contrast should be done to rule out IDH. We presented the first case of acute bilateral foot drop without any signs of cauda equina syndrome caused by L2-L3 disc herniation. As a conclusion intradural disc herniation must be considered in the differential diagnosis of acute onset bilateral foot drop without any sign of the cauda equina syndrome.

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