

Acute monoplegia associated with non-traumatic intradural cervical disc herniation: A case report

Travmanın eşlik etmediği akut monopleji nedeni olan intradural servikal disk hernisi: Olgu sunumu

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ABSTRACT

Intradural disc herniation has been reported as a rare and particular type of intervertebral disc herniation. It occurs mostly in the lumbar spine, and rarely in the cervical or thoracic spine. Non-traumatic cervical intradural disc herniation is rare, with only 17 cases reported in English literature at the cervical region and can manifest itself by severe symptoms such as Brown-Sequard syndrome, transverse myelopathy and radiculopathy. We present a unique case of intradural cervical disc herniation only causing lower extremity monoplegia. To our knowledge, this is the first case described in the literature. The patient underwent microsurgical removal of the herniated disc via an anterior approach followed by interbody fixation using a cervical cage. *J Clin Exp Invest 2014; 5 (1): 112-114*

Key words: Cervical disc herniation, intradural, monoplegia

INTRODUCTION

Most cervical intradural disc herniations occur at C5-C6 or C6-C7 levels and affect patients who are 40-50 years of age. As serious symptoms can progress rapidly, immediate surgical treatment is often a necessity when a patient complains of neurological symptoms in the lower extremities, but not in the upper extremities, a thoracic or lumbar disorder is generally suspected. Subsequent neurological examinations and imaging studies allow for the determination of the precise spinal level involved.

However, we experienced an instructive case of one-level disc herniation in the cervical spine, presenting with flaccid monoplegia and pain in the left lower extremity without neurological deficits in the upper extremities.

ÖZET

Dura içi disk herniasyonu nadir olarak bildirilmiştir ve intervertebral disk herniasyonlarının özel bir tipidir. En çok lomber bölgede görülür ve servikal ve torakal bölgede nadirdir. Travma olmaksızın servikal dura içi disk herniasyonu oldukça nadir görülüp, İngilizce literatürde 17 olgu bildirilmiştir ve Brown-Sequard sendromu, transvers myelopati ve radikülopati şeklinde kendini gösterebilir. Biz alt ekstremitede sadece monoplejiye neden olan nadir bir servikal intradural disk hernisi olgusunu sunduk. Bilgimize göre bu literatürde tanımlanan ilk olgudur. Olguya anterior yaklaşımla mikrodisektomi sonrası servikal kafes uygulaması yapıldı.

Ahahtar kelimeler: Servikal disk hernisi, intradural, monopleji

CASE REPORT

A 42-year-old woman presented with pain in the left lower extremity and gait disturbance caused by progressive numbness and weakness in the same extremity. Her symptoms had developed approximately 2 days earlier without an obvious triggering event. The patient had no symptoms in the upper extremities. There was no significant past medical history or family history. Neurological examinations revealed normal deep tendon reflexes in the upper extremities (biceps tendon reflex, brachioradialis reflex, and triceps tendon reflex), negative Hoffmann's reflex, but increased deep tendon reflexes in the left lower extremity (patellar tendon reflex and Achilles tendon reflex) in addition to the presence of left ankle clonus, and positive Babinski's sign. Muscle

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strength, as assessed by the manual muscle test (grades 0-5), was 5 in the left quadriceps, gastrocnemius, and hamstring muscles and other muscles. There was pain and hyperesthesia throughout the left lower extremity (below L1 dermatome). The patient had increased urinary frequency and an unstable gait as a result of flaccid monoplegia in the left lower extremity.

There was no history of trauma and she had no past history of cervical spine problem.

Magnetic resonance imaging (MRI) of the thoracic and lumbar spine was normal. However, the cervical spine revealed a disc herniation at C6-C7 with a more left-sided appearance and signal intensity was observed in the spinal cord (Fig 1).

On the basis of those images, a large disc herniation perforating the hypertrophic posterior longitudinal ligament and prolapsing into the vertebral canal was diagnosed, and surgical management was chosen.

When the fragment of the herniated disc was removed using a pituitary rongeur, the operation

field was filled by a small amount of clear cerebrospinal fluid. The spinal cord was visible through a hole in the posterior longitudinal ligament and dura. Probing carefully with a small blunt nerve hook within the subarachnoid space, we found 2 more fragments of the herniated disc under the dura, which were cautiously removed. Adhesion of dura mater and hypertrophic posterior longitudinal ligament (PLL) was observed around a perforated portion of the herniated disc.

Further exploration of the surgical field failed to reveal any other intradural disc fragment. The dural tear was closed carefully by epidural fat graft and fibrin glue. Microdiscectomy and anterior cervical fusion with peek cage containing otogreft was performed (Fig 2), and the incision was closed in standard fashion.

After surgery, the patient was free of complaints, and her motor function was improved soon after in a several weeks by proper rehabilitation.

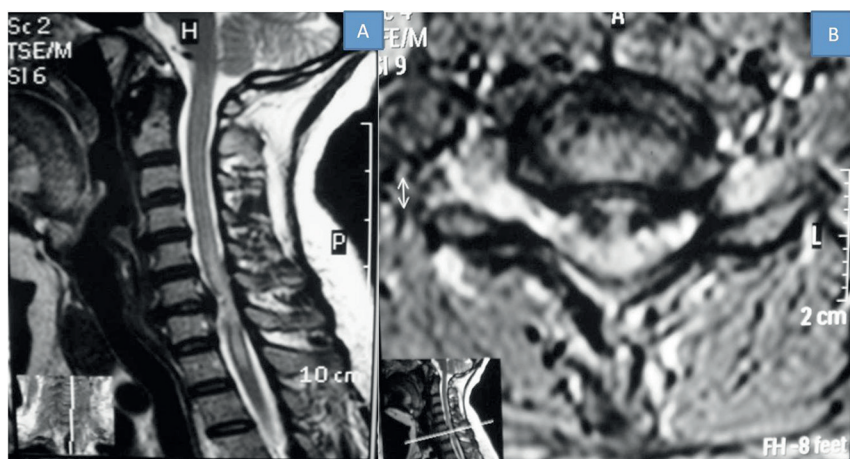


Figure 1. T2 weighted sagittal MRI showing spinal cord edema (A), and T2 weighted axial MRI showing tear in posterior longitudinal ligament and intradural disc herniation (B)

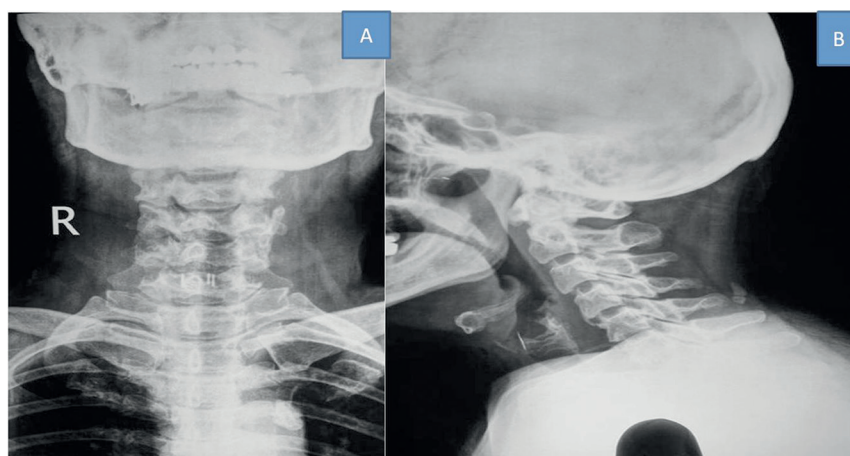


Figure 2. Post-operative A-P (A), and lateral (B) cervical radiograph showing C6-7 peek cage.

DISCUSSION

With non-traumatic cervical intradural disc herniation, most patients had preceding chronic neck pain and/or previous neck injury. They may also have had disc herniation and localized hypertrophy and segmentally ossified PLL in their cervical MRI. Adhesiveness and fragility both in the dura mater and posterior longitudinal ligament can increase because of the irritation, and such conditions have the disc fragment perforated the PLL and the dura mater by an accidental force [1,2].

The onset of herniation is usually associated with overloading on the cervical spine, such as heavy labor, sports activities, or manipulation, and is often accompanied by acute pain. The location of disk herniation can lead to characteristic symptoms. Central disc herniation most often induces pyramidal tract signs, and lateral herniations are usually associated with radicular pain.

A herniation of this type usually was manifested by severe symptoms as well as Brown-Sequard syndrome, transverse myelopathy, and radiculopathy [1-15].

Acute Brown-Sequard syndrome is the most common presentation, due to the lateralization of the intradural disc fragment that may displace the spinal cord laterally, applying compression to one side of the spinal cord and leading to hemi-dysfunction.

Spinal-cord disorders caused by disc herniation include myelopathy and spinal cord injury (incomplete or complete), both of which are known to occur relatively often in thoracic vertebra compared to cervical vertebra. To date, 17 cases have been reported in English literature involving the cervical spine; these include nine cases of Brown-Sequard syndrome [1-4,7,14,15], six cases of transverse myelopathy [5,6,9-11,13], and two cases of radiculopathy [8,12].

However, we report a rare case of non-traumatic acute monoplegia caused by disc herniation at the C6-C7 level. Not thoracic or lumbar region, preoperative MRI of the present case demonstrated a spinal cord lesion of cervix as a cause of monoplegia. The authors considered the situation as an emergency to lift up the pressure on the cord, and that it would be necessary to remove migrated disc material promptly. The currently reported patient also is extraordinary in terms of clinical manifestation, since her symptom was only lumbosacral radiculopathy instead of any cervical cord or root sign.

Our experience of this case suggests that in the diagnosis of patients with monoplegia or any neurological symptoms like sensory disturbances and pain in the lower extremities, not only the thoracic or lumbar spine, but also the cervical spine should be explored by imaging studies, especially at the C6-C7 level, even if the symptoms and abnormal neurological findings are absent in the upper extremities.

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