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Abnormal Dilated Epidural Venous Plexus Mimicking Prolapse of Intervertebral Disc Report of three and Review of the Literature

Lomber Disk Hastalığını Taklit Eden Anormal Dilate Epidural Venöz Pleksus, 3 Olgunun Sunumu ve Literatürün Gözden Geçirilmesi

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ABSTRACT

Lumbar disc disease may be confused with the other pathologies that generate sciatic pain. One of these pathologies is an abnormal dilated epidural venous plexus that mimics herniated lumbar disc disease. The purpose of this report is to describe this situation. Between 2002 and 2004, three of our patients underwent lumbar disc surgery with the preoperative diagnosis of lumbar disc herniation. Instead of disc herniation, abnormal dilated venous plexi were observed at the same level in all patients during the surgery. An abnormal epidural venous plexus that mimics lumbar disc herniation is a rare clinical entity and this pathology should be kept in mind during lumbar disc surgery.

KEY WORDS: Dilated epidural venous plexus, lumbar disc surgery

ÖZ

Lomber disk hastalığı siyatik ağrısına neden olan diğer patolojilerle karışabilir. Lomber disk hastalığını taklit eden anormal genişlemiş epidural venöz pleksus, nadir görülen sebeplerden birisidir. Bu makalenin amacı bu duruma dikkat çekmektir. 2002-2004 yılları arasında kliniğimizde lomber disk hernisi tanısı ile opere edilen üç hasta sunulmuştur. Tüm hastalarda cerrahi sırasında aynı seviyede herniye olmuş disk yerine anormal genişlemiş epidural venöz pleksusla karşılaşılmıştır. Lomber disk hastalığını taklit eden anormal epidural venöz pleksus nadir bir durum olup lomber disk hernilerinin cerrahi tedavisinde akılda tutulmalıdır.

ANAHTAR SÖZCÜKLER: Dilate epidural venöz pleksus, lomber disk cerrahisi

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INTRODUCTION

Surgery for a herniated lumbar disc is the most frequent surgical procedure in neurosurgical practice. The presentation is generally typical and clinical and radiological findings support the diagnosis. However, in rare cases, a dilated venous plexus can mimic a herniated lumbar disc radiologically (1, 2, 4, 5, 6, 7, 9, 11, 12). The radiological diagnosis is often missed and the diagnosis is made during the surgery (2, 3).

CASE REPORT

CASE 1

A 50-year-old male was admitted with severe radicular pain of the left thigh. The patient had a positive femoral stretch test with no neurological deficit. Lumbar magnetic resonance imaging (MRI) was reported to show a herniated disc at left L3-4 (Figure 1A, 1B). During the operation, it was noted that the left L4 nerve root was compressed by a dilated epidural venous plexus (Figure 2). Following coagulation of the plexus, the symptoms subsided.

CASE 2

A 75-year-old female was admitted to our clinic with severe radicular pain in both lower extremities. Her neurological examination revealed 3/5 motor function during right ankle dorsiflexion and 3/5 during left knee extension. The preoperative MRI demonstrated diffuse degenerative changes in the lumbar spine and herniated lumbar discs at the left

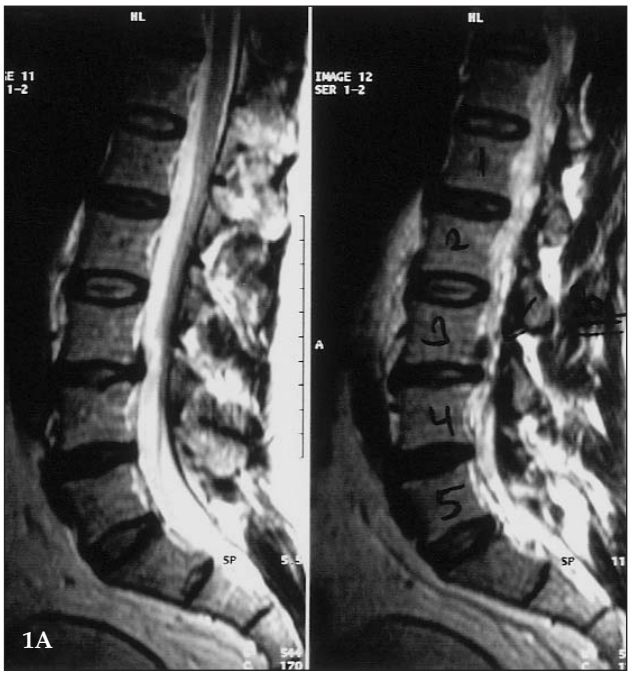

Figure 1A, 1B: The sagittal and axial MR images show compression of the left L4 nerve root. The preoperative radiological diagnosis was a herniation of L3-4 disc.

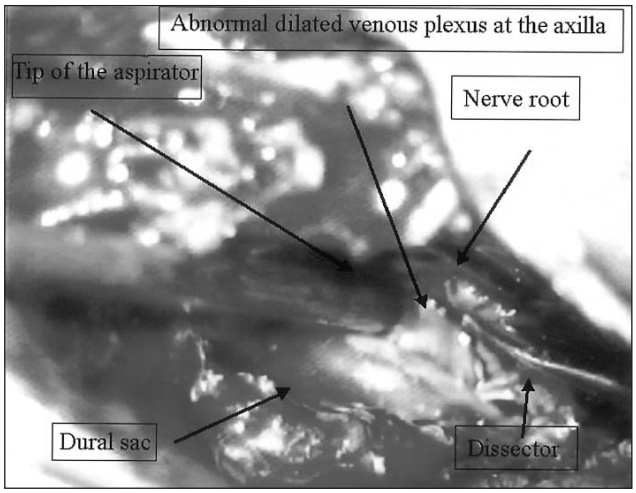

Figure 2: The peroperative recording demonstrates the abnormal dilated venous plexus compression at the axilla instead of disc herniation.

L3-4 and right L4-5 levels. Left L3 and right L4 partial hemilaminectomies were performed. The right L5 nerve root was compressed by a herniated disc and this was removed. However, the left L4 nerve root and dural sac were compressed by a dilated venous plexus (Figure 3). The plexus was coagulated. The patient was discharged a week after surgery and the symptoms had subsided.

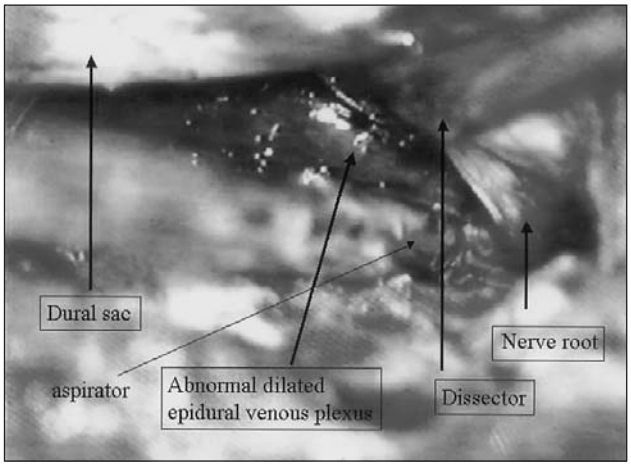

Figure 3: The peroperative recording shows the anatomical relation of the abnormal dilated epidural venous plexus with the dural sac and the nerve root.

CASE 3

A 58-year-old female was admitted with severe radicular left lower extremity pain and weakness in ankle dorsiflexion. The complaints had started 12 hours ago. There was 3/5 motor function at the left ankle and during big toe dorsiflexion. The lumbar CT revealed root compression at the level of the left L4-5 neural foramina. During surgery, the disc space and nerve root were exposed, completing the L4 partial hemilaminectomy foraminotomy. There was no herniated lumbar disc. The root was compressed by a dilated epidural venous plexus. The plexus was coagulated, and the root was decompressed. The postoperative period was uneventful with total neurological recovery.

DISCUSSION

Dilated epidural venous plexus may mimic a herniated lumbar disc. This entity is rare and its incidence is reported as 0.5% (5). The venous system around the vertebrae has no valves and communicates with the azygous system and inferior vena cava (10). An increase in central venous pressure may increase the pressure in the epidural venous system but this situation is extremely rare (8). The pressure increase in the epidural venous plexus is generally local. It may be due to a herniated lumbar disc, spondylolisthesis or spondylosis in the neighbouring levels. In most cases, the pathophysiology and etiology cannot be found (5, 8). The dilated epidural venous plexus has been named a vertebro-epidural lumbosacral vascular malformation in some reports (2).

Preoperative diagnosis and indications for surgery of a dilated epidural venous plexus have never been published. All reported cases have been diagnosed during surgery. (4, 5, 6, 7, 8, 9, 12) When inspected retrospectively; the preoperative MR imaging findings may have suggested the diagnosis (3). The radiological appearance on T1 and T2-weighted images are different than that of a migrating disc fragment. The signal is more intense than the cerebrospinal fluid. Thrombosed varices are hyperintense on T1 and T2-weighted images. A flowing epidural venous plexus is hypointense on T2 images. The lesions are commonly misdiagnosed as a herniated lumbar disc (3).

The symptomatology is similar to a herniated lumbar disc. The pain is generally of acute onset, long lasting and severe. The response to treatment with analgesics is not satisfactory (4).

Surgery of the dilated epidural venous plexus may be confusing. The surgeon may feel that the compression of the nerve root by a dilated venous plexus is not causing the symptoms at first instance. However, it is the compression that is causing the symptoms and signs. Microsurgical technique and a microscope are essential for this surgery. Hemorrhage from the abnormal dilated plexus can be immense and difficult to control. There is quick refilling of the plexus during coagulation and the coagulation technique should be similar to that used for brain vascular malformations. The coagulation power should be reduced. Each venous branch should be coagulated patiently and transected after coagulation to verify complete obstruction to flow. Coagulation of the epidural venous plexus leads to satisfactory nerve root decompression.

The postoperative period is uneventful in properly operated cases. There is relief of radicular pain and neurological recovery in early-operated cases.

CONCLUSION

An abnormal dilated epidural venous plexus that mimics a herniated lumbar disc is a rare entity. This pathology should be always kept in mind during lumbar disc surgery. Preoperative misdiagnosis is common. When faced with this situation, microsurgical coagulation and decompression of the nerve root are adequate.

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