

CHRONIC LOW-BACK PAIN DUE TO EPIDURAL VARICES: A CASE BASED REVIEW OF THE LITERATURE

Case Report

EPİDURAL VARİSLERE BAĞLI BEL AĞRISI: BİR VAKA SUNUMU İLE LİTERATÜRÜN GÖZDEN GEÇİRİLMESİ

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ABSTRACT

Objective: To highlight epidural varices as a possible cause of chronic low-back pain, and to raise awareness that this may occur in any patient with a condition that potentially involves dilated epidural veins we have reviewed the literature and reported a 25-year-old female with chronic low-back pain due to epidural varices.

Summary of Background Data: Epidural venous varices are rare and often go unrecognized. Patients with conditions that involve increased venous pressure (pregnancy, hepatic failure, congestive heart failure, obesity, among others) may exhibit asymptomatic dilatation of the epidural veins. which may eventually form a mass-like lesion in the lumbar area.

Conclusion: Epidural varices should be included in the differential diagnosis for low-back pain. Patients with elevated venous pressure are at increased risk for pain in this region.

Key Words: Low Back Pain; Epidural varices; cirrhosis.

ÖZET

Amaç: Kronik bel ağrısında muhtemel bir etken olarak epidural varisleri belirtmek, potansiyel olarak genişlemiş epidural varislere olabilecek hastalığı olanlarla ilgili farkındalık yaratmak amacı ile literature gözden geçirilmiş ve 25 yaşında epidural varislere bağlı kronik bel ağrısı olan bayan hasta sunulmuştur.

Konu hakkındaki bilgilerin özeti: Epidural venöz varisler nadirdir ve sıklıkla gözden kaçmaktadır. Venöz basınçta artış oluşan durumlarda (gebelik, karaciğer yetmezliği, konjestif kalp yetmezliği, obezite, ve diğerleri) epidural venlerde asemptomatik genişleme oluşabilmekte ve bu durum lomber bölgede kitle benzeri lezyon oluşumuna neden olabilmektedir.

Sonuç: Epidural varisler bel ağrısı ayırıcı tanısında yer almalıdır. Yükselmiş venöz basıncı olan hastalar bu bölgede ağrı açısından risk altındadır.

Anahtar kelimeler: *Bel ağrısı; epidural varisle;siroz.*

INTRODUCTION

Low-back pain is common, and many of the potential causes (lumbar disc herniation, lumbar stenosis, synovial cysts, hematoma, spinal tumors, abscess) can mimic each other. Anomalies or abnormal dilatations in the epidural venous plexus may produce symptoms very similar to lumbar stenosis or disc herniation; however, the literature contains only a few reports of such vascular abnormalities (1-5). Lumbar epidural varices can compress nerve roots, (3,5,6) and this condition may be indistinguishable from lumbar disc herniation and other conditions that present with radiculopathy. In this paper we have reviewed the literature and presented a cirrhotic patient with caudate lobe hypertrophy who had low-back pain due to abnormal dilatation of the epidural venous plexus, otherwise known as epidural varices.

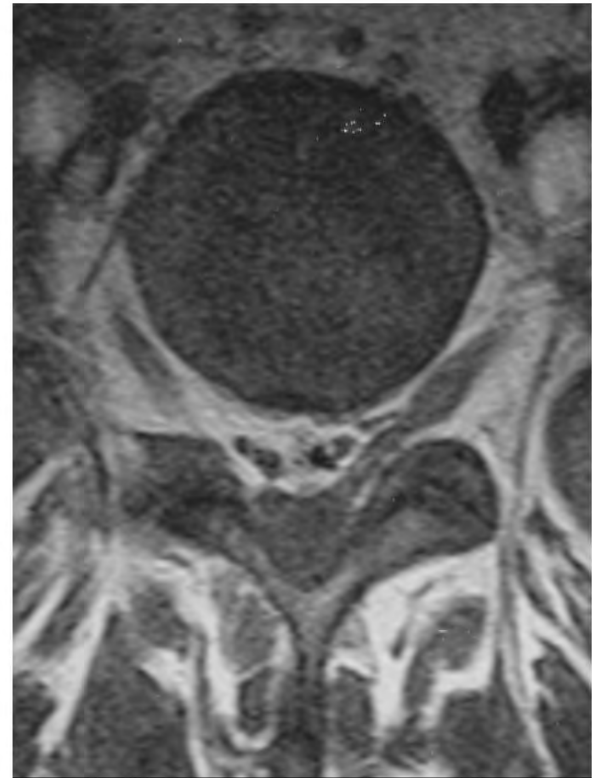
CASE EXAMPLE

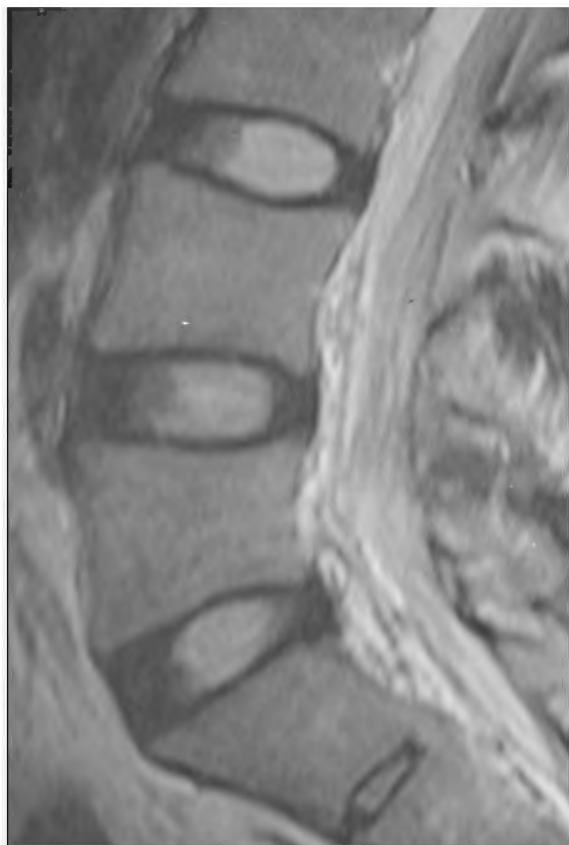
A 25-year-old woman presented to the Department of Physical Medicine and Rehabilitation with the complaint of chronic low-back pain. She had the problem for 8 years, and had been investigated for radiculopathy 2 years earlier. At that time, the pain had been radiating to her left leg and she showed mild weakness of the plantar flexors. The patient's medical history included diagnosis with Budd Chiari type hepatic cirrhosis and portal hypertension at 4 years of age confirmed by liver biopsy. At 16 years, she had undergone a splenorenal shunt operation for treatment of her liver condition.

On admission, the back pain was radiating to the patient's left leg and was exacerbated by standing. The straight-leg raising test at 70° was positive bilaterally for lumbar pain, and she exhibited mild weakness of the extensor hallucis longus and anterior tibialis muscles on the left side. Sensation was intact in both legs. Electromyographic evaluation revealed chronic L5 and S1 radiculopathy on the left. The pain had not responded to various medical treatments, including paracetamol, non-steroidal anti-inflammatory drugs, anti-depressants and gabapentin. In the abdominal ultrasonography caudate lobe hypertrophy was evident. Magnetic resonance imaging (MRI) of the lumbar spine revealed nothing remarkable except for dilated epidural venous plexus (**Figure 1**).

FIGURE LEGENDS

Figure 1. Axial (a) and the sagittal (b) magnetic resonance images of the patient's L5-S1 region show enlarged epidural veins compressing the dural sac and filling half of the spinal canal.





It was not possible to operate due to the extent of the lesion and the progressive nature of the patient's underlying pathology. Physiotherapy including superficial heating, transcutaneous electrical nerve stimulation provided some relief. Unfortunately low-back pain only partially resolved during four years of follow-up and still affecting the functional quality of her life.

DISCUSSION and REVIEW OF THE LITERATURE

Impingement of nervous tissue by epidural varices is rare according to the literature. The largest series reported a 4.4% incidence of epidural varices that were operated for lumbar disc herniation (4.4%) (7). The differential diagnoses for this condition include herniated disc, stenosis of the spinal canal, synovial cyst, hematoma, tumor and abscess (2,5). Epidural varices are usually underdiagnosed in clinics, and nearly all the cases reported to date have been

detected during surgery (2). The diagnosis is often missed on preoperative evaluation with computerized tomography (CT), and many cases are even missed with MRI (4). On clinical examination, vascular dilatations or expansions may simulate large disc herniations (6). Contrast spin-echo T1-weighted MRI with fat suppression demonstrates spinal epidural veins clearly. This is considered the best technique for identifying abnormalities of the epidural venous plexus (2).

The extradural vertebral venous system is a valveless network through which blood normally flows from the spinal cord to the vena cava. In brief the retrovertebral venous plexus drains laterally via supra-and infra-pedunculate radicular veins and these radicular veins drain into the paravertebral ascending lumbar veins. Finally paravertebral veins connect with the caval system via the lumbar segmental veins (3). When venous pressure is increased in the inferior vena cava, blood flow may be directed into the epidural veins, eventually forming epidural varicosities (8). The pathophysiology of radicular pain in these cases is unknown, but the pain most likely results from root compression by the varix itself, or from a root lesion that forms secondary to insufficient venous return in the radicular veins.

Hanley et al. (3) classified epidural varices in three forms: In Type 1, the epidural veins are dilated due to thrombosis; Type 2 features dilated epidural veins in the extreme lateral part of the vertebral foramen due to weakness of the vein walls; and Type 3 is characterized by formation of a submembranous epidural hematoma after hemorrhage from the epidural venous system collects beneath the fibrous membrane on the floor of the spinal canal. In our case the venous varices are extensive and located mainly in the midline radiating bilaterally so they are different in anatomical location and did not fit any of the types in Hanley's classification. The most likely reason for

the epidural vein dilatation in this case was increased venous pressure related to Budd-Chiari-type cirrhosis and hypertrophy of the caudate lobe of the liver compressing the inferior vena cava. Reports have documented dilation of epidural veins due to compression of the inferior vena cava in pregnancy; (9,10) however, our case is unique and the venous plexus dilatation resulted from venous hypertension related to cirrhosis dependent compression of the inferior vena cava.

Concerning treatment, Genevay et al. (2) described decompressive laminectomy and surgical treatments for epidural varices, including aspiration, excision and coagulation. The same authors also noted good clinical improvement with conservative treatment. In our case, the patient's chronic liver failure contraindicated surgery. Physiotherapy, transcutaneous electrical nerve stimulation and exercises relieved symptoms partially.

CONCLUSION

Low-back pain and lumbar radiculopathy due to lumbar epidural varices is usually not accurately diagnosed in clinical practice. Careful MRI evaluation is necessary to differentiate these cases from other etiologies of low-back pain. Physiotherapy including superficial heating, transcutaneous electrical nerve stimulation may provide some relief. Remission of the underlying liver disease is the most important factor in relieving pain due to epidural varices in cases who suffer chronic liver disease.

REFERENCES

1) Demaerel P, Petre C, Wilms G, Plets C. Sciatica caused by a dilated epidural vein: MR findings. *Eur Radiol* 1999;9:113-114.

2) Genevay S, Palazzo E, Hutten D, Fossati P, Meyer O. Lumboradiculopathy due to epidural varices: two case reports and a review of the literature. *Joint Bone Spine* 2002;69:214-217.

3) Hanley EN, Howard BH, Brigham CD, Chapman TM, Guilford WB, Coumas JM. Lumbar epidural varix as a cause of radiculopathy. *Spine* 1994;19:2122-2126.

4) Wong C, Thng PL, Thoo F, Low C. Symptomatic spinal epidural varices presenting with nerve impingement. *Spine* 2003;28:E347-350.

5) Zimmerman GA, Weingarten K, Lavyne MH. Symptomatic lumbar epidural varices. *J Neurosurg* 1994;80:914-918.

6) Lai PH, Ho JT, Wang JS, Pan HB. Cervical radiculopathy due to epidural varicose veins. *AJR* 1999;172:841-842.

7) Gümbel U, Pia HW, Vogelsang H. Lumbosacrale gefässanomalien als ursache von ischialgien. *Acta Neurochir* 1969;20:131-151.

8) Moonis G, Hurst RW, Simon SL, Zager EL. Intradural venous varix: a rare cause of an intradural lumbar spine lesion. *Spine* 2003;28:E430-432.

9) Hirabayashi Y, Shimizu R, Fukuda H, Saitoh K, Igarashi T. Effects of the pregnant uterus on the extradural venous plexus in the supine and lateral position as determined by magnetic resonance imaging. *Br J Anaesthesiol* 1997;78:317-319.

10) Oliver RJ, Greenwood RC, Smith D, Franklin C. Spinal varicosities complicated by pregnancy. *Am J Obstet Gynecol* 1966;94:258-260.