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Symptomatic Spinal Epidural Lipomatosis Secondary to Obesity
-A Case Report-

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Abstract

Symptomatic spinal epidural lipomatosis, which consists of a pathologic overgrowth of fat tissue in the spinal canal, is a very rare condition. It has been reported frequently in association with the administration of exogenous steroids. So, it is a widely recognized complication of excess exogenous glucocorticoids. Here, the authors report on a case of symptomatic spinal epidural lipomatosis secondary to obese, and review the literature.

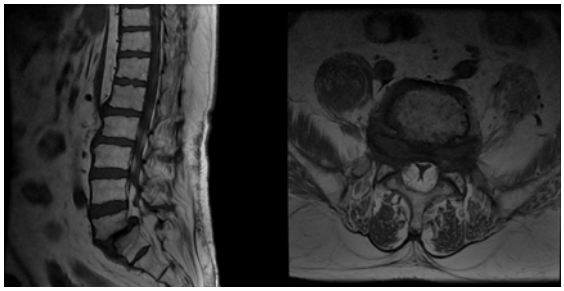
Key words : Epidural lipomatosis, Obesity

Introduction

Spinal epidural lipomatosis consists of a pathologic overgrowth of fat tissue in the spinal canal. It is usually secondary to steroid therapy or endocrinopathic diseases. Symptomatic spinal epidural lipomatosis is a very rare condition. We describe one case of symptomatic spinal epidural lipomatosis secondary to obesity, and review the relevant literature.

Case Report

A 56-year-old man presented a 6-month history of severe bilateral pain radiating to his feet and a 20-year history of mild low back pain prior to operation. And he also presented neurogenic claudication induced by walking 100 m. Endocrinopathic diseases and chronic steroid therapy were excluded for this patient. But this patient was obese with a mean body mass index of 33.5 kg/m^2. Radiographs of the lumbar spine demonstrated moderate spondylosis with isthmic spondylolisthesis at L5-S1. MRI of the lumbar spine demonstrated a severe disc bulging causing bilateral foraminal stenosis at L5-S1 and a pathologic overgrowth of fat tissue in the spinal canal with a marked impingement of the thecal sac at L3-S1(Fig. 1A-B). Surgical treatment was performed by L3, L4 and L5 laminectomies, fat debulking, and instrumented posterolateral fusion. At the time of surgery, a large amount of fat which was compressing the thecal sac was found. Histologic examination of the fat revealed normal adipose tissue(Fig. 2).



(A) (B)

Fig. 1A-B. Magnetic resonance imaging sagittal (A) and axial (B) T1-weighted images demonstrate overgrowth of fat tissue in the spinal canal and compressing the thecal sac and nerve roots. Magnetic resonance imaging sagittal image shows also moderate isthmic spondylolisthesis at L5-S1. Axial image (B) through the body of L5 showing the classical Y configuration of the thecal sac secondary to epidural compression by fat.

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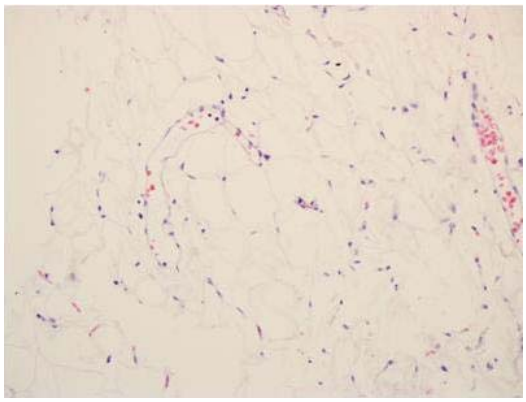

Fig. 2. The microscopic examination shows mature fat cells with thin capillaries, H-E, x200.

The patient showed a improvement in symptoms with a return to daily activities. There was no postoperative complication for 5 months after the operation.

Discussion

Spinal epidural lipomatosis is an uncommon disease in which excess fat tissue deposits around the thecal sac. Furthermore, the symptomatic one is a truly rare condition as reported in published research. There is no histologic difference between the spinal epidural lipomatosis and normal epidural adipose tissue.[1,2,3)]

Clinical manifestations and pathologic mechanism are similiar to patients with spinal stenosis. Therefore, spinal epidural lipomatosis should be considered in the differential diagnosis of lumbar radiculopathy when there is an absence of common causes.

Magnetic resonance imaging is the most useful diagnostic test.[2,4,5)] Additionally, it is possible to distinguish the causes of compression and to differentiate fat growth from the other causes, such as, bone metastasis and discitis; moreover, epidural fat can be localized clearly. Usually, axial MRI reveals the triangular or "Y" shaped thecal sac.[4,5)]

Spinal epidural lipomatosis is usually found in patients with a history of chronic steroid therapy, obesity, and some endocrinopathies. Chronic steroid-induced epidural lipomatosis has been reported in the several literature.[3,6,7,8)] Also, Badami et al.[9)] described symptomatic deposition of epidural fat in the spinal canal in a morbidly obese woman who had no history of steroid intake, after which a few of similar spinal epidural lipomatosis cases have been reported.[1,2,10)] In one literature, more than 75% of all reported pateints were obese.[2)] Kumar et al.[10)] reported a case presenting with symptomatic epidural lipomatosis secondary to obesity and established three diagnostic crieteria : 1) medical history and physical examination consistent with segmental spinal cord compression 2) epidural fat thickness greater than 7 mm in the region of compression based on MRI or CT 3) a height to weight ratio greater than 27.5 kg/m^2. In South Korea, Young-Min Han[11)] reported two cases of symptomatic epidural lipomatosis secondary to obese.

In our case, endocrinopathic diseases, and chronic steroid therapy were excluded. But our patient was obese with a mean body mass index of 33.5 kg/m^2. Therefore, we concluded that our patient was a case presenting with symptomatic epidural lipomatosis secondary to obesity.

The spinal epidural lipomatosis often responds to medical therapy of the underlying disease. Empirically, the first line of treatment for spinal epidural lipomatosis has been weight loss and exercise therapy. However, failure of these measures has resulted in surgical decompression with satisfactory results. Surgical management is recommended with extensive laminectomies and massive fat debulking. An associated instrumented posterolateral fusion is necessary in multilevel laminectomies associated with wide facetectomies that could be the cause of postsurgical instability. In our case, medical therapy came to nothing because of the patient's noncooperation. So the surgical treatment was performed by L3,L4 and L5 laminectomies, fat debulking, and instrumented posterolateral fusion.

Conclusion

We report one case of symtomatic spinal epidural lipomatosis secondary to obesity. Spinal epidural lipomatosis may be the cause of neurological symptoms when it is excessive. Obesity seems to be closely related to the development of the spinal epidural lipomatosis. Because the number of obese people is increasing in Korea, spinal

epidural lipomatosis should be considered when evaluating obese patients with radicular pain and progressive paraparesis.

국문초록

척추 경막상 지방종증은 척추강내에 지방조직이 병적으로 과도하게 성장하여 침착되는 것을 말하며 매우 드문 질환이다. 이는 장기간 투여한 스테로이드와 연관이 있다고 알려져 있으며, 일반적으로 증상이 없는 경우가 대부분이다. 본 **저**자들은 비만으로 인해 신경성 파행을 동반한 척추 경막상 지방종증 환자를 치험하였기에 문헌고찰과 함께 보고하고자 한다.

Key words : 경막상 지방종증, 비만

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