

## Case Report

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# Idiopathic Spinal Epidural Lipomatosis

Spinal epidural lipomatosis is a rare disorder characterized by the pathological overgrowth of epidural fat and often causes extradural compression which may mimic other spinal disorders. Steroid administration is a well-documented etiology. We report a case of spinal epidural lipomatosis without history of steroid administration. The initial manifestation was bizarre and was misdiagnosed as a degenerative vertebral or disc disease for long. Posterior decompression with debulking of the extradural fat successfully and thoroughly relieved his symptoms. We emphasize the importance of taking this disease into consideration for a markedly obese patient with persisting back pain or symptoms suggesting spinal cord or other spinal neural elements compression.

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### Key Words

idiopathic;  
spinal epidural lipomatosis;  
steroid

Spinal epidural lipomatosis is defined as pathological overgrowth of the normally presented extradural fat and often causes dural impingement. Symptomatic epidural lipomatosis was first described by Lee *et al.*<sup>1</sup> in 1975 in a patient after renal transplantation. Subsequent reports on this rare clinical entity also implicated the administration of steroid as the major cause for spinal epidural lipomatosis.

Some case reports of this syndrome occurring in the absence of exposure to steroid have been published. Badami *et al.*<sup>2</sup> in 1982 first described this rare condition in an obese woman. Other possible etiologies including hypothyroidism<sup>3</sup> and radiotherapy<sup>4</sup> have also been described. The prevalence is still unknown although many well-documented causes exist.

We report a case of idiopathic spinal lipomatosis in a medically health patient and a brief review of the literature regarding this disease is also presented. We believe this is the first case of idiopathic spinal epidural lipomatosis to be reported in Taiwan.

### CASE REPORT

A 70-year-old obese gentleman without any underlying medical disease or history of exogenous steroid administration had sustained low back pain in the past 2 decades. Prior to visiting our clinic, he had been treated as degenerative disease with non-steroid anti-inflammatory drugs for more than 6 months with little improvement. Progressive radiating pain and numbness over bilateral legs associated with intermittent claudication made him seek further help.

Physical examination revealed a heavily built man without acute distress. No bony or definite local tender point was found. He had hyperreflexic bilateral lower extremities, but the neurological examinations were unremarkable and no muscle weakness or sensory distur-

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bance was noted. Radiographs of the thoracolumbar spine revealed mild degenerative change with loss of lumbar lordotic curve. Computed tomography (CT) scan revealed an epidural mass with extra-dural compression around the dural sac exhibiting characteristic CT scan density of fatty tissue (Fig. 1). Magnetic resonance imaging (MRI) was therefore arranged, which revealed moderate bulging intervertebral disks with protrusions at L3-4 through L5-S1 level and also demonstrated abnormally increased depositions of extradural fat major at the posterior aspect of the spinal canal beginning from L1 level with its maximum sagittal thickness measuring 8.5mm at the L4 level and extending to the S1 level. The fat encased the thecal sac which was deviated anteriorly (Fig. 2). Epidural lipomatosis was thus reasonably impressed. Surgical intervention was suggested owing to failure of conservative management.

On admission, pre-operative check-up was all normal. He weighted 86 kilograms and was 1 hundred and 78 centimeters high. The operation included posterior decompressive laminectomy from L2 to S1 with debulking of the epidural fat. Disectomy was not performed in this patient. The dural sac expanded immediately after decompression. The specimen obtained during the operation (Fig. 3) showed a normal-appearing adipose tissue microscopically.



**Fig. 1.** The computed tomography revealed an extradural low density mass deposition around the whole dural sac at L5 level.

He soon had complete recovery. Back pain and bilateral legs numbness subsided immediately after operation. After a period of 6-month follow-up, he was completely symptom-free and had no any neurological sequela left.

## DISCUSSION

About 75 percents of the reported cases of spinal epidural lipomatosis have been related to exogenous ste-



**Fig. 2.** MR image revealed lipomatosis from L1 to S1 levels with the maximal sagittal thickness measured 8.5mm at L3 level. L3-4 through L5-S1 bulging intervertebral disc was also demonstrated.



**Fig. 3.** Gross pathology of the specimen. It measured 12 cm in length.

roid administration. Idiopathic epidural lipomatosis is less encountered and was considered a by-product of obesity. In Kawai's review of 30 cases,<sup>6</sup> a strong tendency of male-predominance was found and only 3 of these thirty patients were females. Obesity was observed in most patients and only 4 patients were of normal body weight. The mean age was 42.3 years and the average body mass index was 29.0 (16.1 to 36.5). The most commonly involved area was the thoracic spine (43%). Our patient was 70-year-old and his body mass index was 27.1. The involved level was from L1 to S1.

The symptoms of idiopathic spinal epidural lipomatosis are typically gradual onset and almost the same as the steroid-induced. Clinical manifestations are bizarre and may include pain, weakness, numbness and bladder or bowel dysfunction. Direct compression of spinal cord or other neural elements of spine is the major cause of symptoms and differential diagnosis from other spinal lesions should be made in combination with the typical imaging finding of the thickened epidural fat. The spinal cord or other spinal elements might be compressed markedly and accurate diagnosis can therefore be easily obtained with the aid of MRI (Fig. 4). Furthermore, the sagittal epidural fat more than 8mm in thickness measured by MRI<sup>5</sup> should arouse our caution toward this disease. Our case with the typical MRI findings of the epidural fat measuring 8.5 mm in thickness which showed high signal during T1W1 MRI image, and the diagnosis was assisted by maintaining awareness for this disease in an obese patient who exhibits signs of root



**Fig. 4.** Axial view of MR image showed marked spinal canal compression at L4 level labelled an arrow.

compression.

Another rare epidural tumor which is often confounded with the lipomatosis is angioliipoma. It also affects the thoracic spine and its clinical manifestations contain mainly 2 factors: the epidural mass effect and the steal phenomenon of the vascular malformation.<sup>7</sup> Any factor that alter the tumor hemodynamics may deteriorate its symptoms. This should help us to distinguish it from the lipomatosis. Moreover, it expresses a peculiar signal void appearance of the vessels in a lipomatous mass in MR image which is not seen on lipomatosis.

Two treatment modalities of idiopathic spinal epidural lipomatosis have been proposed. The first is conservative management containing weight reduction and activity modification. Only a few cases have been treated successfully with this method. A more aggressive procedure by laminectomy and debulking of the deposited fat was recommended by most authors. Our patient also benefited from the surgery and got complete recovery without any sequale. Although degenerative disc disease also presented in this case, removal of the epidural fat is enough to relieve the pressure which may be the major cause of his symptoms. Recently, endoscopic suction with minor laminectomy has been successfully performed in 1 patient and also obtained a good result.<sup>8</sup>

Conclusively, for a patient with persistent radicular pain or progressive paralysis, spinal epidural lipomatosis should be taken into consideration. For most of these patients, surgical decompression remains the optimal method of management to relieve their symptoms if conservative treatment failed.

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