Spinal epidural lipomatosis

General information

Hypertrophy of epidural fat. Most commonly seen with prolonged exogenous steroid therapy (in 75% of cases) usually moderate to high dosage for years, but may also be associated with: Cushing's disease, Cushing's syndrome, obesity, hypothyroidism or may be idiopathic. Male: female = 3:1.

Back pain usually precedes all other symptoms. Progressive LE weakness and sensory changes are common. Sphincter disturbance occurs but is rare. SEL is most common in the thoracic spine (≈ 60% of cases); the rest are in the lumbar spine (no cases reported in cervical spine).

It is often very difficult to differentiate the patient with increased epidural fat (even to the point that CSF may be obliterated at the levels of involvement) that is not causing symptoms from those cases where the exuberant fat is responsible for the findings.

Spinal epidural lipomatosis is characterized by abnormal deposition of unencapsulated fat in the epidural space typically in the lumbar region,

The occurrence of this condition as an idiopathic entity is rarely reported.

This condition is usually associated with excess of steroid levels either because of exogenous steroid administration, as in some diseases like systemic lupus erythematosis, or endogenous excess steroid secretion like in Cushing disease or in some other endocrinopathies like hypothyroidism or in morbid obesity [1) 2) 3)].

The clinical presentation is progressive spinal cord or nerve root compression.

Evaluation

CT: density of adipose tissue is extremely low (-80 to -120 Hounsfield units), which distinguishes SEL from most other lesions (except lipoma).

MRI: signal follows fat (high signal on T1WI, intermediate on T2WI). Suggested diagnostic criteria: epidural adipose should be > 7 mm thick to be considered SEL.

Epidural lipomatosis can be visualized with both CT and MRI, although the later is better able to identify impingement upon the cauda equina.

MRI

There is an often generalised excess of fat seen in the extradural space. As a result, the dural sac can appear narrowed or even resemble a “Y” shaped configuration.

Signal characteristics follow fat on all sequences:

T1: high signal

T1 (FS): shows fat suppression

T2: high signal

Treatment

In those patients who can be weaned off steroids and lose weight, surgery may be avoided in some cases.74 If SEL is related to obesity, weight loss alone can be successful.

Surgery is indicated for symptomatic patients in whom the above interventions are unsuccessful or not feasible. An effort to normalize cortisol levels in those with endogenous hypercortisolism (Cushing’s disease…) should be made before laminectomy is performed. Due to potential complications and slow growth of the tissue, the decision to operate should be made with caution. Surgery usually consists of laminectomy with the removal of adipose tissue. Occasionally repeat surgery is needed for reaccumulation of adipose tissue.

In most instances no specific treatment is required, although review of need for steroid and weight loss are sensible interventions.

The use of epidural steroid injection is controversial. Some authors argue against it, on the grounds of existing compression and implication of steroids in the pathogenesis of epidural lipomatosis [4].

Others report successful pain management [5].

In some patients symptoms are severe and operative decompression is required, and is usually successful [6] [7].

Outcome

Surgery usually results in significant improvement. Idiopathic cases may fare better than those due to steroid excess. Cauda equina compression responds better than thoracic myelopathy.

Complications rates may be higher than expected in part due to medical comorbidities. Fessler et al reported 22% 1-year mortality.

Case reports

2017

A 16-year-old male student, who presented with progressive spastic paraparesis of a one-year duration caused by idiopathic spinal epidural lipomatosis. Magnetic resonance imaging (MRI) study of the thoracic spine revealed marked compression of the spinal cord from a large dorsally located extradural mass extending from the T-4 to T-12 vertebral bodies. The patient underwent posterior thoracic laminoplasty from the T4 to T10 vertebral levels. He experienced gradual neurological, and he was able to walk without assistant by the end of 3-month follow-up period from surgery.

Idiopathic SEL is very rare, since no predisposing factors can be identified, and should be included in the differential diagnosis when patients present with spinal neurological compromise. MRI is the imaging modality of choice, and decompressive laminectomy and debulking of the fatty lesion is the main treatment modality in patients with progressive course of the disease [8].

2016

A 49-year-old man presented with persistent back pain and right hip lump. The lumbar spine X-rays showed scoliosis (Lenke classification 5BN). Lumbar MRI demonstrated circumferential epidural fat deposit from L1 to lower S2 level. There was no obvious etiology of SEL except mild increased body mass index (BMI). The patient was managed with conservative treatment. After 6 months medication (limaprost and ginkgo), his symptoms were relieved [9].

A 46-year-old female with obesity and a history of chronic back pain and radiculopathy who developed idiopathic Spinal epidural lipomatosis diagnosed by magnetic resonance imaging. The purpose of this report is to present a case of spinal epidural lipomatosis presenting with symptomatic cord compression and also remind this rare condition as a the differential diagnosis of epidural lesions in patients with risk factors [10].

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