Cauda Equina Syndrome Caused by Idiopathic Sacral Epidural Lipomatosis

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Abstract

The patient, who was a non-obese woman with no predisposing conditions of lipomatosis, slowly developed cauda equina syndrome. Spinal magnetic resonance imaging (MRI) presented mass lesion of high intensity on T1-weighted image (WI) and an intermediate signal intensity in T2 WI in the epidural space of S1 to coccyges. It has been reported that most idiopathic epidural lipomatosis (IEDL) is observed in obese men, and all cases have involved the thoracic or lumbar region. This is the first report of a patient with cauda equina syndrome caused by idiopathic sacral epidural lipomatosis (EDL).

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Key words: radiculopathy, tumor, MRI

Introduction

Epidural lipomatosis (EDL) is generally observed in patients who have undergone long-term steroid treatment or in Cushing’s syndrome, causing symptoms such as back pain, muscle weakness, sensory loss and abnormal reflexes (1, 2). However, it is also observed in patients who have no such histories, which is known as idiopathic epidural lipomatosis (IEDL). Most IEDL patients are obese men, and all of the reported cases have involved the thoracic or lumbar region (1).

Here, we report a case of an old non-obese woman with cauda equina syndrome following idiopathic sacral EDL.

Case Report

A 71-year-old woman, with no medical histories of steroid treatment or Cushing’s syndrome, felt pain of the right hip joint and leg in August 1998. She felt a great deal of pain, and difficulty of walking, urinary disturbance and constipation appeared from early 2000. In June 2000, she was admitted to our hospital.

She weighed 43 kg and was 148 cm tall (body mass index 19.6 kg/m²). On general physical examination, she was normal except for mild scoliosis in the cervical and thoracic regions. Neurologically, she showed mild weakness in bilateral iliopsoas, quadriceps and hamstring muscles. Bilateral patellar reflexes were normal, while achilles tendon reflexes were bilaterally decreased. Her superficial and deep sensations were decreased at the anal region and in bilateral distal lower extremities. There was urinary incontinence and no other signs of autonomic disturbance, but she showed Lasegue’s sign at bilateral legs. Thus, the site of lesion was thought to be in the nerve root of the sacral region or cauda equina.

Blood laboratory tests were all normal, including serum levels of cholesterol (185 mg/dl), triglyceride and sugar. Cerebrospinal fluid studies were also all normal. On nerve conduction study, distal motor and sensory conduction velocities were normal, but F-waves of bilateral tibial nerves were not evoked, indicating that proximal parts of tibial nerves or nerve roots were bilaterally involved. Needle electromyogram (EMG) and motor evoked potentials were normal. Video urodynamic studies revealed an autonomous bladder.

Lumbar spinal X-ray examinations revealed only slight spondylotic change. Magnetic resonance imaging (MRI) of the lumbar and sacral region presented a mass lesion of high intensity on T1-weighted image (WI) and an intermediate signal intensity lesion on T2 WI in the epidural space of S1 to coccyges (Fig. 1A-D, arrows), suggesting an epidural lipomatosis in the sacral region.

She was relatively old to undergo surgery and her symptoms were mild. With an exercise program of rehabilitation, her muscle weakness and sensory disturbance without urinary dysfunction gradually ameliorated. Her walking disturbance was also improved.

Discussion

The present case showed muscle weakness, sensory disturbance at the anal region and in the bilateral distal lower extremities, Laségue sign at bilateral legs, and urinary incontinence. Her weakness in the bilateral iliopsoas, quadriceps and...
hamstrings with normal EMG studies was caused by pain of the right hip joint. The site of lesion was thought to be in the nerve root of the sacral region or cauda equina. Our patient was a case of idiopathic sacral epidural lipomatosis as the cause of cauda equina syndrome. Spinal EDL is a condition in which excess adipose tissue deposits around the thecal sac causing back pain, radiculopathy, or spinal cord compression (1). The majority of these cases have been reported in patients receiving long-term steroid therapy or in those suffering from Cushing’s syndrome (1–6). Idiopathic spinal EDL is rare and only 26 cases have been reported (1). In most of these patients were obese men (1–6). Epidural fat is usually thick on the outside of fractured vertebral bodies, and is frequently observed in patients with osteoporosis (3, 4). The present case was not accompanied by hyperlipidemia, diabetes mellitus, obesity, or osteoporosis. In our case we could not find any etiological factor responsible for the development of EDL. EDL occurs in the thoracic or lumbar region. IEDL restricted in the sacral lesion has never been reported. This is the first report of a patient with cauda equina syndrome caused by idiopathic sacral EDL.

Weight reduction and physical therapy might be useful in obese patients of IEDL with mild symptoms, because exercise may reduce fatty tissue in the epidural space and relieves nerve roots from compression. When such treatment is ineffective or early treatment is required, open laminectomy and removal of epidural fat can be considered. Because symptoms were mild and progression was slow in this case, an exercise program of rehabilitation was chosen, and muscle power improved. Although laminectomy gave good outcomes in most former cases with IEDL (1, 3–6), the present case suggests a good outcome after conservative treatment.

In patients with cauda equina syndrome, idiopathic sacral EDL can also be considered.

References