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Case Report

Cauda Equina Syndrome Caused by Bilateral Facet Cyst Accompanying Spinal Stenosis

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We report a rare case of cauda equina syndrome due to bilateral lumbar facet cyst. A 62-year-old woman has developed both legs sciatica 3 months prior to her visit, but recently motor weakness and voiding difficulty occurred. Lumbar magnetic resonance image showed bilateral lumbar facet cyst compressing and surrounding both L5 nerve root and accompanying spinal stenosis. Urgent decompressive laminectomy and cyst removal was performed. Although sciatica was relieved and motor weakness was recovered usefully. Voiding difficulty and dysesthesia were not improved.

KEY WORDS : Bilateral lumbar facet cyst · Spinal stenosis · Cauda equina syndrome.

Introduction

Cauda equina syndrome is the composite of diverse symptoms such as back pain, radiating pain, motor weakness of the lower extremities, the loss of the function of internal organs, voiding difficulty, etc. The cause of cauda equina syndrome are vertebral fracture, tumors, infections, spinal stenosis, disc herniation, etc. Among them, the secondary cauda equina syndrome caused by cysts is rarely reported in the literature. As we experienced a cauda equina syndrome caused by spinal stenosis and accompanied bilateral lumbar facet cyst, we report the case with a brief review of the literature.

Case Report

A 62-year-old woman, who had back pain and radiating pain for the previous 3 months but did not receive any specific treatments, visited Emergency room primarily as she developed motor weakness of the lower extremities and voiding difficulty on the previous day of the visit. At the time of the visit, clinical examination findings were that in the straight leg raising test (free/free), The extension and flexor muscle of the first digitus of both feet were weakened, and the hypothesia only in the fifth lumbar nerve root dermatome was detected. On lumbar magnetic resonance imaging, the compression of both fifth nerve roots at the medial facet joint accompanying bilateral lumbar facet cysts and the left posterior side of the epidural space compressed by the 4-5 spinal stenosis was detected (Fig. 1).

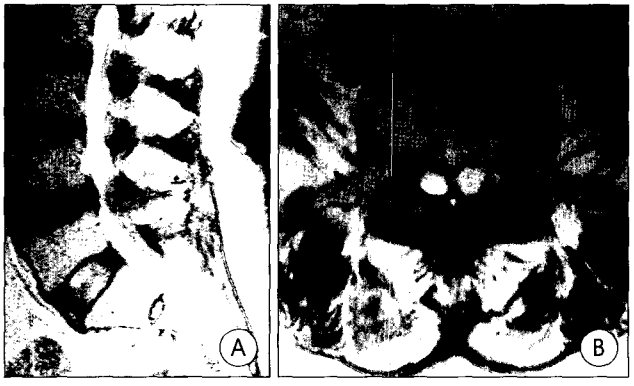

Fig. 1. (A) T2 weighted sagittal magnetic resonane image shows high signal facet cyst combined on spinal stenosis on L4-5 level. (B) T2 weighted axial magnetic resonance image shows bilateral facet cysts on L4-5 level and compressing dural sac.

On the day of admission, as an emergency case, the bilateral cysts were removed after the laminectomy of the L4 and sublaminar ligamentectomy was performed. The following is the finding of the cysts removed bilaterally during surgery (Fig. 2). On two weeks after the operation, although sciatica was relieved and motor weakness was recovered fully, voiding difficulty and dysesthesia were not improved.

Discussion

Cauda equina syndrome results from the compression of the entire or a part of the dural sac that comprise nerve

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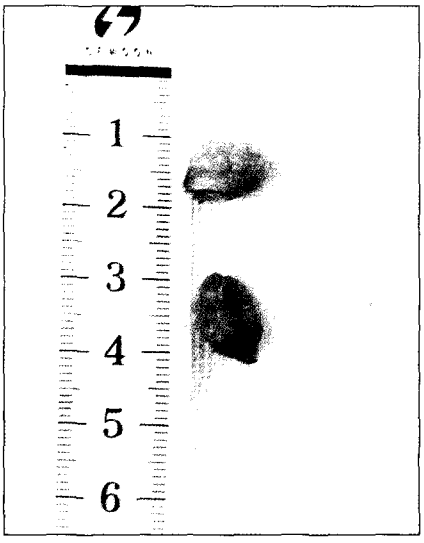

Fig. 2. Bilateral facet cysts specimen removed en-bloc.

roots below the first or second lumbar vertebra. The symptoms are back pain, unilateral or bilateral radiating pain, the sensory loss, the paralysis of the nerves controlling the function of the bladder and rectum, and the motor weakness of both legs. To accompany the dysfunction of the bladder and the bowel, the nerve root below the second sacral nerve root must be affected. But some of these symptoms may not be detected.

To diagnose accurately, neurological test and radiological test are performed repeatedly on patients suspicious of cauda equina syndrome. Radiological diagnostic tests are spinal angiography, computerized tomography, magnetic resonance imaging, etc. The causes of cauda equina syndrome are tumors in the nerve, vertebral fracture, spinal infection and spinal stenosis, etc. In addition, the development of cauda equina syndrome after root injury or hematoma during the intervertebral disc surgery has been reported.

If the compression of the nerves were prolonged, the damage of the nerves and ischemic damage may become severe resulting in the irreversible change. Thus, the decompression at early times is known to facilitate the recovery.

Cauda equina syndrome is classified into two types, acute that occurs within a week and chronic that occurs gradually in several weeks.

Subsequently, cysts in the vertebral facet joint have been reported in a relatively low frequency. And it has not been reated cauda equina syndrone caused by bilateral facet cysts.

Kao et al. designated synovial cysts that occur in the spinal canal of the sacral vertebral area and cause the symptoms and ganglions that occur in the vicinity of the vertebral facet joint juxta-facet cysts[4]. However, as the symptoms, treatments, and prognosis of synovial cysts and ganglions are identical, such classification has been considered insignificant[2,6,12]. The pathological physiology of the development of ganglions in the intervertebral canal has been reported as the efflux of synovial cysts due to the defect of the joint capsule, the mucoid degeneration or the formation of cysts in connective tissues, the excess production of hyaluronic acid by connective tissue cells, nonspecific differentiation of mesenchymal cells[4,11].

Among various hypotheses proposed as the mechanism of such reactions, the most reliable proposals are the degenerative change and the increase of joint movement. Depending on the location and size, intraspinal synovial cysts may cause radiating pain, myelopathy, spinal stenosis, cauda equina syndrome, etc. Although it has been known to occur primarily in the lumbar spinal canal, rare case occurring in the cervical vertebra have been reported[9].

On magnetic resonance imaging, cysts are detected typically on the epidura and showing various intensities of signals depending on the composition of cysts. In the case of typical synovial cysts containing serous components, it appears as low intensity signals on T1-weighted images and high intensity signals on T2-weighted images. On computed tomography or magnetic resonance imaging, midline lumbar ganglion synovial cyst with the calcification in the vicinity may be detected.

Differential diagnosis is arachnoid cyst, perineural cyst, extruded or sequestered disc fragment, Tarvlov cyst, neurofibroma accompanying cystic degeneration, inflammation, etc[2,8,11].

For patients with symptoms, various therapeutic methods are available, such as injection of steroid to cysts, the direct suction of cysts, induction of spontaneous disappearance of cysts by resting, and the excision of cysts by surgery. Conservative treatments, however, have been reported to be ineffective in most cases[9]. In contrast, the excellent outcome of surgical treatments has been reported[1,5,12]. In our case, under microscope, we performed laminectomy to treat accompanied spinal stenosis and the removal of the ligamentum flavum. We were able to achieve the total extraction of cysts and the decompression without damaging the dura and nerve roots.

Conclusion

In a rare case of cauda equina syndrome accompanying spinal stenosis and cysts in the spinal facet joint, neurological recovery is achieved by early surgery.

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