Neuroradiology (1996) 38: 155–156

Y. Miura
K. Mimatsu
Y. Matsuyama
M. Yoneda
H. Iwata

Idiopathic spinal cord herniation

Received: 16 September 1994
Accepted: 10 January 1995

Y. Miura (✉) · K. Mimatsu · Y. Matsuyama · H. Iwata
Department of Orthopaedic Surgery, Nagoya University School of Medicine, 65 Tsurumai-cho, Showa-ku, Nagoya, Japan, 466

M. Yoneda
Yoneda Orthopaedic Hospital, Nagoya, Japan

Abstract Idiopathic spinal cord herniation is a rare disease, few cases having been reported. We encountered a case of idiopathic spinal cord herniation presenting with severe spasticity in the right leg and urinary dysfunction. The spinal cord was herniated into a cavity created by duplication of the dura mater and resection of the inner layer improved the neurological deficits. MRI, myelography, and CT myelography were useful for diagnosing this disease. Four radiological signs of spinal cord herniation are described.

Key words Spinal cord, herniation · Dura Mater, duplication · Magnetic resonance imaging · Computed tomographic myelography

Introduction

Idiopathic spinal cord herniation is a very rare disease, few cases having been reported at the time of writing [1–4]. The following case report describes a patient with this disease and the radiological findings.

Case report

A 49-year-old man first noticed numbness of his right foot, which gradually spread to the upper part of the right leg. After 6 months, he developed a spastic gait and urinary dysfunction: the flow of urine stopped when he straightened his back. He was referred to hospital 13 months after the onset of symptoms.

There was slight weakness in the right leg distally. The deep tendon reflexes were hyperactive at the right knee and ankle. Muscle tone was so high in the right leg that the ankle was almost rigidly set in an equinus position. The Babinski reflex was positive on both sides. There was slight sensory disturbance in the right toes. Thoracic spine radiographs were normal. MRI showed dilatation of the dorsal subarachnoid space, and deviation of the spinal cord to the right and ventrally at the T5–6 level (Fig. 1). Sagittal MRI showed typical spinal cord herniation. Myelography showed abnormal pooling of contrast medium alongside the theca on the right and prominence of the dorsal subarachnoid space at the T5–6 level (Fig. 2). CT myelography (CTM) showed spinal cord distortion, a large dorsal subarachnoid space, deviation of the spinal cord to the right and ventrally at T5–6, and abnormal prominence of the bony lamina in the midline (Fig. 3). There was abnormal pooling of contrast medium on both sides of the spinal canal.

A laminectomy was done from T4 to T6. There was highly vascular fatty tissue in the epidural space. Intraoperative ultrasound revealed no pulsation in the spinal cord. There was thought to be an arachnoid cyst on the dorsal aspect of the cord. We meticulously retracted the spinal cord from its protrusion into the dura mater. There was a hole in the dura mater at the T5–6 level, 15 mm long, and the spinal cord had herniated into this. The dura mater was resected in a 15×2 mm area around the hole. Additional cuts 5 mm in length were made both cranial and caudal to the hole. The spinal cord hernia was released by this procedure. The herniated portion was oedematous and swollen. After resection of the edge of the hole, an outer layer of dura mater was detected and no defect in it was seen. Histological examination of the resected tissue showed normal dura mater.

Postoperative MRI and CTM demonstrated release of the spinal cord hernia (Fig. 4). However, some spinal cord atrophy persisted. The patient's urinary dysfunction resolved and the other symptoms had improved very well by 6 months after the operation, by which time he could run.

Discussion

Two types of idiopathic spinal cord herniation have been reported. In one the spinal cord herniates into an extradural arachnoid cyst [1, 4], while in the other it herniates into a cavity produced by duplication of the