

# 길랑-바레 증후군과 유사한 비외상성 경추 추간판 탈출

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## Nontraumatic Cervical Disc Herniation Mimicking Guillain-Barre Syndrome

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Acute paraplegia attributable to disc herniation is known to occur most frequently at the thoracic level. A 50-year-old male presented with progressive limb weakness and hypoactive deep tendon reflexes. On the basis of clinical features and neurological findings, the diagnosis of Guillain-Barre syndrome was suspected. Spinal MRI showed cervical disc herniation. He underwent emergency surgery consisting of removal of herniated disc and anterior fusion. We emphasize that there is a possibility of acute progression of paralysis secondary to nontraumatic enlargement of cervical disc herniation.

**Key Words:** Cervical spine, Disc herniation, Paraplegia

Acute progression of myelopathy into complete paraplegia resulting from disc herniation is rare. Furthermore, there are a few reported cases of nontraumatic myelopathy secondary to cervical disc herniation. The present case presented with progressive flaccid paraplegia, which led us to miss the myelopathy at initial diagnosis. We report a rare case of progressive paraplegia caused by disc herniation at the cervical level mimicking Guillain-Barre syndrome.

### Case

A 50-year-old man presented with progressive paraplegia for 3 weeks. He had no history of trau-

ma to the head or neck, although he had experienced minor local neck pain 4 weeks before admission. Three weeks before the admission, he had noticed weakness and tingling sense in the lower extremities. At first, he had difficulty in standing from chair and his leg weakness rapidly progressed into bed-ridden status. One week before the admission, he had noticed mild both arm weakness. He did not complain of neck or back pain. He had no difficulty in voiding and defecation. His medical history was remarkable for diabetes mellitus. Neurological examination revealed a flaccid paraplegia, mild upper extremity weakness and hypesthesia in the right leg below the inguinal area. The limb weakness showed relatively symmetric in upper and lower extremities. Sensory dissociation was not observed. Deep tendon reflexes showed hyporeflexia. There was no pathologic reflex. Cranial nerve examination was normal. On the basis of clinical features and neurological findings, the diagnosis of Guillain-Barre

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syndrome was suspected. However, the nerve conduction study was not consistent with demyelinating neuropathy, but showed mild distal sensorimotor polyneuropathy. The cerebrospinal fluid analysis showed highly increased protein value (544 mg/dl) and normal cell count. The cervical MRI revealed a high signal intensity lesion on T2-weighted image in the spinal cord at the level of C6-C7. This lesion was associated with herniation of C6-C7 disc. MRI showed a large disc herniation compressing the left side of the spinal cord at C6-C7 (Fig. 1).

He underwent emergency surgery consisting of removal of the C6-C7 herniated disc and anterior fusion with mimiplate. Intraoperatively, it was

found that a hard degenerated disc compressed the dural sac posteriorly through a small tear in the posterior longitudinal ligament. Postoperatively, his hypesthesia improved in a few weeks but the recovery of his paraplegia was slow. MRI revealed disappearance of cord compression. He made a gradual recovery over 8 months. Six months after the operation, he was able to bend his knee and after 8 months he could walk independently.

## Discussion

Acute paraplegia attributable to disc herniation is known to occur most frequently at the thoracic level.<sup>1</sup> Cervical disc herniation rarely causes non-



**Figure 1.** Cervical spine MRI of the patient. Sagittal T2-weighted MRI of the cervical spine shows enlargement of the herniated mass at C6-C7 (A & B, arrow). Axial T1-weighted image shows a large disc herniation compressing the left side of the spinal cord and peripheral thin enhancement (C & D, arrow head).

traumatic acute myelopathy. Usually, ruptured cervical disc that induce myelopathy tend to occur at the level of C5-C6 followed by C4-C5. Herniation of C6-C7 disc has rarely caused myelopathy.<sup>2,3</sup> This is one of the reason why non-traumatic acute progressive myelopathy is rare.

In general, disc herniation shows stepwise neurologic deterioration. Interestingly our patient presented with rapidly progressive flaccid paraplegia and decreased deep tendon reflex, which led us to suspect a diagnosis of Guillain-Barre syndrome at admission. Maybe hypoactive deep tendon reflex is attributed to excessively increased protein in the cerebrospinal fluid, leading to spinal block. Also, nerve conduction study of the patient revealed mild sensorimotor polyneuropathy. Although he complained of numbness in the right leg, sensory level was uncertain. He did not have sphincteric dysfunction and upper motor neuron signs. As he did not have any spinal symptoms except neck pain before admission, we could not suspect a spinal cord disease. It has been reported that local neck pain, as in the present case, is commonly noticed as a prelude to neurologic deterioration.<sup>4</sup> We can speculate that mild protrusion of soft disc, not associated with trauma, might readily cause severe compression of the spinal cord under condition of spinal canal stenosis. Alternatively, insufficient blood supply attributable to compression of an anterior spinal artery might be related. Furthermore, the possibility of rapid progression of myelopathy secondary to nontraumatic cervical motion associated with physical examination can not be excluded.

Many authors have reported experimental

ischemia-reperfusion injury of the spinal cord. They suggest that free radicals play an important role in palsy resolution in the reperfused spinal cord.<sup>5,6</sup> In our case, the intensity changes of spinal cord seen on MRI are thought to be similar to those experiments, implying demyelination at C6-C7, and spreading edema in the spinal cord.

We emphasize that there is a possibility of acute progression of paraplegia secondary to nontraumatic enlargement of cervical disc herniation. This case suggests that the MRI study is crucial to the management of patient with acute neck pain associated with progressive paralysis. The surgical decompression should not be delayed to avoid permanent neurologic deficits.

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