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황색인대골화에 의한 흉부 늑간신경통 1예

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A Case of Thoracic Intercostal Neuralgia due to Ossification of the Ligamentum Flavum

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Ossification of the ligamentum flavum(OLF) is not infrequent in the cervical and lumbar regions but is very rare in the thoracic spine. We reported a 62-year-old women with left thoracic intercostal neuralgia due to an OLF. Physical and neurological examination were normal. MRI showed an OLF with compression of the thecal sac in the posterolateral aspect of the T9-T10 level. Laminectomy and removal of the ligament resulted in marked clinical improvement. OLF is known to cause thoracic radiculomyelopathy, but presentation with intercostal neuralgia only is very rare.

Key Words : Ossification of the ligamentum flavum, Intercostal neuralgia

Calcification or bone deposition in the ligamentum flavum and hyperostosis at its osseous attachments has been described. In the Far East, ossification of the ligamentum flavum(OLF) is one of the most common causes of posterior thoracic spinal cord compression.[1] OLF is common radiological finding in the cervical and lumbar spine, where it may be isolated or associated with disc protrusion and osteophytes, and is a well-recognized cause of symptomatic compression of the nerve roots and spinal cord.[2] OLF is known to cause thoracic radiculomyelopathy, but presentation with intercostal neuralgia only is very rare.[3]

CASE REPORT

A 62-year-old women with a 6-year history of severe paroxysmal intractable pain on left anterior mid-thoracic area. The pain was more aggravated during or after exercise or motion change. But it disappeared at sleep. She was treated by carbamazepine, elavil, gabapentin, multiple NSAIDs, and nerve block and herb medication with acupuncture. But the results were not good.

She does not have any significant past, family, or social history. And history of herpes zoster was absent. General and neurological examination were normal. And routine laboratory examinations were normal. MRI showed an OLF with compression of the thecal sac in the left posterolateral aspect of T9-T10 level(Figure). After T9-T10 nerve root decompression through laminectomy and removal of ligament, the anterior mid-thoracic pain showed much improvement.

DISCUSSION

Although thoracic spinal cord compression secondary to OFL was first described in 1960 by Yamaguchi et al.[4], no more than 40 cases have been reported until now, in spite of the widespread use of CT or MRI in clinical fields. In most of the cases reported, the patients were Japanese, although some patients have been observed in United States.[2]

Common features of most of the localization of the OLF are in the lower thoracic spine, from T9 to T12, and involvement of two to three vertebral levels. But Miyasaka et al.[5] and Epstein et al.[6]

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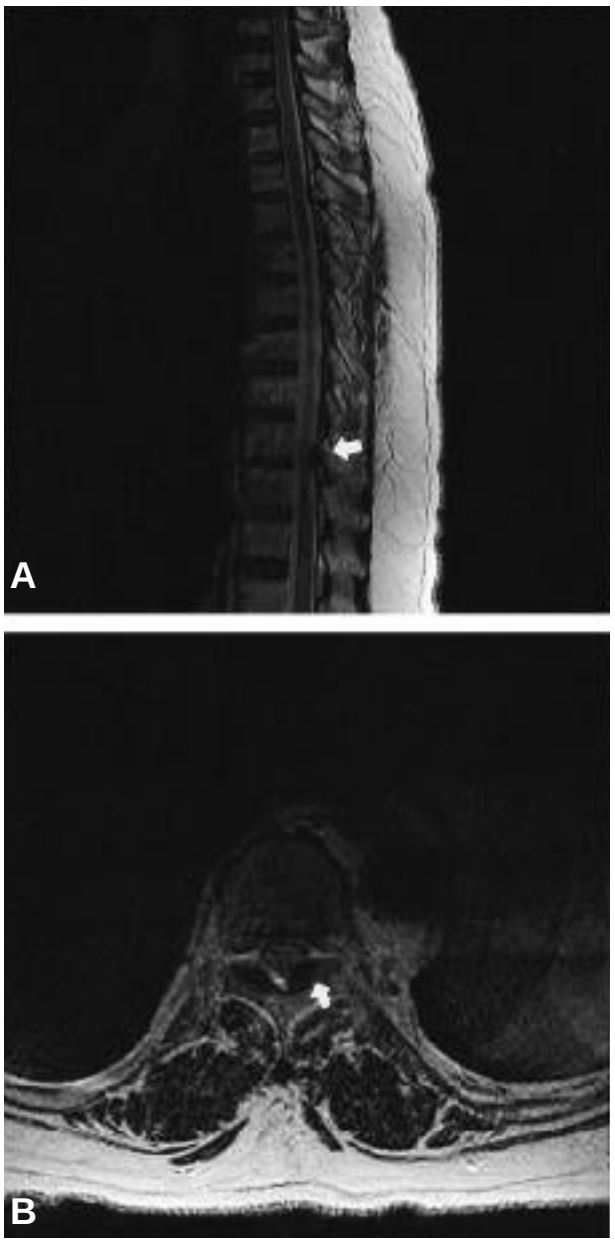

Figure 1. Magnetic resonance imaging of thoracic spine, sagittal T2-weighted image at the level of T9-T10, a round hypointense lesion occupying the posterior part of the spinal canal. B. Magnetic resonance imaging, axial T2- weighted image at T9-10 level, stenosis of spinal canal due to ossification of the ligamentum flavum can be seen.

reported OLF involving the upper and middle thoracic regions. The greater mobility of the lower segments of the thoracic spine may favor hypertrophic and degenerative changes of the spinal ligaments, which are frequently seen in cervical and lumbar spine.[2] Our case also showed an OLF in the T9-T10 level.

A variety of syndromes consisting mainly of chest or abdomenal pain have been ascribed to acute, chronic, or recurrent compression of the thoracic spinal nerves. Chest pain that may mimic angina pectoris or other intrathoracic conditions have been attributed to acute compression of the T5 or T6 spinal nerves.[7] But this disorder is said to be brought on by hard physical work but is not relieved by rest. When lower thoracic nerves are involved, the pain can mimic that of various intraabdominal disorders. The cause of the nerve compression is alleged to be arthritis, facet joint hypertrophy, malposition of the costovertebral joint(slipping rib syndrome),[7-11] complication of operations involving the wall of the chest or abdomen, or during thoracotomy[12], schwannoma, diabetic neuropathy, herpes zoster.[13] And similar symptoms may be caused by compression of the root of a thoracic nerve, mostly from metastatic disease, but occasionally from a thoracic disk protrusion[14].

Involvement of a thoracic spinal nerve should be suspected when sensory abnormalities are present in the corresponding dermatome, when the pain can be elicited by palpating the appropriate vertebra, and when the pain is relieved by local anesthetic blockade of the nerve.[15] But our patient does not show any significant neurologic abnormalities.

Chronic intercostal neuralgia is an ill-defined entity. It may actually be postherpetic neuralgia following an attack of herpes zoster that either produced no skin eruptions as zoster sine herpete or the skin eruptions were overlooked.[16,17] Our case did not have any history of herpes zoster infection.

In the Far East, OLF is one of the most common causes of posterior thoracic spinal cord compression[1]. Although OLF is known to cause thoracic radiculomyelopathy, but presentation with intercostal neuralgia only is very rare.[3] Lihara et al.[3] reported ossification of the thoracic ligamentum flavum presenting with intercostal neuralgia. The symptoms of thoracic intercostal neuralgia were disappeared after nerve root decompression through hemilaminectomy and foraminectomy. And they stress the importance of myelography for diagnosis of OLF.

Plain radiographs may often show a calcified area adjacent to the lamina and projecting within the spinal canal.[5] The OLF also can be visualized by CT. It appears as a V-shaped high-density mass within the spinal canal.[18] Although some reports[18,19] stress the usefulness of CT myelogra-

phy in patients with involvement of the posterior ligamentous structures of the thoracic canal, but this technique appears unnecessary if high-definition MRI is correctly performed.[2] A correct diagnosis of OLF can be obtained by MRI, which yields very hypointense T1- and T2-weighted images. The indentation is best seen on sagittal T2 sequences, whereas the signal of the cord at the level of the compression is well illustrated by the T1 sequences.[2] Our case also showed an OLF with compression of the thecal sac in the left posterolateral aspect of T9-T10 level by MRI.

Surgical treatment is considered in all cases of cord compression to prevent further deterioration of spinal cord function. But postoperative results are variable and often unsatisfactory. Our case showed much improvement after laminectomy and removal of the OLF.

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