

Thoracic Spinal Stenosis Combined with Spinal Cord Compression in the First Article: Ossification or Sclerosis of the Ligamentum Flavum

Sir,

There is a rare disease in orthopaedics called ossification of the ligamentum flavum (OLF), which carries the risk of causing spinal stenosis and spinal cord compression.¹ A study has shown the prevalence, distribution, and morphology of OLF.² Ligamentum flavum ossificans may be caused by genetic predisposition,³ and secondly, by insufficient blood supply to the ligamentum flavum. During the initial stage of the disease, the symptoms are usually not obvious and mainly manifest as limb weakness, numbness, and other symptoms.⁴ As the disease progresses, the patient's muscle strength begins to gradually decline, and symptoms such as unsteady walking, holding, and frequent falls may occur. In some cases, serious complications such as central paralysis may occur. There are several surgical methods for OLF, including open laminectomy with excision, endoscopic decompression, bridge crane resection, block resection, and combined anterior and posterior approaches.⁵ This case describes a patient with thoracic spinal stenosis and spinal cord compression caused by ossification of the thoracic ligamentum flavum.

This study complies with the appropriate ethical rules of the Helsinki Declaration regarding patients' prior consent to the publication of cases.

A 60-year male was hospitalised due to persistent back pain and difficulty in walking for two weeks. Approximately one year ago, the patient initially experienced back pain and discomfort without any identifiable cause. The pain was initially alleviated by oral painkillers, but it gradually worsened over the past six months, accompanied by an unsteady gait.

Physical examination revealed notable tenderness at the 10th, 11th, and 12th projections of the thoracic vertebrae. The patient showed an abnormal gait pattern. A thoracic magnetic resonance imaging (MRI) scan revealed calcification or OLF at the T11-T12 level, resulting in lumbar spinal stenosis and compression of the spinal cord (Figure 1A). The patient underwent a thoracic spine examination and lesion removal under general anaesthesia. Intraoperatively, the hardened ligamentum flavum was observed compressing the spinal cord, with a visible indentation on the surface of the duramater, thus confirming spinal cord compression. The surgical procedure involved creating an incision in the vertebral canal corresponding to the thoracic 11th and 12th vertebrae using an ultrasonic bone cutter. Hypertrophic bone was then removed using bone-biting forceps, and nerve-stripping ions were employed to separate the affected ligamentum flavum from the duramater (Figure 1B). Once the separation was completed, the diseased ligamentum flavum was excised using a scalpel. A sample of the diseased ligamentum flavum was collected and sent for examination. Thoracic pedicle screws and a metal rod were implanted to provide stability to the thoracic spine. The postoperative pathological examination confirmed the presence of calcification or sclerosis within the ligamentum flavum, as well as collagen fibres (Figure 1C). This examination verified the sclerotic tissue as ligamentum flavum. Subsequently, a postoperative thoracic x-ray was performed, confirming the appropriate positioning of the internal fixation hardware (Figure 1D). Upon examination one day after the operation, the patient experienced considerable relief from preoperative symptoms. By the third day post-surgery, the patient was able to walk on the ground, reporting a significant reduction in the previously experienced unsteady gait.

Compression of the spinal cord in affected segments may lead to paralysis, and lesion removal and decompression of the spinal canal are the only effective treatments at present.⁶ The effect of the surgery is even better when combined with back muscle exercises.

PATIENT'S CONSENT:

Informed consent was obtained from the patient to publish this case.

COMPETING INTEREST:

The authors declared no conflict of interest.

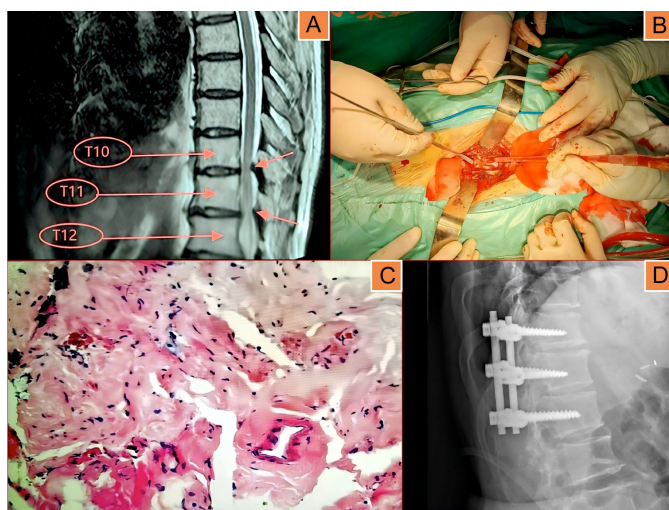


Figure 1: (A) Thoracic MRI shows calcification or ossification of the ligamentum flavum at T11-T12 levels, leading to lumbar spinal stenosis and spinal cord compression. (B) The vertebral canal corresponding to the thoracic 11 and 12 vertebrae was incised with an ultrasonic bone cutter. (C) Postoperative pathological examination showed that the tissue taken was ligamentum flavum with collagen fibres with calcification or sclerosis. (D) Postoperative thoracic x-ray showing the internal fixation hardware in the correct position.

AUTHORS' CONTRIBUTION:

HL: Drafting, revision, and editing process of the manuscript.

WX: Data collection, analysis, and interpretation.

LZ: Data collection.

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