

COMPRESSION NEUROPATHY DUE TO OSSIFICATION OF LIGAMENTUM FLAVUM

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ABSTRACT

We report a case of 50 years female suffering from compression neuropathy due to ossification of ligamentum flavum. This ossification of ligamentum flavum usually presents with neuropathy in the setting of thoracic spinal stenosis.

Key Words: Ossification of ligamentum flavum, thoracic spine, compression neuropathy

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INTRODUCTION

Ossification of ligamentum flavum is a definite clinical entity and is thought to be a form of ectopic ossification but its cause remains unknown. It develops predominantly in a lower thoracic spine in middle age and causes compression neuropathy. Patients with ossification suffer from severe neurological deficit with gait disturbances, motor weakness in legs and urinary incontinence. Decompressive laminectomy with resection of the ossified ligaments does not always produce a satisfactory result because of recurrent ossification or progression of the process at other spinal levels. No therapeutic agent is known to prevent the development of ossification of ligamentum flavum.

CASE REPORT

A female patient aged 50 years presented to orthopedics department with chief complaints of bilaterally progressive numbness in leg and pain. She reported this numbness and pain for 5 years but sought no treatment. When she started having difficulty with gait. she reported to hospital for treatment. Her past medical history was significant for mild osteoarthritic changes in knee. She is non-smoker, non-alcoholic and has no significant family history. Biochemical investigations work up was within normal range. Neurologic examination revealed 4/5 strength in quadriceps, hamstring muscles bilaterally. Patellar reflex was 3/4 bilateral. Patient had decreased two point discrimination in her feet, altered pain and temperature sense in her lower legs and feet.

Plain radiograph of thoracic and lumbosacral spine showed evidence of degenerative changes. On non contrast computed tomographic scans of dorso-lumbar spine, calcifications were seen in posterior part of spinal canal with mild spinal canal narrowing at the affected level. On Magnetic Resonance Imaging, ossification of ligamentum flavum appeared as triangular area of low signal intensity on T1 and T2 weighted images in posterior margin of spinal canal, producing mild narrowing of spinal canal with compression over exiting nerve roots at the affected level.

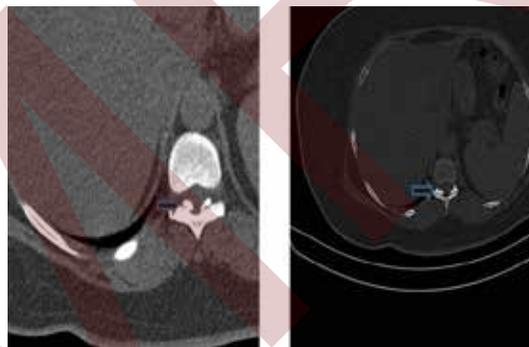


Figure 1: CT scan of thoracic spine showing ossified ligamentum flavum (arrow)

Figure 2: MRI, sagittal, axial and coronal sections showing ossified ligamentum flavum causing narrowing of spinal canal with compression over exiting nerve roots (arrows).

DISCUSSION

Ossification of ligamentum flavum was reported by Polgar in 1929. It has been recognized as an important cause of thoracic neuropathy as described by Yamaguchi Tamagake and Fujito Okada et al who described pathology of the same in detail.

The normal fibrous structure of ligamentum flavum is lost and replaced by hypertrophied fibrous tissue, containing numerous fibrocartilagenous cells. Ossification of ligamentum flavum results from endochondral ossification which extends along the ventral layer of hypertrophied ligament. As most of the reported ossification of ligamentum flavum's were located between T9 and T12, Barnett et al suggested that the hypermobility of lower thoracic spine might promote degeneration and canal stenosis. Liao's study showed a high prevalence of coexisting anterior osteophyte and herniated intervertebral disc at symptomatic ossification of ligamentum flavum segments. So, it was concluded that ossification of ligamentum flavum might be degenerative response to micro injury.

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