

## Letter to the Editor

## Near complete block of spinal canal and thoracic myelopathy due to tuberos ossification of ligamentum flavum in a 32 year old female



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Thoracic spinal stenosis caused by ossification of ligamentum flavum (OLF) is a rare entity. Ossification of the ligamentum flavum is characterized by replacement of the structure by ectopic bone formation through endochondral ossification and results in posterior spinal cord compression, which may cause myelopathy and consecutive neurological deficits [1]. OLF can be idiopathic or related with biomechanical alterations, genetic or metabolic associations, however, the exact pathophysiology has not been fully elucidated yet [2]. In this report, we describe a case of progressive thoracic myelopathy due to extensive and severe OLF in a 32 year-old woman and its surgical outcome.

A 32 years old female presented with weakness in both lower limbs for last 3 years and inability to walk for last 1 year with bowel and bladder involvement. Neurological examination revealed upper motor neuron signs with grade 2 power in both lower limbs. She had hypoesthesia below D12, loss of posterior column sensation and hyperreflexia with Babinski sign in both lower limbs. Computed tomography (CT) imaging showed narrowing and near complete block of the thoracic canal due to single-level large OLF at the level of D9 (Fig. 1A, B). Dorsal spine magnetic resonance imaging (MRI) was obtained, which showed an extradural compressive mass at the level of D9 resulting in severe canal stenosis with severe cord compression (Fig. 1C).

A wide laminectomy with excision of ligamentum flavum was carried out at the level of D9. The severely calcified ligamentum flavum necessitated the use of high-speed drill and extensive drilling of the ossification was performed until the dura could be appreciated. There was no dural tear or any leakage of cerebrospinal fluid. Post-operatively she started showing recovery in the form of decrease spasticity. At the 1-month follow-up visit, the patient reported significant improvement in her mobility and was able to walk with support.

Investigation tools used for diagnosis are CT scan and MRI of spine as both studies provide necessary detail for surgical planning. CT scan shows a bean-like high-density mass inside the ligamentum flavum and in spine MRI there is usually a dorsolateral hypointense mass on both T1- and T2-weighted images [3]. Fenestration or laminectomies are usually performed for thoracic OLF and the ossified ligament should be excised cautiously because there might be an ossification of the dura mater [4]. Surgical decompression of severe thoracic myelopathy caused by tuberos OLF is a challenging procedure and every step should be planned with the utmost caution to prevent any further

deterioration of the neurological deficit.

It is true that our case may not be exceptional, if not quite common, but a number of factors in our case are interesting and relevant: the patient is a young 32 years old female and near complete block of spinal canal as documented by imaging studies. This condition affects mostly elderly population, with a possible association with obesity and type 2 diabetes [5]. The presence of intramedullary hyperintense signal on preoperative MR imaging has been associated with poor neurological outcome [6]. In present case there was no signal changes on preoperative MR imaging and good recovery could be observed. Though, duration of preoperative symptoms represents the most significant predictor of long-term outcome in patients operated for thoracic OLF, however, dural adhesion, the type of ossified ligamentum flavum, and simultaneous surgery for coexistent cervical or lumbar lesions do not appear to influence the long-term postoperative prognosis [7].

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## Conflicting interest

NIL.

## Presentation at a conference

NIL.

## Clinical Trial Registration number (if required)

NIL.

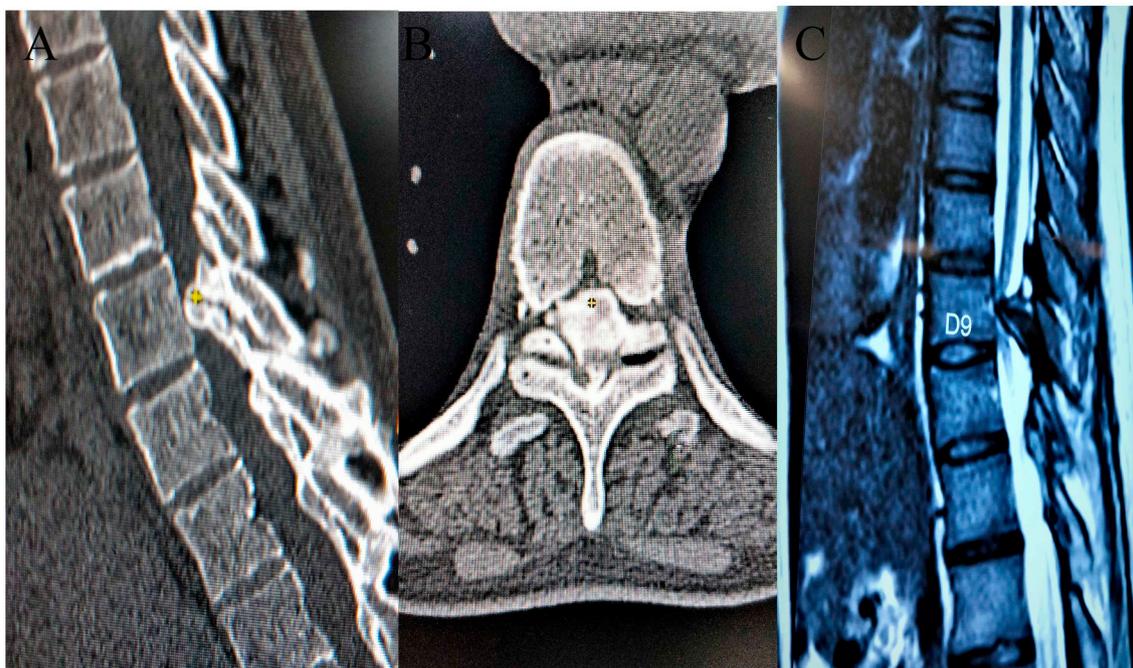
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**Fig. 1.** A, Sagittal CT imaging shows narrowing of the thoracic canal due to single-level OLF. The appearance of near complete block on imaging studies is quite distinctive.

B, Axial computed tomography (CT) showing narrowing of the thoracic canal by the OLF.

C, Sagittal T2-weighted magnetic resonance imaging (MRI) of patient showing single-level ossification of the ligamentum flavum (OLF) at D9.

There are no Disclosures to be made. There are no conflicts of interests.

The patient has consented to the submission of the case report for submission to the journal.

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