

*Case Report*

# Traumatic Sequestered Thoracic Disc Herniation; A Case Report

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**AIM:** To present a case (3<sup>rd</sup> report in the literature, 1<sup>st</sup> case with sequestered-extruded disc herniation) of thoracic disc herniation that was sequestered only by ligamentous injury without thoracic osseous pathology.

**MATERIAL and METHODS:** We reviewed the diagnosis and treatment of a 25-year-old man presenting with paraplegia after a car accident.

**RESULTS:** In this case, no pathology was seen on the X-ray and spinal computed tomography (CT), and the paraplegia of the patient was unexplained in the first examination. Subsequent spinal MRI revealed a T12-L1 cranial-migrated soft disc herniation, which was surgically treated and neurologically recovered within weeks after surgery.

**CONCLUSION:** Traumatic thoracic disc herniations are extremely rare and can be seen without any obvious signs of trauma on X-ray and spinal CT. A spinal MRI scan helps with diagnosis, while rapid surgical treatment (decompression) supports excellent recovery.

**KEYWORDS:** Traumatic disc herniation, Thoracic disc herniation, Ligamentous injury

**INTRODUCTION**

Thoracic disc herniations are rare, and treatment algorithms and surgical options are still controversial. Traumatic pathologies in the thoracic region are usually associated with structural problems in the bone, such as fractures. Traumatic thoracic disc herniations can be seen with osseous pathologies. Our case is a sequestered-extruded traumatic thoracic disc herniation due to purely ligamentous injury. It is necessary to examine the volume of the disc herniation and the neurological condition during treatment. Wide fenestrated posterior approaches may be preferred for soft disc herniations.

**CASE PRESENTATION**

A 29-year-old male patient was brought to emergency

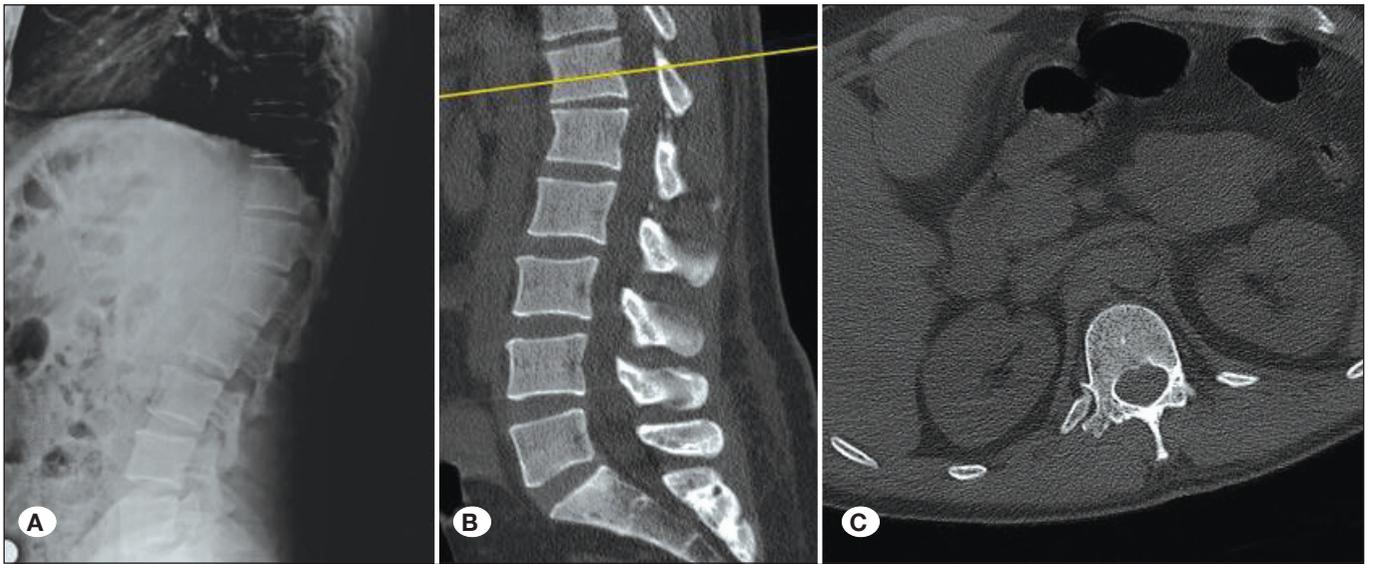
services after a car accident. During the first visit at the emergency department of the hospital, the Glasgow coma score was 15, and spinal imaging was performed urgently. The entire spinal X-ray image of the patient was found to have no traumatic lesions (Figure 1A-C), but the patient was paraplegic and consulted with the neurosurgery department. Due to the anaesthetic dermatome below L1 and paraplegia, a whole spinal CT was requested. It was not considered a traumatic pathology in the first radiological examination. Osseous compromise was not observed in the spinal canal. The patient underwent a spinal MRI due to the result of the neurological examination of the patient, and a disc herniation with cranial migration was seen at the level of T12-L1. Purely ligamentous injury was seen (Figure 2A-C). Because of the cord compression and neurological status of the patient, surgery was planned. To correct the minimal anterior angulation at

T12-L1 level due to the disc herniation, bilateral facetectomy was performed with preservation of the spinous process on the midline. Fusion surgery was applied after sequestrectomy and microdiscectomy. T12-L1 transpedicular screwing and interbody cage application were performed (Figure 3). On the 15<sup>th</sup> postoperative day, the patient exhibited the ability to ambulate without support.

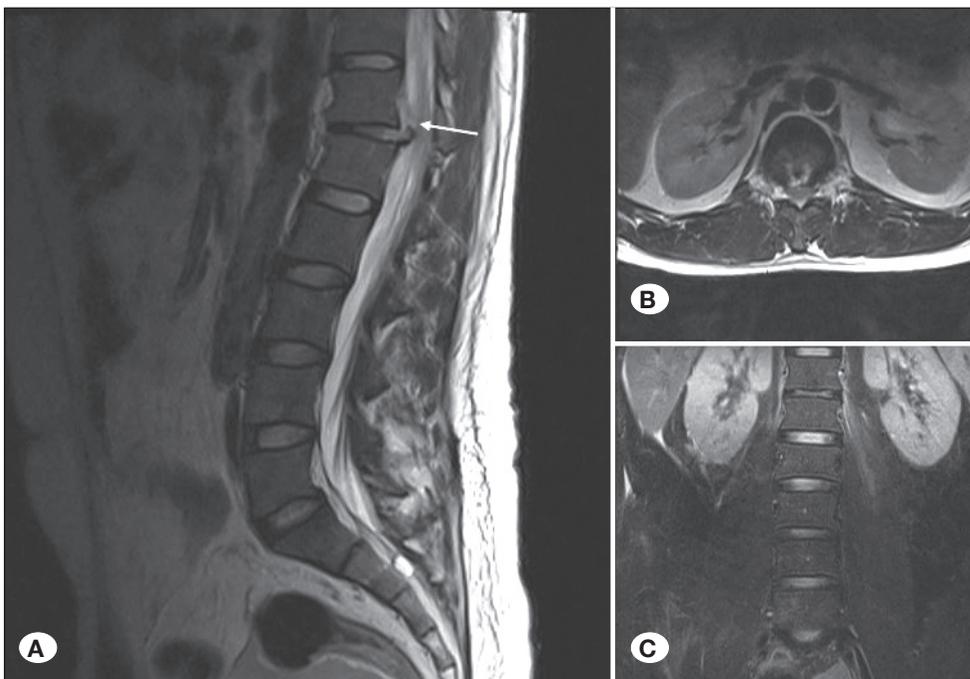
## DISCUSSION

The prevalence of traumatic thoracic disc herniation is unknown, while thoracic disc herniation comprises a low

rate of 1% of total disc herniations (3). The reason is that traumatic thoracic disc herniation is extremely rare. In fact, only two cases with traumatic thoracic disc herniation have been published to date (4,5). To the best of our knowledge, our case is the first case with sequestered-extruded disc herniation and the 3<sup>rd</sup> traumatic thoracic disc herniation in the English literature. An interesting aspect of our case is the absence of osseous pathology or fracture, with a dependence on only purely ligamentous damage. The case is the first in the literature in this respect. That is why spinal vertebral pathology was not considered in initial imaging. Therefore, diagnosis after spinal MRI was certain. Thus, if dermatomal anaesthesia-

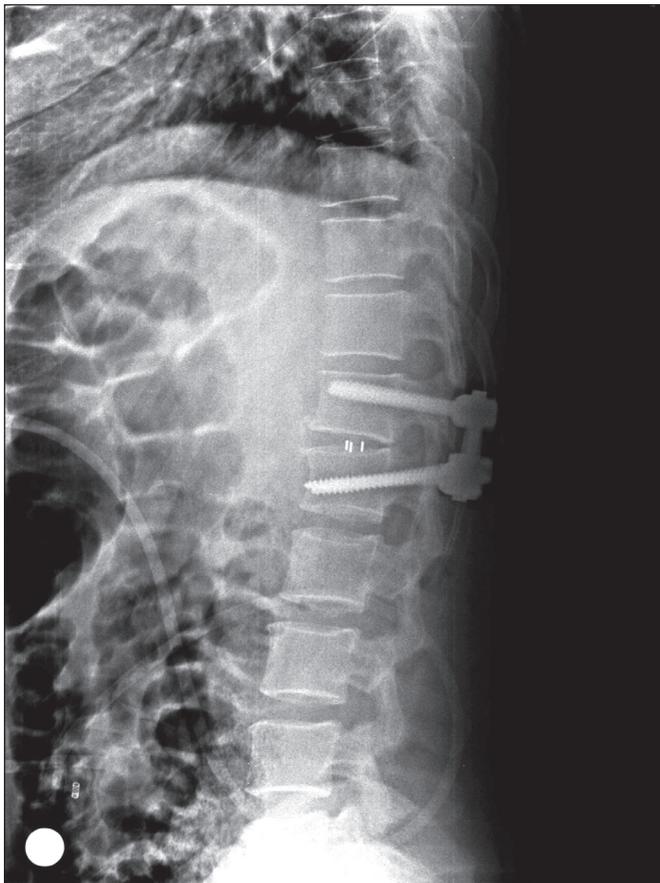


**Figure 1:** Preoperative lateral X-ray (A), sagittal (B) and axial (C) computed tomography scans. Note that, X-ray does not demonstrate any bony injury.



**Figure 2:** Sagittal (A), axial (B) and coronal (C) MRI scans. Note that, disc herniation with cranial migration at T12-L1 is observed on sagittal T2 MRI (a; arrow).

hypoesthesia or paraparesis-paraplegia is present, spinal canal evaluation with MRI will be necessary even if there is no osseous pathology. Information on treatment is inadequate, but it would be rational to decide according to the neurological condition. It is necessary to decide the surgical approach according to possible instability and localization of the disc. Because of the presence of soft disc herniation and minimal kyphotic angulation in the thoracolumbar junction region, as seen in our case, bilateral facetectomy and laminotomy were performed with fragmentectomy and microdiscectomy, followed by stabilization by interbody support in order to prevent and correct kyphosis. The thoracic disc herniations that may develop on the traumatic basis will be softer than degenerative processes, which suggests the possibility of treatment with posterior approaches. Since thoracic discs, due to degenerative processes, are more calcific, posterolateral approaches in these discopathies would be more rational (1,9).



**Figure 3:** Postoperative lateral X-ray. T12-L1 transpedicular instrumentation with an interbody cage was applied, and minimal kyphosis was corrected at the thoracolumbar junction.

Another point in our case is that the pathology is at the thoracolumbar junction. We think that the reduction of rib support in this region will increase the possibility of pathology developing. In fact, traumatic disc herniations have been seen and presented many times in regions such as the cervical and lumbar regions where there are no ribs and more mobility (2,6,8). Likewise, cases without bone injury have been published (7). When we consider the type of injury, it is apparent that there is a hyperflexion injury. Minimal kyphotic angulation and formation of the herniation with damage of the posterior ligamentous structures suggest this.

## ■ CONCLUSION

Traumatic thoracic disc herniations are extremely rare and can be seen without osseous pathologies. In these cases, it should be kept in mind that traumatic pathologies may not be seen, and only ligamentous injuries may be noticed when performing trauma evaluations in emergency departments (with X-ray, CT). It should not be forgotten that traumatic thoracic discopathy may be rarely observed. Rapid decompression in treatment can provide excellent neurological recovery.

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