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Original Article

A Study of Traumatic Dorsal and Lumbar Vertebral Injuries with Neurological Deficit

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ABSTRACT

Introduction: It has been reported that 6% of all fractures affect the spinal column, and 90% of them are found in the thoracic or lumbar regions. However, information on traumatic SCI is minimal for developing countries. Therefore, we conducted this study to determine the pattern, causes and surgical outcome of dorsal and lumbar spine trauma in the rural Indian population.

Methods: 21 patients who were admitted with a diagnosis of thoracic or lumbar spine injury were studied. There were 15 males and 6 females with an average age of 41.6 years. All the patients were followed over a minimum period of 18 months and the results were analyzed.

Results: Most of the patients belonged to the labourer group, both industrial and farm labourers, constituting 57.14%. The average duration of injury to admission is 2.5 days. Fall from height (FFH) was the leading cause of spine injury and constituted 61.91%. The dorso-lumbar junction, i.e. D11, D12, L1 and L2, was the most affected, constituting 66.66% of all the injuries. In most of the fractures, stabilization was done with 2 pairs of pedicle screws (one proximal and one distal), as in 17 out of 19 operated patients (89.48%). The average follow-up duration was 22 months. According to our result assessment criteria, 55% of the patients had excellent-to-good result at final follow-up.

Conclusion: The number of screws used had no co-relation with the kyphosis correction and neurological outcome of the patient and fusion is not mandatory to maintain the correction of deformity.

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1. Introduction

It has been reported that 6% of all fractures affect the spinal column, and 90% of them are found in the thoracic or lumbar regions.[1] With the increase in motorized vehicles and greater exposure to high-energy trauma due to road traffic accidents (RTA), the occurrence of thoraco-lumbar fractures and dislocations has increased drastically. These injuries occur most frequently in male patients between 15 and 29 years of age and they usually present with neurological deficit.[2] Fracture of the spine can occur when forces acting on the spinal column exceed its strength and stability. Common injuries, which are responsible for fracture of the spine, include falls from a height, motor vehicle accidents and penetrating trauma, including gunshot wounds and stabbings. The elderly are also at risk for these fractures after a fall from a standing position and trivial traumatic events because of their poor bone density.

Approximately 90% of all spinal fractures occur in the thoracic and lumbar spines and mainly within the region between T11 and L2, commonly referred to as the thoraco-lumbar junction and neurologic deficit is seen in approximately 50% of these injuries.[2] The recovery is dependent on the severity of primary trauma and its early intervention.[3]

Pain is the primary symptom in most patients with spine fractures and other common symptoms are lower extremity weakness or paralysis and loss of bladder/bowel control. Mortality in such patients is usually a result of associated injuries to the spleen, liver, aorta and pelvis.[4]

There is no population-based data on spinal cord injury (SCI) available from the majority of developing world countries. We have carried out this study on 21 patients with thoraco-lumbar spine injuries to determine the pattern, causes and surgical outcome of such injuries.

2. Materials and methods

This is a hospital-based, prospective study conducted on 21 patients within a period of 2 years with a minimum follow-up of 8 months. All patients had fractures of dorsal and lumbar vertebrae with neurological deficit and those with pathological fractures or with no neurological deficit were excluded.

Patients were treated either operatively or non-operatively depending on the fracture geometry, clinical status and willingness of the patient.

Patients treated conservatively were given bed rest for 6–8 weeks depending on fracture geometry or brace with adequate physiotherapy or ambulation with CASH brace following pain relief.

Patients treated operatively were approached by posterior approach and posterior instrumentation was done above and below the fracture segments, which had intact pedicles with posterior decompression if required. Fusion was not done in any case. Depending upon the hold of fixation and bone

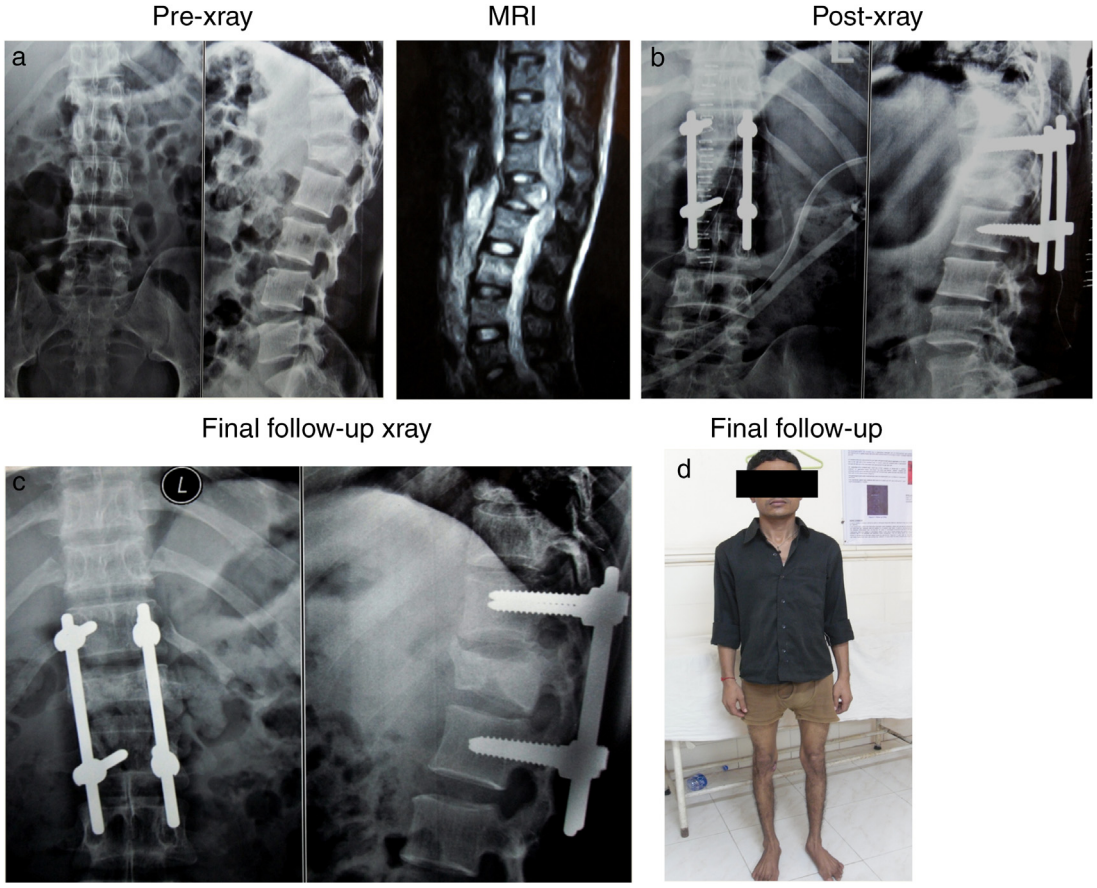

Fig. 1 – 26 years old male patient, labourer, history of fall from height, L1 fracture with grade C neurology.

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