



# Risk factors for supplementary posterior instrumentation after anterolateral decompression and instrumentation in thoracolumbar burst fractures

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## Introduction

The anterolateral approach for spinal decompression and stabilization is a time proven method for the treatment of burst fractures. However, some patients treated with this approach have required supplementary posterior instrumentation. There are no rigid criteria when to undertake supplementary posterior instrumentation after the anterolateral approach.

## Methods

Seventy-three patients underwent anterolateral decompression and instrumentation. Clinical and radiographic data were collected prospectively and reviewed retrospectively.

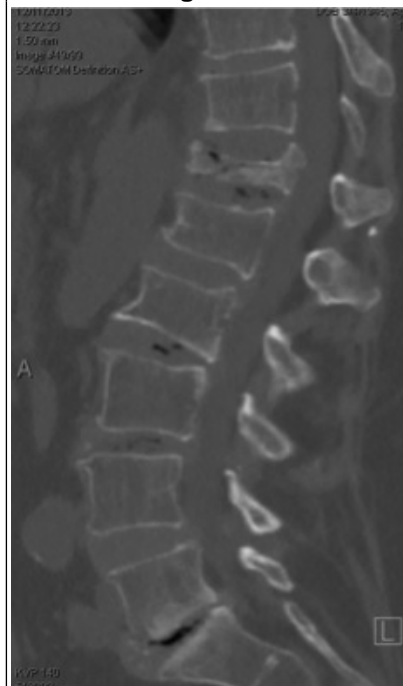
## Learning Objectives

By the conclusion of this session, participants should be able to 1) Describe the analysis of thoracolumbar burst fractures, 2) Discuss in small groups the advantages and disadvantages of anterior approaches to the thoracolumbar spine, and 3) Identify which patients may benefit from supplementary

## Results

Surgery was undertaken in 46 patients with neurological deficit and in 27 who were intact. The mean age was  $42 \pm 17$  years, with 49 males and 24 females. The majority of injuries were due to falls, followed by motor vehicular accidents. L1 was the affected level in 31, followed by T12 in 18. The posterior ligamentous complex (PLC) was assessed on magnetic resonance imaging (MRI) in 38 patients. It was deemed disrupted in 10, 4 of whom were intact and 6 with deficit. The residual spinal canal in the 28 patients with intact PLC was not different from that in the 10 with disrupted PLC ( $44 \pm 17$  vs.  $42 \pm 10$ ,  $p=0.742$ ). Kyphosis on admission in patients with intact and disrupted PLC measured  $6.2 \pm 9.5^\circ$  and  $7.3 \pm 10.9^\circ$  respectively ( $p=0.74$ ). Supplementary posterior instrumentation was performed in 7/73 patients, 3 with disrupted PLC and 4 with intact PLC (NS). The age of patients requiring supplementary posterior instrumentation ( $59 \pm 14$  years) exceeded that

### Sagittal CT



T12 burst fracture

## Conclusions

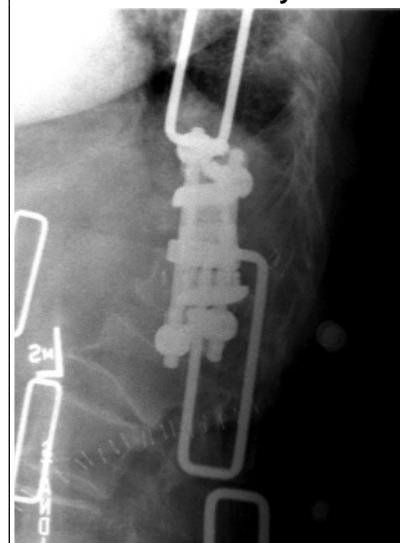
Supplemental posterior instrumentation was deemed necessary in 10% of cases following anterolateral decompression and instrumentation for thoracolumbar burst fractures. Age was the only significant risk factor predicating supplemental posterior instrumentation.

### Intra-operative xray



Anterolateral placement of expandable cage with instrumentation

### Lateral x-ray

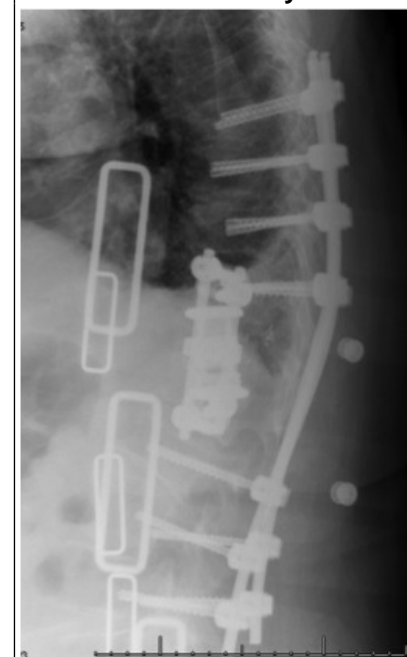


Subsidence of the cage with kyphosis causing pain

## References

1. Machino M, et al. Posterior/anterior combined surgery for thoracolumbar burst fractures - posterior instrumentation with pedicle screws and laminar hooks, anterior decompression and strut grafting. *Spinal Cord*. 2011;49:573-9.
2. Ramani PS, et al. Combined anterior and posterior decompression and short segment fixation for unstable burst fractures in the dorso lumbar region. *Neurology India*. 2002;50(3):272-8.
3. McDonough PW, et al. The management of acute thoracolumbar burst fractures with anterior corpectomy and z-plate fixation. *Spine*. 2004;29(17):1901-8.

### Lateral x-ray



Supplementary posterior instrumentation with resolution of symptoms