

## Thoracolumbar Spinal Fractures in Ankylosing Spondylitis

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### Introduction

Patients with Ankylosing Spondylitis (AS) are predisposed to thoracolumbar fractures with benign injuries.

### Methods

Retrospective chart of 19 patients with AS who suffered thoracolumbar spinal fractures requiring surgery between 1992 and 2011 and with a minimum follow up of 6 months were reviewed. The average age  $\pm$ SD was  $63 \pm 16$  (range: 43-94), 15 were males. Average follow-up was 31 months (range 6-132). Clinical and radiological outcomes were evaluated using preoperative and postoperative ASIA scoring system and Cobb's angle.

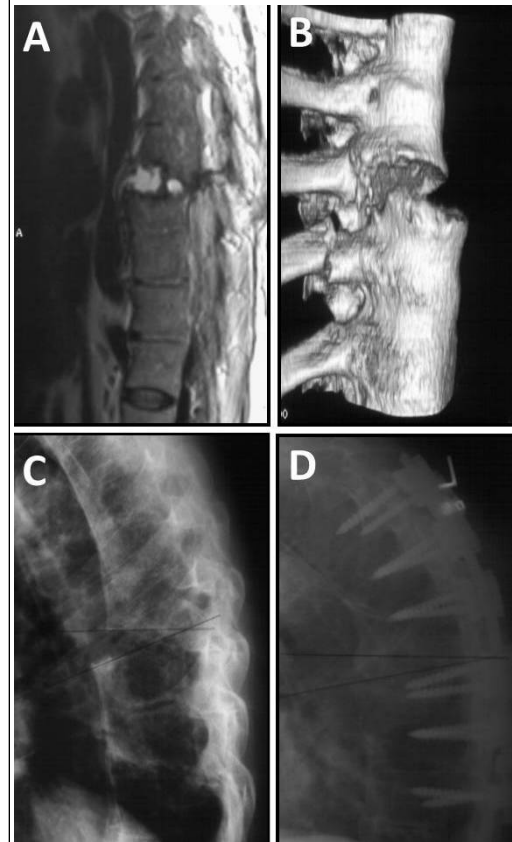
### Results

- Seven patients (37%) suffered thoracic spine fractures (T1-T10), Eight (42%) thoracolumbar fractures (T11-L2), and three (33%) lumbar fractures (L3-S1).
- The most frequent levels injured were T11-T12 (n = 5, 26%) and T9-10 (n = 4, 21%).
- The mechanism of injury in 15 patients was low impact.

### Results (cntd)

- On admission, three patients had an ASIA score of A (16%), and nine patients (47%) had an ASIA score of E. The remainder (63%) had incomplete spinal cord injury (SCI) with ASIA scores of B (n=1), C (n=3), and D (n=3).
- Sixteen patients (84%) had extension fractures, two patients suffered flexion distraction injuries and one burst fracture.
- Surgical management included dorsal long segment fixation in all patients, with pedicle screws in 15 patients. One patient required osteotomy for correction of kyphotic deformity.
- Complications included one wound infection, and one hardware failure requiring revision.
- The ASIA score improved in 4 patients (21%), and was unchanged in 14 patients (73%). One patient had deterioration from class E to D. All patients with class A did not improve.
- Average improvement in Cobb's angle was  $11 \pm 12$  degrees.

Figure 1



49 y/o man with a T7-8 transdiscal extension fracture due to a car accident as seen on MRI (A), three dimensional computerized tomogram reconstruction (B), and lateral plain film (C), Surgical correction consisted of a posterior fusion with pedicle screw fixation from T5-T10s as seen on lateral plain films (D) obtained 18 months later. The patient suffered no neurological deficit and has resumed normal activity.

### Conclusions

- Over 60% of patients with AS suffering from thoracolumbar fracture had associated SCI.
- The most common fractures are extension distraction with 3 column involvement.
- Dorsal long segment fixation was adequate to treat these injuries.

### Learning Objectives

- understand mechanism of SCI injury in AS
- incidence of SCI and outcome in AS with thoracolumbar fractures
- recognize the necessity of surgical intervention in dealing with these cases
- understand the nature of fractures in AS, and their extreme instability.

### References

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