



Definitive Single Stage Posterior Surgical Correction of Complete Traumatic Spondyloptosis at the Thoraco-Lumbar Junction

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Introduction

Most reports of spondyloptosis describe fractures occurring at the lumbosacral junction or in the cervical spine. Complete dislocation at the thoracolumbar junction is a rare occurrence. Surgical procedures to correct the deformity have been described using instrumentation, reduction, decompression and stabilization techniques. We describe a case of thoracolumbar spondyloptosis with surgical reconstruction without the use of leveraged instrumented reduction. In this report we describe a single stage, posterior only spinal realignment, reconstruction, and stabilization.

Methods

A single stage posterior decompression and reconstructive surgery was performed including an L1 laminectomy and complete vertebrectomy. The entire L1 vertebral body was harvested for autograft. An intraoperative CT was obtained to verify the final anatomical vertebral column alignment following positioning. O-arm navigation was employed to enhance the placement of pedicle screw placement. The construct included pedicle screw placement at T8-T12 bilaterally and L2-L4 bilaterally.

Results

Clinically, the patient had a remarkably uneventful hospital course. Fortunately, he did not experience any of the complications that frequently accompany complete spinal cord injury. He was discharged to a rehab facility one week after the operation where he learned how to independently transfer to a wheelchair and navigate his surroundings. Within months of therapy, he enrolled and attended courses at a local college and regained personal independence by learning to drive a motor vehicle with a hand control.

Conclusions

Traumatic spondyloptosis at the thoracolumbar junction must be addressed with reconstruction of the spinal column using instrumentation techniques. A complete vertebrectomy at L1 assists in realignment and offers an additional technique that lessens the risk to surrounding vital structures and decreases instrumentation stress incurred in standard reduction techniques. Reconstruction with local autograft and long-segment instrumentation are viable techniques to provide axial stability and maintain sagittal alignment.

Figure 1



Preoperative sagittal CT-scan of the thoracolumbar spine demonstrating the degree of bone injury.

Figure 2



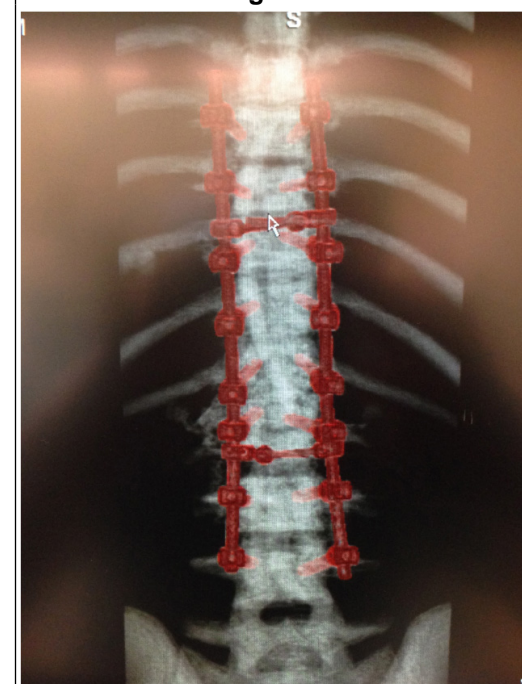
Preoperative T2WI Sagittal MRI of the thoracolumbar spine demonstrating the degree of injury to neural elements.

Figure 3



Postoperative 3D reconstructed lateral CT-scan of the thoracolumbar spine demonstrating the T8-L4 construct

Figure 4



Postoperative 3D coronal CT-scan demonstrating the coronal realignment.