

## Learning Objectives

1. Understand the mechanism of action of traumatic coronal spondyloptosis and its range of neurological sequelae
2. Appreciate the variety of surgical methods for reduction and stabilization of TCS and the nuance of when these options are viable

## Introduction

Traumatic Coronal Spondyloptosis (TCS) is defined as greater than 100% subluxation of vertebral body over another in the coronal plane. It represents a rare type of spinal fracture dislocation generally secondary to high energy impact and it has a common association with injury to intraabdominal or thoracic organs which often complicates management. There are currently no standardized guidelines for the management of this severe traumatic injury.

## Methods

We present a case of thoracolumbar (TL) junction TCS, discussing the surgical technique used for reduction, deformity correction, stabilization and fusion, and reviewing the techniques used for reduction of similar reported cases.

**Thoracolumbar TCS Coronal CT**



**3D Reconstruction**



**Thoracolumbar TCS Axial CT**



## Results

Our presented case with TLCS was expertly managed with manual caudal reduction and the use of hand held clamps. The patient was positioned prone on gel rolls with pelvic corset applied in anticipation of intraoperative augmentation of traction. The patient was given ample muscle relaxant perioperatively. Pedicle screws were placed 3 levels above and below thoracolumbar junction and fixated with temporary rods. Complete reduction was achieved with manual caudal reduction and drilling of intervening right T12-L1 facet joint. Following reduction, the installation of permanent rods and cross links with decortication of bone was performed to enhance posterolateral fusion.

**Post operative reduction - Thoracolumbar traumatic coronal Spondyloptosis**



## Conclusions

Our patient had ASIA A spinal cord injury preoperatively, thus we were able to utilize muscle relaxant medication to help facilitate reduction of deformity. In patients with residual neurological function, however, neuro monitoring is required which limits the use of muscle relaxant and increases the difficulty of vertebral body distraction. Therefore, reduction can be completed with use of distraction instrumentation. If reduction requires high magnitude of distraction, a vertebrectomy of the dropped vertebra will shorten the spine and can facilitate reduction more safely. Understanding the variety of surgical options in operative management of TCS is critical in the correction of this debilitating and unstable injury.

## References

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