Back-breaking Work: Thoracolumbar Injury Classification and Severity score

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LEARNING OBJECTIVES
1. Be familiar with the Thoracolumbar Injury Classification and Severity (TLICS) score.
2. Understand how to apply the TLICS scoring system to traumatic spine injury cases in your practice.

INTRODUCTION

1. TLICS is a scoring and classification system developed by the Spine Trauma Study Group in response to limited prognostic value of existing injury classification systems, which also generally do not support treatment pathways.
2. The TLICS score is based on three components:
   1. Injury morphology
   2. Posterior ligamentous complex (PLC) integrity
   3. Neurologic status of the patient
3. A numerical score is calculated for each category, with a lower point value assigned to a less severe or less urgent injury and a higher point value assigned to a more severe injury requiring urgent management. Each injured level is scored separately and the highest score becomes the total TLICS score. The total score helps guide decisions making about surgical versus nonsurgical management.

Familiarity with the TLICS will help radiologists who interpret spine trauma imaging studies to effectively communicate findings to spine trauma surgeons.

CASE 1: 81 year old female with dementia who presents after fall.

CASE 2: 61 year old male restrained driver hit a parked truck at 80 miles per hour.

CASE 3: 20 year old male fell 25 to 40 feet from a tree.

CASE 4: 42 year old male, car fell on him while working underneath.

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INJURY MORPHOLOGY

1. Compression
   - Compression describes what a vertebra body falls under axial loading
   - Less severe form, a simple compression fracture with buckling of the anterior wall of the vertebral and accentuated kyphosis
   - More severe form, failure of posterior cortex of the vertebral body between the pedicles with various degrees of retropulsion (burst fracture)
2. Rotation/Translation forces are primarily responsible for spinal column failure. More rotation results in bone anatomy and more instability than compression. Note: "Translation" = "Distraction"
   - Findings:
     - Disruption of the spinous processes or acutely altered alignment of the pedicles above and below the level of the injury
     - Axial CT fails to see the spinous processes, and there is no widening of the posterior vertebral body cortex
3. Distraction neuropathy is caused when one part of the spine is separated from the other leaving a space in between.

PLC INTEGRITY

1. Integrity of posterior ligamentous complex
2. Component of PLC:
   - Intact
   - Hyperextension injury
   - Fragmented
   - Nongrade
3. Component of PLC:
   - Intact
   - Hyperextension injury
   - Fragmented
   - Nongrade
4. Component of PLC:
   - Intact
   - Hyperextension injury
   - Fragmented
   - Nongrade
5. Component of PLC:
   - Intact
   - Hyperextension injury
   - Fragmented
   - Nongrade

NEUROLOGIC STATUS

1. Neurological status is described by clinicians in increasing order of urgency as (1):
   - Neurologically intact
   - Complete motor and sensory deficit
   - Incomplete (motor and sensory) spinal cord or cauda equina injury
   - Spinal cord injury
   - Cauda equina syndrome

2. Neurologically intact
   - Complete motor and sensory deficit
   - Incomplete (motor and sensory) spinal cord or cauda equina injury
   - Spinal cord injury
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REFERENCES


CONCLUSION: The TLICS is a scoring and classification system designed to depict the features important in predicting spinal stability, deformity, and progressive neurologic impairment, and thereby facilitate appropriate treatment recommendations. In operative candidates, features of this classification system, such as posterior ligamentous complex (PLC) integrity and the neurologic status of the patient, serve to direct the surgical spinal approach.

CASE 1: TLICS 2, treated conservatively with bracing.

CASE 2: TLICS 4, treated surgically with posterior fusion.

CASE 3: TLICS 5 (or 7), treated surgically with posterior fusion.

CASE 4: TLICS 5, treated surgically with posterior fusion.