# Thoracolumbar Burst Fracture

**Thoracolumbar burst fractures** occur when a vertebral body in the thoracic-lumbar junction (typically T11–L2) is **severely compressed**, resulting in **fragmentation and retropulsion** of bone into the spinal canal. These injuries often result from **high-energy axial loading** and may involve neurological compromise.

---

## Etiology and Mechanism

- High-energy trauma: fall from height, motor vehicle accident
- Axial compression with or without flexion/rotation
- Most commonly at the thoracolumbar junction due to biomechanical transition from the rigid thoracic to the mobile lumbar spine

---

## Clinical Presentation

- Sudden, severe localized back pain
- Possible neurological deficits:
  - Paraparesis, paresthesias, bladder or bowel dysfunction
- Point tenderness and muscle spasm
- Pain exacerbated by movement or upright posture

---

## Imaging

- **X-ray (AP/lateral):**
  - Loss of vertebral body height
  - Kyphotic deformity
- **CT scan:**
  - Gold standard for bony architecture
  - Evaluates spinal canal compromise and retropulsed fragments
- **MRI:**
  - Assesses spinal cord compression
  - Integrity of the posterior ligamentous complex (PLC)
  - Detects hematoma or edema

---

## Classification

- **AO Spine Classification:**

  - AOSpine thoracolumbar spine injury classification system Subtype A3: Incomplete burst
  - AOSpine thoracolumbar spine injury classification system Subtype A4: Complete burst
- **Load Sharing Classification (McCormack):**
  - Grades comminution, apposition, and kyphosis
  - Helps guide need for anterior support

---

# Treatment

Thoracolumbar Burst Fracture Treatment