

# The Institutional Study Over on Traumatic Thoraco Lumbar Fracture out Come Based on Thoraco - Lumbar Injury Severity Scoring

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**Abstract:** Introduction: Traumatic thoraco-lumbar fracture is emerging incidence due to dynamic mechanism of injury. Road traffic accidents, fall from height are common mode of mechanism. In this study, Exclusive traumatic thoraco lumbar fracture patients were taken for study. After diagnosis patients get into the THORACO LUMBAR INJURY SEVERITY SCORING SYSTEM [TLISS]. TLISS is scoring system component of imaging morphology, neurological involvement, and posterior ligaments complex integrity. The patients were categories into 1, 2 and 3 depending upon scoring. The score less than 4 are kept in category 1. Score 4 kept in category 2. Score 7 to 10 patients kept in category 3. Among the categories patients, the score less than 4 [category] can managed as conservative manure. Category 2 and 3 managed with surgical procedure either posterior pedicle screw fixation or anterior approach. The follow up was done at 4th week, 8th week, 12th week and 20 week period. The outcome was summarized. Aim of study: To evaluate various mode of injury, line of management, surgical approaches. And its complications follow up outcome. Methods and Materials: This prospective study conducted in institute of neurosurgery, madras medical college, Chennai in 12 month duration with 20week post op follow-up with effect from Jan 2018 to February 2019. Trauma patients were admitted in emergency department was taken for evaluation. Patients categorized based on TLISS scoring. Category 2 and 3 patient were taken surgery within 10 to 15 days interval. Follow up done and outcome assessment base upon pain scoring, motor power improvement, autonomic function outcome. Result: The dynamic mode of injury plays a major role than static mode of injury. After periodical follow-up the outcome is good for category 1 patient with conservative management than category 2 and 3. Among surgical intervention patients those scoring 4 to 7, has better outcome than score above seven. Reference: Benzel E. Biomechanics of Spine.

**Keywords:** Thoracolumbar fracture, TLISS, Trauma, Spinal cord

## 1. Introduction

The incidence of thoracolumbar spine injuries after blunt trauma is approximately 2 to 7.5% [1-4]. Nineteen percent to 50% of these injuries have associated neurological injury. In institute of neurosurgery madras medical college total numbers of Thoraco Lumbar fracture Admitted was 75 numbers in the study duration of Average numbers of admission of T-L fracture was 1-2 cases /week. 1<sup>st</sup> mode of injury is road traffic accident. The Saravanan et al studies were conducted in madras medical college which include totally 8 cases. Among these 7/8 cases taken for surgery after TLIS scoring more than four. 7 cases taken for surgery and follow up 6 months duration the TLIS scor less than was kept in conservative management group.

## 2. Aim of Study

To analyse mechanism of injury its management option surgical intervention conservative various methods of fixation & outcome to analyse various complication of TL #fixation.

**Inclusion criteria:** The patient admitted with thoracolumbar # between Jan 2018 to Dec 2018 were included. Poly trauma patients were excluded. Included patients were categorized with TLIS SCORING (1/2/3).

**Exclusion criteria:** Polytrauma Other than T-L #spineinjuries. Included patients were categorized depending upon TLIS scoring to(1-2-3).

**Thoraco lumbar Injury Severity Score:** TLIS score are component of

**1INJURY MORPHOLOGY-**A. Compression fracture: 1point, B. Burst fracture: 2point, C. Translational/ rotational 3 point. D. Distraction fracture 4point, **2. Posterior Ligamentous Complex Integrity** - a. Intact 0, b. Suspected/ indeterminate 2, c. Definite injury 3. **Neurological Involvement** -A. Intact 0, B. Nerve root, a. Complete 2, b. Incomplete 3, C. Cauda equina syndrome 3 points. Total score were 10.

Based on this score patients categories into. Category 1: TLIS score < 4. Category 2: TLIS score 4 and 4-7. Category 3: TLIS score 7-10. Category 1- patient were managed with conservative line of management category 2 & 3 -surgical intervention. Outcome were assessed in 4week, 12week, and 16week follow up duration. **The ongoing study conducted in MMC/INS for further result yet to be obtained.**

**Institute data:** 74 total numbers of Thoraco Lumbar # admitted (6 cases per month). Average numbers of surgeries of thoracolumbar fracture is 1-2 cases/week. Commonest mode of injury is road traffic accident. 2nd common mechanism of injury is fall from height. 8 cases were included in my study.

## 3. Material and Method

The patients were admitted in trauma ward in the duration of Jan 2018 to Dec 2018 taken into surgery. Exclusive Thoracolumbar # taken into study. TLIS Scoring given and categories into 1/2/3. depending upon scored.

### 4. Results

If TLIS Score less than 4, patient can kept in conservativetreatment. If score 4 and > 4 considered for surgical management. The score between 4 to 7 surgical outcomes is good. The score > 7, surgical outcome not satisfy in motor, sensory, bladderaspect.

- Various fracture morphological picture



Figure A (Compressive Fracture)



Figure 1:2



Figure B (Destructive fracture)



Figure 1:3

Case 1 – Mode of Injury: Fall From Height



Figure 1



Figure 1:1 (Compressive Fracture)

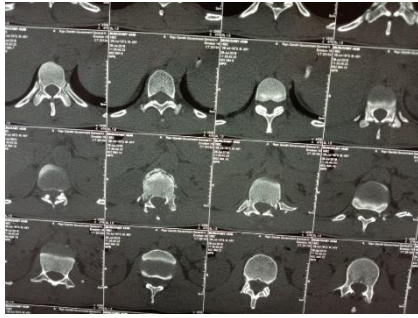


Figure 1:4

The Case 1 shows the following details.

Compressive fracture score 1. Neurological status – score 2. Posterior ligaments complex intact- score 0. TLIS Score total 3. kept him conservative management for 12 to 15 week. Total score < 4. bed rest for 6 weeks with support. At the end of 6 weeks symptom where subsides Return to heavy work after 12 weeks duration.

**Case 2:** Mode of Injury: Road traffic accident. Motor power 4/5. Bladder involvement present.



Figure 2:1



Figure 2



Figure 2:2





Figure 2:3

Compressive#, with paraparesis, TLIS score 4. This patient taken for surgery as per TLIS Score.

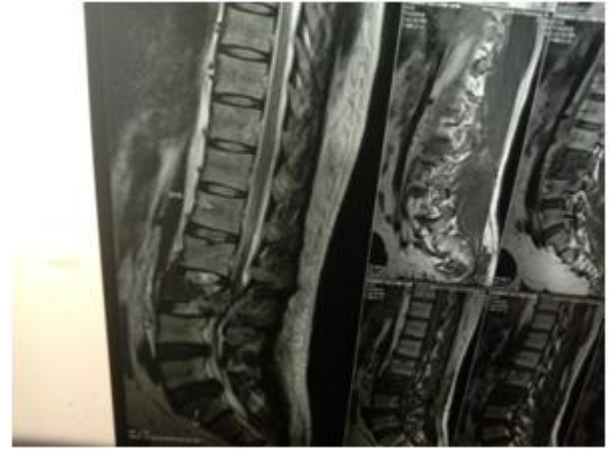


Figure 3:1

Burst # score 2, neurological status- cauda equina syndrome score 3. Post ligament complex intact-0. Total score was 5. Patient get into surgery as per TLIS score.



Figure 2:4

In post op followup at 4th week, patient regain power to 5/5 from 4/5 and pain scoring reduced from 8/10 to 4/10. At 6th week patient return back to the normal life.



Figure 3:2

**Case 3:** Fall from height. Motor power 2/5, sensory deficit present bladder incontinent present.



Figure 3:3

Pain score improved from 8 to 5 at 12 week period. Pain score currently 2. Power improved from 2/5 to 3/5 at 12th week period. Currently power was improved to 4/5.



Figure 3

**Case 4:** Mode of Injury: Road Traffic Accident, Power 0/5, Sensation lost, Bladder involved.



Figure 4

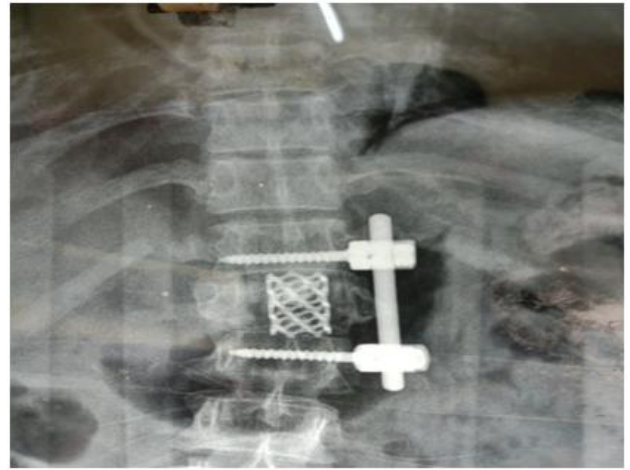


Figure 4:3



Figure 4:1

While doing corpectomy preserving intercostal vessel can determine outcome.

In this patient 4week follow up does not show anyimprovement.8 week follow up does not any improvement in motor, sensory, ANS. At the 12 weekfollowup shows flickering movement.

Case 5: Mode of injury: Road Traffic Accident

Morphology score3.neurological score were3.plc involvement + .score were3.total score9.pt taken for transthoracic surgery as per TLISS.



Figure 5

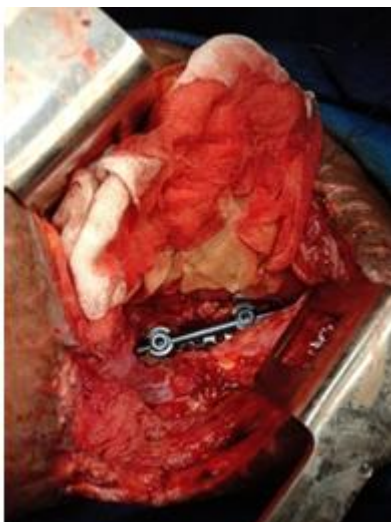


Figure 4:2: Intraop pictures of L1 corpectomy

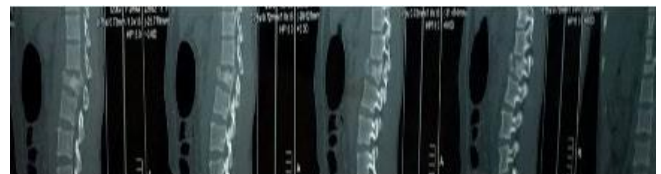


Figure 5:1: (Burst Fracture)



Figure 5:2: (Burst Fracture with canal compromise)

Morphology score 1 neurological score 3 [incomplete nerve injury]. PLC injury indeterminate 1. total TLIS was 5.



Figure 5:3

The immediate post power improved from 1/5 to 2/5. The 12-week patient became 3/5. ANS system came into under control.

## 5. Discussion

The incidence of thoracolumbar spine injuries after blunt trauma is approximately 2% to 7.5%. 19% to 50% of these injuries have associated neurological injury. In institute of neurosurgery madras medical college total numbers of Thoraco Lumbar fracture Admitted was 75 numbers in the study duration of Average numbers of admission of T-L fracture was 1-2 cases /week. 1<sup>st</sup> mode of injury is road traffic accident. The Saravanan et al studies were conducted in madras medical college which include totally 8 cases. Among these 7/8 cases taken for surgery after TLIS scoring more than four. 7 cases taken for surgery and follow up 6 months duration the TLIS score less than 4 was kept in conservative management group. The dynamic mode of injuries are road traffic accident, fall from height were cause for thoraco-lumbar fracture. Nostatic mechanism was documented. TLIS were evaluated to choose line of management. TLIS score <4 no need of surgery. Conservative line of management is indicated for 12 week. TLIS score =4, and >4 taken for surgical management. While doing corpectomy preserving intercostal vessel can determine the outcome.

## References

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