55th Annual Conference of
Orthopedic Surgeon Society of Andhra Pradesh
Date 6 – 8 February,2026, Venue : Kurnool Medical College

Percutaneous long segment posterior fixation for L2 burst fracture: A minimally invasive approach

Dr.Sathi Venu Gopala Krishna Reddy -Postgraudate, Dr.Dheeraj Manikanta-Assistant prof, Dr.Nageswara Rao -HOD

Introduction

Burst fractures are caused by axial compression leading to failure of the anterior and middle columns, most commonly involving the thoracolumbar junction (T12–L2). They account for approximately10–20% of all spinal fractures and are associated with neurological compromise. Conservative management with bracing for stable fractures without neurological deficit. Surgical options include posterior short- or long-segment fixation, anterior reconstruction. In recent years, percutaneous posterior fixation has emerged as a minimally invasive alternative, offering adequate stabilization with reduced soft-tissue injury, blood loss, and faster recovery, particularly in unstable burst fractures.

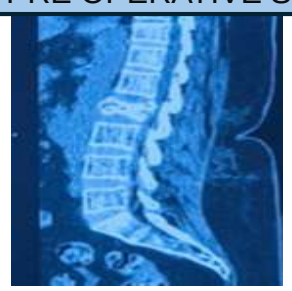
Materials

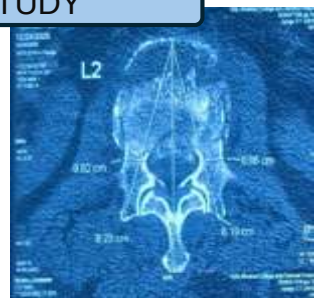
Case history: A 63 year old female came with complaints of Lower back ache since15 days radiating to bilateral lower limbs and unable to walk since then.A/H/O trauma fall at home 15 days back . K/C/O Diabetes since 15 years on medication. No sensory & motor deficits.

CT - BURST FRACTURE OF L2 VERTEBRA.

MRI - mild retropulsion of posterosuperior fracture fragment causing anterior thecal sac indentation.

PRE OPERATIVE STUDY



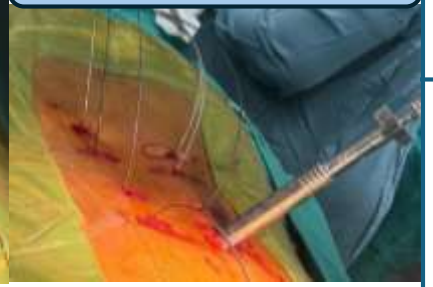


Methodology

PROCEDURE:

Under GA, patient placed in prone position longitudinal midline Level of surgery was marked with help of J needle pedicle entry was made at the **junction of TP and lateral border of pedicle from T12,L1,L3, L4**. Postion of J needle checked under C-arm tip should be at medial border of pedicle in AP and crossed the pedicle body junction in lateral view. Guide wire was passed, J needle removied .1-2 cm stab incisions was made later sequential dilators was passed.With last dilator and guide wire insitu the pedicle and body was tapped, Screw of size 6.5x45 and 140 mm rod(Thoraco-lumbar prebend) was placed from T12,L1,L3,L4. Final tightening was done. Wound closed in layer and dressing applied. Patient was extrubated and shifted to Post op

INTRAOPERATIVE PICS



Results

Percutaneous long-segment posterior fixation for thoracolumbar and L2 burst fractures report significant restoration of vertebral body height and correction of regional kyphosis with maintenance of alignment at follow-up

Discussion

Long-segment fixation for unstable burst fractures to enhance biomechanical stability and reduce screw pull-out and loss of correction. The percutaneous technique preserves posterior paraspinal musculature, limits soft-tissue injury, and achieves indirect canal decompression via ligamentotaxis.

Conclusion

Percutaneous long-segment posterior fixation is a safe and effective minimally invasive option for the management of unstable L2 burst fractures without major neurological deficit.

References

He B, Yan L, Zhao Q, et al. Minimally invasive long-segment posterior fixation for unstable thoracolumbar burst fractures: radiological and functional outcomes. Clin Spine Surg. 2023;36(2):E120–E127.

Zhang Y, Tang Y, Shen H, et al. Percutaneous versus open pedicle screw fixation for thoracolumbar burst fractures: a meta-analysis. J Orthop Surg Res. 2021;16:82.

ACKNOWLEDGEMENT

I sincerely thank **Dr.Dheeraj Manikanta-Assistant professor, Dr. V. Nageswara Rao-HOD** along with the faculty of Orthopaedics,spine surgery and the Department of Radiology, GSL Medical College & General Hospital, for their guidance and support.