Objectives: Thoracic spine is least mobile region of spine, lateral bending evenly distributed between vertebral segments, more axial rotation in upper thoracic spine, and more flexion/extension in lower thoracic spine. Minimally incision techniques, the use of bone graft substitutes and extenders, and computerized navigation strategies have contributed to enhance the safety, decreasing morbidity and generally improving outcomes.

Methods: This is a retrospective study to assess clinical outcome 23 patients thoracic spine disorder treated with thoracic spine fusion from Nov. 2006 to Jan. 2010. The diagnosis was thoracic spine disorders with HIVD, scoliosis, spinal tumor and fracture et al. We compared the pre- and post-operative Oswestry Disability Index, pain score (VAS), fusion rate and post-operative analgesic usage of those patients. It have good fusion rate (100%, 23/23).

Results: 23 patients (33 levels) operated by thoracic fixation (1 segment with 15 cases, 2 segments with 6 cases, and 3 segments with 2 cases) between age groups 18 to 95 years with thoracic spine disorders were included in this study. The mean postoperative follow-up period was 2.45 years. Excellent and good (78.4%) clinical results were obtained. Estimated blood loss averaged 746.94mL. The mean Oswestry Disability Index improved significantly from 58.3 before surgery to 14.9 after surgery and the mean of VAS improved significantly from 8.2 to 1.9 after surgery.

Conclusions: Percutaneous pedicle screw for degenerative spinal disorders is a reliable method of minimal invasive fixation with very low rate of operative complications. Guided by intraoperative fluoroscopic imaging and anatomic landmarks, thoracic pedicle screws can be placed safely. Percutaneous TLIF is an alternate of treatment chosen for thoracic spinal lesion.