Management of thoracolumbar burst fractures (AO A3) without neurological deficit is subject to debate in the literature. While TLICS provides guidance for injuries necessitating intervention, it makes little mention of best surgical approaches. Furthermore, intact patients with suspected posterior ligamentous complex injury (TLICS 4) compose an additional level of management uncertainty. Present study examined outcomes for TL burst fractures in neurologically intact patients with suspected disruption of the PLC treated with bracing, MIS, or open fixation and fusion.

687 consecutive trauma admissions with “thoracolumbar spine fracture” were retrospectively reviewed over 33 month period at a single tertiary care center. 50 burst fractures AO Type A3 were identified, of which 35 had adequate follow-up. Fracture morphology and segmental kyphosis were evaluated by x-ray or CT at last follow-up. Management decisions were made by 4 treating spine surgeons. Inclusion criteria was age>18, traumatic fracture, suspicion for PLC injury based on imaging, TLICS 4. Exclusion criteria was neurological deficit, patients lost to follow-up, force vectors in addition to the burst component.

20 patients were treated conservatively (mean f/u 2.6mo), 8 patients with percutaneous pedicle screw fixation (5 via 1 segment up and down, 3 via 2 segments up and down, mean f/u 4.2mo), 7 patients with open surgery (4 via 2 segments up and down, 3 via 1 segment up and down, mean f/u 7.7mo). At last radiographic follow-up, vertebral alignment remained stable in 75% (15/20), 100%, and 100% in 3 treatment groups, respectively. All patients maintained stable neurological examinations.

L1 was the most common level involved in all three groups. Patients treated conservatively were older and had a shorter duration of mean follow up, both reaching statistical significance (Table 2). Among the five treatment failures in the conservative group, 3 occurred at L1 and 2 occurred at L2.

Conservative management of thoracolumbar burst fractures without neurological deficit but suspected disruption of the PLC appears to be radiographically inferior to pedicle screw stabilization at short-term follow-up. Further trials are necessary to delineate long-term clinical outcomes as well as cost-effectiveness of minimally invasive versus open approaches for these injuries.