Thoracolumbar spine fracture surgery

Vertebral fractures in the thoracic and lumbar spine are usually stabilized by posterior short- or long-segment pedicle screw placement.

Indications

Thoracolumbar spine fracture treatment indications.

Thoracolumbar spine fracture surgery indications.

Techniques

Thoracolumbar spine fracture surgery techniques.

Case series

2017

A retrospective study included 61 consecutive patients with Thoracolumbar spine fractures treated from October 2010 to May 2014. Patients were divided into one of two groups: group A, intra-vertebral bone graft with balloon kyphoplasty (non-fusion surgery), and group B, traditional posterior fixation and fusion surgery. The Visual Analog Scale (VAS) was used preoperatively and at three months, one year, and two years. X-ray, CT, and MRI were performed preoperatively. X-rays were performed postoperatively at three months and two years. At 3 months after surgery, CT was used to confirm healing of the vertebral fracture.

All fractures in both groups were reduced successfully, and deformities were improved. After the removal of hardware in group A, ROM at the injury level recovered, and at 2 years, there was no loss of vertebral height or recurrence of deformity. There was no hardware failure in group A, but there was evidence of screw loosening in three screws in group B.

Non-fusion treatment of intra-vertebral bone graft assisted with balloon kyphoplasty demonstrated good fracture reduction, deformity correction, fracture healing, and ROM maintenance. There were no complications associated with the implant [1)].

A retrospective, case series study in the period from May 2011 to May 2014, in which eight patients with thoracolumbar burst fractures were treated surgically with corpectomy of fractured spinal body, placement of expandable box and fixation with transpedicular system, via posterior-only approach. Neurologic examination was done pre- and postoperatively with the ASIA score in a one year span. The angular deformity correction was also measured.

The mean age was 38 years (24 to 58 years); five male and three female patients. All the patients had burst fracture, one of them with aggregate rotational component. Only one vertebral level was worked with corpectomy in all patients. Mean surgical time was 236 minutes (195-330 min). Mean surgical bleeding was 1,731 ml.

Patients who underwent posterior approach corpectomy showed favorable clinical results. None presented neurological damage or surgical-related injury. This technique can be a useful option to avoid complications related to anterior vertebral approach or double approach [2].

1)
Zhang C, Ouyang B, Li P, Wang L, Luo L, Zhao C, Liu L, Tu B, Hou T, Arnold P, Zhou Q. A Retrospective Study of Thoracolumbar spine fractures Treated with Fixation and Non-fusion Surgery of Intra-vertebral Bone Graft Assisted with Balloon Kyphoplasty. World Neurosurg. 2017 Aug 24. pii: S1878-8750(17)31394-3. doi: 10.1016/j.wneu.2017.08.093. [Epub ahead of print] PubMed PMID: 28844910.
2)
De la Cruz-Álvarez S, Canales-Nájera JA, Hurtado-Padilla A, Guevara-Villazón F, Ledezma-Ledezma J. [Posterior corpectomy, transpedicular fixation and expandable cage placement in Thoracolumbar spine fractures]. Acta Ortop Mex. 2017 Mar-Apr;31(2):82-85. Spanish. PubMed PMID: 28840673.