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Short segment fixation of thoracolumbar fractures with pedicle fixation at the level of the fracture

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Thoracolumbar fractures are very frequent injuries, for both anatomical and biomechanical reasons. The most appropriate surgical treatment is still debatable. However, the main objectives are generally the restoration of segmental stability, correction of the deformity, decompression and protection of the neurological structures, and obtainment of rapid clinical–functional improvements. The purpose of this study was to evaluate the efficacy and safety of thoracolumbar fracture fixation performed with short segment posterior fixation and insertion of undersized screws inside the fractured vertebra. A prospective study was conducted among 80 patients that were treated after sustaining a thoracolumbar fracture from January 2010 to December 2017. The site of the fracture was dorsal in 35 cases, lumbar in 40 cases and multifocal in 5 cases. 58 patients were male and 22 females, with a mean age at diagnosis of 49.8 years. 42 patients were treated surgically using the studied technique (10 dorsal fractures and 32 lumbar). 38 patients were treated conservatively. At the clinical and instrumental follow-up, during a post-op period from a minimum of 6 months to a maximum of 18 months, the consolidation of the fracture was successfully achieved in all cases. In no case was there any worsening of the neurological situation or instrumental failure. In the presence of vertebral fractures of the thoracolumbar tract without neurological damage, the posterior surgical treatment with short segment construct and insertion of undersized screw inside the fractured vertebra without arthrodesis (fusion), permits consolidation of the fracture and allows a rapid functional recovery, with minimal incidence of complications.

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