Long-Term Results and Quality of Life After Thoracoscopic Anterior Stabilization for Thoracolumbar Fractures in Patients Without Spinal Cord Injury

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Purpose: In patients with severe traumatic thoracolumbar fractures, an insufficient load bearing capacity might require anterior stabilization in addition to posterior fixation. Traditional autologous bone grafts come with specific disadvantages such as increased operating time, donor site morbidity, nonunion, and fracture of the strut graft. A distractible titanium cage prevents these disadvantages and combined with anterolateral plating provides stability, maintains kyphosis correction, and prevents posterior implant failure. Minimally invasive thoracoscopy reduces approach-related morbidity but studies on thoracoscopic anterior stabilization are scarce and often report radiological and functional outcomes. Health-related quality of life (QOL), however, is an important outcome that has not yet been reported for this type of surgery.

Methods: This was a retrospective cohort study of patients treated between 2004-2012 in a university Level I trauma center. Patient and treatment characteristics were collected from the hospital information system. All available radiographic material was assessed for fracture characteristics and kyphosis at consecutive times. Patients were asked to fill in the Short Form-36 (SF)-36 and EuroQol (EQ)-5D QOL questionnaires at follow-up.

Results: Of 105 patients who were treated with a distractable cage, the procedure was performed thoracoscopically in 86 cases, including 16 patients with spinal cord injury. Of 70 eligible patients, 46 were available for follow-up and filled in the questionnaires. QOL was lower on most domains compared to the general population. Compared to patients who underwent only posterior fixation for less severe fractures, QOL did not differ significantly. The complication rate was low (10%), with 1 reoperation. The mean loss of correction was 6,8° and bony fusion on CT scan was present in 98% of patients at follow-up. The maintenance of kyphosis correction was significantly better for 2-segment anterolateral plating compared to 1 segment.

Conclusion: Thoracoscopic anterior stabilization with a distractable cage leads to a high percentage of bony fusion in highly unstable thoracolumbar fractures with limited loss of reduction and no hardware failure. Health-related QOL of these patients does not return to normal population values but is comparable to that of patients with less severe fractures treated with only posterior instrumentation. The procedure is technically safe with no reinterventions needed due to cage dislocation or implant failure and has a low complication rate.

See pages 401 - 442 for financial disclosure information.