Corpectomy and expandable cage implantation for A2 subaxial cervical spine injury: Analysis of outcomes with minimum 3 years follow-up

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Background: Segment stabilization is a priority in the surgical treatment of most traumatic injuries of the lower cervical spine in the presence of posttraumatic instability. Optimal stabilization procedure is still disputable.

Objective: to assess outcomes of corpectomy and telescopic expandable cage implantation with cervical plate fixation in patients with the uncomplicated A2 subaxial cervical spine injury.

Material and Methods: Authors reviewed charts and films of 75 patients (43 males, 32 females) mean age 32.5 years (range: 28-56 years) operated in acute period (1-11 days) of trauma within 2009-2012 years in Irkutsk Railway Hospital, that were available at least 3 year follow-up after surgery. All patients had traumatic instability of the cervical spine (5 or more points on modified White and Panjabi criteria) and ASIA E type injury (ASIA/ISCSCI). All patients had osteoligamentous lesion in anterior column (type A2) caused by motor vehicle accidents and diving. Electromyography showed minimal (n=54, 72 %) and moderate (n=21, 28 %) changes of f-wave and M-response in upper extremities before operation. MRI showed no signs of traumatic spinal cord injuries in all cases. Visual Analogue pain Scale (VAS), Macnab and Nurick scales were used to assess the pretreatment status and clinical outcomes. Functional X-rays and CT images were used to assess the fusion.

Results: One level corpectomy was performed in 41 (54.7 %), two levels in 24 (32 %), three levels in 10 (13.3 %) patients. Significant decrease of preoperative pain in cervical spine and in upper extremities was revealed after surgery was achieved at 3 years follow-up (mean VAS decreased from 71 to 12, p=0.015; and from 52 to 8, p=0.025 consequently). According to the Nurick scale 3 years after surgery full regress of symptoms was achieved in 64 (85.3%), 11 (14.7%) patients improved, no patient remained unchanged or get worse. Macnab results were excellent in 51 (68%), good in 24 (32%), no fair and poor cases. Fusion was achieved at 1 year follow-up in 61 (81.3%) cases, at 2 years – in 67 (89.3%), at 3 years – in 71 (94.7%) patients. Electromyography showed improvement of f-wave and M-response in upper extremities in 69 (92%) patients. There were no complications associated with corpectomy or implant itself but 4 postoperative surface wound infections and 3 hematomas which were successfully treated conservatively.

Conclusion: This retrospective review showed efficacy of anterior decompression and expandable cages implantation for the treatment of the patients with A2 uncomplicated subaxial cervical spine injury. The robust postoperative fixation allowed early rehabilitation without significant postoperative complications and 94.7% fusion rate at 3 years follow-up.

Acknowledgment:
With support from the Russian Scientific Foundation, project № 15-15-30037.