



## **SURGICAL METHODS OF TREATMENT OF COMPLICATED SPINE INJURIES UNDER EMERGENCY MEDICAL CARE.**

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**Relevance:** According to the literature, spinal injuries occur in 4 to 6% of all injuries of the musculoskeletal system. Of these, complicated spinal injuries account for about 36%. Clinical manifestations of complicated spinal injuries with the presence of paresis and paralysis necessarily require care, early activation and rehabilitation of the victims. The urgency of the problem is emphasized by the fact that complicated injuries are most common at a young, working age and lead to permanent disability, which, according to various authors, is up to 80% [3]. The outcome largely depends on the accuracy of execution and the choice of surgical tactics of treatment. [2, 3, 4, 5, 6, 7, 8].

Purpose of work: Analysis and improvement of the results of surgical treatment of complicated spinal injuries.

**Materials and methods:** The paper presents an analysis of the results of treatment of 58 patients with complicated trauma of the cervical, thoracic and lumbar spine, who were treated in the neurosurgical department of the Andijan branch of the Republican Scientific Center for Emergency Medical Care. There were 47 men (81.3%), 11 women (18.7%). Age of patients from 21 to 57 years. The main part of the patients were patients of working age - 42 (72.4%) patients. When distributing patients according to the type of injury received: household - 41 (70.6%),

street - 3 (5.1%), traffic accident - 9 (15.5%), sports - 3 (5.1%), industrial - 2 (3.4%) cases.

All examined patients underwent clinical-neurological, radiological, neurophysiological examinations, lumbar puncture and liquorodynamic tests. Morphological and biochemical examination of cerebrospinal fluid, ultrasound examination (ultrasound) of the abdominal and pleural cavities.

According to the level of spinal injury, they were distributed as follows: in the cervical region - in 13 (22.4%), thoracic - in 29 (50.0%), lumbar - in 16 (27.5%), of which a two-level fracture of the spine was observed - in 16 (27.5%) patients. Spinal injuries were categorized according to Magerl et.al. (1994): type A - in 26 (44.8%), B - in 17 (29.3%) and C - in 15 (25.8%) patients. The international Frankel/ASIA classification was used to assess neurological deficit. In group A - 17 (29.3%), B - 13 (22.4%), in group C - 22 (37.9%) and in group D - 6 (10.3%) patients.

The indications for surgery were the presence of complicated and unstable vertebral fractures.

In 13 patients (22.4 %) of the cervical spine with fracture-dislocations at the C3-C7 level, anterior interbody fusion with a cage was performed, followed by fixation of subsequent vertebrae with plates. The use of interbody fusion with a carbon implant in the form of a spacer and cages requires immobilization in the postoperative period for up to 3 months.



Rice. Fig. 1. Photospondylograms of patient V., 22 years old, operated on for complicated dislocation of the CVI vertebra a - before surgery (side view)

b - after reduction of the CVI vertebra

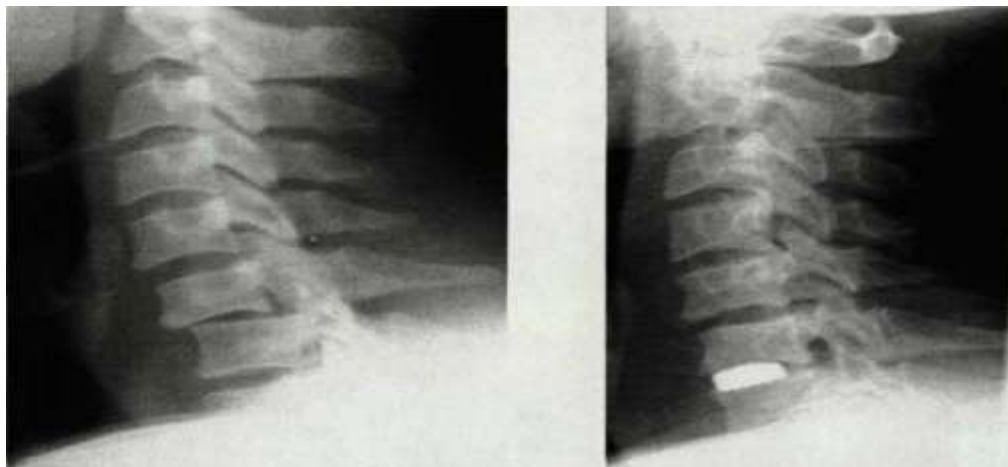


Figure 2. X-ray picture of patient G.: a - before surgery; b - 12 months after the operation.



Transpedicular fixation (TPF) in the thoracic region was performed in 29 (50.0%) patients. TPF with plasty of the body of the damaged spine was performed in 3 (5.1%) patients, vertebroplasty - in 4 (6.8%) patients. In patients with complicated trauma of the thoracic spine, laminectomy was performed at the level of 2 vertebrae and with revision of the epi- and subdural spaces and the spinal cord, using microsurgical techniques and instruments. The picture of spinal cord contusion with hematomyelia was detected in 23 (9.6%) patients and a complete anatomical break in 2 (0.8%) patients.

Surgical interventions in the transitional thoracolumbar and lumbar region were performed in 16 (27.5%) patients. Unilateral decompression with drowning of the resulting Urban wedge was performed in 13 (22.4%) patients. Laminectomy, revision of the epidural space of the spinal cord was performed in 3 (5.1%) patients with complicated injuries of the lumbar spine. Surgical interventions were completed with the installation of TPF systems in order to stabilize the damaged segment of the spine.

**Results and its discussion:** The dynamics of neurological symptoms after surgical treatment from 3 months to 1 year or more was assessed using the Frankel/ASIA scale. Positive results of treatment in the neurological status were noted in 41 (70.6%) patients, in 9 (15.5%) patients with injuries of the cervical spine and in 8 (13.7%) patients with injuries of the thoracic and lumbar spine. neurological symptoms remained unchanged. the most severe complications were in patients with spinal cord injuries above the level of the C4 vertebra. In patients which on the first day after the appearance there were ascending edema of the brainstem, respiratory failure, subsequently joined by a secondary infection, bedsores, sepsis with multiple organ failure. At the same time, for the revision of the contents of the subarachnoid space of the spinal cord, the presence of a syndrome of complete impairment of the conduction of the spinal cord with impaired patency of the subarachnoid space, confirmation of the MRI data, was found. From the quality of fixation of the spine and the timing of formation bone block depends on motor activity and subsequent rehabilitation of operated patients. Surgical treatment of complicated spinal fractures requires surgeons to pay special attention to the following task: decompression of the spinal cord, roots and blood vessels and reliable immobilization of the damaged segment, which allows for early activation, vertical and rehabilitation of patients. The indications for emergency surgery were: compression of the spinal cord and roots, an increase in neurological symptoms, and an unstable fracture of the spine.

**Findings:** 1. Surgical treatment for complicated injuries of the cervical spine associated with traumatic deformity should be carried out earlier after the injury, preferably in the first 6-24 hours.

2. The use of anterior interbody fusion with a cage provides reliable fixation for the entire period of bone block formation and does not require external immobilization, which leads to a significant reduction in the duration of inpatient and outpatient treatment.



3. Adequate decompression of the spinal cord and its roots with restoration of patency of the CSF tracts of the subarachnoid space of the spinal cord with reposition of the damaged segment, anterior corporodesis with transpedicular fixation of the thoracic and lumbar spine leads to regression of neurological symptoms and faster formation of a bone block.

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