



SURGICAL TREATMENT OF TRAUMATIC INJURIES OF THE THORACIC AND LUMBAR SPINE.

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Annotation: An analysis of various technical options for the treatment of 87 patients with traumatic stenosis of the spinal canal caused by injuries of the thoracolumbar spine is presented. Planning a technique for decompressing the dural sac requires a differentiated approach. Depending on the location and degree of damage to bone fragments and ligaments, as well as the severity of neurological disorders, the method of choice in complex operations on the anterior and posterior structures of the spine is a lateral out-of-cavitary access from a single incision, and in two-stage operations or low-traumatic operations - the introduction of bone and cartilage implants into the body of the damaged vertebra and their fixation in various ways.

Key words: spinal cord injury, stenosis, decompressive and stabilizing operations.

Among the injuries of the spinal column, the most frequently damaged

lower thoracic and lumbar regions — up to 45.2–67.7% of cases [1]. In explosive and compression-comminuted fractures, fragments of a broken body with the presence of cartilaginous interposites lead to stenosis of the spinal canal, disrupt the functional activity of the spinal cord and its roots that are sensitive to compression, causing neurological disorders [2]. Timely elimination of compressive factors, correction of spinal deformity and reliable primary stabilization of damaged segments using various surgical operations provide a more complete regression of impaired functions [3–6].

The aim of the study was to analyze various methods of treating patients with traumatic spinal canal stenosis with injuries of the thoracolumbar spine and to determine the optimal methods for decompressing the dural sac.

Material and methods: Under supervision are 87 patients (68 - 78.1% of men and 19 - 21.8% of women aged 18 to 59 years) with injuries of the thoracolumbar spine, accompanied by traumatic stenosis of the spinal canal. Rough stenosis according to CT or MRI is from 20 to 90% of the sagittal size of the spinal canal, local kyphosis in the injured spinal motion segments reached an average of 13.7°.

The universal classification of injuries of the thoracic and lumbar vertebrae was used to identify the type of damage to the spinal motion segment (SMS) [9]. 7 (8.04%) patients

had type A1 fractures, 17 (19.5%) - A2, 25 (28.7%) - A3, 7 (8.04%) - B1, 22 (25.8%) - B2, 5 (5.7%) - B3, 4 (4.5%) - C1, 5 (5.7%) - C2, 5 (5.7%) - C3. Damage to one segment of the PDS occurred in 73 (83.9%) and two - in 14 (26.1%) cases.

When assessing the neurological status in patients with spinal cord injury, the ASIA/ISCSCI scale was used, which allows assessing the functional state of the spinal cord and the degree of neurological symptom impairment. 7 (6.5%) patients had lower paraplegia with complete anesthesia from the level of damage and lack of sensitivity in the sacral segments S4-S5 (group A); 14 (22.4%) patients had lower paraplegia with preserved elements of sensitivity in the S4-S5 segments (group B); 34 (31.8%) - lower paraparesis (group C); 32 (39.3%) - slight lower paraparesis, radicular pain at the level of damage (group D). It should be noted that in patients there is a clear correlation between the severity of neurological symptoms and the type of vertebral fracture, there is no relationship between the level of the fracture (thoracic or lumbar) and the violation of the size of the spinal canal, leading to stenosis.

Conservative methods of treatment were applied in 29 patients, where relative stenosis of the spinal canal and unsharply pronounced neurological disorders regressing during the follow-up were required. Surgical intervention was performed in 78 patients (72.9%), in the acute period (49.7%), in the rest - from 3 to 10 days after injury. Ventral decompression with the installation of a cage and posterior fixation of the spine of the rod system (TPF) in 13 cases was performed from one incision by a lateral out-of-cavitary approach, in two stages, in 5 cases - by posterior and ventral access (first stage - laminectomy and TPF; second - ventral decompression and stabilization). Vertebroplasty, using the effect of ligamentotaxis and instrumental use of bone fragments were combined with transpedicular stabilization in 60 patients. After laminectomy and distraction of the damaged spinal motion segment with TPF, dosed compression was applied to the fragments with a spatula inserted through the device into the anterior epidural space. After completion of impregnation fragments of the device were removed, and the transpedicular structure was mounted on the other side. As with indirect decompression of the dural sac due to the effect of ligamentotaxis,

According to spondylograms and CT, the severity of fragments in the spinal canal and kyphotic deformity are observed. Visualization of the posterior longitudinal ligament of the middle supporting structure of the spine and surrounding elements of derivatives with Ultravist-240 contrasting of the anterior epidural space with a puncture needle inserted by a near-median approach along the inner-lateral surface of the spinal canal [11].

Results and discussion: Surgical interventions were performed in patients with severe neurological deficit and significant spinal canal stenosis and compression of the dural sac using anterior and posterior methods.



accesses (18 cases). Lateral out-of-cavitary access from one incision has access to the vertebral bodies and posterior elements of the spine. After placing the pedicle screws below the damaged vertebra and fixing the rod of the system, the bone fragments that had penetrated into the spinal canal were removed, a bed was prepared in the body of the broken vertebra, and a cage filled with bone chips or porous titanium nickelide was installed; the installation of the transpedicular structure was completed. Positive neurological symptoms were noted in 4 patients.

Traumatic stenosis of the spinal canal of universal use. In the presence of the posterior longitudinal ligament and the posterior part of the annulus fibrosus, impregnation in the body of a broken vertebra that has fallen into the spinal canal is revealed as a traumatic development of decompression based on indirect repositional reformation of the canal due to the effect of ligamentotaxis in the result of reaching the tension of the elements of the middle support structure. Warning about reducing injuries and surgical risk of occurrence, involves exposure to the vertebral body and opening of the spinal canal. If it is impossible to perform ligamentotaxis, due to the inconsistency of the elements of the middle supporting structure, a significant impregnation of bone fragments is realized using TPF systems. Thus, the surgical treatment of compression-comminuted thoracolumbar fractures with spinal stenosis requires a differentiated approach.

Depending on the occurrence and degree of damage to the bone structure and ligamentous apparatus, the severity of neurological symptoms, complications arise in the form of paresis and paralysis. Timely elimination of compressing factors, correction of spinal deformity and reliable primary stabilization of damaged segments using various surgical methods give positive results in terms of restoring the lost functions of the damaged spinal cord.

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