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Differentiated surgical treatment of cervical discs herniations

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Abstract: The variety of clinical manifestations and pathophysiological forms of development of compression syndromes at the level of the cervical spine with stenosis of the spinal canal of the cervical localization necessitates differentiated approaches to surgical treatment.

Osteochondrosis of the cervical spine ranks second after the lumbar spine and is often found among able-bodied patients aged 25–60 years. The danger of osteochondrosis of the cervical spine is associated with a high risk of developing myelopathies with severe neurological disorders, which leads to a deterioration in the quality of life and high disability [5]. Today, there are many methods of surgical treatment of hernias of the cervical spine - among them, anterior cervical discectomy with interbody fusion (anterior cervical discectomy and fusion (ACDF) is the "gold standard" for the treatment of patients with osteochondrosis of the cervical spine. The ACDF technique was first described in 1955 by Robinson and Smith [2, 4, 10], then modified in 1956 by Coward [9]. According to spine surgeons, the ACDF technique is technically simple and its correct use is not accompanied by the development of postoperative complications. At the same time, with the introduction of new implants and the development of the evidence base, the search for the optimal technique and the best implant for the treatment of osteochondrosis of the cervical spine is actively underway. Over the past ten years, so-called cage structures made of metal alloys have found widespread use in vertebral surgery for interbody fusion [2, 3, 8]. Obtaining initially reliable, optimal stabilization of the operated spinal motion segment, allowing the patient to be activated in the shortest possible time without external immobilization, is the main goal of stabilizing surgical treatment on the spine. The problem of reliable fixation is most closely related to the choice of surgical approach and material for interbody fusion [1, 6]. Cedge structures meet these requirements. Over the past ten years, so-called cage structures made of metal alloys have found widespread use in vertebral surgery for interbody fusion [7]. The use of cages has dramatically increased the effectiveness of the ACDF interbody fusion technique. Thus, the effectiveness of spinal fusion increased from 56% when using bone implants, to 93% when using cages [4]. According to a number of authors, decompression and stabilization operations on the cervical spine should pursue the following goals: 1) adequate and safe decompression of intracanal neurovascular formations; 2) stabilization of the affected spinal segment in a functionally advantageous position [6]; 3) installation of an interbody implant to restore the height of the interbody space [1,3, 4].

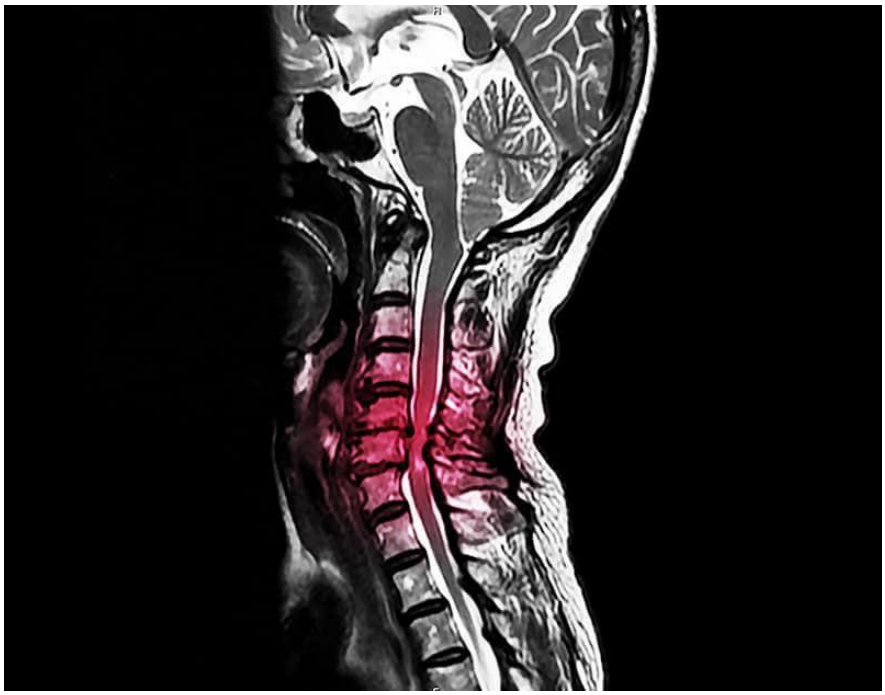
The purpose of this study is determination of the effectiveness of various options for precise differentiated surgical decompressions to eliminate the predominant clinical manifestations of the disease, depending on the nature and localization of morphological symptoms (degenerative changes in the cervical spine, post-traumatic disorders), the feasibility and necessity of using various methods fixation and stabilization.

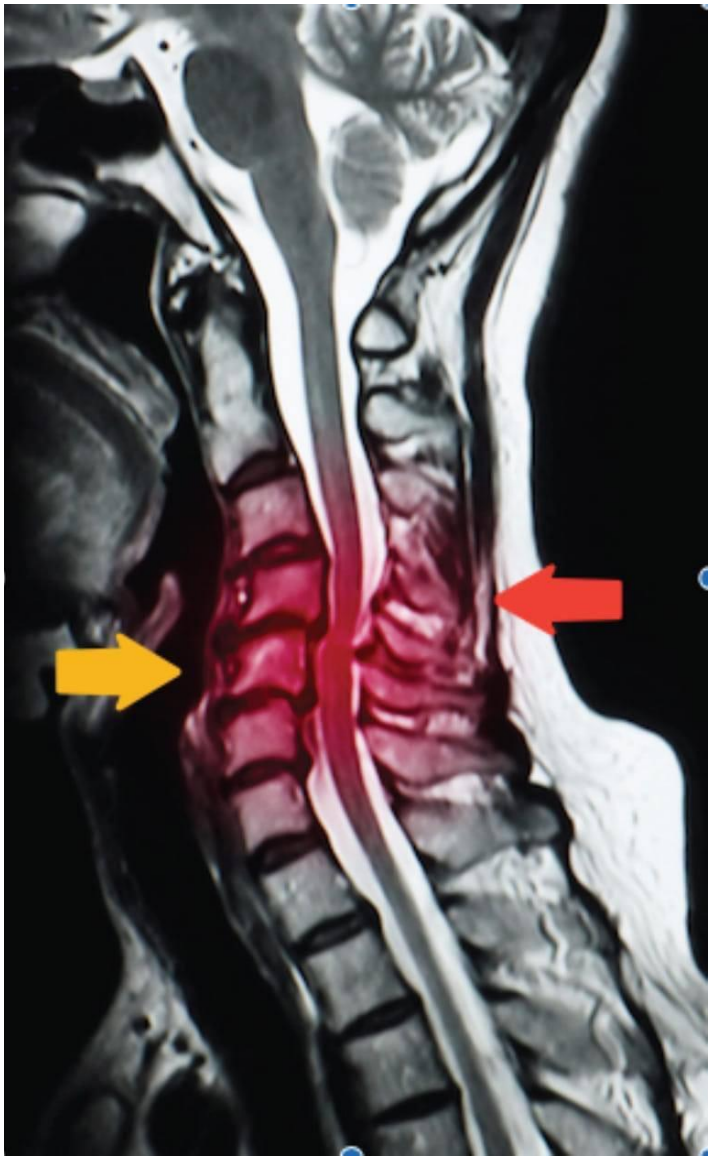
Materials and methods: Degenerative instability of the cervical spine
spine treated in the Department of Neurosurgery of the Multidisciplinary Clinic of Samarkand State

Medical University in the period 2022-2024. Of these, 41 are men and 16 are women. The average age of the patients was 42 years. Most of the patients were of working age - from 30 to 55 years. Distribution of patients by anatomical levels The yum of the pathological process is as follows: at the level of C3-C 4 - 5 patients (11%), C4-C 5 - 6 patients (10.7%), C5-C 6 - 26 patients (45.6%), C6–C 7 - 20 patients (35.%). Discogenic compression at one level was detected in 49 patients, at two levels - in 8. Myelopathy was detected in 33 patients and radiculopathy - in 14. All patients underwent a clinical examination (including neurological status), X-ray and tomographic (CT, MRI, MSCT) methods and electroneuromyographic studies. For the purpose of decompression of the spinal cord and nerve elements, all patients underwent surgical intervention involving anterior interbody decompression of the spinal canal with a crown cutter and interbody stabilization with a titanium cage of the cervical spine.

Results

Long-term results of treatment over a period of 1 to 5 years were studied in 57 patients after surgical treatment. The results of surgical treatment of cervical spinal stenosis were assessed in accordance with the Odom criteria, VAS and the Association of Japanese Orthopedists (for the leading syndrome of cervical myelopathy, the score was used la Japanese Orthopedic Association - JOA). They were assessed from the initial state according to the neurological status, the state of the musculoskeletal functions of the cervical spine, the position of the anatomical And biomechanical axis of the operated spinal motion segment. Long-term X-ray examination showed signs of interbody fusion in all patients. In accordance with the Odom criteria, an excellent result is considered to be the absence of all preoperative symptoms and pathological signs, which were observed in 18 (38%) patients in a separate period after surgery. A good result was considered to be minimal persistence of preoperative symptoms, improvement or persistence of pathological signs. A good result was obtained in 21 (44%) patients. A satisfactory result was found in 7 (15%) patients, which was characterized by a certain improvement in preoperative symptoms, other pathological signs did not change or improved slightly. An unsatisfactory result was obtained in 1 (4%) patient, whose symptoms and pathological signs of cervical spinal stenosis did not change. Results of pain assessment using a visual analogue scale (VAS). The results of the Japanese Orthopedic Association (JOA) neurological status assessment are shown in. As a clinical example, we present the following observation. Patient R., 54 years old, diagnosis: C5–C6 disc herniation. She has been ill for several years and has received conservative treatment several times. Objectively, the cervical lordosis is smoothed, the paravertebral muscles are tense, active movements in the cervical spine are limited, pain on palpation is at the level of C5–C6, pain spreads to the left upper limb. There is also a decrease in sensitivity in the zone of innervation C6 and muscle wasting. Tendon reflexes are reduced.





MRI and X-ray showed signs of osteochondrosis of the cervical spine. Cervical lordosis is

smoothed. Narrowing of the intervertebral space C5–C6. Herniated intervertebral disc C5–C6. Stenosis spinal canal at the level of C5–C6. A C5–C6 discectomy operation was performed, with stabilization of the spinal motion segment using a titanium cage. In the postoperative period, the wound heals by primary intention. External immobilization of the neck with a rigid corset for a period for 1 month. After 3 months there are no complaints. The formation of a bone-metal block is noted at the C5–C6 level. Complete regression of neurological symptoms, the spinal axis is normal.

Conclusions

Study of long-term results of surgical treatment of patients with degenerative-dystrophic disease of the cervical spine using the ACDF technique has shown high efficiency, reliability and safety of anterior decompression and stabilization with titanium cages. As a result of the operation, decompression of the neurovascular structures of the spinal canal was eliminated, stable fixation was achieved, and positive dynamics in neurological symptoms were noted. The technique of anterior cervical spine fusion is simple and effective and with minimal complications when correct execution.

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