ORTHOPEDIC ASPECTS OF SURGICAL TREATMENT OF THE PATIENTS WITH LUMBAR OSTEOCHONDROSIS

The paper discusses optimal, pathogenic, orthopedic surgical treatment for patients with osteochondrosis of the lumbosacral spine based on the analysis of clinical, anatomical and functional results of operative treatment. The observation included 272 patients undergoing surgery for poor primary interventions 78 (28.6%) (group A) and 194 (71.3%) patients initially applied for surgical treatment in view of orthopedic factors (group B).

The results of treatment were studied during period from 3 to 24 months. The dynamics of neurological status, pain intensity on visual analog scale and Oswestry index were studied. Instability of the segment, spinal stenosis and a damage of the form of the lumbosacral spine had the most influence on the outcome of treatment. There were proved the advantages of the current methods of surgical correction taking into account the orthopedic factors compared to traditional methods of treatment. There was obtained 97.4% of good and satisfactory results during the two-year follow-up.

Leading pathomorphological changes in lumbar osteochondrosis is spinal canal stenosis and segmental instability. Therefore, the optimal methods of surgical treatment of osteochondrosis should be recognized those which provide simultaneous resolving of the dual task - carrying out the decompression of neurovascular formations of the spinal canal and stabilizing the affected vertebral segment.

Keywords: Cytokine, interleukin, hypoxic-ischemic CNS pathology
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Introduction

The neurological symptoms of the lumbar osteochondrosis are most widespread among human chronic diseases. The share of this pathology accounts for 12-20% of all cases of the nervous system diseases and 60-70% in impairment of peripheral nervous system (Bogachev, 1997; Istrellov, 1998). According to the literature in the developed countries 1% of the population loses the working capacity because of a pain in the spine. Degenerative-dystrophic spinal diseases have prevailed among all orthopedic diseases in adults, accounting for more than 40% (Simonovich and Baykalov, 2004). Surgical treatment is required from 2 up to 12% of the patients (Krylov, Lebedev, Grin et al., 2001; Perlmutter, 2000; Hu, Jaglal, Axcell et al., 1997). The data of the Moscow Committee on Public Health Services show that the patients with hernia of lumbar spine account for 81% from all patients hospitalized due to degenerative-dystrophic diseases of the spine including 90.3% of the patients who underwent surgical treatment of the lumbosacral disk hernia (Istrellov, 1998). The rate of disability in spine degenerative diseases is four cases per 100 thousand people (Bogachev, 1997; Istrellov, 1998; Krylov et al., 2001). Diseases connected to osteochondrosis degenerative changes have been diagnosed with increasing frequency over the last 15-20 years; therefore the problems of their diagnosis, treatment and prevention have become a challenging task of the state priority (Istrellov, 1998).

The surgeries on the spinal duct root decompressions by removal of the fragments of intervertebral disk were widely applied in 40-50-s of the last century. Despite of positive nearest results of surgical interventions in the overwhelming majority of the patients, almost all researchers of this problem noted high frequency of unfavorable outcomes
(from 20 up to 50%) in the long-term period after operation (Bogachev, 1997; Istrelov, 1998; Krylov et al., 2001; Simonovich and Baykalov, 2004). The various interpretations of the features of clinical and radiological diagnosis quite often result in a choice of alternative methods of operative treatment, among which the traditional decompressive operations are the most widespread (Istrelov, 1998; Perlmutter, 2000; Simonovich and Baykalov, 2004). The unsatisfactory results of surgical treatment which require repeated operations may be explained by standard application of the same techniques of operations for the rather different groups of the patients (Krylov et al., 2001; Perlmutter, 2000; Simonovich and Baykalov, 2004; Hu, Jaglal, Axcell et al., 1997). The introduction into clinical practice of microsurgical technologies, high informative methods of radiological diagnostics, and improved methods of spine surgical stabilization have allowed significantly increase efficacy of the surgical treatment for last few years. At the same time the indications to various methods of surgical treatment have ranged widely. In opinion of the majority of the authoritative experts all over the world, the further progress of complex treatment of the patients with spine degenerative changes can be achieved only on ground of association of the efforts of neurosurgeons and orthopedists, introduction of advanced methods of diagnostics and operative treatment (Perlmutter, 2000). The analysis of the scientific literature testifies to necessity of differential approach to a choice of method of operative treatment in view of all factors of formation nervous - vascular compression, disturbance of stability of the damaged segments of the spine.

The purpose of research is on the basis of the analysis of clinical and anatomozfunctional results of operative treatment of the patients with lumbar osteochondrosis to develop and to introduce in clinical practice orthopedic approaches of surgical treatment for the patients of this category, which directed to correction and stabilization of the spine.

Materials and methods

There were studied the data of 272 (100%) patients with spinal osteochondrosis who received operative treatment in the Institute of Traumatology and Orthopedics (Uzbekistan) during the period from 2005 to 2009. Of them due to unsatisfactory primary interventions were 78 (28.6%) (group А) patients, and 194 (71.3%) patients were primary addressed for surgical treatment with orthopedic factors (group В).

We consider that topic identification of the leading and accompanying morphological and functional substrates of the recurrent symptoms or their preservation after primary as basis for successful repeated operations on the spine. For confirmation of the precise diagnosis there were used radiological, CT, MRT and MSCT methods.

The indications to repeated operations after removal of intervertebral disk hernia in the patients with lumbar osteochondrosis were the following:

- presence of root and neurogenic pains caused by recurrent hernia of the intervertebral disk or spinal channel degenerative stenosis without effect of conservative therapy
- persistent and resistant to conservative treatment pain syndrome, caused by segmental instability.

The analysis of results of traditional surgical treatment (group А) has allowed to establish basic pathogenic factors, which presence determined unsatisfactory anatomoz-functional outcomes; in particular, instability of the spinal segment - in 38 (48.7%) patients, spondiloarthrosis and spinal channel stenosis - in 31 (39.7%) patients and not removed or recurrent disk hernia - in 9 (11.5%) patients.

For stabilization of he spinal segments there were used implants from porous titanium nickelide, cages and transpedicular fixators of own development № (11) FAP 00398, (51) BА61В 17/58, (21) FAP 2008 0005 of 22.01.2008 and FAP 00425, FAP 20080027 of 23. 10. 2008.

The results of surgical treatment of relapses in patients repeatedly operated were studied during the follow-up period from 3 to 24 months after operation. There was evaluated
dynamics of neurological status, intensity of the pain syndrome by five-mark visual -
analog scale (VAS) and Oswestry index.

Results and their discussion

The most often reason of repeated operations in the patients with lumbar osteochondrosis
was instability and degenerative stenosis of the operated segment - in 69 (88.5%) patients.

Clinical observations

Patient E., 1973 of birth, had paramedian right-side intervertebral disk hernia at the level
L4-L5 with reflex pain syndrome. Interlaminar removal of the hernia and revision of the
spinal channel at the levels L4-L5, L5-SI were performed twice in 2006-2008. After the
first operation the patient noted improvement, however weakness of the right foot was
preserved. In 2007 the patient was performed total endoprosthesis of the right hip joint
due to cystic damage of the right hip joint. The endoprosthesis has been functioning
normally for today. In the end of 2008 after the second operation on the spine the patient
noted progressing, increasing and intensive pain in the sacro lumbar segment irradiating
into the right leg arising and enhancing during movement (at inclinations of head and at
movements of lower extremity). At the moment of examination the patient was arrested
on bed. The insignificant movements of trunk induced increase in pain. The weakness of
muscles and hypesthesia of the skin of ankle joint and foot were growing. The patient
often received narcotic analgesics. The lumbar lordosis was straightened, paravertebral
muscles were reflex tensioned and sharply tender at palpation. The Lasseg’s symptom was
positive by 10º, the force of back bending of the right foot was reduced to 2 numbers. On
the spondiograms and MRT the discogenic instability, degenerative arthrogenic stenosis
and signs of scary adhesive sciatica epiduritis were noted.

Figure 1. E. Patient’s spondiograms after twice operation at the level VL4

The patient was performed operation of bilateral extended interlaminectomy,
facetectomy, meningoradiculitis, posterior spondylodesis with implants from porous
titanium nickelide at the levels L4-L5, L5-SI and transpedicular fixation. The next day
after operation the pains in the lumbar spine and on the right lower extremity reduced.
Patient O., 1969 of birth, had the left-side paramedian disk hernia with compressive-ischemic radiculopathy. Removal of the hernia at the level L4-L5 was performed in 2006 at the regional centre of neurosurgery. In the postoperative period the patient noted short-term improvement, however, pains in the lumbar spine and weakness in the lower extremities was preserved. During all follow-up period the patient used semifixed corset and moved with use of crutches. Subsequently the pains in the sacro lumbar segment and muscle weakness in the lower extremities progressed. In 2007 in the regional neurosurgical department the patient was performed anterior extraperitoneal removal of hernia at the level L3-L4 with auto-osseous plasty (wrongly). After the second operation the patient did not feel any improvement. Repeatedly she received conservative treatment in clinic of Scientific Research Institute of Traumatology and Orthopedics of the Ministry of health of the Republic of Uzbekistan and at the place of residence. In April, 2008 in the clinic the patient was carried out the operation of repeated laminectomy VL5, left-hand hemilaminectomy VL4, revision of the spinal channel and decompression of nervous elements. After the third operation the patient began to feel short-term improvement. At attempt of walking she felt a strong pain in the lumbar segment and in the both lower extremities, as well as spine instability in the vertical position. Gradually pains and neurologic change intensified, and as a result the patient stopped walking. The control examination in 3 months showed the patient’s inability to go independently; the movements in the lumbar segment were sharply limited because of pain syndrome. The lumbar lordosis was straightened; paravertebral back muscles were intense bilaterally. The attempt of palpation examination induced sharp strengthening of a pain. The symptoms of tension were positive on the both parties, however more on the left side. The muscle force and the sensitivity were sharply reduced on the innervated zones VL4, VL5. Knee and Achilles reflexes were reduced more on the left, the force of extension of the left lower leg to 2 numbers. The function of the pelvis organs was partially damaged looking-like retardation. On the control roentgenography of CT and MRT there was noted rough scary adhesive process, degenerative stenosis of the spinal channel and instability of the operated segments.

The patient were performed bilateral extended laminectomy at the levels VL4-VL5, resection of the residual articular surfaces, decompression of the spinal channel, meningoradiculitis, posterior interbody stabilization with implants from porous titanium nickelide and installation of TPF system at levels VL4-VL5-VS1. After operation the patient began to go with the help of special device. She used semifixed corset. During control examination a year and a half later the movement in the sacro lumbar segment was
limited insignificantly, painless. There were no neurological disturbances. Metal construction functions well. The result is appreciated as good.

**Figure 3. Spondylograms of Patient O. after Performance of Interbody Spondylodesis VL4-VL5 with Implants from Porous Titanium Nickelide with Application of TPF**

Note: a - spondylograms after operation; b - MRT after ventral removal of disk VL3-4 (by mistake); c - spondylograms after posterior interbody spondylodesis VL4-VL5 with implants from porous titanium nickelide with application of TPF on VL4-VL5-VS1

*Patient C.*, date of birth 1950, had the paramedian hernia of disks VL4-VL5, VL5-VS with left-side radiculopathy, paresis of the right lower extremity and persistent pain syndrome associated with deformation and marked degenerative changes at the level VL4-VL5 with osteoarthrogenic inhibition. Removal of the disk hernia at the level VL4-VL5 was carried out in 2001. The control examination showed alignment of lumbar lordosis, paravertebral muscles were reflex stained and sharply painful at palpation. The symptoms of tension are positive on the both sides, tendon reflexes were weakened, and sensitivity is reduced on dermatome zones of VL5 root. The muscular force was sharply weakened on the right lower extremity and accounted for 2 numbers. The patient moves with the help of crutches. Marked degeneration of intervertebral disks was noted on the spondylograms, particularly at the level VL4-VL5. Intervertebral interval was sharply reduced; there were present regional bone growth and instability of the operated segment. MRT found secondary stenosis of the spinal channel at the levels VL2-VL3, VL3-4, VL4-5-VS1, recurrence of hernia at the level VL4-5 and not removed hernias at the level VL2-VL3, VL3-4. Dural bag and appropriate cerebrospinal roots were compressed by disk elements and there was determined rough scary adhesive process. There was marked lateral stenosis of the lateral recesses due to hypertrophic facet joints.
The patient was performed interlaminar removal of the disk hernia VL3-4, VL4-5 and extended interlaminectomy, medial facetectomy, recessusotomy, meningoradiculitis and posterior interbody spondylodesis cadge of clinic in combination with auto-osseous at the level VL4-5 in 2009. In 12 months after operation the patient could walking with use of one cane. The complaints to insignificant pains in lumbar segment and on the right leg were present. Force of muscles of the right leg up to 4 numbers was restored. The tendon reflexes were resuscitated, volume of the right lower leg and hip were increased. The sensitivity along dermatome zones of the both lower extremities was restored.

**FIGURE 4. SPONDYLOGRAMS OF PATIENT C.**

Note: a, b - spondylogram in direct and lateral view: there are marked degenerative changes in the intervertebral interval VL4-5; c - MRT, disk hernia VL3-4, VL4-5, inflammatory signs and vertebral body destruction; d, e - the postoperative state in 12 months later, there is good visible effect of intervertebral cadge and achieved correction preserved.

The results of analysis performed have shown that so-called orthopedic factors provide the greatest influence on outcome of treatment: intervertebral disk hernia incomplete removal, spinal channel stenosis, spondylitis and spondylodiscitis, postlaminectomy syndrome, instability, degenerative spondylolisthesis and disturbance of balance of the lumbosacral spinal site. The estimation of the dynamics of increasing above-mentioned signs has revealed that with time these pathological conditions were increasing due to progressing of degenerative-dystrophic changes and static disorders in the patients having expressed deformation of sacro lumbar spinal site as a lateral curvature and damage of sagittal profile. Analysis of anatomo-functional results of treatment with use of unitechnique traditional techniques has shown the main direction of the surgical treatment improvement of the patients with sacro lumbar osteochondrosis.

1. Performance of the complex preoperative examination of all factors of compression of the nervous-vascular structures of the spinal channel, level of the spinal channel
stenosis, definition of stability of the damaged and adjacent spinal-motor segments, recognition of the essential changes of the form and balance of spine.

2. Creation of the individual therapeutic-prophylactic programs of surgical treatment of the patients in view of character of impairment in each concrete case.

We present below the analysis of results from 194 patients (group В) primary addressed for surgical treatment with taking into account the orthopedic factors. The diagnostic arsenal included anamnesis data, functional spondylograms, CT, MRT and MSCT. There were used decompressive - in 146 (48.9%) patients, decompressive-stabilizing - in 31 (32.9%), and decompressive-stabilizing-reducing surgical interventions - in 17 (18.0%) patients. The basic indications for surgical treatment included such pathomorphological changes as disk hernia, degenerative stenosis, instability and degenerative spondylolisthesis. In 146 patients there were used decompressive operative interventions including microdiscectomy, interlaminectomy, extended interlaminectomy, hemilaminectomy. In all presented operative interventions according to the indications there was performed partial facetectomy, foraminotomy, etc. Out of 146 patients the good results were received - in 101 (69.17%) patients, satisfactory results - in 42 (28.76%) and unsatisfactory result - in 3 (2.05%) patients.

Decompressive-stabilizing operations were performed in 31 patients. All patients were carried out posterior interbody spondylodesis with use of metal cage of own development - in 17 patients and implants from porous titanium nickelide - in 14. The main indication to stabilizing operation was degenerative instability of spinal-motor segment. Five patients had posterior interbody spondylodesis combined with transpedicular fixation.

**Clinical observations**

*Patient E.*, date of birth 1954, had degenerative spondylolisthesis VL4 stage II with hernia of intervertebral disk VL4-VL5 and with compression L4 root. Extended interlaminar hernia removal of VL4-VL5 was performed, removal of the intervertebral disk hernia, posterior interbody spondylodesis with cages in combination with auto-osseous and transpedicular fixing. The patients during one month wore semi-fixed corset. Active working activity began three months later. At control examination 1.5 years later movement in the lumbosacral spinal segment were restricted insignificantly, painless. There were no neurological disorders. On the spondylograms there was noted formation of interbody osteometal spondylodesis. The result is appreciated as good (Figure 5).

![Figure 5. Characteristics of the radiological methods of investigation of patient E.](image-url)
Figure 5. Characteristics of the radiological methods of investigation of patient E.

Note: a - before operation: the degenerative spondylolisthesis VL4 was noted; b - MRT; c,d - after operation; e,f - two years after operation: development of interbody osteometal block.

Figure 6. Characteristics of the radiological methods of examination of patient P.

Note: a,b - functional spondylogram, discogenic instability at the level VL4-VL5; c - MRT, VL4-VL5 disk protrusion and stenosis of the spinal channel; d, e - the state after posterior interbody spondylodesis with cages in a year.

Patient P., 1951 of birth, had lumbosacral osteochondrosis with formation of the combined stenosis and disk hernia at the level VL3-4 and VL4-5, with pain vertebrogenic syndrome, syndrome of intermittent claudication and paresis of the right foot. There were
performed interlaminar removal of the disk VL3-4 hernia, bilateral extended interlaminectomy VL4-5, resection of the joint process, removal of a disk hernia and posterior interbody spondylodesis with two cages. After operation the patient used semi-fixed corset during one month. He returned to his professional activity three months later. The control examination in 1.5 years later showed the insignificant limitation and no pain in movements in lumbar site. There were not found neurological disorders. On the control MSCT of the spine there was noted formation of interbody bone-metal block. The result is appreciated as good (Figure 6).

Patient Sh., 1966 of birth, because of lumbosacral osteochondrosis with formation of hernia of disk VL5-VSI, degenerative retrolisthesis VL5, spinal channel stenosis, instability of the spinal-motor segment with persistent vertebrogenic and pain root syndrome on the right there was performed bilateral extended interlaminectomy VL5-VS1, partial resection of the joint processes, removal of disk hernia, decompression of the spinal channel, foraminotomy, posterior interbody spondylodesis with implant from porous titanium nickelid and stabilization with transpedicular system “Siluet”. During one month the patient wore semifixed corset. In three months has returned to the official duties. The control examination in two years after operation the movements in the lumbar site were limited insignificantly, at palpation without serious consequences. Neurological disorders were not found. The radiological examinations of the lumbosacral sites there were found formation of the interbody bone-metal block. The patient was satisfied with the result of operation and the result is appreciated as good (Figure 7).

**FIGURE 7. THE FEATURES OF THE RADIOLOGICAL METHODS OF INVESTIGATION AND MSCT OF PATIENT SH.**

Note: a, b - before operation: there is noted degenerative retrolisthesis VL%, disk VL4-VL5 hernia and stenosis of the spinal channel with neural compression; c - the state after PLIF and TPF; d - MSCT two years after operation, formation of the osseous-metal spondylodesis.
Results

The evaluation of the long-term results of complex, at the current neuroorthopedic level, surgical treatment of the patients with lumbosacral osteochondrosis convincingly has shown increase in frequency of good and satisfactory results reaching 97.4% by outcomes of the two-year-observation (Table 1).

**Table 1. The long-term results of surgical treatment of the spinal osteochondrosis, N (%)**

<table>
<thead>
<tr>
<th>Results of treatment</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>47 (60.3)</td>
<td>113 (58.3)</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>21 (26.9)</td>
<td>76 (39.1)</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>10 (12.8)</td>
<td>5 (2.6)</td>
</tr>
</tbody>
</table>

The majority of the patients felt sharp pain reduction in the lumbar spine and in the lower extremities the next day after operation. Nobody of the patients had no increase in pain syndrome that indicated about adequate decompression of the nervous-vascular formations and stabilization of spinal-motor segment.

Complications. Postoperative complications we divided into intraoperative and postoperative. During intraoperative period we frequently faced to hemorrhages from varicose epidural veins in 8 patients. The hemorrhage was stopped with tamponade using hydrogen peroxide and electrocoagulation very seldom. Partial damage of dural sac has taken place at 2 patients. This complication occurs during decompression of degenerative changed spinal channel with use of the Kerrison tool. The damaged site of the dural sac was closed by superficial flap of dorsolumbar fascia.

Regress of the pain syndrome was evaluated by 5-ball visual - analog scale (VAS), which is presented in Table 2.

**Table 2. Dynamics of the pain syndrome intensity by VAS after operation**

<table>
<thead>
<tr>
<th>Groups</th>
<th>Before surgery</th>
<th>Intensity of the pain syndrome by VAS from 0 to 5 balls</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>3</td>
<td>6-12</td>
</tr>
<tr>
<td>Group A</td>
<td>4.8±0.5 (n=78)</td>
<td>3.2±0.2 (n=74)</td>
</tr>
<tr>
<td>Group B</td>
<td>4.7±0.7 (n=194)</td>
<td>2.6±0.2 (n=191)</td>
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For an estimation of the functional disorders there was calculated the Oswestry index by scale from 0 up to 100%. The index values from 0 to 20% mean the minimal disorders, from 21 to 40% - moderate, 41 to 60% - heavy, from 61 to 80% - disability disorders; the values from 81 to 100% showed disorders arresting on bed. Changes of Oswestry index values after surgical intervention are given in Table 3.

In the postoperative period all the patients were performed radiological, CT and MSCT investigations. Radiological investigations have not revealed migration of titanium cages and signs of bone resorption around the implant in any case. According to the features of radiological investigations there was studied flexion-extension difference of segment angle at the level of intervention. The results obtained indicated that the average parameter of
segment angle at the level of intervention has not exceeded 5° and accounted on the average for 2.4±0.3°.

### Table 3. Changes of Oswestry Index Parameters in Operated Patients

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Before surgery</th>
<th>Oswestry Index, % (M±SD) after surgery, months</th>
</tr>
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<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Group A</td>
<td>71.31±8.52</td>
<td>39.78±7.81</td>
</tr>
<tr>
<td>(n=78)</td>
<td></td>
<td>(n=74)</td>
</tr>
<tr>
<td>Group B</td>
<td>69.23±8.31</td>
<td>18.43±7.12</td>
</tr>
<tr>
<td>(n=194)</td>
<td></td>
<td>(n=191)</td>
</tr>
</tbody>
</table>

The analysis of the long-term results of complex, orthopedic treatment of the patients with lumbar osteochondrosis has shown increase in frequency of good and satisfactory results reaching 97.4% on the basis of the results of two-years follow-up (tab. 1). In the patients who underwent operative treatment with orthopedic elements the parameters of instability of the spinal-motor segment and stenosis of the spinal channel were found 5.4 times less often than in group A. The dynamics of the pain syndrome intensity was decreased 3.7 times in the patients of group B in two years later and parameters of Oswestry index were 2.0 times lower.

Thus, the analysis performed indicated about high efficacy of the use of differentiated orthopedic approach to the treatment of patients with lumbosacral osteochondrosis. The results of research allowed establishing the basic pathological factors and reasons requiring surgical correction and determining outcome of treatment of the patients of the given category:

1. compression of the neurovascular hernia of the intervertebral disks
2. compression of these formations by bone spinal structure (stenosis)
3. degenerative or postoperative instability including degenerative spondylolistesis of the spinal segment
4. hypermobility of the spine segments
5. syndrome of the operated spine.

The correct estimation of the results of complex examination allows to define the purpose of operative intervention and to plan the individual program of surgical treatment in each concrete case.

### Conclusion

The main pathomorphological causes for occurrence of stable pain vertebral and root syndrome in the patients with lumbosacral osteochondrosis who were treated with traditional techniques, seem to be instability of the spinal-motor segments, spinal channel stenosis, recurrences of the pain syndromes after discectomy, scary adhesive epiduritis, disturbance of the spine balance or associations of these factors.

The operations with use of minimal approaches not breaking substantially stability of the damaged spinal segment and liquidating only local compression substrate are shown to the patients with the local forms of compressive lumbosacral radiculopathies in the wide interlaminar space and at young age. At the moderate and marked forms of lumbosacral osteochondrosis associated with stenosis of the spine channel, deformation and instability of the spinal segment there were recommended surgical interventions, laminectomy with regional medial reception of the joint processes with purpose of full decompression of the neural roots with use of interbody implants and transpedicular system.
At the case of lumbar osteochondrosis the main causes of the clinical symptoms appeared to be stenosis of the spine channel and segmental instability. Therefore optimum techniques of the surgical treatment of spine osteochondrosis should be recognized those methods which allow simultaneous resolution of dual task - to carry out decompression of the nervous - vascular changes in the spine and to stabilize damaged spinal segment. The decompressive-stabilizing operations which are carried out from the posterior approach allow more radical removal intervertebral disk, to perform decompression of the spine roots and to stabilize spine segment, creating basis for formation of bone and fibrous ankylosis. These operations allow achieving the best results of medical and social rehabilitation of the patients, than at usual discectomy by interlaminar approach.

References