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Research Article

OPTIMAL CHOICE OF SURGICAL TREATMENT FOR LUMBAR SPONDYLOLISTHESI

Submission Date: February 10, 2022, **Accepted Date:** February 20, 2022,

Published Date: February 28, 2022 |

Crossref doi: <https://doi.org/10.37547/TAJMSPR/Volume04Issue02-04>

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ABSTRACT

Spondylolisthesis occurs in 3-4% of the population and causes lumbosacral pain in 8-10% of cases. Spondylolisthesis can be caused by degenerative changes in the intervertebral disc and vertebral joints (degenerative spondylolisthesis) or by a defect in the joints that usually connect the vertebrae together. This defect can be congenital, i.e. based on spondylolysis (true spondylolisthesis) or develop as a result of trauma (posttraumatic spondylolisthesis). Lumbar spondylolisthesis is one of the most severe forms of spinal pathology.

KEYWORDS

Vertebrae, joints, Spondylolisthesis, spondylolysis.

INTRODUCTION

Purpose of the study: Choice of the optimal method for surgical treatment of lumbar spondylolisthesis.

Material and methods. Clinical observations of patients operated on at the spine injury department of the Republican Scientific-Practical Center of Traumatology and Orthopedics in Samarkand served as the material for the study. However, two-level lumbar spondylolysis and spondylolisthesis are rare. We studied 24 cases with this pathology. Of the patients with spondylolisthesis operated on in the clinic from 2008 to 2021, 24 patients with two-level lumbar spondylolysis and spondylolisthesis were included in the analyzed group. Middle-aged patients dominated, from (35-55 years -15), (55-70 years-9) patients, which was associated with heavy physical work, obesity, beginning of menopause in women. The predominance of men among the patients was insignificant - 9 (37.5%) and women - 15 (62.5%). The Japanese Orthopedic Association (JOA) scale and visual analogue scale (VAS) were used to assess preoperative and postoperative neurological function and back pain. Dual-level spondylolisthesis occurred at the L2/L3 and L3/L4 levels in one patient, at the L3/4 and L4/L5 levels in 11 patients, and at the L4/L5 and L5/S1 levels in 12 patients. The most frequent localization of double lumbar spondylolisthesis was L3-L5. Before surgery, patients underwent radiographs of the lumbar spine in lateral, flexion, and extension movements; sagittal computed tomography (CT); and magnetic resonance imaging (MRI). All patients underwent decompression, reposition, and posterior interbody fusion of the lumbar spine with autogenous bone shavings from the posterior decompression or cage. Patients were followed up for two years after surgery; meanwhile, intervertebral disc height was measured at follow-up, and all data were analyzed in

statistical analysis. After surgery, the main symptoms (neurological dysfunction and low back pain) improved significantly. Comparison of JOA and VAS scores indicated an effective recovery of neurological function ($p < 0.05$). Postoperative follow-up showed satisfactory interbody fusion and interarticular healing.

Two-stage decompressive-stabilizing surgeries consisted in removing the posterior-upper parts of the underlying vertebral body from the posterior access 3 to 36 months after the anterior interbody fusion. Posterior decompressive-stabilizing surgeries consisted of one-stage decompression and interbody stabilization by posterior access. During anterior stabilizing surgery, right retroperitoneal access to the bodies of lumbar vertebrae was performed, a discectomy was performed, and a bone autograft was tightly placed between the vertebral bodies. In cases of grade III-IV displacement, percutaneous Korzh spondylodesis was performed. Anterior decompressive stabilizing surgery consisted in removing the body of the underlying vertebra up to the dura mater (i.e., decompression) from retroperitoneal access followed by interbody fusion with autograft or some kind of implant (including porous nickel titanium).

RESULTS AND DISCUSSION

Analysis of the results of surgical treatment was performed in different terms of the postoperative period: early (up to 3 months), immediate (up to 6 months) and long-term (1 year and more). In the postoperative period, they underwent review radiography after 1, 3 and 6 months and after 1 year to monitor the postoperative effect and the rate of bone graft adhesion.

During the same periods, the dynamics of orthopedic and neurological symptoms regression, social rehabilitation of the patients were assessed, clinical and radiological comparisons were made, and the causes of errors and complications were analyzed. Radiological signs of graft remodeling in interbody fusion were evident as early as 3 months, forming a fibrous adhesion by 6 months and a bone block by 11.5 years of age. Analysis of the clinical results of surgical treatment of spondylolisthesis showed that the majority of patients (92%) had positive results in the long-term period. The study of the dynamics of recovery of neurological disorders indicates that the best results were observed in patients who underwent not only stabilization, but also targeted decompression of the spinal canal nerve structures. The orthopedic manifestations in the long-term period were characterized by restriction of movements in the lumbar spine associated mainly with internal stabilization of the spine and development of bone block.

The number of unsatisfactory results in the long-term period was 8%. The analysis showed that all patients had poor treatment results due to either technical or tactical errors. It follows that the development of correct indications for surgical interventions and their error-free execution can minimize the number of unsatisfactory outcomes, thereby improving the results of surgical treatment in patients with spondylolisthesis. The following complications occurred: delayed urination, temporary increase in

radicular symptoms, and suppuration of the surgical wound (1 patient). In the distant postoperative period, the main complications were associated with the progression or development of degenerative-dystrophic processes in the overlying segments of the spine. The results of surgical treatment of spondylolisthesis, despite the great successes achieved by domestic and foreign medicine, even according to the materials of leading clinics, are positive only in 80-85% of patients. The nature of the operation performed and the result of treatment undoubtedly depend on the localization, severity and prevalence of pathological changes in the spine, the nature of their relationship with the neural formations of this area. Differentiated application of various methods of surgical treatment of double-trunk spondylolisthesis with regard to the type and stage of the disease makes it possible to significantly increase the effectiveness of surgical treatment. It follows that the development of correct indications for surgical interventions and their error-free execution can reduce the number of unsatisfactory outcomes to a minimum, thus improving the results of surgical treatment of patients with bilobar spondylolisthesis. There is currently no doubt that decompressive-stabilizing surgeries are the operations of choice for two-level spondylolisthesis, aimed at eliminating the causes of neurologic symptoms and creating a bone block between the vertebrae at the level of displacement. We performed clinical and radiological examination before a) and after b) surgery. (Fig-1)

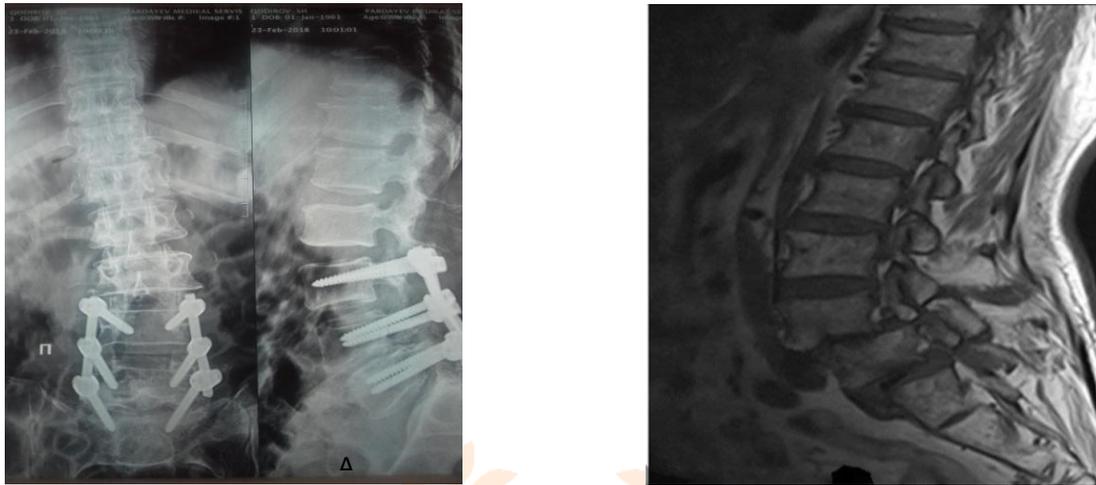


Fig.1. We performed clinical and radiological examination before a) and after b) surgery



Fig-2. Photo of the patient 6 months after spinal function surgery.

CONCLUSIONS

Thus, we can say that the results obtained allow us to conclude that the considered pathology of the spine requires close attention, since the spinal cord and its formations are involved in the pathological process. The results of treatment of patients with two-level lumbar spondylolisthesis allow us to consider it

clinically justified. The use of decompressive-stabilizing surgery with TPF (transpedicular fixator) helps to implement such tactics, which will significantly alleviate pain and reduce disability in patients and provide a good prognosis.

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