

The modified Wiltse approach for treatment of Extraforaminal Disc Herniation in the Lumbar Spine

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Introduction: Compression of spinal nerve roots by the extraforaminal herniation is a complex clinical case, which is difficult to diagnose using the only neurological examination. In 1971, MacNab described 2 cases of L5 spinal nerve root compression by L5 extraforaminal herniation at L5—S1 level after the unsuccessful surgical invasion at L4—L5. In 1974, Abdullah et al. first reported the syndrome of far lateral herniated discs. According to Hood, the extraforaminal disc herniation comprises from 2.8 to 10.0 % of all spinal disc herniations.

Material and Methods: A total of 3200 patients with the herniated lumbar intervertebral disc were operated on in the spinal division of the Federal Center of Neurosurgery (Novosibirsk) from September 2013 to December 2019. 55 (1.7 %) out of those, patients were diagnosed as having extraforaminal disc herniations. The group included 20 (36.4 %) males and 35 (63.6 %) females. The age of patients varied from 25 to 70 years old (mean 50.2 years old). In 50.9 % of cases, extraforaminal disc herniations were observed at L4—L5 level. Less frequent herniations were registered at the L5-S1 level (34.5 %) and L3-L4 level (14.6 %). The preoperative examination included: neurological, X-ray, MRI, VAS, ODI, MacNab. The follow-up period ranged from 12 to 48 months.

Results: In all cases, the preoperative conservative treatment was performed for 8 weeks (from 2 weeks to 12 months) and proven to be ineffective. The manifestation of the first radiculopathy symptoms ranged from 3 weeks to 6 months (3 months on average). According to VAS, the intensity of the pain syndrome before the surgery was 5.4/6 (5;7.8) points in the lumbar spine and 6.7/7 (6;7.8) points in the legs. The results of the preoperative radiography control with functional tests demonstrated no instability in patients. The assessment with White and Panjabi's criteria yielded 2.1/2 (1;2) points. During the early postoperative period, the pain syndrome became less intense and comprised 2.9/2 (2;3) points in the lumbar spine and 2.6/2 (2;3) points in the legs. According to patients' estimates, the average intensity of lumbar pain after 3 months decreased to 2.1/2 (1;3) points. After 48 months, this value descended to 2.1/2 (1;3) points. After 48 months following the surgery, the return of sensitivity was observed in 21 (38.2 %) out of 55 patients that had demonstrated sensitivity disorders before the operation. The paresis regression of the 3 to 5 levels was diagnosed in 10 cases, which comprised 18.2 % of all patients presented with movement disorders in the preoperative period. According to functional state evaluation performed with the Oswestry questionnaire after the surgery, the quality of life improved in all patients compared to the preoperative period. In the early postoperative period, the average Oswestry index decreased from 32.8/34.5 (28;37) to 18.2/19 (15;20) points; after 3 months it comprised 14.8/15 (12;16) points, whereas after 6 months – 9.8/10 (8;12). The results of MRI used as a control in the early postoperative period and 12 months after the surgery revealed no relapse at the operating levels. The X-ray examination performed with functional tests at 3 and 12 months after the surgery demonstrated no instability in the operated segment either. The instability assessment using White and Panjabi's criteria after 3 and 6 months yielded 2±1 points. According to the evaluation of clinical outcomes of the surgery carried out after 6 months using the modified MacNab criteria, 54.6 % of cases were classified as excellent, 32.8 % – as good, 9 % – as satisfactory, and 3.6 % - unsatisfactory. The average duration of surgery comprised 60.3±10.0 minutes. The blood loss varied from 30 to 150 ml (mean 52.8±30.0 ml). The early postoperative period proceeded without complications in all cases. The average hospital stay was 2.6 days.

Conclusion: The modified Wiltse approach is an effective surgery to remove extraforaminal herniation in the lumbar spine that allows one to achieve excellent and good treatment outcomes in 87 % of cases along with microsurgical techniques.

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Biography

Murodzhon Azamovich Kosimshoev is a Neurosurgeon in the Spinal Department at the Federal Center of Neurosurgery, Novosibirsk, Russia. In 2012 he graduated from the Tajik Medical University. Avicenna. In 2014 he graduated from the residency of the First Moscow State Medical University. THEM. Sechenov, specialty "Neurosurgery". In September 2016, he took part in a master's class on the treatment of chronic pain syndromes in the UK. He is a participant of the All-Russian scientific and practical conference of young scientists with international participation in "Tsivyanovskie readings" (2015, 2016). He participated in the Siberian Neurosurgical Congress (2016). Completed training and advanced training on the topic: "Modern methods of treatment of primary and metastatic tumors of the spine" in Moscow in June 2017. His professional interests include surgery of Degenerative Diseases of the Spine, Oncological Diseases and the consequences of injuries of the Spine, Spinal Cord.

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