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Minimum Two-year Follow-up of Cases with Recurrent Disc Herniation Treated with Microdecompression and Posterior Dynamic Transpedicular Stabilization

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Study design: Prospective clinical study.

Objective: To evaluate two-years clinical and radiological follow-up results of patients who were treated with micro-decompression and posterior dynamic transpedicular stabilization due to recurrent disc herniation.

Summary of background data: In re-operations of recurrent disc herniation usually disc tissues and soft tissues like facet joints, lamina, interspinous ligament are largely excised. Therefore, in cases that were treated with second operation due to recurrent disc herniation the risk of secondary segmental instability is high and low back pain and recurrent/persistent sciatica are common in the postoperative period. In this study, we report successful two-year follow-up clinical results of micro-decompression and posterior dynamic stabilization to patients with recurrent disc herniation.

Methods: We conducted micro decompression and posterior dynamic transpedicular stabilization (using a cosmic dynamic screw-rod system) to totally 42 cases (23 males, 17 females) with a diagnosis of recurrent disc herniation. Mean age of included patients was 49 years (range: 21-73 years). Patients were clinically and radiologically evaluated during the at least two-year follow-up period. Patients' postoperative clinical results and radiological outcomes were evaluated during the 3rd, 12th, and 24th months after surgery. Clinical results were evaluated by using the VAS and Oswestry scores. Measurements of the segmental lordosis angle (α), lumbar lordosis angle (LL) and intervertebral space (IVS) were used in the evaluation of patients' radiological results. Segmental angles were measured according to the Cobb technique. Implant insufficiencies, such as screw fracture or loosening, were recorded.

Results: 42 patients underwent rediscectomy and posterior dynamic stabilization and were followed for a mean of 41 months (range: 24-63 months). Both the Oswestry and VAS scores showed significant improvements two years postoperatively when in comparison to preoperative scores ($p < 0.05$). There were no significant differences between any of the three measured radiologic parameters (α , LL, IVS) after two years of follow-up ($p > 0.05$). We observed complications in two patients. Foreign body reaction was seen in the first patient. The patient was re-operated and dynamic stabilization system was removed. In the other patient low back pain and sciatica according to posterior dynamic transpedicular stabilization continued. Therefore, dynamic system was removed and fusion with rigid stabilization was performed.

Conclusion: Performing micro-decompression (rediscectomy) with posterior dynamic transpedicular stabilization after recurrent disc herniation decreases the risk of postoperative segmental instability. Consequently, frequency of failed back syndrome with low back pain and sciatica declines.