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RESULTS OF LUMBAR MICROSCOPIC DISCECTOMY

MİKROSKOPİK LOMBER DİSKEKTOMİ SONUÇLARI

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SUMMARY

Lumbar discectomy is the most common spinal surgical procedure, and the long-term outcomes are favorable, with high patient satisfaction. This article presents the outcomes of patients treated by lumbar microdiscectomy in our Orthopedic and Traumatology department. Clinical records were obtained for 38 patients who underwent discectomy between 2010 and 2012. Surgery was performed by one surgeon using the standardized technique of standard microdiscectomy.

Our findings reinforce the accepted surgical indications for lumbar microdiscectomy as an effective treatment for radicular leg pain recalcitrant to non-surgical management. Patients who have back and lower back pain with significant radiological signs of lumbar disc herniation can be treated using all treatment modalities of conservative and surgical treatment by spinal surgeons in orthopedic departments.

Key words: Lumbar disc herniation, microdiscectomy, surgical treatment

Level of evidence: Retrospective clinical study, Level III

ÖZET

Lomber diskektomi en sık yapılan spinal cerrahi ameliyatıdır, uzun dönem sonuçları iyidir ve yüksek hasta memnuniyeti ile birliktedir. Bu çalışmada, Ortopedi ve Travmatoloji kliniğimizde mikrodiskektomi yöntemiyle opere edilen hastaların sonuçlarını tartışmayı amaçladık. 2010-2012 yılları arasında diskektomi yöntemi ile tedavi edilen 38 hasta çalışmaya dahil edildi. Tüm hastalar standart mikroskopik diskektomi tekniğine uygun olarak tek bir cerrah tarafından ameliyat edildi.

Sonuçlarımız kabul edilen cerrahi endikasyonlar dahilinde standart lomber mikrodiskektominin konservatif tedaviye dirençli radiküler bacak ağrısı tedavisinde efektif bir metod olduğunu desteklemektedir. Bel ve bacak ağrısı olan ve radyolojik olarak lomber disk hernisi bulguları tespit edilen hastalar konservatif ve cerrahi tedavinin tüm yöntemleri ile ortopedi kliniklerinde spinal cerrahlar tarafından tedavi edilmektedir.

Anahtar Kelimeler: Lomber disk herniasyonu, mikrodiskektomi, cerrahi tedavi

Kanıt Düzeyi: Retrospektif klinik çalışma, Düzey III

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INTRODUCTION:

Lower back pain is the second most common reason after the common cold for patients to visit a physician, and many of these patients show disc pathologies[3,8]. Lumbar discectomy is the most common spinal surgery operation, and the long-term outcomes are favorable, with high patient satisfaction[1,5,15,20]. Although minimally invasive approaches, such as percutaneous nucleotomy and microendoscopy, have begun to be performed at high rates in recent years, standard discectomy is still preferred by many surgeons, and there are studies showing favorable long-term outcomes[4,6,9,12,13,16,17].

Lower back pain is one of the leading causes for application to Orthopedic and Traumatology clinics, and many of these patients have lumbar disc pathologies. However, the treatments for patients diagnosed with lumbar disc hernia who require surgical treatment are carried out in neurosurgery departments. In this study, we aim to discuss the results of patients who were admitted due to lower back pain to our clinic, who were diagnosed with LDH and received microdiscectomy.

MATERIALS AND METHODS:

38 patients treated with the standard microdiscectomy method between 2010 and 2012 were included in the study. Severe lower back and/or leg pain giving no response to three months of conservative treatment, positive root tension signs (pain between 30° and 70° during lifting leg or positive femoral tension test) or accompanying neurological deficit (asymmetrically decreased reflex, increased sensitivity in one dermatome, muscle loss in one myotome) were determined as the surgical treatment criteria. In all cases, disc herniation compatible with the levels and side of clinical symptoms was detected by MRI (Figure-1).

Figure-1. Preoperative axial MRI.

Patients with more than one disc herniation were included in the study if only one level was symptomatic. Patients with structural scoliosis of more than 15°, segmental instability (angular movement more than 10° or translation more than 4 mm), spondylolisthesis, spinal infections or tumors were excluded.

The study group was composed of 23 men and 15 women. The mean age was 35.4 (18–56) years and the mean follow-up period was 10.1 (6–24) months. The mean period of preoperative symptoms of lower back and leg pain was 6.8 months (6 weeks–4 years). Disc hernias were detected at the L3–4 level in one patient, at the L4–5 level in 20 patients, and at the L5–S1 level in 17 patients. During surgery, extrusion and sequestration were detected in 22 and 16 patients, respectively. There was radicular leg pain resistant to conservative treatment in 24 patients, and there was neurological deficit in 14 patients during application. While lower leg pain was detected in two patients with neurological deficits, toe extension with various degrees or a reduction in ankle dorsiflexion strength was observed in eight patients, and reduction in plantar flexion strength was detected in four patients. One patient who previously received lumbar discectomy surgery in a different center received repeat surgery due to recurrence at the same level. The patients were evaluated according to the VAS (Visual Analog Scale) and ODI (Oswestry Disability Index) at three and six weeks preoperatively and postoperatively, three and six months preoperatively and postoperatively, and one year preoperatively and postoperatively.

Figure-2. Postoperative axial MRI of the same patient.

All patients received surgery compatible with the standard microscopic discectomy technique by a single surgeon.

Herniated disc excision was performed by eliminating the root after partial lamina resection under a microscope (Figure-2). The remaining nucleus in the disc space was preserved if possible.

The mean hospitalization period was 1.3 (0–2) days. At one day postoperatively, all patients were mobilized. Three weeks after the operation, the patients were allowed to perform daily activities, excluding left and right bending, twisting, lifting a weight of 10 kg or more from a surface, and high exertion activities. Lumbar stretching and muscle extension exercises were also taught. At the end of the six week follow-up, these limitations were removed and the patients were encouraged to begin brisk walking, straight jogging, exercises with weights or against resistance, and other activities.

RESULTS:

While the preoperative mean VAS score was 8.7 (7–9), the postoperative mean score was 2.8 (2–4) at week 3 and 1.7 (0–3) at month 6 ($p<0.05$). An increase of more than three points in the VAS scores was detected at a rate of 86% (33 patients). While the preoperative mean ODI score was 64.2 (48–70), the postoperative mean was 22.4 (18–46) at week 3 and 18 (12–36) at month 6 ($p<0.05$). In 89% of the patients (34 patients), an increase of more than 25% in the ODI scores was recorded. A positive correlation between patient satisfaction and the scoring results was obtained.

One of the two patients with lower leg pain had completely recovered by the second month postoperatively, while the other patient remained the same postoperatively. Eight patients with various degrees of neurological deficits in toe extension and ankle dorsiflexion completely recovered in the follow-up period. For four patients with weakness in ankle plantar flexion, muscle strength was recovered by the second month postoperatively. Dura damage occurred in one patient who received surgery due to recurrent disc hernia, and this completely recovered with three days of bed rest. For two patients, epidural fibrosis was present in an MRI taken at the second month postoperatively, and their complaints reduced after transforaminal steroid injection.

DISCUSSION:

Surgical treatment is considered when conservative treatments are insufficient. Only 10% of patients are subjected to surgical treatment[10]. Mixter and Barr, who first performed a discectomy operation, reported that the success and failure ratio of discectomy was 50/50[2]. In the following years, discectomy has begun to be performed with minimal anatomical damage, due to the addition of the use of a microscope developed by Caspar and Yaşargil, and more successful results are increasingly being published[2,19]. Standard microdiscectomy retains its place as a gold-standard treatment for disc hernia, with small changes in the surgical technique. Although successful results have been published for microendoscopic discectomy in recent years, no superiority to microdiscectomy could be shown in controlled studies[11].

In cases of leg pain for more than three months that gave no response to conservative treatments and had LDH detected with imaging systems, it has been demonstrated that surgical treatment is superior to conservative treatment in terms of the improvement of symptoms and recovery of the functional capacity[18]. In our study, significant increases in the VAS and ODI scores were observed after surgery, showing a correlation with the rates of postoperative improvement in the patients. Our results support the suggestion that standard lumbar microdiscectomy is an effective method for the treatment of radicular leg pain with surgical indications, and are compatible with previously-published studies[14].

In Turkey, almost all studies on microscopic lumbar discectomy have been successfully carried out in neurosurgery clinics with low complication rates, and in recent years, spine surgeons from an orthopedic background increasingly prefer microscopic discectomy. In this study, we discussed the results of patients treated in orthopedic clinics with microscopic discectomy. As discussed above, our results and complication rates are parallel with the literature.

In conclusion, LDH, the most common reason for application to orthopedic clinics, can be treated with treatment methods including conservative treatment, minimally invasive approaches (transforaminal steroid injection), and microlumbar discectomy in orthopedic clinics with the necessary experience, without extra morbidity.

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