LUMBAR DISC SURGERY: A REPORT OF 1384 CASES *

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ABSTRACT :

In this retrospective study, we presented 1384 cases with lumbar discal hernia who were treated surgically in the department of Neurosurgery, Dokuz Eylül University, Faculty of Medicine. The mean age was 43.9 (15-83) and 710 were male. 943 and 296 cases were operated because of unilevel and multilevel discal lumbar hernia respectively. 127 of the cases had spinal stenosis and 18 had spondylolisthesis co-existing with lumbar discal hernia. 98 of the cases underwent 125 re-operations because of fibrosis, recurrencis or new disc disease at another level, CSF fistulas and revision of the surgical incision.

The surgical results of these cases were discussed under the view of the literature.

Key words: *lumbar spine, intervertebral disc, surgical treatment*

INTRODUCTION

Lumbar disc surgery is the most commonly performed neurosurgical procedure. The modern era of operative treatment of the ruptured intervertebral disc was presented by Mixter and Barr in 1933 (17). Following this, operative assault on the intervertebral disc won widespread acceptance. However valid indications for operative treatment of a patient who has herniation of a lumbar disc are still elusive and the results of such treatment have been inconsistent (15). The most important consideration affecting the outcome of the lumbar disc surgery is patient selection (13). Generally five clinical criteria have been accepted as indications for lumbar discectomy (14, 15).

1. Impaired function of the bladder or bowel
2. Progressive motor weakness
3. Objective evidence of increasing impairment of nerve-root conduction, despite complete bed rest
4. Severe sciatic pain which persists or increases despite complete bed rest
5. Recurrent incapacitating episodes of sciatic pain.

In patients who have sciatica, inappropriate selection for initial lumbar discectomy is a major contributor to the development of chronic low-back pain. In this retrospective study; we present our results of discal hernia operations as well as our clinical and operative experience on the lumbar disc surgery.

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MATERIAL AND METHODS

Clinical information for 1384 patients operated on between 1984 and 1995 was obtained by reviewing the hospital records of the Department of Neurosurgery. Most of the patients had been attended with back and/or leg pain. The patients' ages ranged from 15 to 83 years, with a mean age of 43.9. There were 710 males (51.3 %) and 674 females (48.7 %). 1509 operations were performed in this patient group. 125 of these were re-operations because of fibrosis, recurrenses or new disc disease at another level, CSF fistula and surgical incision revision. In patients with unilevel disc herniation, 943 (68.1 %) operations were performed 296 (21.4 %) operations were done performed for multilevel herniations. We also performed operations for spinal stenosis (127 cases - 9.2 %) and lumbar disc herniation + lysthesis (18 cases - 1.3 %). All of the patients were followed-up periodically up to date.

RESULTS

The most frequent preoperative neurological complaint was back pain with sciatic radiation in one leg, which occured in 1073 (77.5 %) patients. In addition, there were 686 (49.5 %) patients whose symptoms were aggravated by coughing, sneezing, or an increase in intra-abdominal pressure. The mean duration of symptoms prior to surgery was 9.7 months.

The most common neurological finding was impaired straight-leg raising. This was observed in 986 (71.2 %) patients. A preoperative foot drop, dorsiflexion weakness of foot and toes to 2/5 strength or less was found 91 (6.6 %) of the patients. Sensory loss was present in 854 (61.7 %) of them.

Lumbar disc herniations occured most frequently at L5-S1 (47 %), L4-5 (44 %) and was rare at other levels in our patient groups.

Among 98 (7.1 %) patients who went re-operation, neurological deterioration in early post-operative period was seen in 14 (1.0 %) patients. They all went early re-exploration because of excessive pain and/or new neurological deficit. The causes of re-operation causes in other patients were; fibrosis in 53 (3.8 %) cases; recurrence of disc disease at the same level in 24 (1.7 %) patients and new disc disease at another level in 26 (1.8 %) patients, CSF fistula in 4 (0.3 %) patients, surgical incision revision in 2 (0.1 %) patients.

Post-operative complications developed in 52 patients (3.8 %) and the most common complications were discitis in 17 (1.2 %) and wound infection in 6 (0.4 %) patients.

DISCUSSION

Lumbar disc disease is a common disease but the treatment modalities and the results differ widely. There are a number of recorded results of operative treatment of this disease. The percentages vary, but approximately two thirds of patients can be considered to have good results, half of the remaining are improved, and half are not (8, 9, 17).

The most important factor affecting the surgical results is the patient selection. In general, patients with clear-cut indications for operation do well, whereas those with dubious clinical or radiographic signs tend to have a high incidence of recurrent problems. In most series, 5% of the patients have been qualified as having a failed back sydrome who have not returned to work and required analgesics regulary and additional surgical procedures (5, 9). The American Association of Neurological Surgeons (AANS) and The American Academy of Orthopedic Surgeons (AAOS) criterias are used as re-operation criteries in our department. These are (10, 12):

1. Pain in spite of adequete medical treatment.
2. Neuroradiologically neural tissue compression and/or instability
3. Radicular radiating pain
4. Motor deficits which are appropriate with radiological findings.
5. Sensory deficits which are appropriate with radiological findings.
6. Absent or diminished reflex findings which are appropriate with radiological findings.

North, in his study about the re-operation has advocated decompression with aggressive disc and granulation tissue excision, foraminatomy without fasetectomy and if instability is suspected, he added adequite surgical procedures for this event. In his reoperation series, he applied discectomy in 24 %, foraminectomy in 50%, scar excision in 28%, fusion with iliac crest auto-grafts in 27 % (12) of the patients. It has been reported that success rates are high because of recurrent disc herniation or new discal hernia at another level in early re-operations, but late period re-operations are mainly done because of fibrosis or new recurrent small discal hernias and the succes rates are lower (2, 7, 10, 12). In our series 98 patients underwent re-operation because of rezidive disc material, inadequite decompression (especially bone fragments) in the first procedure, and fibrosis.

The surgical complications are mainly discitis, wound infection and CSF leakage (4, 16, 17). In order to reduce to per and post-operative complications, some surgical procedures are being applied. Microsurgical decompression is one of them and have some advantages over the standart technique. The incision is smaller, trauma to lumbar musculature is lower. In this way deep structures can be identified easily and manipulation to neural structures are lesser (3). On the other hand, percutaneus endoscopic discectomy appears to offer an alternative to microdiscectomy for patients with 'contained' and small subligamenteus lumbar disc herniations (11). In 204 patients, microdiscectomy is applied as similar to standart procedure and the dural tear and CSF fistula rates were significantly lower in this group. We use prophylactic antibiotics post-operatively to lower the infection rates.

Instability is a major problem in lumbar disc disease (1, 6). We treated 18 (1.2%) cases with lumbar disc disease and lysthesis. 8 Alıcı posterior spinal instrument and 10 interbody fusion procedures were applied. None of our patients revealed post-operatively instability criteria with radiographic examinations therefore in our opinion fusion procedures with or without instrumentation should be limited which can increase morbidity.

As a result, we believe that the patient selection for surgery in lumbar disc disease is very important and affect the outcome of the surgery, microdiscectomy can be performed to reduce the operative complications.

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