



ANALYSIS OF LUMBAR DISCECTOMY OPERATIONS

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ABSTRACT

Objective: The aim of the study is to analyse the lumbar discectomy operations in one year.

Materials and Method: We inspected 240 patients who were operated for lumbar disc herniation between January-2017 and January-2018 at Özel Aile Hospital Neurosurgery Clinic. The parameters that evaluated are the level of discopathy, side of the disc herniation, recurrent or first operation and type of surgery.

Results: A total of 240 patients were included in the analyses. Mean age of the patients was 48±12,8 years, and M/F was 134/106 (55.8 % vs. 44.2 %). Most frequent levels of operation were L4-5 (n=128, 53.3 %), L5-S1 (n=64; 26.7 %), and L3-4 (n=18, 7.5 %). About 53.3 % of cases had operation on the left side, 44.2 % had on the right side, and 2.5% had bilateral operation. First-time operation was present in 90.4 %, and 6.3 % had operation for recurrent disease. Majority of the patients (n=209, 87.1 %) had microdiscectomy operation.

Conclusions: Lumbar microdiscectomy is the gold standart and most preferred surgical treatment modality on herniated lumbar degenerative disc diseases.

Key Words: Lumbar microdiscectomy, Lumbar disc herniation, Analyse of lumbar disc herniations

Level of Evidence: Retrospective Clinical Study, Level III

INTRODUCTION

The most common cause of low back pain is lumbar degenerative disc disease is. Herniation of nucleus pulposus is the commonest indication for lumbar spine surgery ⁽¹¹⁾. Lumbar discectomy indications include neurological deficit causing weakness of functionally important muscles, cauda equina syndrome and progressive neurological deficit in spite of conservative treatment ⁽⁹⁾. Relative indications for discectomy include persistent pain refractory to conservative care and pain that adversely affects the quality of life ⁽¹¹⁾. In 1977, Caspar and Williams described a surgical microdiscectomy technique ^(3,14).

The prevalence of symptomatic herniated lumbar disc is about 1–3 %, with the highest prevalence among people aged 30–50 years ⁽⁵⁾. Annually, it is estimated that 2.75 out of 1000 people with episodes of low back pain will suffer an episode of

hospitalization ⁽⁴⁾. Along with this, the number of lumbar spine surgeries has been increasing during the last 20 years, which also leads to an increase in hospital costs and complications related to surgery ⁽¹⁾. Surgery is indicated when conservative treatment fails ⁽¹³⁾. Traditionally, the accepted surgical treatment has been discectomy ⁽¹²⁾.

The aim of the study is to analyze the lumbar discectomy operations in one year with the parameters of level of discopathy, side of the disc herniation, recurrent or first operation and type of surgery.

MATERIALS AND METHODS

We inspected 240 patients who were operated for lumbar disc herniation between Jan-2017 and Jan-2018. The information's were collected from the patients file achieves retrospectively. Radiological data were inspected from the

PACS system. The parameters that evaluated are the level of discopathy, side of the disc herniation, recurrent or first operation and type of surgery.

Statistical Analyses

Descriptive data were presented using mean and standard deviation, and frequencies and percent. Chi-square and Mann-Whitney U tests were used for comparisons between the independent groups of the study, and statistical significance was evaluated according to a two-sided Type-I error level of 5%. Statistical Package for the Social Sciences (SPSS) 21 software (IBM Corp. in Armonk, NY) was used for all statistical analyses of this research.

RESULTS

A total of 240 patients were included in the analyses. General demographic information of the patients are shown in Table-1. Mean age of the patients was $48 \pm 12,8$ years, and M/F was 134/106 (55.8 % vs. 44.2 %). Most frequent levels of operation were L4-5 (n=128, 53.3 %), L5-S1 (n=64; 26.7 %), and L3-4 (n=18, 7.5 %). About 53.3 % of cases had operation on the left side, 44.2 % had on the right side, and 2.5% had

bilateral operation. First-time operation was present in 90.4 %, and 6.3 % had operation for recurrent disease. Majority of the patients (n=209, 87.1 %) had

Comparisons between genders revealed that the mean age of males was 46.8 ± 12.6 years, and mean age of females was 49.5 ± 13 years. Age distribution was similar between genders (p=0.10). Most frequent levels of operation were L4-5 (n=73, 54.5 %) and L5-S1 (n=36; 26.9 %) in males, and L4-5 (n=55, 51.9 %) and L5-S1 (n=28; 26.4 %) in females. Distribution of levels of operation was similar between genders (p=0.69). For males, 53 % of cases had operation on the left side, 45.5 % had on the right side, and 1.5 % had bilateral operation. For females, 53.8 % of cases had operation on the left side, 42.5 % had on the right side, and 3.8 % had bilateral operation. Distribution of sides of the operation was similar between genders (p=0.51). First-time operation was present in 89.6 % and 91.5 %, and operation for recurrence was present in 8.2 % and 3.8 % of the males and females, respectively. Distribution of cause of operation was similar between genders (p=0.34). Majority of the patients (88.8 % of males and 84.9 % of females) had microdiscectomy operation, and the distribution was similar (p=0.39)(Table-2).

Table-1. General demographics of the patients

	Mean	SD
	n	%
Age (years)	48	12.8
Sex		
<i>Male</i>	134	55.8
<i>Female</i>	106	44.2
Lumbar disc level		
<i>L4-5</i>	128	53.3
<i>L5-S1</i>	64	26.7
<i>L3-4</i>	18	7.5
<i>L3-4, L4-5</i>	13	5.4
<i>L4-5, L5-S1</i>	11	4.6
<i>Other</i>	6	2.5
Side		
<i>Left</i>	128	53.3
<i>Right</i>	106	44.2
<i>Bilateral</i>	6	2.5
First or recurrent disease		
<i>First</i>	217	90.4
<i>Recurrence</i>	15	6.3
Operation type		
<i>Microdiscectomy</i>	209	87.1
<i>Other/combined</i>	31	1.3

Table-2. General clinical features according to gender of the patients.

	Males		Females		P
	Mean	SD	Mean	SD	
Age (years)	46.8	12.6	49.5	13	0.10
	n	%	n	%	
Lumbar disc level					0.69
L4-5	73	54.50	55	51.9	
L5-S1	36	26.90	28	26.4	
L3-4	10	7.50	8	7.5	
L3-4, L4-5	5	3.70	8	7.5	
L4-5, L5-S1	5	3.70	6	5.7	
Other	5	3.70	1	1.0	
Side					0.51
Left	71	53.0	57	53.8	
Right	61	45.5	45	42.5	
Bilateral	2	1.5	4	3.8	
First or recurrent disease					0.34
First	120	89.6	97	91.5	
Recurrence	11	8.2	4	3.8	
Operation type					0.39
Microdiscectomy	119	88.8	90	84.9	
Other/combined	15	11.2	16	15.1	

DISCUSSION

The degenerative process is identified as multifactorial, irreversible and associated with a mechanical dysfunction⁽⁶⁾. Progressive disc degeneration will result in a loss of the intervertebral disc space height which depends on the degree of disc degeneration, and it has been shown to have a significant influence on the biomechanics and kinematics of a lumbar motion segment⁽⁷⁾. Magnetic resonance imaging is the gold standard for radiological diagnosis.

Microdiscectomy is the most commonly performed spinal surgery for lumbar disc herniation. Lumbar level discopathies have the highest ratio of diagnosed spine regions more than thoracic and cervical levels⁽⁸⁾. Incomplete resolution of lumbar disc herniation symptoms or inadequate response to conservative measures may result in surgery in 10 % of patients⁽²⁾. Sometimes spontaneous regression of lumbar disc herniations could be seen⁽¹⁰⁾.

The surgical techniques have been used in our study were simple microdiscectomy, lumbar disc replacement and instrumentation. Our major choice is simple microdiscectomy as seen at the statistical analysis. Most frequent levels of operation were L4-5 (n=128, 53.3%), L5-S1 (n=64; 26.7%), and L3-4 (n=18, 7.5%). About 53.3% of cases had operation on the left side, 44.2% had on the right side, and 2.5% had bilateral operation. First-time operation was present in 90.4%, and 6.3% had operation for recurrent disease. Majority of

the patients (n=209, 87.1%) had microdiscectomy operation. We found no statistical significance between genders on any parameter.

Many technical improvements have decreased operative trauma by reducing incision size, thereby reducing postoperative pain and hospital stay and time off work, while improving clinical outcome. Magnification and illumination systems by microscope and endoscope have been introduced to enable minimally invasive techniques. Several comparative studies have analyzed the clinical results of these various surgical techniques to improve the outcomes⁽²⁾.

Lumbar disc herniation removal techniques have greatly evolved in terms of instrumentation over the last 30 years. Lumbar microdiscectomy is the gold standard and most preferred surgical treatment modality on herniated lumbar degenerative disc diseases.

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