



ANALYSIS OF LUMBAR DISCECTOMY OPERATIONS IN ONE YEAR

BİR YILLIK LOMBER DİSKEKTOMİ AMELİYATLARININ DEĞERLENDİRİLMESİ

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SUMMARY:

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

Materials and Method: We inspected 203 patients who were operated for lumbar disc herniation between March-2015 and March-2016 at Dr. Lütfi Kırdar Kartal Training and Research 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: Mean age of the study population was 45.2 ± 11.9 years. Eighty-three patients (40.9%) were females, and 120 were males (59.1%). Accordingly the only significant difference was between levels of the lesions, and patients with simultaneous involvement of L4-L5 and L5-S1 were significantly younger than others ($p=0.005$). The type of operation as first or recurrent ($p=262$), or operation type ($p=0.341$) as instrumentation, prosthesis or simple discectomy were similar between sides of the patients. The comparisons revealed that majority of incident cases had simple discectomy, but instrumentation operations were significantly higher in recurrent cases ($p<0.001$).

Conclusions: Correct surgical indication for lumbar disc herniation remains the key factor for the selection of the technique.

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

Level of evidence: Retrospective clinical study, Level III

ÖZET:

Amaç: Çalışmamızın amacı bir yıl içerisinde yapılan lomber diskektomi ameliyatlarının analizini çıkartmaktır.

Materyal ve Metod: Mart-2015 ile Mart-2016 tarihleri arasında Dr.Lütfi Kırdar Kartal Eğitim ve Araştırma Hastanesi Nöroşirurji Kliniğinde lomber diskektomi ameliyatı yapılmış 203 hasta retrospektif olarak incelendi. İncelenen parametreler diskopati seviyesi, disk hernisinin tarafı, nüks veya ilk operasyon mu olup olmadığı ve cerrahinin tipi idi.

Sonuçlar: Çalışmaya katılan popülasyonun ortalama yaşı 45.2 ± 11.9 olarak hesaplandı. 83 hasta kadın (%40.9) ve 120 hasta erkek idi (%59.1). L4-L5 ve L5-S1 seviyelerinden ameliyat olan hastaların istatistiksel anlamlı olarak daha genç hastalar olduğu görüldü ($p=0.005$). Operasyon sayısı ve operasyon tipi karşılaştırıldığında benzer sonuçlar çıksada enstrumantasyon ameliyatları anlamlı olarak nüks vakalarda daha fazla yapılmıştır ($p<0.001$).

Çıkarım: Lomber disk hernisi ameliyatı için anahtar nokta doğru konulmuş endikasyon ve doğru tekniğin seçilmesidir.

Anahtar kelimeler: Lomber disk hernisi, Lomber mikrodiskektomi, Lomber disk hernilerinin analizi.

Kanıt düzeyi: Retrospektif klinik çalışmaş Düzey III

INTRODUCTION:

Lumbar degenerative disc disease is the most common cause of low back pain. The degenerative process is identified as multifactorial, irreversible and associated with a mechanical dysfunction⁹. 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^{11,23,24}. Magnetic resonance imaging is the gold standard for radiological diagnosis. Lifetime incidence of sciatica varies from 13 to 40% respectively^{3,6}. The annual incidence of an episode of sciatica ranges from 1 to 5%⁸. Conservative treatment modalities for spinal degenerative diseases are various^{4,15,16,17,22}.

In 1977, Caspar and Williams described a surgical microdiscectomy technique^{2,26}. Incomplete resolution of lumbar disc herniation symptoms or inadequate response to conservative measures may result in surgery in 10% of patients¹. Herniation of nucleus pulposus is the commonest indication for lumbar spine surgery¹³. Lumbar discectomy indications include neurological deficit causing weakness of functionally important muscles, cauda equina syndrome and progressive neurological deficit in spite of conservative treatment¹⁸. Relative indications for discectomy include persistent pain refractory to conservative care and pain that adversely affects the quality of life²¹.

The aim of the study is to analyse 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 203 patients who were operated for lumbar disc herniation between March-2015 and March-2016 at Dr.Lütfi Kırdar Kartal Training and Research Hospital Neurosurgery Clinic. The informations were collected from the patients file archives 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:

Categorical data were presented as frequencies and percent, and numerical data were presented as mean and standard deviation. Comparisons between independent groups were performed by Mann-Whitney U test and Kruskal-Wallis test for numerical data, and by Chi-square test for categorical data. Statistical significance was considered as $p < 0.05$. SPSS 21 (IBM Corp., NY, USA) was used for the analyses.

RESULTS:

Mean age of the study population was 45.2 ± 11.9 years. Eighty-three patients (40.9%) were females, and 120 were males (59.1%). The distribution of levels of LDH, the side of the involvement, type of operation as first or recurrent, and operation type were summarized in Table-1.

The comparisons of mean age between study groups were presented in Table-2. Accordingly the only significant difference was between levels of the lesions, and patients with simultaneous involvement of L4-L5 and L5-S1 were significantly younger than others ($p=0.005$).

Table-1. Demographic characteristics of the patients

		Count	Column N %
Gender	Female	83	40,9%
	Male	120	59,1%
Level	L1-L2	1	0,5%
	L2-L3	4	2,0%
	L3-L4	18	8,9%
	L4-L5	108	53,2%
	L4-L5 and L5-S1	6	3,0%
	L5-S1	66	32,5%
Side	R	105	51,7%
	L	98	48,3%
First or Recurrent Operation	Incident	162	79,8%
	Recurrent	41	20,2%
Operation Type	Instrumentation	16	7,9%
	Prosthesis	30	14,8%
	Simple discectomy	157	77,3%

Table-2. Comparisons of ages of patients according to clinical characteristics

		AGE		
		Mean	Standard Deviation	p
Gender	Female	43,6	11	0.066
	Male	46,3	12,4	
Level	L1-L2	41	-	0.005
	L2-L3	52,5	9	
	L3-L4	53,7	12,7	
	L4-L5	45,7	11,3	
	L4-L5 and L5-S1	38,5	7,8	
	L5-S1	42,2	12	
Side	R	45,1	11,3	0.869
	L	45,3	12,6	
First or Recurrent Operation	Incident	44,6	12,1	0.176
	Recurrent	47,4	10,8	
OpType	Instrumentation	52,3	11,7	0.073
	Prosthesis	44,2	10,8	
	Simple discectomy	44,7	12	

The comparisons according to side of the lesions and operation types were presented in Table-3. The type of operation as first or recurrent ($p=0.262$), or operation type ($p=0.341$) as instrumentation, prosthesis or simple discectomy were similar between sides of the patients.

The operation type between first and recurrent operations was presented in Table-4. The comparisons revealed that majority of incident cases had simple discectomy, but instrumentation operations were significantly higher in recurrent cases ($p<0.001$).

DISCUSSION:

The most commonly performed spinal surgery for lumbar discal herniation is discectomy which aims to relieve the nerve root compression induced by the herniation¹⁸. Lumbar level discopathies are diagnosed more than thoracic and cervical levels^{10,14}. Sometimes spontaneous regression of lumbar disc herniations could be seen^{7,19,20}.

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. There are studies have been made for the pain relief techniques to use either at beginning or at the end of the operation⁵.

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^{1,13,18}.

Despite the improvement of techniques recurrent operations are still challenging. Sometimes fail back syndrome became the dead end for these patients. Instrumentation is usually applied for the recurrent discs to stabilize the level of pathology. In our results instrumentation operations were significantly higher in recurrent cases ($p<0.001$).

Lumbar disc herniation removal techniques have greatly evolved in terms of instrumentation over the last 30 years. Correct surgical indication for lumbar disc herniation remains the key factor for the selection of the removal technique.

Table-3. Comparisons according to side of lesions

		Side				P
		R		L		
		n	%	n	%	
First or Recurrent Operation	Incident	87	82,9%	75	76,5%	0.262
	Recurrent	18	17,1%	23	23,5%	
OpType	Instrumentation	7	6,7%	9	9,2%	0.341
	Prosthesis	19	18,1%	11	11,2%	
	Simple discectomy	79	75,2%	78	79,6%	

Table-4. Comparisons according to a case to be incident or recurrent

		FIRST OR RECURRENT OPERATION				P
		Incident		Recurrent		
		n	%	n	%	
Op.Type	Instrumentation	2	1,2%	14	34,1%	<0.001
	Prosthesis	25	15,4%	5	12,2%	
	Simple discectomy	135	83,3%	22	53,7%	

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