

EIGHT-YEAR EXPERIENCE OF INGUINAL HERNIAS REPAIR: A SERIES OF 1540 PATIENTS

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Objective: Hernia repair is a surgical procedure as old as the history of surgery. All hernia repair methods have been developed with the aim of reducing cost, recurrence rate and postoperative pain. In this study, the recurrence rates of different surgical procedures were evaluated retrospectively.

Materials and Method: We evaluated retrospectively 1540 patients operated on between 1992 and 2000 in Gazi University, Faculty of Medicine Department of General Surgery. Only 514 of them were well documented. The patients were divided into groups according to demographic features, diagnoses, applied surgical techniques, time of surgical intervention, and recurrence, and comparisons were performed.

Results: Lichtenstein Tension Free repair, anatomic repair and laparoscopic repair were applied in 61.5%, 33.5% and 5.1% of cases, respectively. There is no significant difference between the recurrence rates of hernia repair. When the patients were divided into two groups according to operation year (1992-1996 and 1997-2000), in the first four years the recurrence rates of the repair methods were similar but in the second four years the recurrence rate of anatomic repairs was threefold higher ($p>0.05$).

Conclusion: Lichtenstein Tension Free repair is a hernia repair method that can be applied safely with low recurrence rates in general surgery clinics.

Key Words: Hernia repair, recurrence rate, Lichtenstein Tension Free repair, anatomic hernia repair.

İNGÜİNAL HERNİ ONARIMINDA 8 YILLIK DENEYİMLERİMİZ: 1540 VAKALIK BİR SERİ

Amaç: Herni onarımı cerrahinin tarihi kadar eski bir cerrahi prosedürdür. Geliştirilen tüm herni onarım yöntemlerinde düşük maliyet ve rekürrens oranı ile postoperatif ağrının azaltılması amaçlanmıştır. Bu çalışmada değişik operasyon yöntemlerine ait nüks oranları retrospektif olarak değerlendirilmektedir.

Gereç ve Yöntemler: Bu çalışmada 1992-2000 yılları arasında Gazi Üniversitesi Tıp Fakültesi Genel Cerrahi Anabilim Dalında opere edilen 1540 hasta retrospektif olarak incelendi. Bu hastalardan kayıtlarına eksiksiz olarak ulaşılabilen 514'ü çalışmaya alındı. Hastalar demografik özellikleri, uygulanan cerrahi işlem, cerrahinin uygulanma zamanı, gelişen rekürrenslere açısından gruplara ayrıldı ve karşılaştırıldı. Sonuçlar: Hastaların %61.5'ine Lichtenstein herni onarımı (tension free onarım), %33.5'ine anatomik onarım ve %5.1'ine ise laparoskopik herni onarımı uygulanmış olup rekürrens oranları açısından cerrahi yöntemler arasında farklılık tespit edilmedi. 1992-1996 ve 1997-2000 dönemlerinde opere edilen hastalar ayrı ayrı incelendiğinde ilk 4 yıllık gruptaki rekürrens oranları açısından fark olmamasına rağmen ikinci 4 yıllık dönemde anatomik onarımların nüks oranının 3 kat fazla olduğu görülmüştür ($p>0.05$).

Tartışma: Lichtenstein herni onarımı günümüzde bir çok cerrahi kliniğinde düşük rekürrens oranlarına sahip güvenilir bir herni onarım yöntemidir.

Anahtar Kelimeler: Herni onarımı, rekürrens oranı, Lichtenstein herni onarımı, anatomik onarım.

INTRODUCTION

In spite of the many studies performed, no complete consensus has been reached in terms of the appropriate surgical method to be applied in the repair of inguinal hernias. Studies comparing the surgical techniques have shown that open or endoscopic tension free repairs had certain advantages over anatomic repairs (1-4). Low recurrence rates, less postoperative pain, and rapid return to daily activities may be cited among these advantages (5). Anatomic repairs are about to be abandoned due to the difficulty of the surgical technique, low postoperative patient comfort, and high morbidity. In the present study, the long-term follow up results of patients who underwent hernioplasty between 1992 and 2000 in Gazi University, Faculty of Medicine Department of General Surgery, were examined retrospectively.

MATERIALS AND METHODS

In our center, 1540 hernioplasty operations were performed between 1992 and 2000. The well-documented cases among these were determined and the subjects invited for a physical check up. In total, 514 patients were contacted.

The patients were divided into groups according to demographic features, diagnoses, applied surgical techniques, time of surgical intervention, and recurrence, and comparisons were performed. The check up period of the patients was 94.1 ± 35.17 months, excluding the patients who had died or could not be contacted.

The statistical analysis was performed using SPSS® 11.0. The results were presented as mean \pm standard deviation. A chi-square test was applied for comparisons of groups. $P<0.05$ was considered statistically significant.

RESULTS

The demographic features of the patients are shown in Table 1. Lichtenstein Tension Free repair was applied in 61.5% of cases (316 patients), anatomic repair was applied in 33.5% (172 patients), and laparoscopic repair was applied in 5.1% (26 patients).

Table 1. Demographic characteristics of the patients.

	n (%)
Sex	
Male	464 (90.3%)
Female	50 (9.7%)
Age (mean \pm SD) (year)	51.2 \pm 15.7
Follow-up (mean \pm SD) (month)	94.1 \pm 35.17
Diagnosis	
Inguinal Hernia	418 (81.3%)
Bilateral Inguinal Hernia	64 (12.5%)
Recurrent Inguinal Hernia	19 (3.7%)
Femoral Hernia	13 (2.5%)

No significant difference was determined from the comparison of recurrence rates in terms of surgical techniques, and recurrence rates did not manifest any increase in long-term follow-ups (Table 2). Although recurrence rates after tension free repairs were lower than those after anatomic repairs, no statistical difference was determined between them ($p=0.322$). In 171 patients overall, McVay was applied in 64% (110 patient), Shouldice in 23.8% (41 patient), and Bassini in 12.2% (21 patient). Amongst the overall cases, there were 19 patients operated on by us due to the first recurrence diagnosis; McVay was applied in 6 (31.7%) of these, Bassini in 1 (5.2%), Shouldice in 2 (10.4%), and Lichtenstein Tension Free Hernioplasty in 10 (52.7%). No subsequent recurrence was observed in any of these cases.

Table 2. Comparison of the chosen hernia repair method for recurrent inguinal hernia.

	Anatomic Repair	Tension Free Repair
Recurrent inguinal hernia	8 (4.6%)	8 (2.5%)

* $p=0.322$ (Yates chi-square test)

The cases were divided into two groups according to time frames, namely 1992-1996 and 1997-2000. Between 1992 and 1996 Lichtenstein Tension Free repair was applied in 75 (31.8%) of the total 236 patients, anatomic repair in 155 (65.7%), and laparoscopic repair in 6 (2.5%). Between 1997 and 2000 Lichtenstein Tension Free repair was applied in 241 (86.7%) of the total 278 patients, anatomic repair in 17 (6.1%), and laparoscopic repair in 20 (7.2%). During the latter period, although tension free repair replaced anatomic repair, no difference in recurrence rates was determined ($p=1.000$, Yates chi-square test). (Table 3, Figure 1).

Table 3. Recurrence rates according to the first and second four years.

Hernia Repair Method	1992-1996		1997-2000	
	Anatomic repair	Tension free repair	Anatomic repair	Tension free repair
Recurrence	6 (3.9%)	2 (2.7%)	2 (11.8%)	6 (2.5%)
No recurrence	149 (96.1%)	73 (97.3%)	15 (88.2%)	235 (97.5%)

DISCUSSION

As a result of the further information gathered on inguinal region anatomy and mechanisms of inguinal hernia formation, classic anterior operations have started to be performed successfully. The main purpose in these operations was to reinforce the inguinal floor and inguinal canal interior opening by nonabsorbable sutures. These techniques include repairs such as Marcy, Shouldice, Bassini, and MacVay (5, 6). The recurrence rates for comprehensive series were reported as 5.3%-8.6% for Bassini in different series and 6.5% for Shouldice (7, 8). A

wider dissection is performed in McVay repairs compared to the other techniques, and thus much more tension is created. Recurrence rates were about 2%, but higher morbidity rates were reported compared to the other techniques. In the present study, the recurrence rates after Bassini, Shouldice, and McVay repairs were as follows: 4.8% (1/21), 2.4% (1/41), and 5.5% (6/110), respectively (9). To reduce the recurrence rates different methods or modifications have been described and used over many years. The history of hernias is as old as the history of surgery. The search for the optimal repair technique with regard to cost effectiveness, low recurrence rate and acceptable postoperative pain is still going on. Nearly every institution describes alternative methods of hernia repair. These methods include some modifications of Bassini, Shouldice or McVay hernia repair. One of them is plication of the inguinal floor with nylon darn and another one is not to ligate the hernia sac. These techniques have low recurrence rates. The aim of these alternative methods is to reduce recurrence rates and cost. The similarities of these methods are to be the modification anatomic repairs (10, 11).

Fewer dissections are applied in Lichtenstein Tension Free repair compared to other anatomic repair methods. The low dissection rate is directly associated with the decline of morbidity. In the first four-year study, no significant difference was determined between Lichtenstein tension free repair and anatomic repair. During this period, although Lichtenstein tension free repair was a new and less preferred method, the recurrence rates were the same. This similarity shows that the Lichtenstein Tension Free technique is easy to learn and perform. During the second four-year period, the preference rates shifted significantly in favor of Lichtenstein tension free repair. In a clinic that also gives education to assistants, no increase in the recurrence rate occurred in patients operated on by this method. The fixed rate of recurrence was explained by the fact that the operation had been performed by assistants at various stages of their education. Furthermore, during the same period, the recurrence rate of operations performed through anatomic repair increased threefold. The dissection and the sutures placed in anatomic repairs require special features. If these operations are performed in specific hernia clinics by experienced specialists, the recurrence rates can be low. However, the learning of anatomic repair techniques and their appropriate application (and thus the achievement of lower

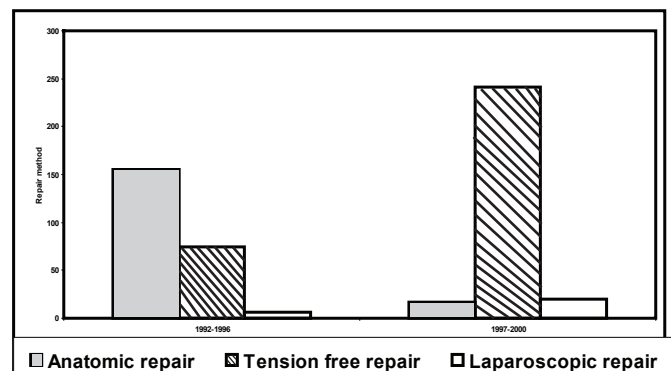


Figure 1: Applied repair methods according to the first and second four years.

recurrence rates) is more difficult compared with Lichtenstein Tension Free repair. Anatomic repairs were performed less frequently in the second four-year period and this caused an increase in the recurrence rates.

In Lichtenstein Tension Free repair, a wall reinforcing the fascia transversalis is created by using a prosthetic mesh (3). As a result of the application of this technique, local anesthesia usage has become widespread, postoperative pain has decreased, the duration of return to normal life has shortened, and recurrence rates have dropped. Although it has been modified by surgeons since it first began to be used, reported recurrence rates vary between 0.2% and 0.5% (5). In the present study, it was determined to be 2.5% (8/316). Tension free repairs are replacing anatomic repairs because they are easy to learn and yield successful results. In the present study, no significant differences were obtained in the long-term results, and the reliability of tension free repairs due to their aforementioned advantages and long-term successful results was ascertained along with their ever-widening status as the method of choice.

In conclusion, Lichtenstein Tension Free repair is a safe hernia repair method that today has low recurrence rates in many general surgery clinics.

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