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## LAPAROSCOPIC HERNIORRHAPHY: PREFERENCE RATE AMONG SURGEONS IN ANKARA, TURKEY

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### ABSTRACT

**Objective:** To determine the surgeons' and the surgical residents' choice for inguinal hernia repair.

**Design:** A questionnaire study.

**Subjects:** One hundred and forty two respondents who work in surgical clinics as surgeons or residents.

**Setting:** University hospitals and non-academic teaching hospitals in Ankara, Turkey.

**Main outcome measure:** The preference rates of open and laparoscopic hernia repairs for respondents' own inguinal hernias: "If you had an inguinal hernia, how would you prefer to have it repaired?"

**Results:** Only 14.1% of the respondents preferred a laparoscopic hernia repair. Eight of 63 residents (12.7%) and 12 of 79 surgeons (15.2%) chose laparoscopic technique for their own hernia ( $p=0.67$ ). Personal laparoscopic herniorrhaphy experience significantly affected the choice. Among 118 respondents who had performed no laparoscopic hernia repair, only 12 (10.2%) preferred laparoscopic technique for their own inguinal hernias, whereas the preference rate rose to 33.3% in other 24 participants who had previously done laparoscopic hernia repair ( $p=0.03$ ). The only independent variable in multivariate analysis was personal experience on laparoscopic herniorrhaphy (SE:0.33, Wald 11.73, Sig:0.0006). The majority of the respondents who preferred open hernia repair stated that it was a better known technique. Other common reasons for open repair were being better repair and the advantage of local anesthesia. Top three reasons for choosing laparoscopic hernia repair were less pain, short hospital stay and early return to normal activity.

**Conclusion:** Majority of surgeons and residents still prefer open hernia repair.

### INTRODUCTION

The introduction of laparoscopic cholecystectomy in the mid eighties was undoubtedly a revolution in surgery. As laparoscopic cholecystectomy has become the standard operation for treatment of cholelithiasis in a short time, surgeons interest have focused on other laparoscopic procedures like laparoscopic hernia repair.

Actually, the first laparoscopic hernia repair was described by Ger in 1982(1). This was a simple closure of the defect with no attempt to reduce hernia sac and with minimum attempt to approximate the anatomic structures. In 1990, Popp reported a laparoscopic repair of an indirect hernia during a uterine myectomy(2). Then, Arregui described the transabdominal preperitoneal repair (TAPP) technique(3). Intraperitoneal onlay mesh repair (IPOM)(4) and totally extraperitoneal repair (TEP) followed(5). The main benefits of laparoscopic hernia repair have been reported as less postoperative pain, early discharge and early, turn to work(6-15). On the other hand, the major disadvantage of the technique seems to be its high cost(6,9-17). Although the early series on laparoscopic repairs

reflected high early recurrence rates(18,19), recent reports showed that the recurrence rates of laparoscopic and open repairs have been comparable(8,9,12). However, some authors advocate that hernia repair should be individualised to the patient, while some others still tend to wait for long term results of laparoscopic hernia repairs(20).

In 1995, we carried out a questionnaire study to evaluate the preference rate of the surgeons for laparoscopic hernia repair(21). The origin of our study was a similar survey done by Atabek and co-workers in USA in 1992(22). They had found that only 7% of the surgeons in New Jersey had preferred laparoscopic repair for their assumed inguinal hernias. The preference rate in our first questionnaire study was found to be 9%. Four years later, because laparoscopic hernia repair is becoming more familiar to surgeons in Turkey, we decided to repeat the same survey to determine the current preference rate of laparoscopic hernia repair.

### MATERIALS AND METHODS

The study was done among the surgeons and the residents during their postgraduate education period in training hospitals

(university hospitals and non-academic teaching hospitals) in Ankara by using a one-page questionnaire containing three types of questions. In the first part, the participants, personal experience with laparoscopic surgery was obtained. The main question was in the second part: "If you had an inguinal hernia, how would you prefer to have it repaired?" Having determined the personal preferences as "open" or "laparoscopically", the participant was asked to state the reason(s) for the choice from two separate lists. The questionnaire forms were distributed to the participants by three researchers and were collected on the following day by the same team.

Chi-square test was used for statistical analysis. A-p-value of <0.05 was considered significant. Forward stepwise (WALD) logistic regression was used to determine the independent variables.

RESULTS

One hundred forty-two completed questionnaires were collected. Only twenty respondents (14.1%) preferred laparoscopic hernia repair, whereas 122 participants (85.9%) chose open repair. Eight out of 63 residents (12.7%) and 12 out of 79 surgeons (15.2%) chose laparoscopic technique for their own hernia (p=0.67). When the residents were divided into juniors and seniors, the preference rate of laparoscopic repair among juniors was found to be significantly higher than that in seniors (21.9% versus 3.3%; p=0.03). There was also a significant decrease from the first to the last year of the postgraduate education period (23.5%, 20%, 6.7%, 0%; p=0.001).

Personal laparoscopic cholecystectomy experience was not an influencing factor. Laparoscopic hernia repair preference rates were 14.0%, 8.3% and 16.4% respectively, for three subgroups of 0/1-15/>15 laparoscopic cholecystectomy experience (p=0.63). On the contrary, the surgeon's personal laparoscopic herniorrhaphy experience significantly affected their choice. Among 118 respondents who had not performed laparoscopic hernia repair, only 12 (10.2%) preferred laparoscopic technique for their own inguinal hernias, whereas the preference rate rose to 33.3% in other 24 participants who had previously done laparoscopic hernia repair (p=0.03). There was also a gradual rise towards the most experienced subgroup from "no experience" and "one to five cases experience" subgroups (Table 1). Similarly, the only independent variable in multivariate analysis was personal experience on laparoscopic herniorrhaphy (B:1.15, SE:0.33, Wald 11.73, df:1, Sig:0.0006, R:0.29, Exp:3. 16).

Table 1

Laparoscopic repair preference rates according to personal laparoscopic hernia repair experience

Laparoscopic hernia repair experience	No.	Preference rates	
		Open No (%)	Laparoscopic No. (%)
No experience	118	106 (89.8)	12 (10.2)
1 - 5 cases	10	8 (80.0)	2 (20.0)
≥6 cases	14	8 (57.1)	6 (42.9)

Table 2

Reasons for choosing open repair (n=122)

Reason for open repair	No. (%)
Better known technique	101 (82.8)
Better repair	72 (59.1)
Avoid general anaesthesia	67 (54.9)
No obligation for mesh	35 (26.7)
Long term results of laparoscopic repair unknown	11 (9.0)
Less cost	8 (6.6)
Lower recurrence rate	5 (4.1)
Easier technique	3 (2.4)
Shorter operating time	2 (1.6)
Less complication	1 (0.8)

Table 3

Reason for choosing laparoscopic hernia repair (No.=20)

Reason for laparoscopic repair	n (%)
Less pain	17 (85.0)
Early discharge	16 (80.0)
Early return to work	15 (75.0)
Better incision	9 (45.0)
Newer technique	4 (20.0)
Better repair	1 (5.0)

The majority of the respondents who preferred open hernia repair stated that it was a better known technique. Other common reasons for open repair were being better repair and the advantage of local anaesthesia (Table 2). The top three reasons for choosing laparoscopic hernia repair were less pain, short hospital stay and early return to normal activity (Table 3).

DISCUSSION

Except for a twenty one per cent rate of the Swedish group(23), today, laparoscopic hernia repairs represents only one to ten per cent of the herniorrhaphies around Europe(24). To explain this low rate, it is common knowledge that surgeons tend to be conservative and deliberate, and any new entry into their field of contention does not escape criticism. However, the case was somewhat different this time. Laparoscopic cholecystectomy has a much longer history than that of laparoscopic hernia repair, yet the vast majority of the cholecystectomies are successfully completed with laparoscopic technique. There must be some reasons for the slow popularisation of laparoscopic hernia repair.

What are the criteria for choosing the type of inguinal hernia repair? Ira Rutkow suggested five outcome measures that should be incorporated into any evaluation of hernia surgery: technical difficulty, complication rate, overall rehabilitation, recurrence rate, and socioeconomic factors like cost-effectiveness(25). First of all, technical difficulty was not a concern in our questionnaire study. Only three out of 122 respondents who preferred open repair thought that open repair was easier than laparoscopic technique. In

laparoscopy training curriculum, laparoscopic hernia repair has been put into basic procedures group together with cholecystectomy(26); in that case technical difficulty should not arise with laparoscopic hernia repair.

On the other hand, Cuschieri in 1995, divided laparoscopic procedures into four groups as maximum benefit, beneficial for selected cases, benefit/risk ratio unproven, and low benefit/risk ratio; laparoscopic hernia repair was placed in the third group with laparoscopic colorectal excision, whereas laparoscopic cholecystectomy was a first group procedure(27). Two potential risks for a hernia repair are high complication rate and high recurrence rate. Although there have been many reports reflecting higher complication rates of laparoscopic repairs in comparison with open repairs(8,12,17,28,29), recent studies showed that laparoscopic repairs could be done with a lower complication rates than open repairs(6,11,18,19,30). In the prospective randomised study of the MRC Laparoscopic Groin Hernia Trial Group, at least one complication was found in 29.9% of the patients allocated to laparoscopic repair and in 43.5% of the patients allocated to open repair. However, all of the three serious complications occurred in the laparoscopic group(7). In our questionnaire study, only one respondent preferred open repair because of its less complication risk.

Similarly, recurrence rates after laparoscopic hernia repairs have been comparable with traditional and modern open techniques(11,31). In Liem *et al's*(9) study, the one year recurrence rates were similar, and most recurrences in the laparoscopic group appeared early in the experience of the operating surgeon. Lucas and Arregui reported no recurrences in 136 cases in a six-year period with totally extraperitoneal laparoscopic hernia repair(32). On the other hand, the MRC Trial Group reported that all seven recurrences in their series of 928 hernia repairs occurred in the laparoscopic group(7). Although only five respondents (4.1%) in the present study clearly stated that lower recurrence rate was a reason for choosing an open repair, most of the surgeons considered open repair as a better known technique and a better repair.

When complication and recurrence rates are considered together with the benefit/risk ratios, there seems to be a similarity for the two types of repair. So, what could be the critical point that makes open repair superior in the present questionnaire study? Less cost(6,8,10,15,17); obviously not. Only eight out of 122 respondents who preferred open repair stated that cost was an influencing factor. At this point, it must be remembered that all the respondents in this study are National Health Service employees and they naturally have full coverage health insurance, therefore high cost is not a problem for them.

Surgery time, in other word anaesthesia time, of laparoscopic hernia repair is believed to be longer than that of open repair. A number of studies have supported this prejudice(10,12,14), but some others have shown no difference between the techniques(8,9). In our survey,

only two respondents who preferred open repair stated that shorter operating time was an advantage of this approach. In fact, the importance of surgery time is originated from anaesthetic burden. Therefore, local anaesthesia could be accepted as the best way. In addition, local anaesthesia is not only a choice with a lower complication rate but also provides a significant reduction in cost(33). In our previous questionnaire study, the use of local anaesthesia had been seen as an advantage of open repair with a rate of 36.8%. This rate reached 54.9% in the present study. Atabek, in 1994, also reported a figure of 66% for avoiding general anaesthesia by choosing open repair(22).

The main efficacy variable of a study on hernia repair is recurrence rate. The recurrence rates were reported to be high in the early series of laparoscopic hernia repairs and in the learning curves of almost every centre(31,33). Recent studies have shown that open and laparoscopic techniques are virtually comparable with respect to recurrence rate(8,9,12,34). In Atabek's study 58% of the surgeons choosing open repair and only 21% of the surgeons preferred laparoscopic repair thought that recurrence rate would be lower with their favorite technique(22). On the other hand, in our previous questionnaire study, 39% of the respondents who had preferred open repair had stated that this technique had had a lower recurrence rate(21). In the present survey, few respondents thought that open repair could obtain a lower recurrence rate, while 59.1% of respondents choosing open repair (50.7% of all the respondents) believed that a better repair could be done with open technique. On the other hand, strikingly, only one respondent in the present survey said that laparoscopic repair was better than open repair. Less postoperative pain, early discharge and early return to work have been reported as advantages of laparoscopic repair(7-11). These three features were also the main reasons for choosing laparoscopic repair in the present survey, though not enough to overcome open repair.

The rate of the respondents who had preferred laparoscopic repair had been 9.1% in 1995. It reached 14.1% in 1999. Although there was a slight rise, the difference was not significant ( $p=0.52$ ). Both in univariate and in multivariate analyses only personal laparoscopic hernia repair experience was found to be a factor. Atabek had reported a similar effect of personal laparoscopic hernia repair experience on the preference rate(22).

Before making a decision between the two approaches it is worth stating that our survey was designed to find out the surgeons' choice just for primary and unilateral inguinal hernias. The respondents were not questioned about bilateral hernias. It has been reported that the use of laparoscopic repair for bilateral and/or recurrent hernias seems to be justified(32). Therefore, the opinions of the respondents may be changed when the case is a bilateral or recurrent hernia. As a matter of fact, in DesCoteaux and Sutherland's questionnaire study among Canadian surgeons in 1996-97, laparoscopic hernia repair was

selected as the technique by 34 % and 35 % of the surgeons for their patients' recurrent hernias and bilateral hernias respectively, while the preference rate of laparoscopic herniorrhaphy for primary unilateral hernia in the same population was 15%(35).

Surgeons still hold the opinion that open repair is superior to laparoscopic repair. The main reasons for this opinion are being a better known technique, obtaining better repair and avoiding general anaesthesia. On the other hand, personal laparoscopic repair experience is an important factor for choosing laparoscopic technique. The more the personal laparoscopic hernia repair experience the higher the laparoscopic technique preference rate.

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