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STUDY TO DETERMINE THE OUTCOMES OF TOTAL EXTRA-PERITONEAL LAPAROSCOPIC INGUINAL HERNIA REPAIR

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Abstract:
Aim: *To determine the result in patients who have undergone total extra-peritoneal repair for inguinal (groin) hernia.*
Study Design: *Retrospective descriptive study.*
Place and Duration: *In the Department of Surgery Unit II of Services Hospital Lahore for one year duration from March 2018 to March 2019.*
Methodology: *A total of 47 patients underwent total extra-peritoneal repair under general anaesthesia during this period, 4 of these patients had bilateral inguinal hernia, and therefore a total of 51 TEP operations were performed. In all cases, a 15 x 15 cm (Ethicon) polypropylene mesh was used. Within 24 hours, many of the individuals were discharged and observations were made after 1 week, 1 month and 1 year. Operational morbidity, postoperative pain, formation of serous cells, chronic inguinal pain, superficial infection signs and hernia recurrence were observed.*
Results: *51 hernias were repaired in 47 patients within two years. 34.7 years (range 18–75 years) was the patients mean age. None of the procedures has become an open repair of inguinal hernia. 14.89% of the cases have postoperative pain and was well controlled with NSAIDS. Seroma was noted in 5 cases, from which aspiration needed in one patient, while others established conservative guidance. No one established wound infection, neuralgia or scrotal hematoma. The median recovery from TEP repair was 16.1 days. No relapses were noted before the end of the observation year.*
Conclusion: *A total extra-peritoneal procedure to repair an inguinal hernia using a proline mesh is effective and safe method with early recovery, low morbidity and no recurrence after a year of observation.*
Key words: *Complete retroperitoneal laparoscopic hernia repair, hematoma, neuralgia, seroma.*

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INTRODUCTION:

Minimally invasive surgery is currently the most common branch of surgery and is the gold standard in gallstone surgery[1-2]. The total retroperitoneal repair is becoming popular for inguinal hernia. Laparoscopic mesh repair has early recovery and less morbidity compared to open hernia surgery[3]. Laparoscopic approach to inguinal hernia was the first application of Ger[4]. In the early 1990s, various transabdominal laparoscopic methods were reported. The most frequently performed operation was the abdominal peritoneal procedure using intraperitoneal mesh techniques. Several reports suggest high rates of recurrence after the intraperitoneal mesh technique, so this technique did not favor surgeons[5-6]. Total retroperitoneal treatment was primarily introduced by in 1993 by McKernon and Law[7]. Total retroperitoneal repair was established due to concerns about potential complications related to abdominal access[8]. The most frequently accomplished operations in surgery are inguinal hernia repair. Perfect repair allow the subjects to quickly arrival to normal daily activities[9]. The optimal method of ensuring long-term and low morbidity inguinal hernia repair remains controversial. Laparoscopic techniques have recently been used, but not without conflicting and controversy results. Guidelines for the use of laparoscopic hernia repair in Great Britain (NICE; National Institute for Clinical Excellence) have been published[10]. Interestingly, this only contributed to raising the tone of the debate and gave the controversy a new character.

MATERIALS AND METHODS:

This retrospective descriptive study was held in the Department of Surgery Unit II of Services Hospital Lahore for one year duration from March 2018 to March 2019. Patients over 18 years of age with incomplete reduce able inguinal hernia were selected for the analysis. The operations were performed by team's surgeons. Patients who had obstruction, asphyxiation, trapped or irreducible hernia, and those who were not fit for under general anaesthesia and patients with previous mid or emergency incision were excluded from the study. Patients were recruited from the outpatient clinic. Informed and written consent was obtained. After the interview, patients eligible for study and study selection were selected. Data was collected regarding recovery after surgery, hospital stay, recovery, complications and relapses. Laparoscopic repair was performed using a standard three-port approach; Extraperitoneal space dissection was performed with a vertex in the range of zero degrees. A 15 x 15 cm polypropylene mesh (Prolene, Ethicon) was placed in the retroperitoneal space and fixed with endo anchors (Ethicon Tachor). Two separate 15 x 15 cm meshes were used in bilateral inguinal hernia. All patients received antibiotics (Inj. Rocephin 1 gm I / V) half an hour before surgery and a second dose was given after 12 hours. Patients were discharged orally Zinacef 250 mg twice daily for three days after surgery. All patients underwent surgery under general anaesthesia. Complications were defined as any event such as pain, hematoma / serous and wound infection that occurred immediately after surgery for up to one month. Return to normal activity is described as the ability to perform normal daily activities with comfort and return to a sedentary lifestyle. Relapse was defined as hernia recurrence during the year of surgery. Patients were visited by a resident of surgical examinations just before discharge from the hospital and were examined at 7 days, one month, six months and a year after operation. A telephone interview was conducted with patients who were unable to attend the infirmary at six months or one year. Using SPSS version 18.0, data was analysed. Frequency and percentage of qualitative data were developed for complications such as hematoma, seroma, pain, wound infection and early relapse. The mean + standard deviation for quantitative data was calculated with respect to surgery time, duration of postoperative hospital stay and time to resumption of normal activity.

RESULTS:

47 total patients were operated and the total number of repaired hernias was 51; four patients underwent bilateral hernia repair. The majority of patients in this population belonged to the age group of 21 to 29 years. 3 patients were under 20 years of age. Patients over the age of 50 were 6. All patients were adults with an age range of 18 to 75 years and an average age of 34.7 years (Table 1). All patients were male.

Table 1: *Age distribution (n=47)*

Age group	No. of Patients	Percentage
< 20 years	3	6.38%
21 – 29 years	16	34.04%
30 – 39 years	8	17.02%
40 – 49 years	14	29.79%
50 years and above	6	12.77%
Age (Mean ± S.D)	34.70 ± 11.8	

Of the 47 patients, 4 patients had direct hernia. In our analysis, main complications were postoperative pain and the formation of seroma, while a superficial infection was observed in a patient who were settled with antibiotics (as shown in Table 2).

Table 2: *Post-operative complications (n=47)*

Post-operative complications	No. of Patients	Percentage
Pain	7	14.89%
Seroma	5	10.64%
Infection	1	2.13%

Most of our patients had direct hernia (as shown in Table 3).

Table 3: *Clinical diagnosis (n=51)*

Type of hernia	Subjects	Percentage
Direct inguinal hernia		
Right	16	31.37%
Left	14	27.45%
Indirect inguinal hernia		
Right	11	21.57%
Left	10	19.61%
Bilateral inguinal hernia		
Direct	2	3.92%
Indirect	2	3.92%

48.5 minutes was the median duration of surgery (range 18-120 minutes) for TEP repair. It has been observed that with experience surgeons laparoscopic inguinal hernia repair time has been shortened, that was 120 minutes in the 1st case, the duration was shortened to 38 minutes in some subsequent cases of laparoscopic repair. Within 24 hours, many patients were discharged after surgery. Six patients only remained for 3 days, and two patients remained for four days. Patients returned to work after a median of 16.1 days (range 5-30 days), regardless of whether they were freelancers or employees. During the weekly follow-up, approximately 5 patients developed complications after TEP repair. These complications were mainly pain in 3 patients and seroma formation in 5 patients and superficial infection in 1 patient. (Table 2) After a month of observation, most complications resolved. After 6 months of follow-up, none of the 47 patients had active hernia-related complaints. Regarding hernia recurrence, no relapse was observed after 12 months of observation.

DISCUSSION:

The most commonly used methods of primary inguinal hernia repair in hospitals in the UK and EEC are Bassini repair and darning[10-11]. These methods show a relapse rate of 5 to 15%. The rate varies depending on whether the operation is performed by a single surgeon or a group of surgeons and recorders with varying degrees of experience[12]. The use of a prosthesis to strengthen the posterior wall of the inguinal canal was first described by McGavin in 1909[13]. At Greenwich Seamen's Hospital in London, which used silver filigree. Unfortunately, the branch suffered from stress cracks for years, and the successful use of a prosthetic mesh had to wait for the introduction of an inert and indestructible material, such as polypropylene, introduced by Usher in 1964. Liechtenstein questioned the concept of both the coating technique and the damn surgery, and then introduced a tension-free hernia repair method for all inguinal hernia using a polypropylene prosthetic mesh that did not depend on the muscle tendon connection[14]. Long-term results of the Liechtenstein technique have been reported over the past 10 years, and in a few recent series over 10,000 cases have shown a relapse rate of 0.2% and an infection rate of 0.03%. As with all laparoscopic operations, laparoscopic hernia has also met with great opposition regarding extended learning curve, longer operating time and new approach to anatomy, especially regarding laparoscopic (retroperitoneal) hernia repair. Palanivelu C also emphasized this in his book, in which he stated that a learning curve exists before the retroperitoneal approach can be optimally performed[15].

As the laparoscopic procedure evolves, additional modifications to the surgical technique can further reduce the complication rate. The current study confirmed these results with a lower rate of complications during the week, month and six months after TEP repair.

CONCLUSION:

We conclude that laparoscopic hernia repair is a safe and effective alternative to open inguinal hernia repair, which allows for faster recovery and return to productive activity, with fewer complications and the frequency of relapses as low as with open mesh repair.

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