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Research Article

**COMPARISON BETWEEN OPEN AND LAPAROSCOPIC
HERNIA REPAIR IN TERMS OF COMPLICATIONS,
MORBIDITY, RECURRENCE, POST-OP PAIN AND HOSPITAL
STAY**¹Dr. Ali Gohar Khan, ²Dr. Karim Shah Faizi, ³Dr. Fatima¹Head of Department of Surgery Fauji Foundation Hospital Peshawar, ²Assistant Professor, Naizi Medical College Sargodha, ³Woman Medical Officer, Ali Shirazi Hospital Sahiwal.**Article Received:** August 2019**Accepted:** September 2019**Published:** October 2019**Abstract**

Objective: To compare open and laparoscopic hernia repair in terms of safety, complications, morbidity, recurrence, post-op pain and hospital stay.

Material and methods: This comparative study was conducted at Department of Surgery, Fauji Foundation Hospital Peshawar from March 2018 to September 2018 over the period of 6 months. Total 50 patients undergoing hernia repair was selected. Post-operative morbidity, recurrence, post-op pain and hospital stay was compared.

Results: Total 50 patients with hernia was selected for present study. Right side hernia was found in 21 (42%) patients, 11 patients belonged to study group A while 10 patients belonged to study group B. Left side hernia was found in 18 (36%) patients and bilateral hernia was found in 11 (22%) patients. Present study shows recurrence in one patient in laparoscopic (TEP) hernia group but there was no recurrence in open hernia repair group (Lichtenstein's repair) Superficial wound infection was found to be more in open inguinal hernia repair group than laparoscopic (TEP) hernia repair. Seroma formation in Laparoscopic (TEP) hernia repair was less than open hernia repair (Lichtenstein's repair).

Conclusions: Laparoscopic hernia repair is quite safe; it has definite advantages in bilateral and recurrent cases, postoperative pain, early return to normal activities, less postoperative hospital stay and better cosmetic results although it has its own disadvantages in terms of recurrence rate, operative time and cost effectiveness.

Keywords: Laparoscopic hernia repair, Open hernia repair, Cost effectiveness.

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INTRODUCTION:

Hernias of the abdominal wall comprise an important health problem and often constitute a surgical dilemma even for the most skilled surgeons. Inguinal hernia affects both men and women but it is much more common in men who constitute over 90% of operated patients. [1] Considering both operated and non-operated inguinal hernias, the lifetime prevalence rate is 47% for men up to and including the age of 75. [2] The lifetime risk of undergoing such a repair is 27% for men and 3% for women. [3] High incidence of the disease makes inguinal hernia repair the most frequent procedure in general surgery, accounting for 10-15% of all operations. [4,5]

Laparoscopic inguinal hernia repair is a minimal access surgical procedure. Laparoscopic repair is usually undertaken by two methods one is TAPP and other one is TEP repair, the main variation between these two techniques is the sequence of gaining access to peritoneal space. In TAPP the surgeon goes into the peritoneal cavity and places a mesh through a peritoneal incision over possible hernia sites. TEP is different from TAPP as the peritoneal cavity is not entered and mesh is used to seal the hernia from outside the thin membrane covering the organs in the abdomen (the peritoneum). The mesh becomes incorporated by fibrous tissue.

Laparoscopic repair is also associated with an approximately 0.3% risk of visceral or vascular injury. [6] The objective of the study was to compare open and laparoscopic hernia repair in terms of safety, complications, morbidity, recurrence, post-op pain and hospital stay.

MATERIAL AND METHODS:

This comparative study was conducted at Department of Surgery, Fauji Foundation Hospital Peshawar from March 2018 to September 2018 over the period of 6 months. Total 50 patients undergoing hernia repair was selected either male or female having age 30-80 years. patients were randomly divided into two equal groups A and B. patients of group A managed with open Lichtenstein repair of hernia methods and patients of group B managed with laparoscopic TEP repair of hernia method. Exclusion criteria were emergency surgery for complicated hernias; all recurrent hernias. Study was approved by ethical committee and written informed consent was taken from every patient. History was taken along with demographic profile of the patients.

Postoperatively patients were observed for any complications and were followed up in OPD after

discharge. Thorough examination was done on follow-up for 3 months to detect any complication. Visual analogue scale was used for assessment of severity of pain.

All the collected data was analyzed by using SPSS version 18. Numerical data was presented as mean and SD and categorical data was presented as frequencies and percentages.

RESULTS:

Total 50 patients with hernia was selected for present study. Right side hernia was found in 21 (42%) patients, 11 patients belonged to study group A while 10 patients belonged to study group B. Left side hernia was found in 18 (36%) patients and bilateral hernia was found in 11 (22%) patients. (Table 1) The youngest patient in the study was a 32 year old male and oldest patient in the study was 79 year old male. The maximum number of patients belongs to the age group of 30-39 years and 50-59 years in TEP group and 50-59 years in open hernia repair group. In this study, there was a marked reduction in postoperative pain in laparoscopic (TEP) hernia repair compared to open inguinal mesh hernioplasty (Table 2). Present study shows recurrence in one patient in laparoscopic (TEP) hernia group but there was no recurrence in open hernia repair group (Lichtenstein's repair) Superficial wound infection was found to be more in open inguinal hernia repair group than laparoscopic (TEP) hernia repair. Seroma formation in Laparoscopic (TEP) hernia repair was less than open hernia repair (Lichtenstein's repair) (Table 4). There was also subcutaneous emphysema in laparoscopic hernia repair group. There were no any complications related with urinary retention and orchitis in both the group (Table 3). Mean operative time for open hernia repair and laparoscopic hernia repair are 76.72 mins and 106.96 mins. Thus the mean taken time to complete a laparoscopic hernia repair was significantly higher and the difference was statistically significant ($p=0.00001$) (Table 4). Duration of hospital stay for open hernia repair and laparoscopic hernia repair are 4.64 days and 3.08 days. Thus postoperative hospital stay was significantly lower in laparoscopic hernia repair than open hernia repair ($p=0.00001$) which was statistically significant. Present study shows time to return to normal work for open hernia repair and laparoscopic hernia repair were 8.24 days and 7.24 days. Thus time to return to normal work was significantly lower in laparoscopic hernia repair than open hernia repair ($p=0.000253$) which was statistically significant (Table 5).

Table 1: Site of hernia among the study groups.

Site	Group A	Group B	Total N (%)
Right	11	10	21 (42)
Left	09	09	18 (36)
Bilateral	05	06	11 (22)
Total	25	25	50 (100)

Table 2: Post-operative pain visual analogue score of patients operated by Lichtenstein (open) method and laparoscopic method.

VAS score	Group A	Group B
	N (%)	N (%)
1-2	7 (28)	19 (76)
3-4	14 (56)	5 (20)
5-6	4 (16)	1 (4)
7-8	0 (0)	0 (0)
9-10	0 (0)	0 (0)
Total	25 (100)	25 (100)

Table 3: Postoperative complications seen after surgery in both groups.

Postoperative complications	Group A	Group B
Seroma	1	0
Superficial wound infection	1	0
Testicular pain	4	0
Pain in groin and thigh	20	4
Recurrence	0	1
Subcutaneous emphysema	0	1
Urinary retention	0	0
Orchitis	0	0

Table 4: Mean operative time.

Group A	Group B
76.72 mins	106.96 mins

Table 5: Hospital stay and time to return to normal activities.

Variable	Group A	Group B
	Mean	Mean
Hospital stay	4.64 days	3.08 days
Time to return to normal work	8.24 days	7.24 days

DISCUSSION:

The laparoscopic repair of inguinal hernia, a relatively newer modality in the armamentarium of the surgeon, has been around for around two decades. In our study of which 47 were males and 3 were females. Three females were present in open (Lichtenstein) hernia repair. Present study shows a very high incidence of inguinal hernia in males (94%) as seen in other studies like Prasad and Shah. [7,8] Present study shows mean age 57. [12] in laparoscopic hernia repair and 57.00 in

open inguinal hernia repair as seen in other studies like Prasad, Athmaram and Rathod. [7,9,10]

In present study, postoperative pain is higher in open repair of inguinal hernia (Lichtenstein) than laparoscopic repair (TEP) of inguinal hernia which is compatible with other study like Prasad. [7] There is a significant reduction in the duration of postoperative pain (in days) following a TEP repair than a Lichtenstein's repair ($p < 0.00001$). In study of Jaykar,

postoperative pain was higher in Lichtenstein's meshplasty group than Laparoscopic hernia repair group. [11] Also there were no any urinary retention and orchitis in postoperative period of both the group.

In present study, there was no major complication observed in either group like any major vascular injury, visceral injury or bladder perforation. Superficial wound infection was found to be more in open inguinal hernia repair group than laparoscopic (TEP) hernia repair group which is compatible with study of Rathod, in which the postoperative surgical site infection was found to be very less in case of TEP. [10]

In present study recurrence rate in laparoscopic (TEP) hernia repair is 4% but that is 0 in open hernia repair. This result is compatible with the study of Jaykar, in which recurrence rate was the same in both group of hernia repair that was 4%. [11] In present study seroma formation in laparoscopic (TEP) hernia repair is 0 but that is 1 in open hernia repair. This result was compatible with the study of Shah, in which seroma formation was more in open hernia repair than laparoscopic hernia repair. [8]

Present study shows mean operative time for open hernia repair and laparoscopic hernia repair are 76.72 mins and 106.96 mins. Thus the mean taken time to complete a laparoscopic hernia repair was significantly higher ($p=0.00001$) which is also compatible with other studies like Shah, Athmaram, Rathod and Jaykar. [8-11]

Present study shows duration of hospital stay for open hernia repair and laparoscopic hernia repair are 4.64 days and 3.08 days. Thus postoperative hospital stay was significantly lower in laparoscopic hernia repair than open hernia repair ($p=0.00001$) which is compatible with other studies like Athmaram, and Jaykar, Prasad. [7,9,11]

Present study shows time to return to normal work for open hernia repair and laparoscopic hernia repair were 8.24 days and 7.24 days. Thus time to return to normal work was significantly lower in laparoscopic hernia repair than open hernia repair ($p=0.000253$) which is compatible with other studies like Athmaram and Prasad. [7,9]

CONCLUSION:

In the era of laparoscopic surgery, laparoscopic hernia repair has gained its popularity. Laparoscopic hernia repair is quite safe; it has definite advantages in bilateral and recurrent cases, although it has its own

disadvantages in terms of recurrence rate, operative time and cost effectiveness. Postoperative pain, early return to normal activities, less postoperative hospital stay and better cosmetic results are also an important factor, which is seen in laparoscopic repair. Long learning curve for laparoscopic hernia repair is there but in experienced hands the results are comparable between open and laparoscopic repair. Small sample size and study period was short. So, the long term outcome results and recurrences would not be assessed. For that sample size should be large and study period should be long.

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