



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3385386>Available online at: <http://www.iajps.com>

Research Article

**STUDY TO COMPARE THE INITIAL RESULTS OF OPEN
VERSUS LAPAROSCOPIC INGUINAL MESH HERNIOPLASTY****Muzzammil Ghaffar Qureshi¹, Maida Ghaffar², Ammara Ghaffar³,
Muddassar Ghaffar Qureshi³**¹Fatima Memorial College of Medicine and Dentistry, Lahore; ² King Edward Medical University, Lahore; ³ Fatima Jinnah Medical University, Lahore; ⁴ Ameer Ud Din Medical College, Lahore**Article Received:** July 2019**Accepted:** August 2019**Published:** September 2019**Abstract:**

Objective: To compare the early postoperative outcome of laparoscopic with open inguinal mesh hernioplasty in patients with inguinal hernia.

Study design: A randomized controlled trial.

Place and Duration: In the Surgical department of Services Hospital Lahore for one-year duration from April 2018 to April 2019.

Methods: Seventy patients who met the criteria for inclusion of clinically diagnosed cases of inguinal hernia were enrolled. The assignment of the cases to two study groups was solved with a random number table. The main surgical technique for group A was laparoscopic hernioplasty and in group B open inguinal mesh hernioplasty.

Results: Seventy patients with inguinal hernia were included in the study. At 48 hours postoperatively, 7 (10%) patients experienced moderate pain in group A, and 14 (20%) severe pain in group B. Similarly, 3 (4.3%) in group A and 7 (10%) in group B had moderate severe pain on the seventh postoperative day. Wound infection occurred in Group A 1 (1.4%) and Group B 2 (2.9%).

Conclusion: Laparoscopic hernioplasty is superior to open repair in the treatment of inguinal hernia, with less postoperative pain and less risk of wound infection.

Key Words: laparoscopy, open hernioplasty, inguinal hernia.

Corresponding author:**Muzzammil Ghaffar Qureshi,**

Fatima Memorial College of Medicine and Dentistry, Lahore.

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Please cite this article in press Muzzammil Ghaffar Qureshi et al., Study To Compare The Initial Results Of Open Versus Laparoscopic Inguinal Mesh Hernioplasty., Indo Am. J. P. Sci, 2019; 06[09].

INTRODUCTION:

Inguinal hernia is the most common external abdominal hernia. Regardless of country, race or socioeconomic status, inguinal hernia creates a significant ejaculation for health and its repair usually represents 10-15% of all operations¹. Recurrence decreased from 10% to 1% due to widespread adoption of the network in primary hernia repair. This has been documented in evidence-based studies showing a significant reduction in recurrence without an increase in complications such as infection, pain, or disability². In essence, inguinal hernia is a result of weakness of the posterior wall of the inguinal canal. In the past, the transverse factor was considered the most important factor in preventive stress³. It is now believed that the strength of the posterior wall of the inguinal canal originates from the inner curved muscle fibers and the transverse abdominal region⁴. There is evidence that the risk of right inguinal hernia increases after appendectomy⁵. Although some patients with inguinal hernia may be asymptomatic, the most common clinical feature is testes in the groin area. Hernia may be better felt when the patient is standing. In general, if the patient is appropriate, inguinal hernia should be repaired surgically⁶. Worldwide, approximately 20 million hernias are repaired in the groin annually. Various repair procedures fall into two categories: facial repairs and tension-free prosthesis repairs that can be performed using an open anterior approach or laparoscopy. Facial repair is the oldest and highest incidence of postoperative complications and recurrences⁷. In 1986, Lichtenstein performed a tension-free hernioplasty who felt that the most important factor of recurrence and complications was attempts to normalize tissues without normal opposition under normal pressure⁸. This hernia repair category is much more preferred today. Laparoscopic approach has many advantages such as less postoperative pain, full activity and early return to work, better aesthetics and less relapse⁹. M Misra et al. Compared to open repair of incisional and primary ventral hernias, laparoscopic repair showed a significantly lower wound infection rate (33% vs. 6%) in the laparoscopic group¹⁰. Similarly, Ziya A Anadol et al. When comparing the laparoscopic transabdominal approach to open repair, he reported a difference in mean pain score (0-100) between 37.24 and 20.92. Several randomized studies have reported that patients experience less postoperative pain than open mesh repair after laparoscopic repair. Higher initial morbidity (including major vascular, intestinal lesions, etc.) and high recurrence rates reflected inexperience with this technique¹¹.

MATERIALS AND METHODS:

This randomized controlled trial was held in the Surgical department of Services Hospital Lahore for one-year duration from April 2018 to April 2019. Seventy inguinal hernia cases that met the inclusion criteria were selected from the outpatient department. Patients were randomly divided into two groups; Group A for laparoscopy and Group B for open mesh hernioplasty. The main technique for patients in Group A was extra-peritoneal mesh hernioplast and open anterior mesh hernioplasty for group B. Postoperative patients were evaluated for 48 hours per week to assess the severity of postoperative pain. They were then followed up on days 7 and 14 to find evidence of wound infection and postoperative pain. The data were analyzed with SPSS 11 version, the variables analyzed were age, weight, sex, severity of postoperative pain, and the presence or absence of wound infection. Obtained variables were defined as simple statistics. Types are listed as frequencies and ratios. Numerical results such as age, weight and severity of postoperative pain (mild, moderate or severe) are presented as mean and standard deviation. Qualitative data, such as the presence of wound infection, are presented as frequency and percentage. The chi-square test will be applied to the severity of postoperative pain and the presence of wound infection to compare the significance between the two groups. A value of $p < 0.05$ is considered significant.

RESULTS:

Seventy patients diagnosed with inguinal hernia were included in the study. The minimum age was 20, the maximum age was 60, and the mean age was 43.23 ± 13.37 . All subjects included in the study were male. On clinical examination of any inguinal area, 70 (100%) patients had a large cough increase. 63 patients (90%) had unilateral inguinal hernia (right or left) and 7 patients (10%) had bilateral inguinal hernia. The other 7 patients (10%) had a history of recurrence in previous inguinal hernia operations. Considering the treatment options, 35 (50%) patients were operated with laparoscopic technique (PET) in group A. In Group B, 35 (50%) patients underwent conventional open mesh hernioplasty (Lichtenstein Repair). After 48 hours, 49 (70%) patients felt mild pain or painless. However, 15 (21.4%) had moderate pain and 6 (8.6%) had severe pain.

Table 1: Frequency of various treatment modalities used

Group	Frequency	%age
Group A Laparoscopic hernioplasty	35	50
Group B Open mesh hernioplasty	35	50

Table 2: Age distribution

Age of patient	
N	70
Minimum	20
Maximum	60
Mean	43.23
Std. deviation	+13.37

Laparoscopic hernioplasty group: 28 patients (40%) had mild or no pain, only 1 patient (1.4%) had severe pain. 6 (8.6) patients had moderate pain.

Open mesh hernioplasty group: only 21 (30%) had mild or no pain. 9 (12.9%) had mild pain and the other (7.1%) had severe pain.

Table 3: Proportion of various types of hernias (n=70)

Diagnosis	Frequency	%age
Right inguinal hernia	30	42.9
Left inguinal hernia	26	37.1
Recurrent rt. inguinal hernia	6	8.6
Recurrent left inguinal hernia	1	1.4
Bilateral inguinal hernia	7	10

Table 4: Frequency of pain at 48 hours (n=70)

Pain	Frequency	%age
Mild	49	70
Moderate	15	21.4
Severe	6	8.6

Similarly, on the seventh postoperative day, 60 (85.7%) patients had no pain or mild pain. Of the remaining 10 patients (14.3%), 6 (8.6%) had moderate pain and 4 (5.7%) had severe pain.

Laparoscopic hernioplasty group: 32 (45.7%) had mild or no pain, only 1 (1.4%) had moderate pain, and 2 (2.9%) had severe pain.

Open mesh hernioplasty group: 28 patients (40%) had mild or no pain. 5 (7.1%) had moderate pain and 2 (2.9%) had severe pain. Wound infection occurred in 3 (4.3%) cases, 2 of them (2.9%) were infected in group B (open mesh hernioplasty) and 1 (1.4%) wound was infected in Group A (Tables)

Table 5: Frequency of pain at Day 7 (n=70)

Pain	Frequency	%age
Mild	60	85.7
Moderate	6	8.6
Severe	4	5.7

Table 6: Comparative frequency of pain at 48 hours with both operative procedures (n=70)

Pain at 48 hours			Total
Mild	Moderate	Severe	
Laparoscopic mesh hernioplasty			
28(40%)	6(8.6%)	1(1.4%)	35(50%)
Open mesh hernioplasty			
21(30%)	9(12.9%)	5(7.1%)	35(50%)

Chi square test; 4.267 p value; Insignificant

Table 7: Comparative frequency of pain at day 7 in both operative procedures (n=70)

Pain at DAY 7			Total
Mild	Moderate	Severe	
Laparoscopic mesh hernioplasty			
32(45.7%)	1(1.4%)	2(2.9%)	35(50%)
Open mesh hernioplasty			
28(40%)	5(7.1%)	2(2.9%)	35(50%)

Chi square test; 2.933 p value; Insignificant

Table 8: Frequency of wound infection (n=70)

Wound infection	Frequency	%age
Present	3	4.3
Not present	67	95.7

DISCUSSION:

The use of the prosthetic network to create a tension-free repair as well as a laparoscopic technique has gained popularity for inguinal hernia repair¹². The use of the network is widespread and increasing. In open hernia surgeries, tension-free repair is performed with the use of mesh and the recurrence rate and rehabilitation time are reduced compared to sutured repairs. Network repair has been shown to reduce repetition rate by 50% regardless of network placement technique. Since 1969, Stoppa et al. They used a pre-peritoneal subumbilical approach to the retro-facial cavity. The advantages of this approach are ease of separation of the retro-facial cell space, direct access to the posterior groin structures, clear understanding of hernia defects and clear presentation of pectin-muscle opening. In the laparoscopic PET technique, dissection and placement of the network is performed in the preperitoneal retro-facial, as in the open surgery of the Stoppa technique¹³. Therefore, PET laparoscopic repair is expected to combine the advantages of the Stoppa approach with minimally invasive surgery. Laparoscopic PET repair of inguinal hernia is a completely extraperitoneal approach since entry into the peritoneal cavity is avoided. Although the TAPP technique is the transperitoneal approach of the inguinal hernia applied to the abdominal cavity with the possibility of damaging the intraperitoneal content. Laparoscopic hernia repair has been criticized for technical difficulties, costs and a long learning curve¹⁴. The aim of this study was to compare the results of laparoscopic inguinal hernioplasty with

early mesh surgery and open mesh hernioplasty for early postoperative pain and wound infection. The main technique for patients in Group A was full extraperitoneal mesh hernioplasty (PET) and Group B open anterior mesh hernioplasty (Lichtenstein repair). M C Misra et al. compared with open repair of primary ventral hernia in the laparoscopic group, a significantly lower rate of wound infection (6% vs. 6%) in the laparoscopic group. In my study, the rate of wound infection was generally low in both groups (4.3%). Therefore, laparoscopic hernioplasty M Misra et al. Wound infection developed in 2 patients (2.9%) in the open hernioplasty group and 1 patient (1.4%) in the laparoscopic group¹⁵. However, due to the need for an expensive Cidex solution to sterilize laparoscopic instruments and poor sterilization in our configuration, the infection rate may be slightly higher than described by Haq RN.

CONCLUSION:

This randomized controlled study concluded that laparoscopic inguinal hernioplasty surgery was better for less postoperative pain and lower risk of wound infection than open anterior mesh hernioplasty. However, the need for general anesthesia and the increase in estimated time and cost of surgery were not popular among surgeons and patients. In addition, long-term monitoring is required to assess the overall effectiveness of this technique.

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