

Comparison of Common Postoperative Complications Between Lichtenstein Open Repair and Laparoscopic Transabdominal Pre-Peritoneal (TAPP) Repair in Inguinal Hernia

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ABSTRACT

Objective: To evaluate the common postoperative complications of Lichtenstein mesh repair and laparoscopic TAPP repair in patients with inguinal hernias.

Study Design: Randomized controlled trial study

Place and Duration of Study: This study at the Department of Surgery, Central Park Teaching Hospital, Lahore from January 2023 to June 2023.

Methods: This comparative study was conducted at Central Park Hospital, Lahore. A total of 100 participants were divided into two groups after taking informed consent. Data was entered and analyzed by SPSS 26.

Results: The average age of the cases in Group A was 23.70 ± 5.08 and in Group B it was 25.86 ± 4.44 . In this study hematoma formation, serotral edema urinary retention and chronic pain was found significant in both groups with p-value 0.041, 0.022, 0.025 and 0.022 respectively. However, seroma formation, and hernia recurrence was found insignificant with p-values 0.079, and 0.092 respectively.

Conclusion: It is concluded that both ways are good for surgery but TAPP is safer, cheaper and time saving with the lesser incidence of post-operative complications and decreased rate of infection.

Key Words: Laparoscopic inguinal hernia, TAPP repair, Lichtenstein repair

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INTRODUCTION

A hernia is a condition in which a viscus or a portion of a viscus protrudes through the wall of the cavity in which it is typically situated. Intra-abdominal cancer, obesity, coughing, and exertion are all risk factors for hernia^[1]. The abdomen, femur, umbilical cord, and inguinal area are among the anatomical locations in which hernias can develop. The most prevalent form of hernia is inguinal hernias, which account for approximately 73% of all cases^[2].

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An inguinal hernia (IH) is treated using a variety of surgical approaches. In the United States, approximately 700,000 hernia repairs are performed annually, with mesh repair being one of the most frequently conducted operations^[3]. Nevertheless, the repair of Lichtenstein mesh is linked to an elevated risk of postoperative distress, urine retention, and the formation of hematomas. The postoperative complications have been significantly improved as a consequence of recent advancements in surgical treatments. Postoperative pain and hospital stay have been demonstrated to be reduced by minimally invasive treatments, including laparoscopic TAPP, intraperitoneal only mesh (IPOM) repair, and completely extraperitoneal (TEP)^[4,5].

The objective of this investigation was to evaluate the postoperative complications of Lichtenstein mesh repair (LMR) and laparoscopic TAPP repair in patients with unilateral IH. The meta-analysis conducted by Wright et al. did not reveal any significant differences between the two procedures. On the other hand, Stoppa et al. argued that laparoscopic hernia repair (LHR) produced better outcomes in terms of less post surgical pain and a quicker return to normal physical activity.^[6-8]

METHODS

This was a comparative investigation conducted at Central Park Teaching Hospital in Lahore from January 2023 to June 2023.. After fulfilling inclusion criteria a total of 100 patients were randomly allocated into two equal groups (n=50 each) by simple random sampling. This study was conducted the guidelines of Hilinski declaration after getting ethical approval (CPMC/IRB-No/1383A) from institutional review board of Central Park Medical College and Teaching Hospital Lahore. In this study, patients aged 18 to 70 who had a unilateral IH and undergoing elective surgery were eligible and recruited while the patients who had bilateral inguinal hernias, systemic/local infections, and a history of pelvic surgery were excluded from this study. Following permission from the hospital's ethics council, patients who met the inclusion requirements were randomly assigned using a computer program. All patients provided informed written permission. Prior to the procedure, an anaesthetic assessment was performed. All of the operations were carried out by the same group of surgeons who had over two years of experience doing open and laparoscopic hernia surgeries. A predesigned performa was used to record demographic and clinical characteristics (e.g., age, gender, length of hospital stay), as well as complications after surgery.

Statistical Analysis: The data was analyzed with SPSS version 26. Quantitative factors (age, length of hospital stay) were represented as mean ± SD, while qualitative variables (gender, post-operative issues) were described as frequencies and percentages. The chi-square test was performed to compare post-operative results. A p-value of <0.05 was considered significant.

RESULTS

RESULTS

The average age of the cases in Group A was 23.70 ± 5.08 and in Group B it was 25.86 ± 4.44. A total of 50 (100%) male were enrolled in both groups. The mean length of hospital stay was 1.20 ± 0.40 in Group A and 2.14 ± 0.90 in Group B. (Table 1)

Table No. 1: Demographics and clinical parameters

		Lichtenstein (Group A)	TAPP (Group B)
Age	(Mean ± S.D)	23.70 ± 5.08	25.86 ± 4.44
Gender	Male	50 (100%)	50 (100%)
Length of hospital Stay	(Mean ± S.D)	1.20 ± 0.40	2.14 ± 0.90

In this study hematoma formation, secrotal edema urinary retention and chronic pain was found significant in both groups with p-value 0.041, 0.022, 0.025 and

0.022 respectively. However, seroma formation, and hernia recurrence was found insignificant with p-values 0.079, and 0.092 respectively (Table 2).

Table No. 2: Comparison of Post-operative Complications

		Lichtenstein (Group A)	TAPP (Group B)	P-Value
Hematoma Formation	Yes	4 (8%)	0 (0%)	0.041
	No	46 (92%)	50 (100%)	
Seroma Formation	Yes	3 (6%)	0 (0%)	0.079
	No	47 (94%)	50 (100%)	
Secrotal Edema	Yes	5 (10%)	0 (0%)	0.022
	No	45 (90%)	50 (100%)	
Urinary Retention	Yes	9 (18%)	2 (4%)	0.025
	No	41 (82%)	48 (96%)	
Hernia Recurrence	Yes	5 (10%)	1 (2%)	0.092
	No	45 (90%)	49 (98%)	
Chronic Pain	Yes	5 (10%)	0 (0%)	0.022

DISCUSSION

Reducing the contents, ligating the sac, and using mesh reinforcement to strengthen the posterior abdominal wall constitute the fundamental principles of IH repair. In the past, the most frequently performed operation was the repair of an open IH. However, the development of minimally invasive techniques was necessitated by the delayed return to daily activities and the increased postoperative discomfort. Laparoscopic TAPP repair was considered the safest alternative.

The initial laparoscopic repair of an IH was conducted in the 1990s^[5,9]. LHR has several advantages, including lower postoperative discomfort, fewer postoperative problems, shorter hospital stays, and a shorter time of disability^[10,11]. TAPP repair reduces postoperative pain because it has a lower rate of postoperative complications, which are strongly related^[12-14].

The study initially comprised 100 individuals with unilateral inguinal hernias. The average age of cases in Group A was 23.70 ± 5.08, while in Group B it was 25.86 ± 4.44. Similarly findings were noticed in a previous study in which all patients were male, as is typical in our demographic.

In our investigation, hematoma formation, secrotal edoema, urine retention, and persistent discomfort were all significant in both groups (p-values 0.041, 0.022, 0.025, and 0.022, respectively). However, seroma formation and hernia recurrence were shown to be negligible (p-values = 0.079 and 0.092, respectively). In a previous study, Group I experienced a higher

percentage of postoperative complications (32%) than Group II (4%). These included the development of hematoma and seroma, scrotal edoema, and urinary retention. Inguinal incision is linked to these complications. Consequently, they are more probable to manifest during the open method than the laparoscopic technique [15]. 0% to 4% has been reported as the recurrence rates following LHR^[12]. Wijerathne et al.^[12] highlighted that complications and post-operative pain are highly connected. Furthermore, less post-operative pain could be linked to fewer problems connected with this method.

The incidence of chronic pain was zero in TAPP and 10% in LMR in our study. As previously reported in investigations^[10,16], persistent pain was significantly more prevalent in LMR in another study. The primary explanation may be the mesh's distinct allocation of space in comparison to the open approach. Nevertheless, this necessitates further investigation. Hematoma and seroma development are also regarded as risk factors for long-term suffering following inguinal hernia treatment^[15,17]. According to Wennergren et al.^[15], laparoscopic IH repair reduces early postoperative pain more than open Lichtenstein repair.

CONCLUSION

It is concluded that both ways are good for surgery but TAPP is safer, cheaper and time saving with the lesser incidence of post-operative complications and decreased rate of infection, however, a larger study is warranted to assess the generalizability but TAPP should be recommended and advised for the patients of hernia repair.

Author's Contribution:

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