EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Coden USA: EJBPBO
Volume: 12
Issue: 11
Year: 2025

EARLY RECOVERY AFTER LAPAROSCOPIC INGUINAL HERNIA REPAIR IN COMPARISON WITH OPEN APPROACH A RETROSPECTIVE STUDY AT KING HUSSIEN MEDICAL HOSPITAL

Hamzah Hamadeen MD*, Husam Al Mharat MD, Bilal Alhamad, Rami Al Omoor MD, Ahamad Al Zboon MD, Mohammad Al Huniti MD, Majed Al Qaisi MD, Ghidaa Maswadah

India.

***Corresponding Author: Hamzah Hamadeen MD**

India.

DOI: https://doi.org/ 10.5281/zenodo.17473797

How to cite this Article: Hamzah Hamadeen MD*, Husam Al Mharat MD, Bilal Alhamad, Rami Al Omoor MD, Ahamad Al Zboon MD, Mohammad Al Huniti MD, Majed Al Qaisi MD, Ghidaa Maswadah. (2025). Early Recovery After Laparoscopic Inguinal Hernia Repair In Comparison With Open Approach A Retrospective Study At King Hussien Medical Hospital. European Journal of Biomedical and Pharmaceutical Sciences, 12(11), 87–90.

Article Received on 28/09/2025 **Article Revised on 18/10/2025** **Article Published on 01/11/2025**

ABSTRACT

Objective: to distinguish which is superior during the recovery period, laparoscopic versus the open approach of inguinal hernia repair, and to assess the period after surgery regarding complications and the hospitalization period. **Methodology**: It is a retrospective study of 270 cases that underwent laparoscopic and open inguinal hernia repair at KING HUSSEIN MEDICAL CENTER over a two-year duration, from June 2022 to July 2024. Most hernias are diagnosed either clinically or radiologically, typically through the use of an ultrasound or a CT scan, before surgery. Data collected before surgery about age, sex, comorbidities, and after surgery about the type of repair, open vs laparoscopic, hospitalization time, and early postoperative complications. All data were analyzed and compared; the decision between laparoscopic and open approaches was dependent on the size of the hernia sac and whether the case was a redo surgery or not. **Results:** Postoperative bleeding shows no difference between the two groups (p value = 0.105) and Phi score = 0.099. While the pain score shows a highly significant difference between the two groups, with p values of $p < 0.001$, and Phi = 0.570, in favor of the laparoscopic approach, which shows a lower pain score. **Conclusion:** laparoscopic inguinal hernia repair is associated with lower postoperative pain and shorter hospital stay in comparison to open surgical technique.

KEYWORDS: laparoscopic, inguinal hernia.

INTRODUCTION

Surgical Hernia repair is the most common surgical procedure performed worldwide. Inguinal hernia is the most common hernia in humans. It's common in both sexes, more frequently in male patients, and it happens in all age groups. Inguinal hernia could be due to patent processes vaginalis congenitally or environmentally, due to persistent cough or chronic constipation.[1]

There are many types of surgical hernia repair, a surgical procedure through which a hernial defect is closed with the application of polypropylene mesh, is called hernioplasty, and is performed either minimally invasive or with an open technique.

In the past, open technique, tension-free Lichten schtien hernia repair, was the gold standard surgical approach, but the concept has changed nowadays; especially in era of minimal invasive surgery, the laparoscopic surgery became popular with low hospitalization and better recovery.[2]

laparoscopic inguinal hernia repair could be conducted in two ways: the first is total abdominal preperitoneal (TAPP), which is the preferred technique, and the second is total extraperitoneal (TEP).

Furthermore, the surgical wound infection is an uncommon consequence post-surgery, at the same time it's serious; the wound infection percentage is not constant and changes according to the type and site of surgery, and the application of mesh or prosthesis. The infection of surgical wound is categorized into four classes:[3]

1. Clean wound, the rate of infection is less than 4%.
2. Clean-contaminated, the rate of infection is less than 10%.
3. Contaminated, the rate of infection reach 25%.
4. Dirty wound, the rate of infection is more than 40%.

The main objective of the study is to compare the early recovery period, hospital stay and pain intensity between two modalities, the open inguinal hernia repair and the laparoscopic technique.

METHODOLOGY AND MATERIAL

Study design

It's a retrospective study that was conducted at King Hussien Medical Hospital, from January 2023 to January 2024, for a one-year duration. The sample includes 269 cases that underwent inguinal hernia repair by one center under the same circumstances. All procedures were transabdominal preperitoneal (TAPP) laparoscopic hernia repair with application of preperitoneal polypropylene mesh.

Data were collected retrospectively and then were analyzed considering many variables such as age, sex, procedure type, right or left side, and presence of bleeding. All patients were followed up inside hospital as in-patient follow-up.

Royal Medical Service electronic medical system (HAKEEM) was our medical records reference.

All patients were classified into two major groups: group A, 197 cases, the laparoscopic group, and group B, 93 cases, the open group.

The first variable was postoperative pain, we considered NPS, Numerical Pain Score, which is the recognised pain score at KHMH, data were collected from hourly nursing rounds sheets and HAKEEM electronic system and then we mearure the average of NPS along 24 hours after surgey.

The second variable was the length of hospital stay, which was categorized into 24 hours, 48 hours, and 72 hours, the third variable was the presence of bleeding and was considered positive if there was a drop in PCV of equal to or more than 8.

Inclusion and exclusion criteria

All patients with previous medical illness, such as DM, Obesity, and cardiac patients, and any factor that could increase the risk of bleeding or prolong hospitalization, like any comorbidity, were excluded from the study.

Surgical techniques

Laparoscopic approaches: start with creation of pneumoperitoneum under pressure of 14, the surgery completed by insertion of 3 trocars, one on the umbilicus for camera and another two 5mm trocars as working graspers. The procedure is a three-step process. Firstly, the creation of a peritoneal flap, hernial sac reduction, and separation from spermatic cord, and finally applying and fixing the polypropylene mesh using tissue tackers.

Open technique: after skin preparationa, an 8 cm skin incision above the inguinal ligament, and then open the abdominal wall muscles layers, to reach the inguinal canal, identification of the hernial sac, separation of the hernial sac from the spermatic vessels and vas deferens, and herniotomy done by resection of the hernial sac. Then, hernioplasty is done by repairing the posterior wall by fixing the conjoint tendon to the shelving edge of the inguinal ligament, finally applying and fixing a polypropylene mesh.

Statistical analysis

The categorical data were expressed in frequency and percentage, while the scale data were expressed as mean and standard deviation. Chi-square test was used to investigate proportion differences in categorical data. However, an independent t-test was utilized for continuous variables. SPSS software Version 28 was used to analyze the data, and a P-value less than 0.05 was deemed statistically significant.

Ethical approval: this study was approved for publication by the Ethical Committee at the Royal Medical Service, number 33\12\2025.

RESULTS

The comparison between group A and B showed no significant difference between the two groups regarding age, and the mean and SD were 54.71 (15.42) years. While the rate of inguinal hernia repair was higher in males more than in females, 176 (65.4%), 93 (34.6%), respectively.

The right side inguinal hernia was the commonest in both groups, followed by the left side and finally the bilateral, Rt 116 (43.1%), Lt 105 (39.0%), bilateral 48 (17.8%), here, the difference is significant, P value < 0.001; most of the bilateral cases were operated laparoscopically.

There was a strong association between the average pain score and hospital stay, Chi-square [90.117], P [0.001], Phi [0.579], with statistically significant.

Most of the patients with laparoscopic surgery have shorter hospital stays in comparison with the open approach. Postoperative bleeding shows no difference between the two groups (p value = 0.105) and Phi score = 0.099. While the pain score shows a highly significant difference between the two groups, with p values of p < 0.001, and Phi = 0.570, in favor of the laparoscopic approach, which shows a lower pain score.

DISCUSSION

We found that the right inguinal hernia is the commonest side and the hernia is more common among males, as described by Butchy, M.V, and his colleagues.[4] Most of

our cases were operated laparoscopically, especially bilateral inguinal hernia; our results were the same as A Chamzin study about[5] (LAPAROSCOPIC TAPP REPAIR OF SPIGELIAN AND BILATERAL INGUINAL HERNIA).

There is a strong association between the intensity of pain and hospital stay, as seen by Avrahami, Noga et al. At the same time, their results were similar to our study.[6] Dr. Jennie Meier proved that there is no significant difference between the laparoscopic and open techniques in cases of inguinal hernia repair.[7]

Furthermore, Paul, B and Alam, K. Z described shorter hospitalization among patients after laparoscopic surgery in terms of wound infections and pain intensity, the results nearly resemble our study outcomes.[8]

While El-Dhuwaib and Y., Corless described significant differences in the rate of bleeding after inguinal hernia repair, with a lower rate in the case of the laparoscopic approach, our result was different, with no significant changes.[9]

On the other hand, S Kılıç described the long-term outcome after laparoscopic and open approaches, and his study showed better outcomes and shorter hospital stay among patients who underwent the laparoscopic approach. S Kılıç results are closely related to our research.[10]

Table 1: Shows Differences Between The Open And Laparoscopic Groups Regarding Age, Gender, Type, And The Site Of Hernia.

Variables	Total	laparoscopic	open	Test value	p-value
Age / year Mean (SD)	**54.71 (15.42)**	**54.68 (14.39)**	**54.76 (16.81)**	**-0.043** ^{t}	**0.966**
Gender					
Male	176 (65.4%)	109 (69.4%)	48 (30.6%)	2.666 ^{X2}	0.102
Female	93 (34.6%)	48 (30.6%)	45 (40.2%)		
Site of inguinal hernia					
Left side	105 (39.0%)	49 (31.2%)	56 (50.0%)	28.306 ^{X2}	***<0.001***
Right side	116 (43.1%)	64 (40.8%)	52 (46.4%)		
Bilateral	48 (17.8%)	44 (28.0%)	4 (3.6%)		

X^2 Chi-square, t : independent t-test

Table 2: Shows The Comparison Between The Two Groups.

Variable	Category	Total	Surgery		Test value	p-value	Phi
			laparoscopic	open			
Hospital stay	One day	202(75.1%)	151 (96.2%)	51 (45.5%)	90.117	***0.001*** ^{X2}	0.579
	Two days	55 (20.4%)	6 (3.8%)	49 (43.8%)			
	Three days	12 (4.5%)	0 (0.0%)	12 (10.7%)			
Postop bleeding	No	155 (98.7%)	155 (98.7%)	107 (95.5%)	2.625	0.105 ^{X2}	0.099
	Yes	7 (2.6%)	2 (1.3%)	5 (4.5%)			
NPS/24 hrs	Less 5	203 (75.5%)	151 (96.2%)	52 (46.4%)	87.380	***<0.001*** ^{X2}	0.570
	Above 5	66 (24.5%)	6 (3.8%)	60 (53.6)			

CONCLUSION

Laparoscopic inguinal hernia repair is associated with lower postoperative pain and shorter hospital stay in comparison to open surgical technique.

RECOMMENDATION

Laparoscopic inguinal hernia repair is gold standered option for inguinal hernia repair and highly recommended in case of bilateral hernias.

REFERENCES

1. Dalaf, F. A., Abed, F. N., & Ibrahim, O. K. Epidemiology and Risk Factors for Recurrence of Inguinal Hernia. *South Eastern European Journal of Public Health*, 2024; 350–358. https://doi.org/10.70135/seejph.vi.712
2. Schwab, Marisaa; Khan, Faraza; Kieran, Kathleenb,c. Pediatric inguinal hernia: open versus laparoscopic approaches to surgical management. Current Opinion in Pediatrics, October 2025; 37(5): 482-487. | DOI: 10.1097/MOP.0000000000001498.
3. Jae H Joe, Francine Breckler, Samina S Bhumbra, Rodica loana Mararu, Comparison of the incidence of surgical site infections in patients who receive clindamycin vs. beta-lactam antibiotics for pediatric gastrointestinal surgery, Journal of the Pediatric Infectious Diseases Society, October 2024; 13(3): S11–S12, https://doi.org/10.1093/jpids/piae088.022.
4. Butchy, M.V., Williamson, J., Lindholm, E.B. (2025). Pediatric Inguinal Hernia. In: Neff, M., Beekley, A., Yoon-Flannery, K., Ratnasekera, A. (eds) Passing the General Surgery Oral Board Exam.

Springer, Cham. https://doi.org/10.1007/978-3-031-78244-2_123.

5. A Chamzin, C Theodoropoulos, G Galyfos, A Triantafyllou, N V Michalopoulos, K G Toutouzas, D Theodorou, LAPAROSCOPIC TAPP REPAIR OF SPIGELIAN AND BILATERAL INGUINAL HERNIA, *BJS*, May 2024; 111(5): znae122.133, https://doi.org/10.1093/bjs/znae122.133
6. *Avrahami, Noga et al*, The Association Between Pain and In-Hospital Complications and Duration of Stay After Colorectal Surgery,. *Pain Management Nursing, 23(6): 848 – 854.*
7. Meier J, Stevens A, Berger M, et al. Comparison of Postoperative Outcomes of Laparoscopic vs Open Inguinal Hernia Repair. *JAMA Surg.*, 2023; 158(2): 172–180. doi:10.1001/jamasurg.2022.6616
8. Paul, B., Alam, K. Z., Mostafa, F., Abedin, M. A., Hossain, A., & Akter, S. Laparoscopic Transabdominal Preperitoneal Repair Is Better Than Open Lichtenstein Hernioplasty in Inguinal Hernia Surgery in Terms of Initial Outcome. *Journal of Chittagong Medical College Teachers' Association*, 2025; *34*(2): 141–145.
9. El-Dhuwaib, Y., Corless, D., Emmett, C. et al. Laparoscopic versus open repair of inguinal hernia: a longitudinal cohort study. Surg Endosc., 2013; 27: 936–945.
10. S Kılıç, Comparison of long-term outcomes of laparoscopic percutaneous internal ring suturing and classic open approach for inguinal hernia repair in children, The Annals of The Royal College of Surgeons of England, 106(8).