

A COMPARATIVE STUDY BETWEEN LAPAROSCOPIC VERSES OPEN REPAIR OF VENTRAL HERNIA.

General Surgery

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ABSTRACT

Introduction: With the advancement in technology as well as surgical techniques, laparoscopic ventral hernia repair (LVHR) is more commonly being performed as compared to open repair in various centers throughout the World. Our study aimed to compare the short-term operative outcomes between LVHR and open repair.

Materials and methods: Sixty patients diagnosed with non-complicated ventral hernias were included in this prospective study and were randomly divided into the laparoscopic group and the open group. The two groups were compared to evaluate operative time, postoperative pain, length of hospital stay and time taken to return to normal activity. A p-value of less than 0.05 was considered to be statistically significant.

Results: Mean operative time was longer in LVHR (116 min) as compared to open repair (67 min)($p < 0.01$). Patients experienced more pain on the first and seventh postoperative days in the open group ($p < 0.01$) and they also had a longer duration of hospital stay as compared to the laparoscopic group (6.23 ± 0.35 vs 2.17 ± 1.12 days, $p = 0.02$). Patients in the laparoscopic group returned to normal activity faster as compared to the open group (1.47 ± 0.11 vs 2.87 ± 0.34 , $p < 0.01$).

Conclusion: LVHR carries a significant advantage over open hernia repair, especially in terms of reduced postoperative pain, duration of hospital stay, and early resumption of normal activity.

KEYWORDS

post-operative pain, ventral hernia, open ventral hernia repair, laparoscopic ventral hernia repair, hernia

INTRODUCTION

Ventral hernia occurs through the anterior abdominal wall at any site other than groin.^[1] They are classified into incisional, par umbilical, umbilical, epigastric, and spigelian hernias.^[2,3] Incisional hernias are a complication of open abdominal surgery. Surgical repair is demanding with the goal of tension free repair. The use prosthetic mesh in ventral hernia repair had helped in reducing the recurrence rates. Para-umbilical hernias are usually acquired whereas umbilical hernias may be congenital, epigastric hernia protrudes through linea-alba above the umbilicus. Five percent of the population has epigastric hernias. There is a high chance of incarcerations and surgery remains the only cure. Most of the spigelian hernias are acquired and require surgery as the chances of epigastric hernia protrudes through linea-alba above the umbilicus. Most of the spigelian hernias are acquired and require surgery as the chances of intestinal obstruction are high. In this modern era of surgery, emphasis is on decreasing hospital stay and postoperative morbidity with importance given to cosmesis. Hence, laparoscopic surgery has gained paramount importance due to its minimally invasive technique, decreased hospital stay and better cosmesis. The trend toward minimal access surgery (MAS) has prompted general surgeons to scrutinize all operations towards laparoscopic techniques. Laparoscopic ventral hernia repair needs further evaluation of its long-term outcomes. In our study, we would like to share our experience with this procedure and compare it with traditional open repair and laparoscopy surgery. Patients with financial constraints and in whom laparoscopy was contraindicated underwent open surgery whereas other patients underwent laparoscopic surgery. The patients undergoing open mesh repair were included in group 1, whereas those undergoing laparoscopic mesh repair were included in group 2.

HYPOTHESIS OF THE STUDY

The study hypothesize that patients undergoing laparoscopic repair would have lower postoperative infectious, less recurrence, less hospital stay, and better outcomes.

AIMS AND OBJECTIVES OF THE STUDY

To compare open hernia repair with Laparoscopic ventral hernia repair with regard to:

- Recurrence
- Cosmesis

MATERIALS AND METHOD

The study is a randomized prospective and comparative evaluation of

open ventral hernia repair with laparoscopic ventral hernia The patients undergoing open mesh repair were included in group 1, whereas those undergoing laparoscopic mesh repair were included in group 2. This study include 50 patients and randomly selects for open and laparoscopic ventral hernia repair and this study includes patients who give consent to get operates for mid-line ventral hernia at our institution from February 2021 to January 2022.

INCLUSION CRITERIA

Patients presenting with mid line ventral hernias who were managed in our hospital with open and laparoscopic intra peritoneal mesh repair were included after obtaining a written consent.

EXCLUSION CRITERIA

Non mid-line hernias such as

- Hernia after cesarean section
- Hernia after open appendectomy
- Spigelian hernia
- Lumbar hernia
- Obstructed hernia.

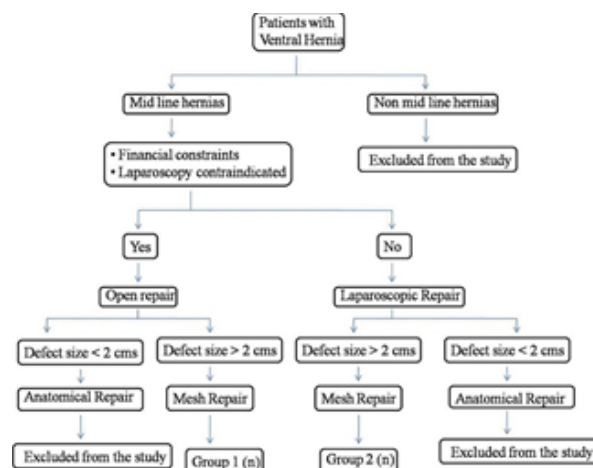


Figure :- Study design

STATISTICAL METHODS

The statistical software namely SPSS 15.0, MedCalc 9.0.1 were used for data analysis. Descriptive and inferential statistical analysis will be done. Variables on continuous measurements are presented on Mean $\pm$ SD (Min–Max) and variables on categorical measurements are presented as number (%). Significance is assessed at 5% level of significance.

Chi-square/Fisher exact test was used to determine the significance of study parameters on categorical scale between two or more groups. A *P* value of <0.05 was considered significance.

RESULTS

Mean age of patients in the open group was 52.1 ± 11.51 years while the mean age in the laparoscopic group was 43.20 ± 9.37 years. There were equal number of males and females in both the open and laparoscopic group (Table 1)

Table1-patient Demographics

	Open Group (n = 30)	Laparoscopic Group (n = 30)
Age (mean $\pm$ SD)	52.1 ± 11.51	43.20 ± 9.37
Sex		
Male	12	12
Female	18	18

Paraumbilical hernias were the most common in both groups, which accounted for 71.6% of all patients involved in our study. Incisional hernias were the second most common (21.7%) followed by epigastric hernias, which were the least common (6.7%) (Table 2)

Table 2-types Of Ventral Hernia

Type of Hernia	Open group (n = 30)	Laparoscopic group (n = 30)	Percent (%)
Epigastric Hernia	2	2	6.7%
Incisional Hernia	6	7	21.7%
Paraumbilical hernia	22	21	71.6%

Preoperative defect size was equal in both groups with a median of 4 cms. The defect in the open group had an interquartile range of 2-8 cms while in the laparoscopic group it ranged from 2-6 cms ($p=0.41$).

The mean operative time was significantly longer in the laparoscopic group (116 ± 4.1 min) as compared to the open group (67.3 ± 2.3 min). Pain experienced by the laparoscopic group on the first postoperative day based on VAS was less as compared to the open group. On the seventh postoperative day, the majority of the patients in the laparoscopic group experienced grade 1-2 on VAS as compared to the open group that experienced grade 2-3. The mean duration of postoperative stay in the open group was 6.23 days, which was longer as compared to the laparoscopic group (3.17 days). Patients in the laparoscopic group resumed normal activity quicker as compared to the open group (Table 3).

Table 3-operative Outcome

	Open Group (n=30)	Laparoscop ic Group (n=30)	p- value
Operative time (minutes) (mean $\pm$ SD)	67.3 ± 2.3	116 ± 4.1	<0.01
Pain score on first postoperative day (mean $\pm$ SD)	6.31 ± 1.33	3.14 ± 1.41	<0.01
Pain score on seventh postoperative day (mean $\pm$ SD)	2.1 ± 1.22	1.13 ± 2.3	0.01
Duration of hospital stay (days) (mean $\pm$ SD)	6.23 ± 0.35	2.17 ± 1.12	0.02
Return to normal activity (days) (mean $\pm$ SD)	2.87 ± 0.34	1.47 ± 0.11	<0.01

CONCLUSION

The laparoscopic approach appears to be as effective as open repairs in the treatment of ventral hernias. LVHR is routinely performed in most centres and is a safe and feasible alternative to open ventral hernia repair. Our study showed that LVHR has a significant advantage over open repair with respect to postoperative pain, hospital stay, and return to normal activity.

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