



A COMPARATIVE STUDY BETWEEN LAPAROSCOPIC VERSUS OPEN REPAIR OF INCISIONAL HERNIA AT A TERTIARY CARE INSTITUTE.

General Surgery

Dr Kancham Nethaji

Junior Resident (3rd year) Dept. of Gen. Surgery, IGIMS, Patna.

Dr Rajeew Ranjan

Junior Resident (3rd year) Dept. of Gen. Surgery, IGIMS, Patna.

Dr. K Abhishek

Junior Resident (3rd year), Dept. of Gen. Surgery, IGIMS, Patna.

Dr. Ankur Akela

Senior Resident, Dept. of Gen. Surgery, IGIMS, Patna.

ABSTRACT

Introduction Incisional hernia is a bulge or protrusion near or directly along a prior abdominal surgical incision. Repair of ventral hernias has always been challenging because of the distorted anatomy due to previous surgery. With the advancement in technology as well as surgical techniques, laparoscopic incisional 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 laparoscopic and open repair. **Materials and methods** Fifty patients diagnosed with non-complicated incisional 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 Laparoscopic repair (100 min) as compared to open repair (76 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. **Conclusion** Laparoscopic repair 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, incisional hernia, open incisional hernia repair, laparoscopic incisional hernia repair.

INTRODUCTION

Incisional hernia is a bulge or protrusion near or directly along a prior abdominal surgical incision. Incisional hernias are a complication of open abdominal surgery. Surgical repair is demanding with the goal of tension free repair. The use of prosthetic mesh in incisional hernia repair had helped in reducing the recurrence rates. 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.

AIMS AND OBJECTIVES OF THE STUDY

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

- Operative time,
- Intraoperative complications, post-op pain, hospital stay
- Recurrence

MATERIALS AND METHOD

The study is a randomized prospective and comparative evaluation of open incisional hernia repair with laparoscopic incisional 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 included 50 patients and randomly selects for open and laparoscopic incisional hernia repair and this study includes patients who give consent to get operated for incisional hernia at our institution from March 2021 to August 2022.

Inclusion criteria

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

Exclusion criteria

1. Co-morbid conditions not fit for general anaesthesia.

2. Patients with large incisional hernia with redundant skin.
3. Patients with irreducible hernia, obstructed hernia, strangulated hernia.

Laparoscopic method:-



Image 1 – clinical image of incisional hernia



Image 2- hernia sac dissection



Image. 3 Closure of preperitoneal space



Image 4. Closure of preperitoneal space



Image 5 - Preperitoneal Meshplasty



Image 6. Skin closed after closing Rectus sheath

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

In our study 50 patients were randomly assigned to undergo either laparoscopic (n=25), or open (n=25) incisional hernia repair.

Fig2 – Intraoperative complications.

Characteristic (No.-%)	Open (n = 25)	Laparoscopic (n = 25)
Male/Female	15/10	14/11
Age, y, mean (SD)	49.2(10.9)	47.2(10.4)
Hernia diameter, cm	5	5

Fig 3-perioperative outcomes

Intraoperative Complications	Open (n = 25)	Laparoscopic (n = 25)	P Value
Serosal bowel injury	1	5	0.08
Enterotomy	1	1	1
Vascular injury	0	0	...
Other	1(Bladder injury)	0	...

Fig 4-Post-op complications.

Perioperative Outcomes	Open (n = 25)	Laparoscopic (n = 25)	P Value
Operative time, min, mean (SD)	76 (33)	100 (49)	0.001
Estimated blood loss, mL, median (IQR)	50 (10-100)	10 (1-40)	0.05
Conversion, No. (%)		2(8)	
Wound drain, No. (%)	25(100)	3(12)	<0.001
Mean Length of hospital stay,D	7	3	<0.001

Postoperative complications	Open (n = 25)	Laparoscopic (n = 25)	P Value
Wound infection	9(36%)	1(4%)	<0.001
Seroma	44%	0	<0.001
Post operative pain (VAS)	8	3	<0.001
Recurrence rate	0	0	

The **mean operative time in the laparoscopic group was significantly longer** than in the open group (**76 minutes vs 100 minutes**; *P* = .001).

In the laparoscopic group, 2 out of 25 patients (8 %) required conversion to open repair because of technical reasons.

Estimated blood loss was significantly higher in the open group (median, 50 mL vs 10 mL; *P* = .05).

Closed suction drains placed

- Subcutaneously in 25 (100%) patients - open group.
- In the abdominal cavity in 3 (12%) patients in the laparoscopic group (*P* < 0.001).

Length of hospital stay is significantly higher in open group with significant *P* value of <0.001.

CONCLUSION

The laparoscopic approach appears to be as effective as open repairs in the treatment of incisional hernias. Laparoscopic repair is routinely performed in most centres and is a safe and feasible alternative to open ventral hernia repair. Our study showed that laparoscopic repair has a significant advantage over open repair with respect to postoperative pain, hospital stay, and return to normal activity but no difference in terms of recurrence but further studies are required to substantiate this fact.

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