

Outcomes of Laparoscopic Versus Open Hernia Repair- An Original Research

Dr.Parth J Modi, Dr.Satyajit Janugade*, Dr.Hemant Janugade

Department of General Surgery, Krishna Institute of Medical Sciences deemed to be University, Karad, Maharashtra, India

Corresponding author: Dr. Satyajit Janugade, E mail: satyajeethjanugade@icloud.com

ABSTRACT

Background:Inguinal hernia repair is the most frequently performed operation in general surgery. The present study compared outcomes of laparoscopic (TAPP Mesh Repair) versus open hernia repair.

Materials & Methods:58 patients of inguinal hernia of both genders were divided into 2 groups. Group I patients underwent laparoscopic hernioplasty and group II underwent open hernia mesh repair.

Results: Type of hernia was unilateral seen 15 in group I and 16 in group II and, bilateral seen 14 in group I and 13 in group II. Duration of surgery in unilateral in group I was 64.2 minutes and in group II was 46.5 minutes. In bilateral was 122.6 minutes in group I and 86.2 minutes in group II. Duration of hospital stay was 4.6 days in group I and 7.3 days in group II. Time taken to resume daily activities was 4.8 days in group I and 8.2 days in group II. Post-operative pain score was 1.8 in group I and 3.0 in group II. Post-operative complications were wound infection seen in 3 in group I and 5 in group II, seroma formation seen 4 in group I and 6 in group II and urinary retention seen 6 in group I and 7 in group II. The difference was significant ($P < 0.05$).

Conclusion: Laparoscopic hernia repair has less postoperative morbidity as compared to open hernia repair.

Key words: Laparoscopic hernia repair, Inguinal hernia, seroma

INTRODUCTION

Inguinal hernia repair is the most frequently performed operation in general surgery. Inguinal hernia repair has evolved from the old herniorrhaphy techniques to tension-free repair using mesh and, ultimately, laparoscopic approaches.¹

The first laparoscopic repair of inguinal hernia repair was reported round the 1990s since then many techniques have been described which can be divided into two major groups; intracorporeal technique that included dissection, ligation and division of the sac that resemble the true classic inguinal herniotomy and the extra-corporeal percutaneous technique which compromised ligate the patent processus vaginalis without its division.² Up till now no consensus existed that could favour any of both techniques. It was found that laparoscopic repair is minimally invasive, safe and effective method for management of inguinal hernia if adequate training and mentorship are assured.³

TAPP approach entails the benefits of minimally invasive surgery, such as less pain and early recovery. We expect that these benefits would be more apparent in the treatment of bilateral inguinal hernias given the fact that both hernias are repaired through a single unified

access. In 2004, for unilateral primary inguinal hernia, a large Veterans' Affairs study compared open mesh and laparoscopic techniques and declared that open repair with mesh was the optimal operation.⁴ This outcome linked the laparoscopic approach to increased complication and recurrence rates in addition to the need for general anesthesia. Over the last 12 years, multiple studies have compared these two operations and reported that the recurrence rates were similar, but they have shown conflicting results on the perioperative outcomes and costs.⁵ The present study compared outcomes of laparoscopic (TAPP Mesh Repair) versus open hernia repair.

MATERIALS & METHODS

The present study comprised of 58 patients of inguinal hernia of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups. Group I patients underwent laparoscopic hernioplasty and group II underwent open hernia mesh repair. For open hernioplasty, Lichtenstein's tension free repair was done under spinal anesthesia. The laparoscopic repair was done by TAPP mesh repair method under general anesthesia. Operative time, intra and postoperative complications, post-operative pain, recurrence, duration of stay in the hospital and time taken to resume normal daily activities post-surgery were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	TAPP mesh repair	open hernia mesh repair
M:F	19:10	17:12

Table I shows that group I comprised of 19 males and 10 females and group II had 17 males and 12 females.

Table II Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Type of hernia	Unilateral	15	16	0.91
	Bilateral	14	13	
duration of surgery	Unilateral	64.2	46.5	0.05
	Bilateral	122.6	86.2	0.01
duration of hospital stay		4.6	7.3	0.04
Time taken to resume daily activities		4.8	8.2	0.03
Post-operative pain score		1.8	3.0	0.01

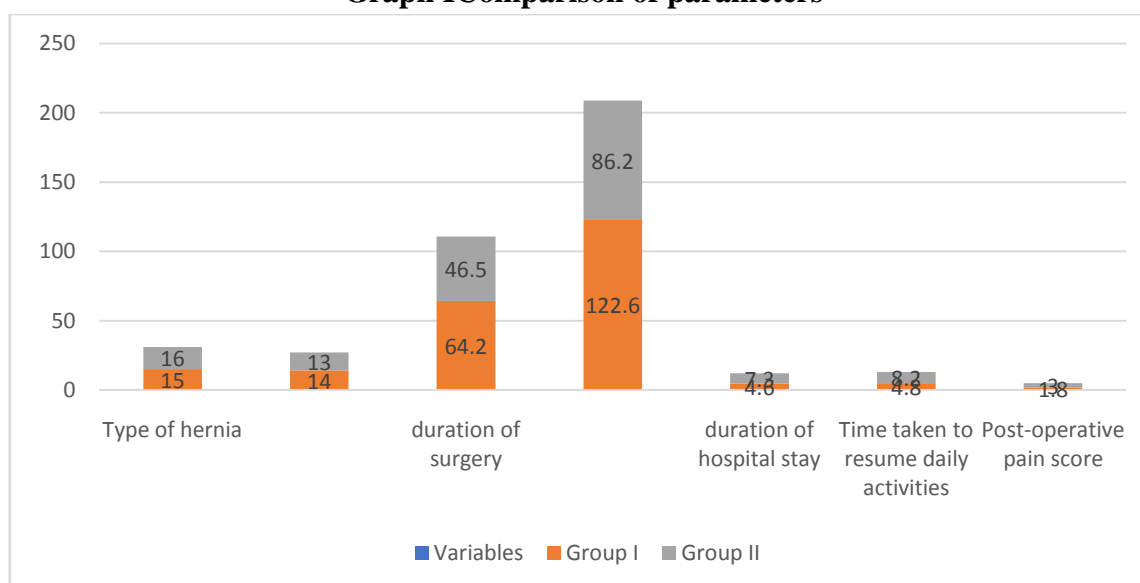
Table II, graph I shows that type of hernia was unilateral seen 15 in group I and 16 in group II and, bilateral seen 14 in group I and 13 in group II. Duration of surgery in unilateral in

group I was 64.2 minutes and in group II was 46.5 minutes. In bilateral was 122.6 minutes in group I and 86.2 minutes in group II. Duration of hospital stay was 4.6 days in group I and 7.3 days in group II. Time taken to resume daily activities was 4.8 days in group I and 8.2 days in group II. Post-operative pain score was 1.8 in group I and 3.0 in group II. The difference was significant ($P < 0.05$).

Table III Post-operative complications

Complications	Group I	Group II	P value
Wound infection	3	5	0.05
Seroma formation	4	6	0.04
Urinary retention	6	7	0.91

Graph I Comparison of parameters



Post-operative complications were wound infection seen in 3 in group I and 5 in group II, seroma formation seen 4 in group I and 6 in group II and urinary retention seen 6 in group I and 7 in group II. The difference was significant ($P < 0.05$).

DISCUSSION

The laparoscopic technique was performed using the transabdominal peritoneal route under general anesthesia without the placement of a nasogastric tube or urinary catheter.⁶ The 5-mm optical trocar was placed at the upper rim of the umbilicus.⁷ Both working trocars, one 5-mm and one 12-mm trocar, were placed at the level of the navel to the right and the left of the border of the rectus abdominis.⁸ A mostly blunt dissection was performed strictly along the anatomical landmarks (rectus muscle, epigastric vessels, symphysis and Cooper's ligament, and transverse fascia) and ended in complete anatomical dissection of the whole pelvic floor. Thorough hemostasis should always be performed.⁹ Parietalization was especially important, which involves removing all adhesions between the retroperitoneal tissue (fascia spermatica) and the peritoneum down to the middle of the psoas muscle.¹⁰ The present study compared outcomes of laparoscopic (TAPP Mesh Repair) versus open hernia repair.

In present study, group I comprised of 19 males and 10 females and group II had 17 males and 12 females. Takayama et al¹¹ compared the outcomes of laparoscopic transabdominal preperitoneal repair (TAPP) versus open mesh plug repair (MP) for bilateral primary inguinal hernia. 107 patients with bilateral primary inguinal hernia between January 2008 and December 2016. Of these patients, 49 underwent TAPP and 58 underwent MP. The surgical outcomes and the long-term outcomes using a questionnaire were compared between TAPP and MP. In the TAPP group, the operation time was significantly longer (103 vs 91 minutes; $P = .019$). The postoperative complication rate was not significantly different between the two groups. One patient (1.0%) in the TAPP group and five patients (4.3%) in the MP group suffered recurrence ($P = .30$). Postoperative groin pain was not significantly different (14% in the TAPP group vs 31% in the MP group; $P = .065$), but more patients required analgesics in the MP group (4.1% vs 17%; $P = .036$). The long-term outcomes, according to a questionnaire, were not significantly different between the two groups. The median follow-up period was 22 (range, 0.4-52) months in the TAPP group and 40 (range, 0.5-108) months in the MP group

We found that type of hernia was unilateral seen 15 in group I and 16 in group II and, bilateral seen 14 in group I and 13 in group II. Duration of surgery in unilateral in group I was 64.2 minutes and in group II was 46.5 minutes. In bilateral was 122.6 minutes in group I and 86.2 minutes in group II. Duration of hospital stay was 4.6 days in group I and 7.3 days in group II. Time taken to resume daily activities was 4.8 days in group I and 8.2 days in group II. Post-operative pain score was 1.8 in group I and 3.0 in group II.

We found that post-operative complications were wound infection seen in 3 in group I and 5 in group II, seroma formation seen 4 in group I and 6 in group II and urinary retention seen 6 in group I and 7 in group II. Choudhary et al¹² compared the outcome of laparoscopic (TAPP mesh repair) and open hernia repair on 130 patients with unilateral or bilateral inguinal hernia and they were randomly allocated into either group. Out of the 130 patients, 30 had bilateral inguinal hernia and the rest 100 had unilateral. 19 patients with bilateral hernia underwent laparoscopic repair and 11 underwent open mesh repair. 46 patients with unilateral hernia underwent laparoscopic hernioplasty and 54 underwent open mesh repair. The mean operative time for unilateral open hernioplasty was 46.45 mins and bilateral was 87.16 mins whereas, for unilateral laparoscopic hernioplasty it was 63.38 mins and bilateral was 121.35 mins. Intra-operative complications like injury to spermatic cord, vessels and bowel were nil in both laparoscopic and open hernioplasty groups. But, post-operative complications, like wound infection was noted in 13.85% (9 out of 65 patients) and 16.92% had seroma formation (11 out of 65 patients) in the open hernioplasty group. In laparoscopic hernioplasty group 3.08% (2) had wound infection but, seroma formation was noted in 12.31% (8 out of 65 patients). Urinary retention was noted 18.46% of open hernioplasty group (12 out of 65) and 61.54% of laparoscopic hernioplasty group (4 out of 65 patients).

CONCLUSION

Authors found that laparoscopic hernia repair has less postoperative morbidity as compared to open hernia repair.

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