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Original Article

Comparison of open and laparoscopic ventral hernia repair in tertiary care teaching hospital in Delhi

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ABSTRACT:

Aim: To compare open and laparoscopic ventral hernia repair. **Methodology:** 80 patients of ventral hernia of both genderwere divided into 2 groups of 40 each. Group I were treated with the retro-rectus mesh repair, and the laparoscopic repairs were treated with the intra-peritoneal on lay dual mesh (IPOM) repair technique. Parameters such as type of hernia, defect size, analgesic days, antibiotics days, hospital stay, return to activities, co- morbidities and complications were recorded. **Results:** Group I had 25 males and 15 females and group II had 18 males and 22 females. Type was incisional hernia in 8 and 10, epigastric in 6 and 5, umbilical in 14 and 15, ventral in 7 and 6 and spigelian in 5 and 4 in group I and group II respectively. Co- morbidities was asthma in 2 and 1, diabetes in 4 and 1, hypertension in 1 and 3 and obesity in 5 and 2 in group I and group II respectively. Complications was seroma in 4 and 2, wound infection in 5 and 3 and mesh infection in 2 and 0 in group I and II respectively. The difference was significant (P< 0.05). Defect size was 3.62 cm in group I and 3.85 cm in group II, duration of surgery was 1.98 hours in group I and 0.62 hours in group II. Stay at hospital was 5.8 days in group I and 2.3 days in group II. Return to activity was 12.4 days in group I and 5.7 days in group II. Analgesic days was 5.7 in group I and 2.1 in group II and antibiotics days was 2.5 in group I and 1.3 in group II. The difference was significant (P< 0.05). **Conclusion:** Laparoscopic ventral hernia repair was safe, had shorter operative time, shorter hospital stays, earlier returns to daily activity and fewer complications as compared to open method.

Key words: Ventral hernia, Laparoscopic, Open

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INTRODUCTION

Ventral hernia occurs through the anterior abdominal wall at any site other than groin. They are classified into incisional, paraumbilical, umbilical, epigastric, and spigelian hernias. Incisional hernias are a complication of open abdominal surgery.[1]

The first described repairs of the ventral hernia were open, simple suture, and primary closure. Over time, closure techniques have become more sophisticated and now include tension free mesh repair and separation of components. Surgical repair is demanding with the goal of tension free repair.[2] 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.[3] The advantage of laparoscopic approach is that the primary hernia, the entire scar and the entire abdominal wall can be inspected. Such an approach ensures that occult hernias are detected and treated.[4]With the use of the laparoscopic approach, large incisions and drain placement can be avoided which leads to a reduction in postoperative wound-related problems.[5] The present study was conducted to compare open and laparoscopic ventral hernia repair.

MATERIALS & METHODS

The present study comprised of 80 patients of ventral hernia of both genders at tertiary care teaching hospital in Delhi. The duration of the study was July 2016-May 2018. All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 40 each. Group I were treated with the retro-rectus mesh repair, and the laparoscopic repairs were treated with the intra-peritoneal on lay dual mesh (IPOM) repair technique. Parameters such as type of hernia, defect size,

analgesic days, antibiotics days, hospital stay, return to activities, co- morbidities and complications were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Method	Open repair	Laparoscopic repair
M:F	25:15	18:22

Table I shows that group I had 25 males and 15 females and group II had 18 males and 22 females.

Table II Assessment of parameters

Parameters	Variables	Group I	Group II	P value
Type	Incisional	8	10	0.03
	Epigastric	6	5	
	Umbilical	14	15	
	Ventral	7	6	
	Spigelian	5	4	
Co- morbidities	Asthma	2	1	0.12
	Diabetes	4	1	
	Hypertension	1	3	
	Obesity	5	2	
Complications	Seroma	4	2	0.05
	Wound infection	5	3	
	Mesh infection	2	0	

Table II, graph I shows that type was incisional hernia in 8 and 10, epigastric in 6 and 5, umbilical in 14 and 15, ventral in 7 and 6 and spigelian in 5 and 4 in group I and group II respectively. Co- morbidities was asthma in 2 and 1, diabetes in 4 and 1, hypertension in 1 and 3 and obesity in 5 and 2 in group I and group II respectively. Complications was seroma in 4 and 2, wound infection in 5 and 3 and mesh infection in 2 and 0 in group I and II respectively. The difference was significant (P< 0.05).

Graph I Assessment of parameters

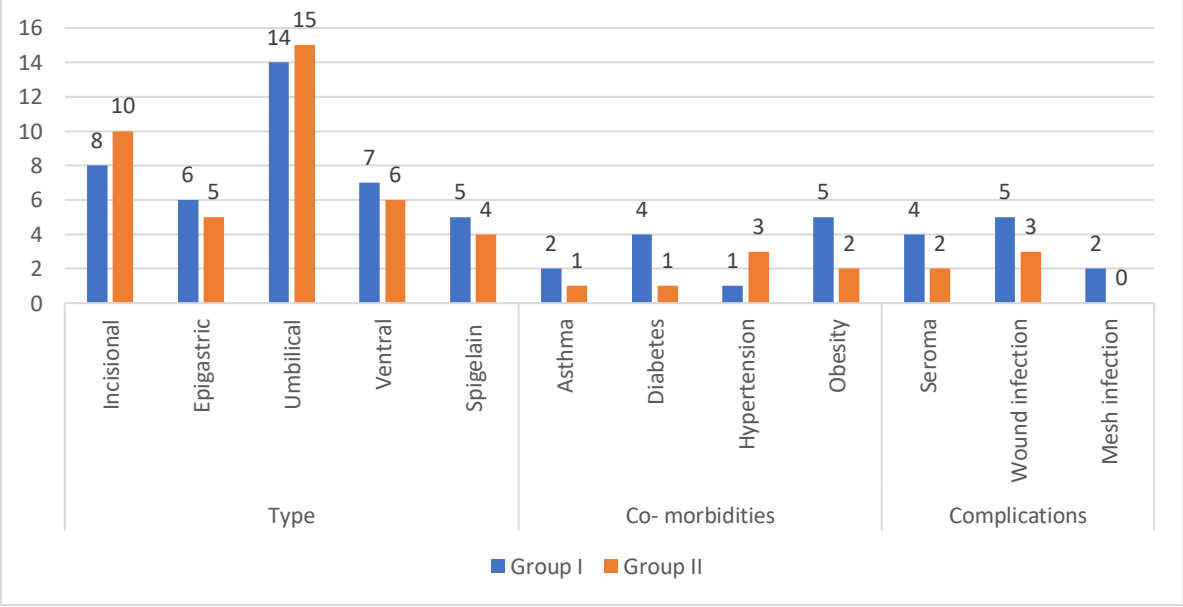

Table III Comparison of operative parameters

Variables	Group I	Group II	P value
Defect size (cms)	3.62	3.85	0.82
Duration of surgery (hours)	1.98	0.62	0.02
Stay at hospital (days)	5.8	2.3	0.01
Return to activity (days)	12.4	5.7	0.01

Analgesic (days)	5.7	2.1	0.04
Antibiotics (days)	2.5	1.3	0.05

Table III shows that defect size was 3.62 cm in group I and 3.85 cm in group II, duration of surgery was 1.98 hours in group I and 0.62 hours in group II. Stay at hospital was 5.8 days in group I and 2.3 days in group II. Return to activity was 12.4 days in group I and 5.7 days in group II. Analgesic days was 5.7 in group I and 2.1 in group II and antibiotics days was 2.5 in group I and 1.3 in group II. The difference was significant (P< 0.05).

DISCUSSION

Ventral hernia is a protrusion of abdominal contents through a defect in the abdominal wall, with the exception of femoral and inguinal hernias.[6] Ventral hernias can be classified as primary, secondary, or based on the site they develop on the abdominal wall.[7] Primary hernias include umbilical, epigastric, and hypogastric hernias while secondary ventral hernias occur following surgery, hence also referred to as incisional hernia.[8] There are numerous surgical techniques to repair ventral hernias.[9,10] Prosthetic mesh repair is the gold standard for hernia surgery and plays a pivotal role in reducing the recurrence rates. The worldwide acceptance of laparoscopic surgery has paved the way for an alternative.[11]The present study was conducted to compare open and laparoscopic ventral hernia repair.

We found that group I had 25 males and 15 females and group II had 18 males and 22 females. Thota et al[12] in their study 51 patients underwent open mesh repair whereas 31 underwent laparoscopic intra peritoneal mesh repair. In the open group, majority were incisional hernias; in the laparoscopy group, majority were umbilical hernia. Age distribution and mean duration of surgery was comparable in both the groups. Significant decrease in postoperative pain, overall complication rate, length of hospital stay, and return to normal activity was noted in the laparoscopy group (P < 0.001). There were no cases of mesh infection or recurrence with a mean follow-up of 12 months.

We found that type was incisional hernia in 8 and 10, epigastric in 6 and 5, umbilical in 14 and 15, ventral in 7 and 6 and spigelian in 5 and 4 in group I and group II respectively. Co- morbidities was asthma in 2 and 1, diabetes in 4 and 1, hypertension in 1 and 3 and obesity in 5 and 2 in group I and group II respectively. Complications was seroma in 4 and 2, wound infection in 5 and 3 and mesh infection in 2 and 0 in group I and II respectively. Davies et al[13]268 repairs (110 open, 158 laparoscopic) were evaluated. Patient and hernia characteristics were similar between groups, though the percents of wound contamination (5.4% vs 0.6%; P = 0.02) and simultaneous surgery (7.2% vs 0%; P = 0.001) were greater in the open procedures. Univariate analysis also revealed that open cases had a greater incidence of postoperative superficial surgical site infection (SSI) (30.0% vs 10.7%; P < 0.0001). Multivariateanalysis revealed that both diabetes and open repair were associated with an increased risk of superficial SSI. Laparoscopic ventral hernia repair yielded lower rates of postoperative superficial SSI than open surgery.

We found that defect size was 3.62 cm in group I and 3.85 cm in group II, duration of surgery was 1.98 hours in group I and 0.62 hours in group II. Stay at hospital was 5.8 days in group I and 2.3 days in group II. Return to activity was 12.4 days in group I and 5.7 days in group II. Analgesic days was 5.7 in group I and 2.1 in group II and antibiotics days was 2.5 in group I and 1.3 in group II. Badigeret al[14] in their study 100 patients with ventral hernia, were subjected either to repair by laparoscopy or to open repair. The open surgical operations were performed by the retro-rectus mesh repair, whereas the laparoscopic repairs were performed using the intra-peritoneal on lay dual mesh (IPOM) repair technique. The mean surgery durations were significantly lower in laparoscopic repair when compared to open repair (p=0.000). The mean duration of post-operative analgesics used in laparoscopic group is 2.84±0.60 days as compared to open ventral hernia repair 5.47±2.16 days (p=0.000)which is significant. The mean postoperative stay in hospital was shorter for the laparoscopic group than for the open hernia group (2.66 versus 6.88 days; p=0.000). Antibiotics used in laparoscopy group is for 1.33±0.70 days as compared to open repair 2.52±0.98 days (p=0.000). Return to the activity or normal daily work is significantly low in laparoscopic group as compared to open repair of hernia (4.13 versus 13.98 days; p=0.000). There were fewer post-operative complications in laparoscopy.

The limitation the study is small sample size.

CONCLUSION

Laparoscopic ventral hernia repair was safe, had shorter operative time, shorter hospital stays, earlier returns to daily activity and fewer complications as compared to open method.

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