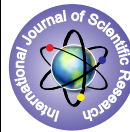


Comparative Study Of 25 Cases Open Vs Laparoscopic Ventral Abdominal Hernia Meshplasty



Medical

KEYWORDS : ParaUmbilical, umbilical, Epigastric, Spigelian, Incisional (Secondary ventral hernias), open ventral hernioplasty, laparoscopic ventral hernioplasty

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ABSTRACT

The purpose of this study To analyse the risk factor for development of ventral hernia, to observe and learn the technique of laparoscopic mesh repair in Ventral Hernias, to study the outcome of the Laparoscopic Mesh repairs for ventral hernias in terms of patient compliance, recurrence, post operative pain, return to work and wound complications

INTRODUCTION

Hernia (1)

A hernia is an abnormal protrusion of a part or whole of viscus through an abnormal or normal opening in the wall of the cavity which contains it.

The aim of this article is to use the data collected regarding the surgical management of ventral (incisional) hernias and to undertake a robust meta-analysis. Ventral hernias are defects in the abdominal wall and can be either congenital in nature, such as umbilical or para-umbilical or they may be acquired such as incisional. The gold standard in the treatment of ventral/incisional hernia repair involves the use of a prosthetic mesh in a tension-free repair. This method can now be utilised by the open repair of a hernia or with the laparoscopic approach as an alternative.

This is a suitable subject area as there are two distinct interventions that are used – open versus laparoscopic and it has a large volume of data. There have also been two meta-analyses examining this subject matter one of which only commented on data from RCTs.

The article has three aims, which include the assessment of:

- A difference in the incidence of post-operative complications between the two techniques?
- A difference in the reduction of recurrence, length of stay between the laparoscopic and open technique

VENTRAL HERNIAS.(2,3,6)

A ventral hernia is defined by a protrusion through the anterior abdominal wall fascia. These can be categorized as spontaneous or acquired or by their location on the abdominal wall. epigastric hernias occur from xiphoid process to the umbilicus, umbilical hernias occur at the umbilicus, and then hypogastric hernias are rare spontaneous hernias that occur below the umbilicus in midline acquired hernias typically occur after surgical incision and are therefore termed incision hernias. Although not a true hernia, diastasis recti can present as a midline bulge. In this condition, the linea alba is stretched, resulting in bulging at the medial margins of the rectus muscles. Abdominal diastasis can occur at other sites besides the midline. There is no fascial ring or hernia sac, and unless significantly symptomatic, surgical correction is avoided.. Primary ventral hernias (non incisional) also are termed "true" ventral hernias. These are more properly named according to their anatomic location.

Ventral Abdominal wall hernias(3)

1. Anterior Abdominal wall hernias (Spontaneous or primary ventral):

- a. Umbilical
- b. Para Umbilical
- c. Epigastric
- d. Spigelian

2. Incisional (Secondary ventral hernias)

MATERIALS

Synthetic Materials and Biological Materials

Poly propylene(heavy and Light),Poly ester, ePTFE(polytetrafluoroethylene), Combination of Polypropylene and ePTEE (Dualtex)

METHODS

Pre-operative patient demographics, comorbidities, and risk factors evaluated included: age, BMI, tobacco abuse, diabetes, steroid use, previous abdominal surgery, previous ventral hernia repair, fascial defect size, concomitant surgery (i.e., simultaneous bowel transection), and concurrent wound contamination (i.e., presence of ostomy, fistula, intraoperative enteric spillage, and preoperative cellulitis).

Pre-operatively, all patients were encouraged to quit smoking 4 weeks in advance of their surgery; however, smoking cessation data was neither collected nor monitored during this study. Operative technique consisted of either laparoscopic or open ventral hernia repair. The decision to perform either repair was based upon patient's body habitus, preoperative presence of infection, preoperative abdominal surgeries including prior ventral hernia repairs, intraoperative complications, and surgeon preference.

For the laparoscopic repair, intraperitoneal access was gained using either the open Hasson technique or the Veress needle technique. Once pneumoperitoneum was achieved, three to four trocars were placed usually consisting of one 10-mm port and two to three 5-mm ports. A piece of mesh was then chosen and cut to allow for a 3 to 5-cm overlap around the fascial defect. The mesh was then introduced into the peritoneal cavity and anchored to the abdominal wall using a combination of trans-

fascial sutures and circumferential tacks placed in a double ring fashion.

For the open repair an incision was performed directly over the hernia site. Using electrocautery the hernia and surrounding fascia was appropriately exposed. The hernia sac was then reduced and, depending on the fascial defect size, closed either primarily with non-absorbable sutures or using mesh. When mesh was chosen, it was primarily placed in an underlay fashion. Other options included onlay or inlay. The mesh was typically secured to the fascia using Prolene sutures in either a running, simple interrupted, or horizontal mattress fashion.

Postoperatively, upon discharge from the hospital, all patients were encouraged to refrain from smoking, wear their abdominal binders at all times when not lying down, use a pillow to brace their abdomens when coughing, and to refrain from engaging in strenuous labor for a period of at least 4 to 6 weeks (to include lifting anything over 10 pounds). All patients were seen in follow-up at 4 weeks postoperatively and then on an as-needed basis. They were all evaluated postoperatively by physical exam and when necessary (*i.e.*, complication), by additional imaging (*i.e.*, CT scan or ultrasound) to assess the integrity of their repair.

RESULTS

In this study 50 cases of ventral hernioplasty, which were operated during 2010-2012, were included. 25 cases of laparoscopic hernioplasty and 25 cases of open hernioplasty.

TABLE I: Distribution of patients according to Sex :

	LAPAROSCOPIC	OPEN	TOTAL	PERCENTAGE
MALE	7	13	20	40%
FEMALE	18	12	30	60%
TOTAL	25	25	50	100%

- In this study of 50 cases it has been found that incidence of ventral hernia is more common in females (60%) than males (40%).
- maximum ventral hernia(%) occur in age group between 31-50(60%).

TABLE II: Risk factors

RISK FACTOR	LAPAROSCOPIC	OPEN	TOTAL	PERCENTAGE
CHRONIC COUGH	4	2	6	12%
CONSTIPATION	3	6	9	18%
PRSTATISM/DYSURIA	1	3	4	8%

- In this study 6(12%) patient had chronic cough for which medication started preoperatively. Cough was brought under control started chest physiotherapy preoperatively. Patient was posted for surgery only when patient becomes fit for surgery. Treatment for cough continued postoperatively.
- 9 patients (18%) had constipation given laxatives, stool softeners before and after surgery.
- 4 patients (8%) had prostatism or dysuria.

TABLE III: Associated Conditions

ASSOCIATED CONDITION	LAPAROSCOPIC	OPEN	TOTAL	PERCENTAGE
SMOKER	2	5	7	14%
DM	3	7	10	20%
IHD	-	6	6	12%

- In this study 7 patient (14%) had history of smoking. All of them were advised to quit smoking and started chest physiotherapy.
- In this study 10 patients (20%) had history of DM all were shifted to regular insulin therapy prior to surgery and continued post operatively according to physician advice. Diabetic control monitored regularly.
- 6 patients (12%) were cardiac patient all of them on medication pre, peri and post operatively.
- Antiplatelet drugs were omitted 5 days prior and restarted 2 days after surgery

TABLE IV: Post operative Ambulation Period :

	NO. DAYS			TOTAL
	1 DAY	2 DAY	3 DAY	
LAPAROSCOPIC	23(92%)	2(8%)	0(0%)	25
OPEN	0	20(80%)	5(20%)	25

In this study **in laparoscopy surgery** 23(92%) patient mobilized from 1st post operative day.

And 2(8%) patients were mobilized on 2nd post operative day because of post operative pain

In **open surgery** 20(80%) patient mobilized on 2nd post operative day and 5(20%) were on 3rd post operative day because of post operative pain.

TABLE V: Duration of Hospital Stay :

Duration[Days]	Lap.	Open
1-3	23	00
4-6	02	10
7-10	00	15

In this study **in laparoscopic surgery** 23 (92%) patient discharge after 3rd post operative day.

Only 2(8%) patient discharge after 4th day

In open surgery 10 (40%) patients discharge within 4th to 6th post operative day and other were about 60% within 7th to 10th post operative day.

TABLE VI: Return to Work:

Duration[days]	Lap.	Open
0-5	-	-

6-10	23	-
11-15	02	20
16-20	-	05

In this study in **laparoscopic surgery 23 (92%)** patient returned to their work within 6th to 10th post operative day.

In **open surgery 20(80%)** patient returned to their work within 6th to 10th post operative day.

TABLE VII: Post Operative Complications

Complications	Lap.	Open	Total	percentage
Post operative Pain> 2 Days	3(12%)	4(16%)	12	24%
Resp.Distress	-	-	-	-
Urinary Retention	-	-	-	-
Wound Seroma	1(4%)	3(12%)	4	8%
Suture track infection	-	2(8%)	2	4%
Port Site infection	-	-	-	-
Recurrence	-	-	-	-
Mesh infection	-	-	-	-
Bowel Complication	-	-	-	-

The above findings demonstrate that laparoscopic ventral hernioplasty was safe and less complications as compared to open hernioplasty. Post operative pain (>2 days) was seen in almost 30% of patient operated by both laparoscopic and open hernia repair meshplasty. In this study Post operative pain less common (12%) in laparoscopic hernioplasty as compared to open hernioplasty (16%). Other most common complication of ventral hernioplasty was wound seroma. More incidences found in open ventral hernioplasty (12%) as compared to laparoscopic method. Respiratory distress was not seen in any patient a hernioplasty a significant advantage of laparoscopic hernioplasty.

Urinary retention was not seen in any patient after removal of urinary catheter, which was removed next day of surgery.

- Compare to international study of **[Laparoscopic versus open ventral hernia mesh repair: a prospective study(D. Lomanto, S.G. Iyer, A. Shabbir,W.-K. Cheah)]** as in this study mean post operative stay was shorter for laparoscopic hernioplasty group than open hernioplasty group (2.7 vs 4.7 days) and in our study mean hospital stay was 3 days in laparoscopic hernioplasty than open hernioplasty was 5 days.

The pain scores were similar in the two groups at 24 and 48 h, but significantly less at 72 hour in the laparoscopic group and in our study pain scores were similar in laparoscopic hernioplasty (12%) open hernioplasty (16%).

There were fewer complications (24%) and recurrences (2%)

among the patients who underwent laparoscopic repair than among those who had open repair (30% and 10%, respectively) in our study complications (6%) who underwent laparoscopic repair than among those who had open repair(16%).

- According to study of **A prospective study comparing the complication rates between laparoscopic and open ventral hernia repairs(J. M. McGreevy, P. P. GoodneyC. M. Birkmeyer,S. R. G. Finlayson,W. S. Laycock,** The higher complication rate in the open ventral hernia repair group came from wound infections (8%) and postoperative ileus (4%), neither of which was observed in the patients who underwent laparoscopic repair and in our study wound infection(12%) and suture track infection(8%) found in open hernioplasty and only 4% wound seroma found in laparoscopic hernioplasty.

CONCLUSION

- My study of comparative study of 50 cases of laparoscopic and open ventral hernioplasty.
- The study group consisted 50 patient (laparoscopic 25 cases and open 25 cases). The patients in two group were comparable at baseline of sex, age, risk factor, associated condition, duration of hospital stay, return to work, post operative ambulatory period, post operative complication like: pain, wound seroma, suture track infection, port site infection, recurrence.
- Majority of them female(60%).
- Various predisposing causes (chronic cough, constipation, prostates or dysuria) and concurrent medical illnesses (diabetes mellitus, ischemic heart diseases) were treated prior to surgery.
- Average hospital stay was 3 days in laparoscopic hernioplasty and in open hernioplasty average hospital stay 6 day because of that post operative complication rate high in open hernioplasty.
- Average days of return to work in laparoscopic hernioplasty was 10 day and in open hernioplasty was 17 days. Lifting heavy weights, strenuous work and exercises were not permitted till 6 weeks.
- The patients undergoing laparoscopic hernioplasty had fewer postoperative complications than those receiving open repair. Most common complication like postoperative pain accounted for the higher complication rates in the open ventral hernioplasty.
- The findings demonstrate that laparoscopic ventral hernioplasty was safe and resulted in shorter duration of stay in hospital, fewer complications, early ambulatory period and less recurrence, early return to work. Hence, it should be considered as the procedure of choice for ventral hernia repair.

REFERENCE

- Bailey and Love: Short Practice of Surgery. 25th Edition Chapter 57th -968 to 990 | Sabiston: Text Book of Surgery. 19th Edition: Chapter 46th - 1127 to 1135 | Schwartz Principles of Surgery: 6th Edition Chapter (33th , 34th)- (1485 to 1486, 1536 to 1540) | Mastery of Surgery: 5th Edition Chapter 178th -1948 to 1954, Chapter 179th -1958 to 1961 | Maingot's Abdominal Operations. 11th Edition, Chapter (5th, 44, 46), Page no.- 122 to 138, 1099 to 1110 ,1139 to 1143) | Nyhus And Condon's Hernia: 5th Edition, Chapter (3rd ,7th, 47th), Page no-(17 to 24, 71 to 73, 521 to 563) | Textbook of surgical laparoscopy: C Palanivelu, Chapter 72nd, Page no- 1170 to 1177. | Laparoscopic versus open ventral hernia mesh repair: a prospective study (D. Lomanto, S.G. Iyer, A. Shabbir, W.-K. Cheah) springer link