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A PROSPECTIVE STUDY ON LAPAROSCOPIC VERSES OPEN VENTRAL HERNIA MESH REPAIR

Surgery

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ABSTRACT

OBJECTIVE: To find out the incidence of ventral hernias and to compare the outcomes and post-operative complications of open versus laparoscopic mesh repair.

METHODS: This was a hospital based prospective study done over 50 patients

RESULTS: Out of 50 patient's incisional hernia are more common ventral hernia and it is more common among females and male to female ratio of 1:3. By aetiology post-surgical cause was found to be the most common cause, among them post caesarean section followed by abdominal hysterectomy are leading causes of incisional hernias. Regarding age group ventral hernias are more common among the third and fourth decade of life. In clinical presentation all cases of ventral hernias presented with bulge and followed by abdominal pain and discomfort. The patients of ventral hernias are managed either by open mesh repair or laparoscopic mesh repair. Open mesh repair showed increased rates of post-operative pain, wound infection and duration of hospital stay whereas in laparoscopic repair there is less post-operative pain, less wound infection and mesh infection rates, less duration of hospital stays. These studies confirm that laparoscopic repair is found to be safe and effective in the management of ventral hernias.

CONCLUSION: Open mesh repair of ventral hernias is a good surgical option in management of ventral hernias. But comparatively laparoscopic repair produces less complications and low recurrence rates, with decreased rates of morbidity and it is better in terms of complications and duration of hospital stay.

KEYWORDS

Ventral hernia, incisional hernia, laparoscopic repair

INTRODUCTION

Ventral hernia can be defined as a protrusion through the anterior abdominal wall fascia[1]. These defects can be broadly categorized into spontaneous and acquired hernias according to their location on the anterior abdominal wall.

Ventral hernias include incisional hernias, epigastric hernias, para umbilical hernias, umbilical hernias and rare varieties of Spigelian hernias, lumbar and hypo gastric hernias. Out of which incisional hernias account for 3 to 13% percent of all abdominal wall hernias of laparotomy incisions[2]. However, its incidence is more than 23% who have developed an infection in the laparotomy wound[3]. Paraumbilical hernias constitute about 13 percent of hernias[4].

Ventral hernias can be managed both by open and laparoscopic approach. After the introduction of prosthetic mesh, tension free mesh repair is being done with decreased recurrence rate. But open hernia requires significant soft tissue dissection for flap creation, which leads to increasing complication rates.

So, a minimally invasive approach can be applied for the repair of ventral hernias, which is expected to produce earlier recovery, which leads to decreased hospital stay, fewer post-operative complications and decreased recurrence rates[5,6].

This study is performed to analyse and compare, the outcomes after open and laparoscopic repair.

AIM OF THE STUDY

Aim of the study is

1) To compare the advantages and disadvantages of open and laparoscopic ventral hernia repair.
2) To find out the post-operative outcome, recovery and complications of open versus laparoscopic repair.
3) To study about the distribution of age, sex and clinical presentation of ventral hernias.
4) To study about the risk factors and complications of various types of hernias.

MATERIALS AND METHODS

STUDY DESIGN: Prospective study

STUDY PERIOD: March 2013 to August 2014

STUDY PLACE: Department of General Surgery, Coimbatore Medical College & Hospital, Coimbatore.

STUDY POPULATION: A total number of fifty patients who underwent treatment for ventral hernias in all surgical units of our hospital. All patients had clinically, radiologically proven ventral hernias.

EXCLUSION CRITERIA

- Patients with age less than 12 years
- Patients who are pregnant
- Patients who have features of obstruction and strangulation
- Patients who are unfit for general anaesthesia

INCLUSION CRITERIA

- Patients with ventral hernias in age group of 20-65 years
- All patients with associated co-morbid illness like diabetes and hypertension are all included

METHODOLOGY

Fifty cases of ventral hernias attending surgical outpatient department were studied during the period of March 2013 to August 2014 for a period of eighteen months in Coimbatore Medical College Hospital. Ventral Hernias have varied pre-disposing factors and most of the cases are incisional hernias presenting with history of previous surgery with history of complications like seroma, wound infection, associated co-morbid illness.

All cases of Ventral hernias attending are taken a careful and detailed clinical history of presenting complaints, present illness and past illness. History of previous surgeries and complications associated with the surgeries are taken. After complete history taking, clinical examination and relevant investigations, patients are prepared for surgery. Assessment of co-morbid illness is done in a detailed manner. Anaesthetic assessment and fitness are obtained. Respiratory function is improved by spirometry. After complete evaluation patient is taken up for surgery. Informed and written consent are obtained. The surgical procedure its merits and complications are well explained. The choice of surgery was decided upon the age, clinical presentation, abdominal wall muscular tone and associated co-morbid illness. The findings are recorded and the patients are monitored during surgery. After smooth recovery from anaesthesia patients are observed and managed with adequate analgesia. Vitals, wound site care, drains are monitored frequently. In case of open repair drain removal is done once seroma is settled down.

The pre-operative and intra-operative findings are recorded. Post-operative patient is followed up. After oral diet and able to manage pain with oral drugs the patient is discharged and followed up after one week and after one month and for three to eighteen months and observations are recorded.

OBSERVATIONS

TABLE 1: CLINICAL TYPES OF VENTRAL HERNIA

TYPES OF HERNIA	NO OF CASES	PERCENTAGE
INCISIONAL HERNIA	30	60%
EPIGASTRIC HERNIA	2	4%
UMBILICAL HERNIA	6	12%
PARAUMBILICAL HERNIA	12	24%

TABLE 2: SEX INCIDENCE

TYPE OF HERNIA	NO OF CASES	SEX	
		MALE	FEMALE
INCISIONAL	30	10	20
EPIGASTRIC	2	2	0
UMBILICAL	6	2	4
PARAUMBILICAL	2	3	9

FIGURE 1: SEX INCIDENCE

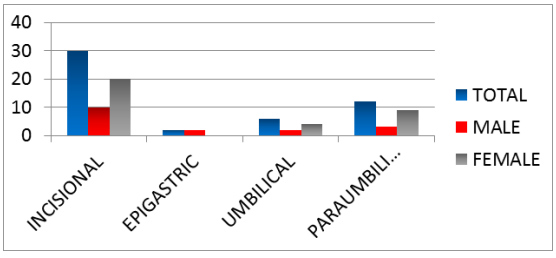

TABLE 3: AGE INCIDENCE

AGE	NO OF PATIENTS	PERCENTAGE
20-30 YEARS	4	8%
31-40 YEARS	21	42%
41-50 YEARS	11	22%
51-60 YEARS	9	18%
MORE THAN 61 YEARS	5	10%

TABLE 4: CLINICAL PRESENTATION

No.	PRESENTING COMPLAINTS	NO OF CASES	PERCENTAGE
1.	BULGE	50	100%
2.	PAIN	12	24%
3.	DISCOMFORT	13	26%
4.	IRREDUCIBILITY	3	6%
5.	OBSTRUCTION AND STRANGULATION	NIL	NIL

TABLE 5: PREDISPOSING FACTOR OF VENTRAL HERNIA

FACTORS	NO OF CASES	PERCENTAGE
OBESITY	9	18%
ABDOMINAL DISTENSION	2	4%
MULTIPARITY	3	6%
COPD	6	12%
PREVIOUS SURGERIES	30	60%

TABLE 6: PREDISPOSING FACTORS IN INCISIONAL HERNIAS

FACTORS	NO OF CASES	PERCENTAGE
WOUND INFECTION	18	60%
ABDOMINAL DISTENSION	2	7%
COPD/CHEST INFECTION	4	13%
OBSTRUCTIVE UROPATHY	4	13%
DIABETES	2	7%

TABLE 7: TYPE OF PREVIOIUS SURGERY IN INCISIONAL HERNIAS

NATURE OF SURGERY	NO OF CASES	PERCENTAGE
CAESAREAN SECTION	13	43%
ABDOMINAL HYSTERECTOMY	4	14%
TUBECTOMY	2	7%
EXPLORATIVE LAPAROTOMY	8	26%
APPENDICECTOMY	3	10%

TABLE 8: TYPE OF MESH REPAIR

METHOD OF SURGERY	TYPES OF SURGERY	NO OF CASES	PERCENTAGE
LAPAROSCOPIC REPAIR	IPOM	25	50%
OPEN METHOD	RIVES STOPPA RETRORECTUS	10	20%
	ONLAY MESH REPAIR	5	10%
	INLAY MESH REPAIR	10	20%

FIGURE 2: TYPES OF SURGERY

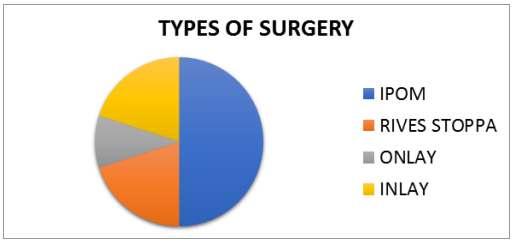

TABLE 9: POST-OPERATIVE FOLLOW-UP AND COMPLICATIONS

POST-OPERATIVE COMPLICATIONS	OPEN REPAIR		LAP. MESH REPAIR	
	NO OF CASES	%	NO OF CASES	%
SUPEERFICIAL WOUND INFECTION	9	36	2	8
DEEP WOUND INFECTION	0	-	2	8
MESH INFECTION	2	8	0	-
POST-OPERATIVE ILLEUS	0	-	0	-
FLAP NECROSIS	1	4	0	-
URINARY RETENTION	0	-	1	4
SEROMA	2	8	4	16

FIGURE 3: POST OPERATIVE COMPLICATIONS

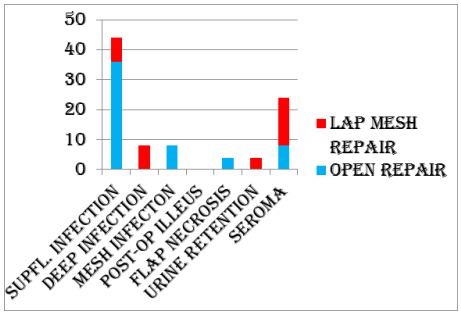

TABLE 10: RESULTS

COMPLICATIONS	LAPAROSCOPIC REPAIR	OPEN REPAIR	P VALUE
SUPERFICIAL WOUND INFECTION	2	9	
DEEP WOUND INFECTON	2	0	
MESH INFECTION	0	2	
BLEEDING AND POST-OP ILLEUS	0	0	
FLAP NECROSIS	0	1	
URINARY RETENTION	1	0	
SEROMA	4	2	
TOTAL	**7**	**14**	**0.058**
DURATION OF HOSPITAL STAY	3.4 DAYS	1.4 DAYS	

MEAN	1-4 DAYS	1-3 DAYS	**0.007**
RETURN TO WORK	28 DAYS	15 DAYS	
RECURRENCE	NIL	NIL	

SUMMARY

In this study our aim is to find out the incidence of ventral hernias, to compare the outcomes and post-operative complications of open versus laparoscopic mesh repair. Among the 50 patients studied during our study period of 18 months we have found that incisional hernia are more common ventral hernias followed by paraumbilical, umbilical and epigastric hernias. These incisional hernias are common among females and male to female ratio of 1:3. By aetiology post-surgical cause was found to be the most common cause, among them post caesarean section followed by abdominal hysterectomy are leading causes of incisional hernias.

Regarding age group ventral hernias are more common among the third and fourth decade of life and ventral hernias are less common in the fifth and sixth decade with decreasing incidence and in first decade congenital umbilical hernias are seen.

In clinical presentation all cases of ventral hernias presented with bulge and followed by associated clinical features like abdominal pain and discomfort.

All patients of ventral hernias are managed by surgical mesh repair, either by open mesh repair or laparoscopic mesh repair. Open mesh repair done by Rives Stoppa rectro rectus repair, sublay and onlay mesh repair showed increased rates of post-operative pain, wound infection and duration of hospital stay. Mild skin flap necrosis and seroma formation are seen when compared to laparoscopic repair.

In laparoscopic repair there is less post-operative pain, less wound infection and mesh infection rates, less duration of hospital stays. These studies confirm that laparoscopic repair is found to be safe and effective in the management of ventral hernias. The great advantage of laparoscopic repair over open mesh repair is decreased recurrence rate compared to open mesh repair.

Decreased hospital stay is due to decreased rate of post-operative ileus and start of early enteral feeding. These results show that laparoscopic repair is more safe and reliable than open mesh repair in terms of recurrence and complications.

CONCLUSION

Open mesh repair of ventral hernias is a good surgical option in management of ventral hernias. But comparatively laparoscopic repair produces less complications and low recurrence rates, with decreased rates of morbidity. These available data suggest that laparoscopic repair is safe and better in terms of complications and duration of hospital stay.

With the existing data's, it is evident that laparoscopic repairs can be considered as the first line of treatment option for ventral hernias where facilities are available. In secondary level hospitals where less facilities are available open repair can be considered as a good alternative. Laparoscopic procedures need little more good skills. As skills improve laparoscopic repair can be performed widely with good results.

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