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Original Research Article

A clinical study and different modalities of management of ventral hernias

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ABSTRACT

Background: Ventral hernias are a common problem encountered by the surgeons. Patients developing hernias become restricted from work or usual activities as the hernia enlarges and this demands surgical repair. The objective of this study is to evaluate the predisposing factors, the different modes of presentation, the different methods of surgical repair including the newer methods.
Methods: A prospective random study done at Alluri Sita Rama Raju Academy of Medical sciences, Eluru, where in 50 cases of ventral hernias were randomly selected. A thorough case history taken as per the proforma enclosed and relevant investigations were done following which a selective surgical treatment such as anatomical repair and mesh repair were used. Anatomical repair was mainly considered in pediatric and infected cases and the remaining with open and laparoscopic mesh repair.
Results: Majority of ventral hernias were seen in the age group of 21 to 60 years with a major female preponderance in umbilical, paraumbilical and incisional hernias, and epigastric hernias common in males. The common predisposing factors identified were previous surgeries, followed by anaemia, multiparity. Majority patients presented with mass or swelling over the abdomen which were reducible. The lower midline incisions were the most common cause for incisional hernias. Most of the patients had a fair preoperative presentation. In this study anatomical and mesh repair (open and laparoscopic) were done. 7 cases lost follow up and no recurrences noted.
Conclusions: Among the ventral hernias infraumbilical incisional hernias were common with majority being gyneacological and obstetric procedures. Maximum cases were repaired with Open mesh repair (onlay >inlay) followed by laparoscopic and anatomical repair. With the good knowledge of anatomy, good relaxed anaesthesia and improved surgical skills, the use of synthetic suture and prosthetic material, coverage with antibiotics, post-operative care the outcome of treatment for hernia has improved with insignificant recurrence.

Keywords: Anatomical repair, Epigastric hernia, Incisional, Laparoscopic, Mesh repair, Multiparity, Paraumbilical

INTRODUCTION

Ventral hernias are a common problem encountered by surgeons. A ventral hernia is a protrusion of abdominal viscus through the anterior abdominal wall occurring at any site other than the inguinal and femoral areas.[1] There are different modes of presentations of hernias such as incidental finding of bulging over the previous surgical scar or symptomatic with pain, vomiting, distension of abdomen, constipation i.e., signs and symptoms of intestinal obstruction. Patient can have problems due to increased intraabdominal pressure due to obesity, prostatism, intraabdominal malignancy or due to any other cause. Epigastric, umbilical, paraumbilical and incisional hernia constitute the large number of patients whereas the other hernias are rarely seen and form a

small amount. All the hernias vary significantly in anatomical location, pathogenesis and management.

In majority of patients the diagnosis is easy as they present with mass per abdomen or a swelling, with other associated symptom such as pain, and other complicated features. If the patient present with small hernia, operation is easy with good result, if present with large hernia it will be difficult to treat because of associated complications such as strangulation. The ideal treatment is surgery. Multiple associated conditions, such as obesity, smoking, and others, have been reported in various studies to contribute to higher recurrence rates.[2]

In this study, we have made an attempt to conduct a clinical study of 50 cases of ventral hernias selected at random from the cases admitted to our hospital during the years 2015-2017.

Aims and objectives of this study were:

- To study the predisposing factors (risk factors) including the types of surgeries for the development of ventral hernias
- To study the different modes of presentations of the ventral hernias
- To study the different methods of surgical repair of the ventral hernias including the newer methods using the synthetic materials
- To study different complications following surgery and their follow-up.

METHODS

A clinical study of 50 cases of Ventral Hernia has been done during the period of November 2015 to October 2017 on inpatients admitted to the Alluri Sita Rama Raju Academy of Medical Sciences, Eluru. A simple random sampling done for selecting the patients. The cases were studied with patients consent.

Particular attention has been given to study the various aspects of ventral hernia like:

- Age of the patient
- Sex of the patient
- Type of hernia
- Aetiological factors
- Predisposing factors
- Common symptoms and their duration
- Physical examination and positive clinical findings
- Various surgical procedures done
- Complications post operatively
- Follow up

Routine investigations (hematological, urine, chest X-ray and ECG), USG-abdomen and pelvis, for all patients and CT scan and other special investigations were done for other associated diseases whenever required. Cases were followed over a period of 6 months following the surgery.

RESULTS

In this study there are 31 (62%) cases between age range of 21 to 60 years. Mean age of presentation among females were between 31 to50 years and males between 21 to 50 years. The overall female to male ratio is approximately 2:1, females being 33 (66%) and males 17 (34%) patients.

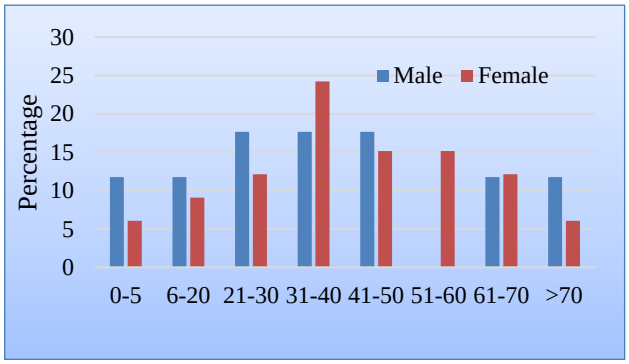

Figure 1: Distribution of sex and age groups of ventral hernias.

Most common symptom is mass/swelling 46 (92%) cases. 23 (46%) patients presented with pain followed by vomiting in 14 (28%) cases and distension in 5 (10%) cases.

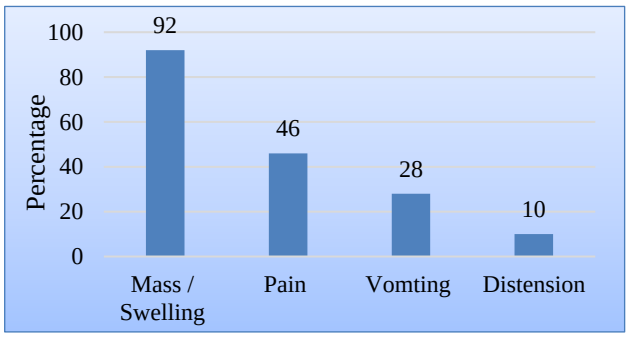

Figure 2: Presentation of symptoms.

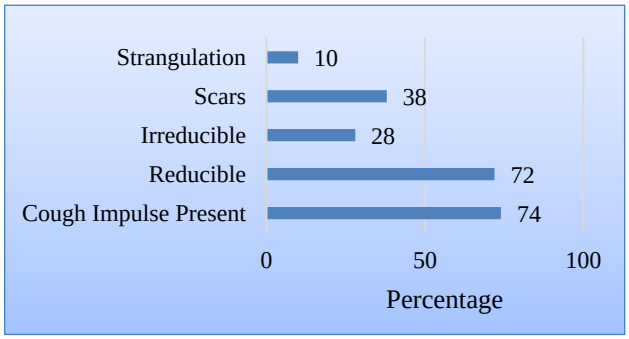

Figure 3: Presentation of sign.

Most of the cases had cough impulse 37 (74%) cases, reducibility 36 (72%) cases, irreducibility in 14 (28%), scars in 19 (38%) and strangulation in 5 (10%) cases.

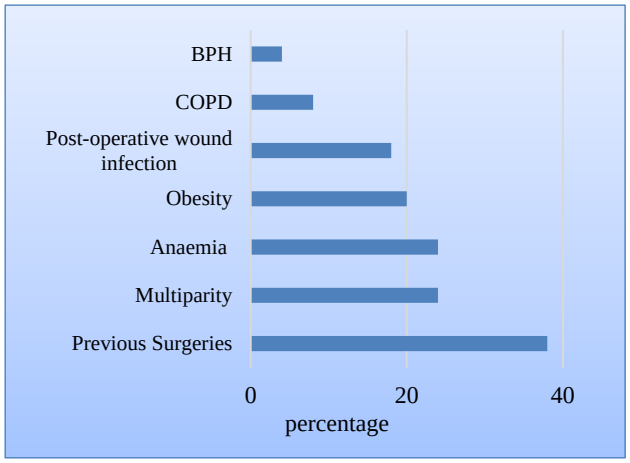

Figure 4: Presentation of risk factors.

Most common risk factor is previous surgeries 19 (38%) follwed by anaemia 12 (24%) and multiparity 12 (24%), obesity in 10 (20%), post operative wound infections in 9 (18%), COPD in 4 (8%), BPH in 2 (4%) (Figure 4).

Table 1: Past history of surgery.

Past history	Total (n = 19)	
	No	%
Appendicectomy	1	2.00
G. J. Vagotomy	2	4.00
Hysterectomy	9	18.00
LSCS	2	4.00
Tubectomy	2	4.00
Recurrent incisonal hernia	1	2.00
Duodenal Perforation	1	2.00
Cholecystectomy	1	2.00
Total	19	38.00

Previous surgeries have been the predisposing factors for incisonal hernia in this study. Majority of them had undergone hysterectomy 9 (18%) cases. Other surgeries which the patients underwent were LSCS 2 (4%) cases, tubectomy 2 (4%) cases, G. J. Vagatomy 2(4%).

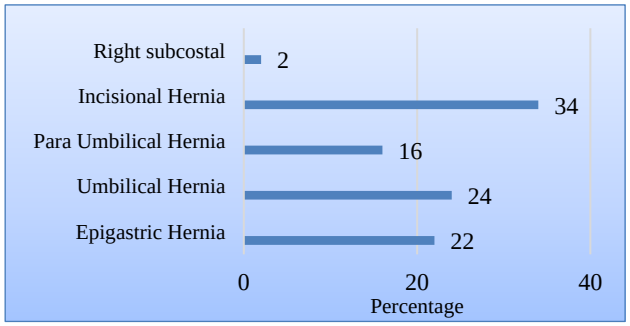

Figure 5: Presentations of ventral hernias.

Most common is Incisional hernia (34%) followed by umbilical (24%) and epigastric hernias (22%).

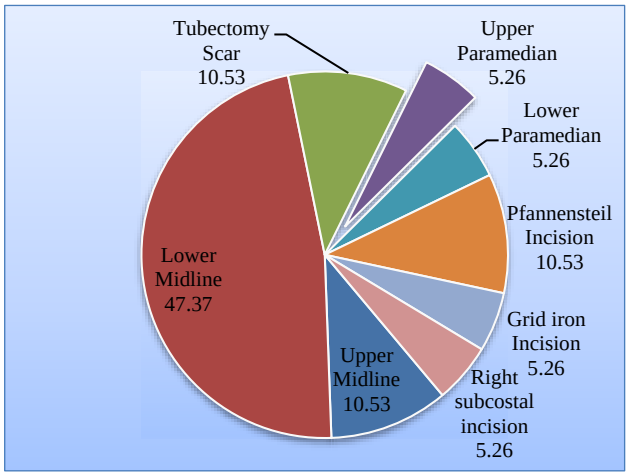

Figure 6: Types of incision scars causing incisional hernias.

Out of 19 cases of incisional hernias lower midline scar was most common 9(47.37%) followed by upper midline 2 (10.53%) and tubectomy scar (10.53%), pfannensteil (10.53%), paramedian incisions (5.26%), right sub costal and grid iron (5.26%).

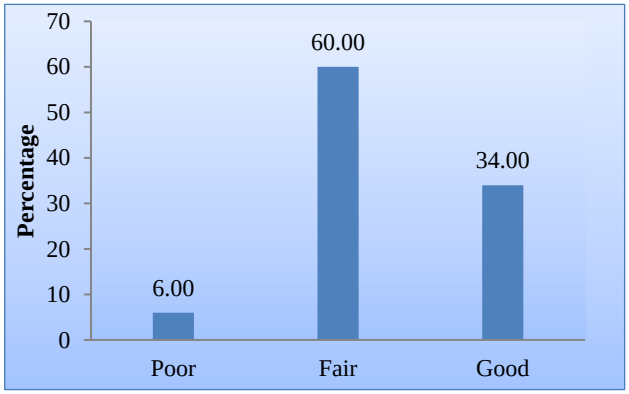

Figure 7: Presentation of preoperative status.

Most of them had fair preoperative status 30 (60%), good in 17 (34%), and poor in 3 (6%).

Table 2: Types of repairs for ventral hernias.

Treatment	Total (n = 50)	
	No	%
Anatomical repair	10	20.00
Anatomical repair (Simple suturing)	6	12.00
Mayo's repair	3	6.00
Shoelace darn repair	1	2.00
Mesh repair	27	54.00
Onlay mesh repair	22	81.00
Inlay mesh repair	5	19.00
Laparoscopic repair	13	26.00

In this study both open and laparoscopic, Anatomical and mesh repairs were performed. Majority of patients were treated with mesh repair 27 (54%), in which 22(81%) were Onlay and 5 (19%) were Inlay. Laparoscopic repair was done in 13 (26%) cases. Anatomical repair was done in 10(20%) cases which included simple suturing in 6 (12%), Mayo's repair in 3 (6%), Shoelace darn repair in 1 (2%).

Table 3: Follow-up status.

Follow-up	Total (n = 50)	
	No.	%
No recurrence	43	86.00
Lost to follow-up	7	14.00

Post operatively in 40 cases (80%) there were no complications with very few cases were complicated with wound infection 4 (8%), stitch abscess 3 (6%) and seroma 3 (6%) cases.

No recurrences were noted in the 43 (86%) cases over a period of 6 months following the surgery and 7 (14%) lost follow up.

DISCUSSION

This present study is a prospective study with 50 cases of ventral hernia selected randomly from the cases admitted to the Department of General Surgery at Alluri Sita Rama Raju Academy of Medical Sciences, Eluru during the years 2015-2017. The overall sex ratio distribution in this study showed that ventral hernias in females were 33 (66%) and males were 17 (34%) patients. Female to male ratio being approximately 2:1. There are 31 cases (62%) between the age range of 21 to 60 years. Female prepondarence were between 31 to50 years and males between 21 to 50 years (Figure 1).

From the study it was observed that 46 (92%) patients with ventral hernias most commonly presented with symptoms of swelling over the abdomen. 23 (46%) patients presented with pain associated with mass per abdomen some had dull aching dragging pain and some had severe colicky type continuous pain with no relieving factors in cases of obstruction and strangulation. Vomiting was present in 14 cases and distension was seen in 5 cases which may be attributed to incarceration, obstruction, strangulation (Figure 2).

Millikan KW reviewed that pain is not a common early complaint, but some patients do relate such episodes before the occurrence of the bulge when pain occurs during some type of lifting or vigorous activity. Vomiting, obstipation and severe pain are uncommon, but when present are usually associated with incarceration or strangulation of intestinal structures.[3] In the present study previous surgeries 19(38%) cases were found to be most common risk factors followed by multiparity, anemia in 12 (24%) cases each, obesity in 10(20%) cases, post-operative wound infections 9 (18%) cases (Figure 4). Bucknall stated common risk factors for ventral hernia which includes wound infection, obesity, emergency procedure, pulmonary complications (COPD) types of original incision, type of closure, suture material used, male gender and age.[4]

Ponka JL in his book stated that females presented more with ventral hernias after the gynaecological procedures.[5] Spangen suggested a variety of different predisposing factors such as the presence of inguinal or abdominal wall scars that could weaken the abdominal wall aponeurosis. This was supported by the fact that previous operations were found in 50% of all his cases.[6] In this study there is male preponderance 8(47.06%) cases in epigastric hernia compared to 3 (9.09%) females in a total of 11 (22%) cases in between 19 to 65 years. This is comparable to the results of Deveney who found that men are more commonly affected than women and most affected age group ranges from 20-50 years.[7]

In both umbilical and paraumbilical hernia females were approximately 2 times more common than males. This corresponds with the study of Muschaweck which states that umbilical hernia are in general more common in women than men and associated with high morbidity and mortality.[8] Incisional hernia was more commonly seen in female patients with 15 (45.45%) cases as compared to 4 (22.53%) male cases of the total 19 (38%) cases of incisional hernia. This corresponds to the figures reported by several western authors which show that it occurs more frequently in women. From this study out of 19 cases of incisional hernias it was observed that midline scars, lower midline 9 (47.37%) >upper midline 2 (10.53%) were more common as compared to paramedian, transverse and oblique incisions (Figure 6).

This study correlates with that of Carlson with regard to transverse incision (7.5%) and paramedian (2.5%) but with regard to midline incision the incidence is on the lower side in his studies, may be because of analysis in much large number of cases.[9]

In this study both open and laparoscopic, Anatomical and mesh repairs were performed. The anatomical repairs included simple suturing, Mayo's repair and Shoelace Darn repair. The mesh repair included Onlay, Inlay and Laparoscopic mesh repair. Anatomical repair by simple approximation of fascia was done in 10 (20%) cases.

Majority of patients were treated with mesh repair. In which 22 (81%) were Onlay and 5 (19%) were Inlay and 13(26%) were laparoscopic (Table 2). Arroyo et al stated that a clear distinction between the success of using mesh repair and primary suture. The latter resulted in a recurrence rate of 11%, while after using a tension free mesh repair it amounted to only 1%.[10]

Post operatively in 40 cases (80%) there were no complications with very few 10 (20%) cases were

complicated with wound infection, stitch abscess and seroma (Figure 8). In this study 7 cases lost for follow up and no recurrences were noted in the remaining 43 cases over a period of 6 months following the surgery (Table 3).

CONCLUSION

In our study of 50 cases there is female prepondarence with highest prevalence of incisional hernias with majority being gyneacological and obstetric procedures. Anatomical repair was the choice of repair in children and in emergencies in all the age groups. Mesh repair was the technique of choice for the most hernias, thereby reducing the obvious risk factors for wound failure and recurrences.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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