ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 06 | June - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A CLINICAL STUDY AND DIFFERENT MODALITIES OF MANAGEMENT OF VENTRAL HERNIAS

General Surgery

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ABSTRACT

Ventral hernias are common problem encountered by surgeons. Ventral hernias are classically taught to occur in at least 2% of men1. 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. Most common ventral hernias are incisional and para-umbilical hernias which about 85% of the overall ventral abdominal hernias2. In this prospective study of ventral hernia, 98 cases meeting the inclusion and exclusion criteria. most common age group for ventral hernia are of 41-60 years age group, and females are more common than males. Most common presenting features are painless reducible swelling with cough impulse. Most common associated risk factors are constipation, obesity and multiparity. Most preferable method after looking at post operative morbidities is laparoscopic methods but because of resources limitation, most preferred method for elective ventral hernia repair is onlay mesh repair.

KEYWORDS

Reducible Swelling, Irreducible hernias, Hernioplasty, Laparoscopic Hernia Repair

INTRODUCTION

The word Hernia is derived from the Greek word hernias which means a bud or an offshoot, a budding or a bulge[3]. Risk factors can be weakness of abdominal wall which contributes to hernia and increased abdominal pressure which can cause hernia. Contributing factors can be anatomical, congenital, connected with sex, age, weight loss, injury, postoperative scar, pregnancy etc. Causative factors can be hard physical activity, chronic cough, chronic constipation, obstructive uropathy, obesity, ascites etc. In majority of patients the diagnosis is easy as the present with mass per abdomen or a swelling, with other associated symptoms such as pain, vomiting abdominal distension. Thus, the study is being done to know the proportion of ventral hernias occurring in both sexes, various age groups, various risk factors, clinical presentations and their treatment.

AIMS & OBJECTIVE

1) To study the different modes of presentation of the ventral hernias.
2) To evaluate the predisposing factors (risk factors).
3) To study the different methods of surgical repair of the ventral hernias.

MATERIAL AND METHODS

The study were conducted on 98 patients undergoing ventral hernia surgery meeting the inclusion and exclusion criteria, admitted in the Department of General Surgery, Maharana Bhupal Hospital, RNT Medical College, Udaipur from February 2021 to December 2022.
Patients were informed about study in all respects and informed written consent was obtained. It was a prospective study which included one year post operative follow up.

Inclusion Criteria

All indoor cases of ventral hernias diagnosed by both clinically & radiologically and undergoing surgical management for the same, were included in this study.

Exclusion Criteria

Patients undergoing surgery for hernias other than ventral hernias e.g., Inguinal, femoral, obturator hernias etc. were excluded from the study.

Study Methodology

Data collected in standardized proforma, history, clinical examination such as symptoms and signs, investigations and management details are filled up. All patients underwent the following investigations-

A. All routine preoperative investigations, viz.-
- Complete blood count
- Blood glucose
- Blood urea and Serum creatinine
- Serum electrolytes
- Liver Function Test
- Coagulopathy profile
- Urine routine examination
- Electrocardiogram (ECG)

B. Radiological Investigations
- Xray chest PA view
- Xray abdomen erect or lateral decubitus view (if needed)
- Ultrasonogram abdomen and pelvis (with defect and swelling details)
- CT/MRI (if needed)

Data Analysis

Prevalence of ventral hernias were calculated. Correlation between risk factors and type of ventral hernia was calculated. All patients were observed for post operative complications and followed up for recurrence and median recurrence rates were calculated. Data was analyzed by appropriate statistical package and/or statistical tests.

OBSERVATIONS

1. Age Distribution With Mean Age

AGE GROUPS [YEARS]	NUMBER [%]	MEAN AGE ± SD
Up to 20	2 [2]	15 ± 2.8
21- 40	28 [28.6]	33.1 ± 4.6
41- 60	46 [46.9]	51.7 ± 4.9
61- 80	19 [19.4]	69.7 ± 5.5
Above 80	3 [3.1]	82.6 ± 2.8
Overall	98	50.1 ± 15.5

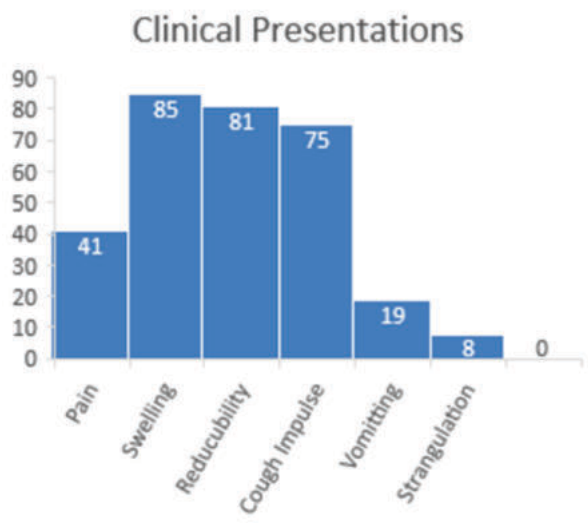
Ventral hernias were more common in 40-60 year age group patients (46.9%) followed by 20-40 year age group patients (28.6%) with overall mean age 50.1 years.

2. Significance Of Gender In Study Of Incidence Of Various Type Of Ventral Hernias

TYPE OF HERNIA	MALE [%]	FEMALE [%]
Epigastric Hernia	4 [28.57]	10 [71.42]
Incisional Hernia	12 [32.43]	25 [67.56]
Para Umbilical Hernia	6 [46.15]	7 [53.84]
Umbilical Hernia	24 [70.58]	10 [29.42]
Total	46 [47]	52 [53]
P value	0.058	

In cases of umbilical hernias majority of patients were male (70.58%) and male to female ratio was 2.4:1. While in Incisional hernia majority of patients were female (67.56%) with male to female ratio of 1:2.08.

3. Clinical Presentations In Study Group Of Ventral Hernia Patients



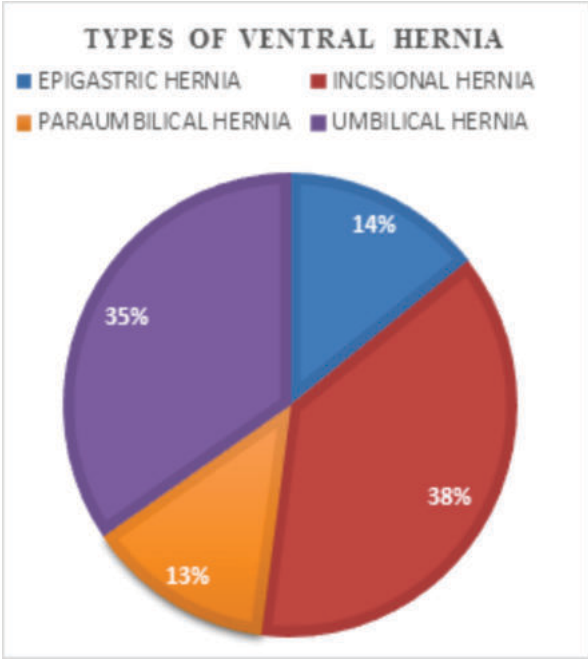
Most of the patients presented with painless reducible swelling (58.2%). While emergency presentations in form of irreducibility (17.3%) or strangulation (8.2%) were less prevalent in ventral hernias.

4. Assosiated Risk Factors In Patients Of Ventral Hernias

Risk factors	Number [%]
Obesity	43 [43.9]
Multiparity	42 [42.9]
BPH	18 [18.4]
COPD	20 [20.4]
Abdominal distension	17 [17.3]
Diabetes	17 [17.3]
Constipation	62 [63.3]
Previous Surgery	44 [44.9%]

Obesity (43.9%) and multiparity (42.9%) were prevalent in majority of ventral hernias, due to abdominal wall weakness. Increased intra-abdominal pressure due to constipation (63.3%), COPD (20.4%), BPH (18.4%) or abdominal distention (17.3%) were other major risk factor associated with ventral hernias.

5. Various Types Of Ventral Hernias In Study Of Ventral Hernia



Incidence of incisional hernias (37.7%) were highest among all type ventral hernias, followed by umbilical (34.7%) and epigastric (14.3%) hernias.

6. Reducibility In Radiological And Clinical Finding In Various Types Of Hernia

TYPE OF HERNIA	IRREDUCIBLE [%]	REDUCIBLE [%]
Epigastric Hernia	3 [21.4]	11 [78.6]
Incisional Hernia	6 [16.2]	31 [83.7]
Paraumbilical Hernia	2[15.4]	11 [84.6]
Umbilical Hernia	6 [17.6]	28 [82.4]
Total	17 [17.3]	81 [82.7]
P value	0.74	

Most of patient presented with reducible uncomplicated hernia (82.7%). Amongst various types of ventral hernia Epigastric hernia found to be commonly presented with irreducible hernia (21.4%). Other all types showing similarity in reducibility feature with total finding.

7. Surgical Procedures In Management Of Various Type Of Ventral Hernias

TYPE OF HERNIA	TYPE OF REPAIR		
	Anatomical Repair Of Anterior Abdominal Wall (%)	Hernioplasty (%)	Laparoscopic Hernioplasty (%)
Epigastric Hernia	3 (21.4)	11 (78.6)	0 (0)
Incisional Hernia	17 (45.9)	19 (51.4)	1 (2.7)
Paraumbilical Hernia	4 (30.8)	9 (69.2)	0 (0)
Umbilical Hernia	7 (20.6)	24 (70.6)	3 (8.8)
Total	31 (31.6)	63 (64.3)	4 (4.1)

Mostly hernias were repaired by open procedures. Anatomical repair of anterior abdominal wall is more commonly done for incisional hernia cases (45.9%) and small defect size ventral hernia. Hernioplasty is performed more commonly (64.3%) as a procedure of choice for elective cases at our Centre. Laparoscopic method was better for small sized hernias with no other associated co morbidities.

8. Post Operative Complications After Various Hernia Repair Surgeries

Postoperative Complications	Ventral Hernioplasty	Anatomical Repair	Laparoscopic Hernioplasty
Absent	25	5	4
Fever	10	9	0
Pain	16	6	0
Mesh Infection	6	0	0
Wound Dehiscence	1	5	0
Wound Infection	2	3	0
Seroma	4	4	0
Pelvic Collection	0	1	0

Most of the cases (34.69%) showed no post operative complications. Incidence of pain (22.44%) was highest after hernia repair followed by fever (19.38%). Complications like wound dehiscence and wound infection were more prevalent in herniorrhaphy as they were commonly done as emergency procedures.

DISCUSSION

In this prospective study of ventral hernia, 98 cases meeting the inclusion and exclusion criteria, admitted in the Department of General Surgery, Maharana Bhupal Hospital, RNT Medical College, Udaipur were studied between February 2021 to December 2022.

In this study, we found that cases of ventral hernias were maximum in 41-60 years age group of patients (46.90%) followed by 21-40 years age group of patients (28.60%). The mean age of patients presenting with ventral hernia was 50.1 years. Jadhav G S et al.[4], found mean age in their study was 52 years which is very much similar to our study mean age result.

In our study, gender wise analysis shows that male to female ratio was 1:1.12 so, females (53%) more commonly presented with ventral hernias as compared to males (47%). In cases of umbilical hernias majority of patients were male (70.58%) and male to female ratio was 2.4:1. While in Incisional hernia majority of patients were female (67.56%) with male to female ratio of 1:2.08.

In this study, most of patients presented with painless swelling (58.2%) and swelling with or without pain was presenting feature in 86.7% patients. Pain with or without visible swelling (41.8%) is a common

symptom in epigastric hernias. Irreducibility (17.3%) are uncommon presentation in our study. A very similar study of Jaykar RD et al.[5]

In our study, It was found that Obesity (43.9%) and multiparity (42.9%) were major risk factors associated with ventral hernias, due to abdominal wall weakness. Increase in intra abdominal pressure due to COPD (20.4%), abdominal distention (17.3%) or constipation (63.3%) were other major risk factor associated with ventral hernias. Lavanya S et al.[6], study stated most common risk factor is previous surgeries 19 (38%) followed by anemia 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%).

In this study we found that Incidence of incisional hernias (37.8%) were highest among all type ventral hernias, followed by umbilical (34.6%) and epigastric (14.3%) hernias, Paraumbilical hernias (13.3% each). Shah PP et al.[7], found data very similar to our study, Incisional hernia constituted for 41%, umbilical hernias 32%, Paraumbilical 17% and Epigastric 10% of all hernias. Whereas Natalie Dabbas et al.[8], in their study suggested frequency of different hernias in decreasing frequency as umbilical followed by epigastric, incisional and paraumbilical hernias.

In our study, mostly hernias were repaired by open procedures. Hernioplasty is performed more commonly (64.3%) as a procedure of choice for elective cases at our centre. In emergency procedure, darning herniorrhaphy and anatomical abdominal wall repair was preferred to hernioplasty due to increased chances of mesh infection in emergency settings. Anatomical repair of anterior abdominal wall was mostly done in cases with defect size up to 2cm or more than 5-6cm in elective surgeries. Laparoscopic method was better for small sized hernias with no other associated co morbidities and done in 4.1% cases.

In this study prevalence of various post operative complications were studied and we found most of the cases (34.69%) showed no post operative complications. Incidence of pain (22.44%) was highest after hernia repair followed by fever (19.38) Complications like wound dehiscence, wound infection and seroma formation were more prevalent in emergency procedures & contaminated. No post operative complications noted in our all 4 cases treated by laparoscopic procedure.

Jaykar RD et al.[5], study revealed that wound infection rate was 6%. Lavanya S et al.[6], 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.

Limitations Of The Study

The data collection was confined to a particular limited area of the country, which may not be an accurate presentation of the general population. The sample size was very small; hence, it represents only a small proportion of the entire population in the country. In view of a very limed period of follow-up and small sample size, it was not possible to comment on recurrence rates. We recommend a large multicentric trial with a longer duration of follow-up to measure the recurrence of the condition.

CONSLUSION

It can be concluded in our study that most common age group for ventral hernia are of 41-60 years age group, and females are more common than males. Most common presenting features are painless reducible swelling with cough impulse. Most common associated risk factors are constipation, obesity and multiparity. Most preferable method after looking at post operative morbidities is laparoscopic methods but because of resources limitation, most preferred method for elective ventral hernia repair is onlay mesh repair.

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