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Ventral Hernias in Kalyana Karnataka Teaching Hospital: A Prospective Study

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Abstract

A ventral hernia is a protrusion of the abdominal viscus through the anterior abdominal wall occurring at any site other than the inguinal and femoral areas and is a common problem encountered by surgeons.

Aims & Objective: Due to the lack of prospective cohorts to determine the natural history of untreated ventral hernias, most surgeons recommend that these hernias be repaired as soon as they are discovered. The purpose of this study was to determine the proportion of ventral hernias occurring in both sexes, various age groups, various risk factors, and complications, as well as their clinical presentations and treatment.

Material and Methods: During the period August 2020 to August 2021 (12 months), a prospective study was conducted at our tertiary care hospital. The study included 50 cases of anterior abdominal hernias excluding groin hernias and posterior abdominal wall hernias. A detailed history and a thorough clinical examination were used to collect data. In the proforma, data was entered, tabulated, and analyzed using statistical software (SPSS 2015).

Results: Ventral hernias accounted for 5% of surgical admissions. Among the ventral hernias, para umbilical hernias were the most prevalent (48%). An infra umbilical midline herniation accounted for 36% of cases, followed by an umbilical region herniation in 18% of cases. Constipation and obesity were found to be the major risk factors. Most defects are small (>2cm). 48% of inlay mesh repairs were made.

Conclusion: 50 cases of ventral hernias were studied in the present study, which was conducted in our tertiary care hospital. Five percent of all admissions to the surgical ward were due to ventral hernias. The females to males ratio was 1:17, and the mean age was 41. The mean total duration for surgery in sublay group was 75.4±9.23 minutes compared to 63.7±10.58 minutes in onlay group, which was statistically significant ($p<0.05$).

Keywords: hernia, ventral hernia, epigastric, onlay, sublay

Introduction

A ventral hernia is a protrusion of the abdominal viscus through the anterior abdominal wall occurring at any site other than the inguinal and femoral areas and is a common problem encountered by surgeons [1]. There are different modes of presentations of hernias such as the incidental finding of bulging over the previous surgical scar or symptomatic with pain, vomiting, distension of the abdomen, constipation i.e., signs and symptoms of intestinal obstruction. These defects can be categorized as spontaneous or acquired or by their location on the abdominal wall. Acquired hernias typically occur after surgical incisions and are therefore termed incisional hernias. Epigastric, umbilical, paraumbilical, and incisional hernias constitute a large number of patients whereas the other hernias are rarely seen and form a small amount. Incisional hernia is a common long-term complication of abdominal surgery and is estimated to occur in 3% to 13% of laparotomy incisions [2]. However, its incidence is greater than 23% in patients who have developed an infection in the laparotomy wound [3].

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A ventral hernia is a very common condition presenting to our hospital, so there was a need to study the disease with respect to the various presentations, to gauge the awareness levels of the patients coming to us, and also to determine the best modality of treatment in our set-up.

Thus, the study is being done to know the clinical presentations of ventral hernias, predisposing factors (risk factors) for the development of ventral hernias, different methods of surgical repair of the ventral hernias, complications following surgery, and their follow-up.

Material and Methods

This was a prospective study done at our teaching hospital between August 2020 and August 2021 (12 months). A total number of 50 cases were included in the study. Patients with groin hernias, posterior abdominal wall hernias, and those who did not undergo surgical intervention, and who are not fit for surgery were excluded from the study. Ventral hernias included epigastric, incisional, and umbilical hernias. Data collection included a detailed history and a thorough clinical examination. Patients underwent routine laboratory (CBC, LFT, KFT, BSL) and radiological investigations (Chest X-ray and USG). Patients were operated on with suitable open surgical techniques and followed up for immediate post-operative complications. Data was entered in the proforma, tabulated, and analyzed.

Results

Ventral hernias comprised ~5% of the total number of 1,000 admissions to the surgical ward (from August 2020 - August 2021). In the present study, the youngest patient was 12 years old and the oldest was 76 years old. The mean age at presentation was 47 years. paraumbilical hernia (49%) was the most common variety followed by epigastric hernia (22%) and umbilical hernia (18%). The highest incidence is found in the 41-50 age group.

In our study, the highest number of cases was found to be between 41-50 years of age and the mean age was 47 years. Out of 50 cases, 21 were males and 29 were females. Out of 21 males, 9 cases were of epigastric hernia. Out of 29 cases of ventral hernias in females, 20 cases were of paraumbilical hernia, whereas the next most common type was umbilical hernia (9 cases).

Age	No. of Patients	Percentage [%]
0-10	0	0
11-20	1	2
21-30	5	10
31-40	12	24
41-50	13	26
51-60	10	20
61-70	4	8
71-80	5	10

Table 1. Distribution of data according to Age

	Incidence	Percentage [%]
Male	21	42
Female	29	58

Table 2 Distribution of data according to gender

Size of the defect

The size of the hernia defect at the time of presentation was as follows:

Size of defect	No. of cases	Percentage [%]
<2cms	32	64
2-3cms	12	24
>3cms	6	12

Table 3 Distribution of data according to the size of the defect

It was found that the incidence of complications was more common in patients who presented with small to moderate-sized defects because the narrow neck of the hernia sac would compress the contents leading to irreducibility, obstruction, and strangulation.

Mode of presentation

The complaints which the patients presented in this study are as follows:

COMPLAINT	No. of Cases	Percentage [%]
Swelling with pain	27	54
Swelling	10	20
Swelling with irreducibility	13	26

Table 4 Distribution of data according to Chief complaints

Majority of the patients presented with swelling & Pain over& around the umbilicus or in the line of the scar of previous surgery.

Anatomical sites

In the present study, Paraumbilical hernia was the most common among the ventral hernias with an incidence of 46%. Of these, most occurred in the infra-umbilical region.

ANATOMICAL SITE	No. of Cases
Paraumbilical Hernia – infraumbilical	18
Paraumbilical Hernia – supraumbilical	6
Umbilical Hernia	9
Epigastric hernia	11
Incisional hernia	3

Table 5 Anatomical site distribution

There is a significant association between constipation smoking, obesity, and the occurrence of ventral hernia ($p<0.001$). Data analysis was done by using the statistical package for social science (SPSS) software version 17 for Windows by using the chi-square test and other parameters. A p-value of less than 0.05 was considered significant.

Duration of surgery

The mean total duration for surgery in sublay group was 75.4±9.23 minutes compared to 63.7±10.58 minutes in onlay group, which was statistically significant ($p<0.05$)

TYPE OF REPAIR	Operative time (In minutes)
Onlay	63.7
Sublay	75.4

Table 6 Duration of surgery

Post operation stay and drain removal.

A suction drain was put in all cases. Mean drainage duration (4.8+0.99 days vs. 3.5+1.24 days) was low in sublay group compared to onlay group which was statistically significant.

The mean duration of hospital stay postoperatively in sublay group was 4.2±1.51 days, whereas it was 6.7±1.46 days in onlay group, which was statistically significant.

	Durationof Drain (In Days)	Postoperative Stay (In Days)
Onlay	**4.8**	**6.7**
Sublay	**3.5**	**4.2**

Table 7 Post operation stay and drain removal.

Post Op complications

In the present study, the following complications occurred during the postoperative period. Thus, in the present study, a 6% recurrence rate was observed after 1 year of follow-up.

The wound infection rate was 4%.3% with onlay repair and 1% with sublay repair. Two patients had marginal suture line necrosis but no wound or mesh infection; necrotic skin was excised and suturing was done.

COMPLICATIONS	No. of Patients
Seroma	3
Wound infection	2
Skin necrosis	2
Recurrence	3

Table 8 Post Operative complications

Discussion:

The incidence of ventral hernia is higher in females because, in multiparous women, the following factors predispose to hernia formation: stretching of the anterior abdominal wall, decreased tone of abdominal wall muscles, and replacement of collagen with elastic fibers. In our study, the incisional hernia was the most common among the hernias, this is comparable to another Indian study [4]. However, *Dabbas N et al*. did a retrospective study of 2389 patients and found that umbilical and paraumbilical hernias were the most common anterior abdominal wall hernia [5]. *Malik AM et al.* found a maximum number of paraumbilical hernias (13%) followed by epigastric hernias and umbilical hernias [6].

Constipation was found to be one of the major risk factors for interfering with wound healing and precipitating incisional hernia, even after a repair. This is comparable to the study of *Ersoz et al.* of the Department of Surgery, Ankara University of Medicine, Turkey [7].

The study evaluated 109 recurrent incisional hernias and found that chronic constipation was the most prominent risk factor associated with late recurrence. In the present study, Incisional hernia was the most common among the ventral hernias with an incidence of 46%. Of the incisional hernias, most occurred in infra-umbilical midline incisions.

In fact, as per literature, the best position for inserting the material has not been conclusively established; but limited studies have shown that meshes implanted on the abdominal aponeurotic layer showed better and early incorporation (higher collagen deposition, capillary density, and cell accumulation) and increased tensile strength reflecting tighter anchorage to the abdominal wall [8, 9, 10].

One European study has shown that onlay technique had significantly more complications as compared to sublay technique [11]. Thus, it can be safely said that based on the above parameters, sublay is a better technique than onlay in terms of placement and overall decreased complications and morbidity [12].

There is a paucity of literature but an experimental study has also shown the superiority of sublay technique, based on different parameters.[13]

Even after long-term follow-up, recurrence rates of around 10% are possible [14].

This is all the more necessary as the world literature is scanty and there is great interest in hernia surgery using mesh these days.

Conclusion:

In the present study of ventral hernias, 50 cases of ventral hernias that were admitted to the Department of Surgery in our Teaching hospital from August 2020 to August 2021 were studied.

Ventral hernia constituted 5% of all admissions to the surgical ward. The mean age was approximately 47 years. Paraumbilical Hernia was the most common variety. 54% of the patients presented with swelling with pain as the chief complaint. 20% of the patients presented with swelling as the chief complaint.

The infra umbilical midline was the most common site for herniation in 36% of cases followed by the Epigastric region in 22% of cases. Obesity and constipation were found to be the major predisposing risk factors. Seroma occurred in 6% of cases. Wound infection occurred in 4% of cases

The mean total time taken for the operation in the 'sublay' group was 75.4±9.23 minutes, compared to 63.7±10.58 minutes in the 'onlay' group; and was found to be statistically significant ($p<0.05$). The difference in time can be accounted for due to more dissection time needed for creating preperitoneal space. Securing reasonable hemostasis is another burden on time. Ease of operation

is largely subjective (surgeon factor being constant) and depends on individual surgeon's experience, exposure, and planning, quality of assistance, conductive facilities like light, cautery, instruments quality, and sutures, etc.

Apart from recurrence, other postoperative complications like seroma formation and wound infection are attributed largely to extensive dissection and tissue handling during hernia repair.8 In the present study, there was slightly more chance of seroma formation in onlay group, which may be due to extensive tissue dissection and increased blood loss.

Duration of hospital stay gives us an indirect indication of the degree of morbidity in terms of postoperative complications. The mean duration in sublay group was 4.2 days, compared to 6.7 days in onlay group; and were found to be statistically significant ($p<0.05$). On one-year follow-up, the recurrence rate was found to be more in onlay group.

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