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Original Research Article

A clinical study of ventral hernia

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ABSTRACT

Background: Ventral hernias are one of the most common problems confronting general surgeons. Incisional hernia is a common long-term complication of abdominal surgery and is estimated to occur in 3% to 13% of laparotomy incisions. Because there is no prospective cohort available to determine the natural history of untreated ventral hernias, most surgeons recommend that these hernias should be repaired when discovered. 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. This study was done to know the proportion of ventral hernias occurring in both sexes, various age groups, various risk factors and complications of different types of ventral hernias, clinical presentations and their treatment.
Methods: This was a prospective study done at our tertiary care hospital between August 2014 and August 2015 (12 months). A total number of 50 cases of anterior abdominal hernias excluding groin hernias, posterior abdominal wall hernia was studied. Data collection included a detailed history and a thorough clinical examination. Data was entered in the proforma, tabulated and analyzed using software package for statistical analysis (SPSS 2015).
Results: Ventral hernia constituted 4% of all admissions to the surgical ward. Incisional hernia was the most common amongst the ventral hernias with an incidence of 46%. Infra umbilical midline was the most common site for herniation in 42% of cases followed by umbilical region in 32% of cases. Obesity and constipation were found to be the major predisposing risk factors. Small defects (<2cm) presented early with more complications.
Conclusions: In the present study of ventral hernias, 50 cases of ventral hernias that were admitted to Department of Surgery in our tertiary care hospital. Ventral hernia constituted 4% of all admissions to the surgical ward. The male to female ratio was 1:1.9 The mean age was approximately 41 years. Incisional Hernia was strangulated umbilical hernia - intra operative the most common variety.

Keywords: Clinical study, Prospective, Ventral hernia

INTRODUCTION

A ventral hernia is defined by a protrusion through the anterior abdominal wall fascia.[1] These defects can be categorized as spontaneous or acquired or by their location on the abdominal wall. Epigastric hernias occur from the xiphoid process to the umbilicus, umbilical hernias occur at the umbilicus, and hypogastric hernias are rare spontaneous hernias that occur below the umbilicus in the midline. Acquired hernias typically occur after surgical incisions and are therefore termed incisional hernias. Ventral hernias are one of the most common problems confronting general surgeons. 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]

Few data are available about the natural history of untreated ventral hernias. Because there is no prospective cohort available to determine the natural history of untreated ventral hernias, most surgeons recommend that these hernias should be repaired when discovered.

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 proportion of ventral hernias occurring in both sexes, various age groups, various risk factors and complications of different types of ventral hernias, clinical presentations and their treatment.

METHODS

This was a prospective study done at our tertiary care hospital between August 2014 and August 2015 (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 were excluded from the study. Ventral hernias included epigatric, incisional, umbilical and spigelian 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 with suitable open surgical techniques and followed up for immediate post-operative complications. Laparoscopic repair was not done in any case as the facility and infrastructure was not available. Data was entered in the proforma, tabulated and analyzed.

RESULTS

Ventral hernias comprised ~4% of the total number of 1,250 admissions to the surgical ward (from August 2014 - August 2015). In the present study, the youngest patient was 8 years old and the oldest was 74 years old. The mean age at presentation was 41 years. Incisional hernia (44%) was the most common variety followed by umbilical hernia (32%) and epigastric hernia (10%). Highest incidence is found in the 60-70 age group.

In our study, highest number of cases was found to be between 61-70 years of age and the mean age was 41 years. Out of 50 cases, 17 were males and 33 were females. Out of 17 males, 6 cases were of umbilical hernia. Out of 33 cases of ventral hernias in females, 21 cases were of incisional hernia, whereas the next most common type was umbilical hernia (12 cases).

Table 1: Age.

Age group	No. of patients	Percentage (%)
0-10	1	2
10-20	1	2
20-30	5	10
30-40	7	14
40-50	11	22
50-60	11	22
60-70	12	24
70-80	2	4

Table 2: Sex wise distribution: male to female ratio was 1:1.95.

	Incidence	Percentage (%)
Male	17	34
Female	33	66

Size of the defect

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

Table 3: Size of defect.

Size of defect	No. of cases	Percentage
≤ 2 cms	32	64
2-3 cms	12	24
>3 cms	6	12

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 with which the patients presented in this study are as follows:

Table 4. Chief complaints.

Complaint	No. of cases	Percentage
Swelling	32`	64
Swelling with pain	10	20
Swelling with irreducibility	6	12
Swelling with intestinal obstruction	2	4

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

Risk factors at the time of presentation

The following risk factors which interfere with good wound healing were noted in the present study;

Table 5. Risk factors.

Risk factors	No. of patients	Percentage
Obesity	8	16
Anaemia	3	6
Smoking	8	16
Constipation	17	34
Diabetes	4	8
Benign enlargement of prostate (Males)	6	12

Patients were treated preoperatively and after control of diabetes and hypertension were posted for surgery. Constipation was found to be one of the major risk factors for interfering with wound healing and precipitating incisional hernia, even after a repair.

Anatomical sites

In the present study, Incisional hernia was the most common amongst the ventral hernias with an incidence of 46%. Of the incisional hernias, most occurred in infra-umbilical midline incisions.

Lower midline incision is more prone for herniation as the posterior rectus sheath is deficient below the umbilicus.

Table 6: Anatomical site distribution.

Anatomical site	No.
Incisional hernia - infra umbilical	21 (42%)
Incisional hernia - supra umbilical	2 (4%)
Umbilical hernia	16 (32%)
Paraumbilical hernia	6 (12%)
Epigastric hernia	5 (10%)

There is significant association between smoking, obesity, constipation and occurrence of ventral hernia ($p<0.001$) and no significant association between diabetes, ($p>0.05$). Data analysis was done by using statistical package for social science (SPSS) software version 17 for windows by using chi square test and other parameters. The p-value of less than 0.05 was considered significant.

Postoperative complications

In the present study, the following complications occurred during the post-operative period. Thus, in the present study, 4% recurrence rate was observed after 6 months of follow up. Wound infection rate was 6%. 4% recurrence was noted, 2% with prolene mesh repair and 2% with anatomical repair. There occurred 1 mortality in a 69-year-old female who had presented with a strangulated incisional hernia with sepsis, diabetes, hypertension and obesity as other comorbidities. One mesh infection occurred (2%); the mesh was removed after 3 weeks, wound healed with dressings. Two patients had marginal suture line necrosis but no wound or mesh infection; necrotic skin was excised and suturing was done.

Table 7: Post Op complications.

Complications	No. of patients
Seroma	1 (2%)
Wound infection	3 (6%)
Recurrence	2 (4%)
Skin necrosis	2 (4%)
Mesh infection	1 (2%)
Death	1 (2%)

Table 8: Intra operative findings.

Strangulated hernia (requiring bowel resection)	2 (4%)
Non-strangulated hernia (viable bowel)	28 (56%)
Non-strangulated hernia (omentum)	20 (40%)

Intra operative findings

In the present study, there were two cases which required bowel resection and anastomosis, in view of bowel strangulation. One case was that of strangulated incisional hernia in a 69-year-old female, who later succumbed (the only mortality in our study). The other case was that of a 42-year-old male with a strangulated umbilical hernia, who underwent resection anastomosis, and who recovered well from surgery. Only anatomical repair was done for these potentially contaminated cases. All hernias with omentum as contents, were repaired using mesh.

DISCUSSION

The incidence of ventral hernia is higher in females because in multiparous women, the following factors predispose to hernia formation: stretching of anterior abdominal wall, decreased tone of abdominal wall muscles, replacement of collagen with elastic fibers. In our study, incisional hernia was the most common amongst 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 maximum number of paraumbilical hernias (13%) followed by incisional and epigastric 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 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 amongst the ventral hernias with an incidence of 46%. Of the incisional hernias, most occurred in infra-umbilical midline incisions. Lower midline incision is more prone for herniation as the posterior rectus sheath is deficient below the umbilicus.

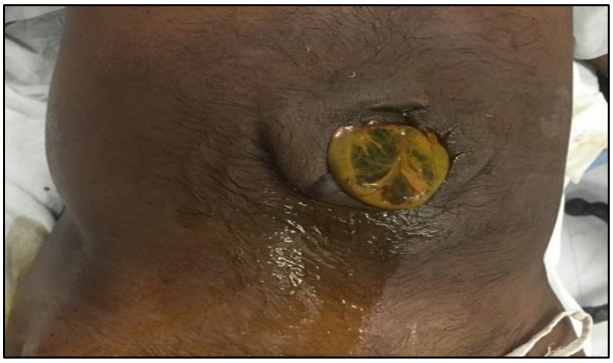

Figure 1: Strangulated umbilical hernia pre-operative.

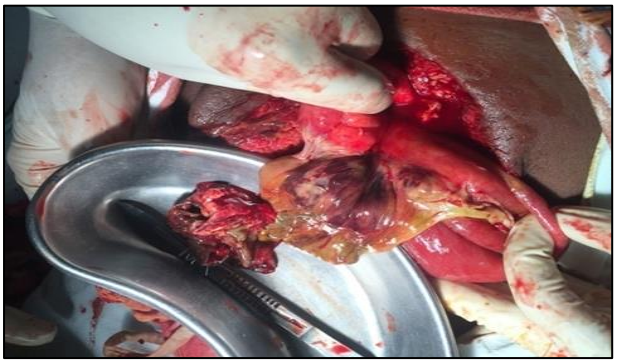

Figure 2: Strangulated umbilical hernia intra-operative.

In the present study, there were two cases which required bowel resection and anastomosis, in view of bowel strangulation. One case was that of strangulated incisional hernia in a 69-year-old female, who later succumbed (the only mortality in our study). The other case was that of a 42-year-old male with a strangulated umbilical hernia, who underwent resection anastomosis, and who recovered well from surgery. Only anatomical repair was done for these potentially contaminated cases.

CONCLUSION

In the present study of ventral hernias, 50 cases of ventral hernias that were admitted to Department of Surgery in our tertiary care hospital from August 2014 to August 2015 were studied. Ventral hernia constituted 4% of all admissions to the surgical ward. The male to female ratio was 1:1.9 The mean age was approximately 41 years. Incisional Hernia was the most common variety. In the incisional hernia group of patients (23), the most common previous surgery was tubectomy (8) followed by Total abdominal hysterectomy (7) and lower segment caesarean section (5) followed by lower midline laparotomy (3) in males.64% of the patients presented with swelling as the chief complaint. 20% of the patients presented with pain as the chief complaint. 4% of the patients presented with intestinal obstruction. Infra umbilical midline was the most common site for herniation in 42% of cases followed by umbilical region in 32% of cases. Obesity and constipation were found to be the major predisposing risk factors. Wound infection occurred in 6% of cases.4% recurrence rate was seen within 6 months of follow up period. Prolene mesh was used in 74% of the cases 2% recurrence occurred with anatomical repair and 2% recurrence rate with mesh repair within a period of 6 months. Anatomical repair was done in 26% of cases. There was 1 incidence of mortality.

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Ethical approval: The study was approved by the institutional ethics committee

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