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Original Research Article

Intervention to Repair Ventral Wall Hernia at Tertiary Care Facility: Clinico-Demographic and Outcome Assessment

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Abstract

Aim: The aim of this study was to shed the light on the most common predictive factors for the occurrence and rate of complications associated with hernia repair.

Material & Methods: A prospective study with total 500 patients were included, conducted at Department of General Surgery, Government Medical College, Bettiah, Bihar, India. The study was conducted for the period of one year.

Results: 375 patients were females and 125 males in the present study. The mean age of patients was 36.4 with the oldest patient in our study being 80 years. The mean BMI for the studied population was 32.8. The mean duration of hospital stay was 3.5 days. Previous abdominal wall surgery was the most common risk factor (275 of the patient) followed by pregnancy (175 patient), chronic constipation (75 patient), chronic cough (25 patient). There was a significant correlation between age of patients and duration of admission (p value 0.003) however no significant correlation between gender and duration of admission was found. Para umbilical hernias were the most common operated hernia in my study (175 hernia) followed by umbilical (150 hernia), incisional (110 hernia). Type of hernia did not have a significant effect on outcome or duration of hospital stay, nor on the risk of recurring emergency surgery. Most common complication was seroma/hematoma developing in 50 of patients and 20 patients had a recurrence within the follow up period.

Conclusion: In conclusion, this study only looked at one center's experience with ventral hernia repair, so it's clear that more work has to be done to reduce the prevalence of ventral hernias and the complications they can cause.

Keywords: Complication, Recurrence, Risk factors, Ventral hernia.

Introduction

Abdominal viscera protrude through a non-hiatal, non-inguinal defect in the abdominal fascia; this condition is known as a ventral hernia. Patients typically present with an abdominal bulge or edema that goes down when they lie down. It can sometimes be accompanied by a dull ache. [1] It's a regular issue for surgeons in general practice. It has been observed that 20–25% of patients who undergo laparotomy would develop a ventral incisional hernia in the long run. [2]

An abdominal ventral hernia occurs when abdominal viscera protrude via a defect in the abdominal fascia that was not hiatal or inguinal. These are extremely frequent in

actual medical care. The majority of patients will report an abdominal bulge or edema upon presentation, which will typically go down when they lie flat. There may be occasions when a dull ache was felt. Umbilical, epigastric, Spigelian, lumbar, and incisional hernias all occur in the ventral part of the abdomen. [3] Primary ventral hernias and incisional hernias are the two types of ventral hernias recognized by the European Hernia Society. In contrast to incisional hernias, which form over an existing incision, primary ventral hernias form over unaffected skin. Defects are further classified by their length and width. [4]

Both the open and laparoscopic methods can be used to repair a ventral hernia. Several surgeons now choose a hybrid method, especially when dealing with incisional hernias. [5] Recurrence rates, surgical site problems (such as seromas, hematomas, and wound healing abnormalities), and length of hospital stay have all been shown to be lower with the laparoscopic method of hernia repair. [6] In Oman, 56% of women of childbearing age and older suffer from a primary ventral hernia. [7] Incisional hernias are more likely to occur with advanced age, obesity, diabetes, smoking, infection, or chemotherapy. Complex incisional hernias have a morbidity incidence of up to 30% and require surgical correction. [8]

At 23 months, the recurrence rate for 100 consecutive laparoscopic repairs studied by Heniford et al. [9] was 3%. However, some studies have suggested that laparoscopic repair may not have such a low recurrence rate after all, and that the recurrence rate after laparoscopic repairs was comparable to that after open repairs, or even higher. [10,11] Because ventral abdominal wall hernias and problems from their surgical correction are so widespread, it is important to understand what causes them. This will allow for the most effective preventive actions to be done.

So, the aim of this study was to shed the light on the most common predictive factors for the occurrence and rate of complications associated with hernia repair.

Materials & Methods

A prospective study with total 500 patients was included, conducted at Department of General Surgery, Government Medical College, Bettiah, Bihar, India. The study was conducted for the period of one year.

Inclusion Criteria

1. Patients (>18 years of age) who presented with ventral hernias and were operated on electively were included after obtaining written consent.

Exclusion Criteria

1. Patients who presented to acute surgical care unit in view of surgical emergencies like acute intestinal obstruction,
2. Lumbar hernias, and
3. Mentally disabled patients.

Methodology

A proforma was made for the research for accurate documentation. The study participants had a thorough clinical examination and history taking as per the protocol. Prior to surgery, information about the patient's demographics, risk factors, comorbidities, surgical history, investigations, hernia type, hernia size, defect size, and hernia content was gathered. Surgical options were discussed with each patient.

After that, either laparoscopic or open surgery was performed on the patient. The informations gathered during the operation, including diagnoses, procedures, drain installation, problems, and the necessity for a procedure change, was recorded. Each patient's postoperative information, including their level of pain on day 1 and at discharge, wound complications, additional systemic issues,

drain removal day, need for postoperative ICU care, postoperative hospital stay, and status at discharge, was also recorded. The immediate quality of life following ventral hernia repair was significantly impacted by postoperative pain. The VAS was utilized for postoperative pain evaluation. The patients were given a pain scale from 1-10 and asked to rate their level of discomfort. When the number increases, so does the intensity of the pain. The mean pain score was determined by averaging three VAS readings done at 12-hour intervals. Information was gathered on a wide range of factors, such as the method of repair used, the size of the hernia, the number of hernia defects, patient comorbidities, patient BMI, the number of previous surgeries, the rate of recurrence, and the incidence of complications.

Data sampling and collection

A prior power analysis was used to determine the sample size. Data was collected from the Hospital information system (track care). All patients had standardized data collection including demographic (age, gender, weight, height), patients risk factors, presentation (swelling, pain, incarceration, obstruction or strangulation), type of hernia identified, recurrent or primary hernia, technique of surgical management, complications, period of hospital stay and follow ups. The primary outcome measure was the recurrence rate, the progression of overall recurrence rates with the follow-up duration & comparison of the laparoscopic and open techniques for changing recurrence rates as the follow-up duration increased.

Data analysis

Data was analysed by SPSS software version 25. The database for the study sample was created. The mean and standard deviation (SD) of each of the above parameters was calculated. To test the significance of the association between the categorized variables,Chi-square test, ANOVA test was used and a p value of 0.05 or less taken as significant with a confidence interval of 95%.

Results

Table 1: Patient's clinico-demographic data

Characteristics		N (%)
Gender	Male	125 (25)
	Female	375 (75)
Age (years)	18-50	325 (65)
	51-60	100 (20)
	61-70	60 (12)
	Older than 70	15 (3)
Risk factor	Chronic cough	25 (5)
	Chronic constipation	75 (15)
	Multiple Pregnancies	175 (35)
	Previous abdominal surgery	275 (55)
	Heavy lifting	20 (4)

375 patients were females and 125 males in the present study. The mean age of patients was 36.4 with the oldest patient in our study being 80 years. The mean BMI for the studied population was 32.8. The mean duration of hospital stay was 3.5 days. Previous abdominal wall surgery was the most common risk factor (275 of the patients) followed by pregnancy (175 patients), chronic constipation (75 patients), chronic cough (25 patients). There was a significant correlation between age of patients and duration of admission (p value 0.003) however no

significant correlation between gender and duration of admission was found.

Table 2: Number of cases based on the type of hernia

Type of hernia	N%
Umbilical	150 (30)
Paraumbilical	175 (35)
Incisional	110 (22)
Supraumbilical	40 (8)
Epigastric	20 (4)
Spigelian	5 (1)

Para umbilical hernias was the most common operated hernia in this study (175 hernia) followed by umbilical (150 hernia), incisional (110 hernia). Type of hernia did not had a significant effect on outcome or duration of hospital stay, nor on the risk of recurring emergency surgery.

Table 3: Frequency of post-operative complications for the participants (in 119 out of 500)

Post-operative complications	N%
Seroma/ Hematoma	50 (10)
Superficial infection	25 (5)
Recurrence of hernia	20 (4)
Bowel injury	10 (2)
Deep infection	5 (1)
Chronic infection	5 (1)
Bowel obstruction	4 (0.8)

Most common complication was seroma/hematoma developing in 50 patients and 20 patients had a recurrence within the follow up period.

Discussion

One of the most common issues faced by general surgeons is ventral hernia repair. Laparoscopic correction of ventral hernias has been shown in multiple trials to result in a shorter hospital stay and a faster recovery. [9,12-14] Inguinal, umbilical, epigastric, incisional, and para-umbilical hernias are the five most prevalent types of abdominal hernias. [15] We still lack Grade A evidence that standardizes the surgical correction of abdominal wall hernias, despite the fact that ventral abdominal wall hernias are operated on relatively regularly. Nonetheless, mesh-free repairs are still employed, and whether or not a surgeon chooses to use one depends on the factors including personal preference, the possibility of contamination, and whether or not the bowel needs to be resected.[8]

While our patients' mean age was lower than the 53.3 years reported in international research, it was similar to the 44.8 years reported in an Egyptian study. [7,16] However, the results showed that the mean BMI of our study (32.8 kg/m2) and the mean postoperative hospital stay (3.5 days) were both very close to the globally reported statistics (27 kg/m2) and the mean postoperative hospital stay (3 days). [16, 17] The analysis of the included patients also revealed an association between patient age and length of hospital stay; shorter hospital stays were observed for younger individuals.

Para umbilical hernias were the most common operated hernia in this study (175 hernia) followed by umbilical (150 hernia), incisional (110 hernia). Type of hernia did

not had a significant effect on outcome or duration of hospital stay, nor on the risk of recurring emergency surgery. However, it was found in a previous study that was done in the United Kingdom that the umbilical hernia was the commonest followed epigastric, and incisional hernias. [18] Thus, was consistent with regional report which concluded para umbilical hernia as the most common. [15,19] In addition, there was no statistically significant correlation between the type of hernia and duration of hospital stay, nor outcomes.

Most common complication was seroma/hematoma developing in 50 of patients and 20 patients had a recurrence within the follow up period. Nicolau et al found the most common complication post operatively was seroma. In line with these findings a study of 1029 patients found that the most common early post-operative complication was also seroma. [7] Nevertheless a meta-analysis showed that men had lower risk of recurrence which was inconsistent with assumptions. They also concluded that there was a significant relation between the type of surgery and recurrence rate, which was consistent to the results in this study. Moreover, there was insignificant association between the use of mesh and recurrence rate which was conflicting with previous international study which showed a significant association between the use of mesh and recurrence rate, and that might be due to the difference in sample size of both studies. [20,21]

Conclusion

In conclusion; this was a single centre experience with the ventral hernia repair, addressing risk factors and educating the population is an important step that should be taken to decrease the incidence of ventral wall hernia and its complications. As the sample size was small and majority of patient are from one region, large multicentre studies would shed more light on the aforesaid work.

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