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A study of clinical profile of ventral hernias in a tertiary care hospital

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Abstract

Introduction: Abdominal wall hernias are a familiar surgical problem. Millions of patients are affected each year, presenting most commonly with primary ventral, incisional, and inguinal hernias.

A ventral hernia is defined by a protrusion of an organ or tissue through a defect in the anterior abdominal wall fascia. Ventral hernia constitute 4% of total hernia patient admitted in ward. The aim is to study the varied presentations, etiology, distribution according to age /sex, predisposing factors, anatomical distribution of ventral hernias.

Materials and Methods: This is a prospective descriptive study. Present study was conducted over a period from August 2019 to August 2021. During the study period, 50 patients of ventral hernias were included.

Results: Incisional hernias constituted 46% of all ventral hernias. Female preponderance was seen in incisional hernias with Female to male ratio is 1.9:1, where as in epigastric and umbilical / para umbilical hernias male predominance was seen. Most of the ventral hernias presented in 4th to 6th decades. 78% of ventral hernias were uncomplicated at the time of presentation. Swelling was the most common complaint followed by pain.

Keywords: Clinical, ventral, hernias, tertiary, surgical

Introduction

“No disease of the human body belonging to the province of the Surgeon requires in its treatment a better combination of accurate anatomical knowledge with surgical skill than Hernia in all its varieties” Sir Astley Paston Cooper.

Abdominal wall hernias are a familiar surgical problem. Millions of patients are affected each year, presenting most commonly with primary ventral, incisional, and inguinal hernias. Whether symptomatic or asymptomatic, hernias commonly cause pain or are aesthetically distressing to patients. These concerns, coupled with the risk of complications, are the most common reasons patients seek surgical repair of hernias^[1].

Ventral hernia constitutes 4% of total hernia patient admitted in ward. 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 hernia arise at the level of umbilicus, and hypogastric hernias are rare spontaneous hernias that arise below the umbilicus in the midline. Acquired hernias typically occur after surgical incisions and are therefore termed incisional hernias. Although not a true hernia, diastasis recti can present as a midline bulge. In this condition, the linea alba is stretched, resulting in bulging at the medial margins of the rectus muscles. Abdominal wall diastasis can occur at other sites in addition to the midline. There is no fascial ring or hernia sac, and unless it is significantly symptomatic, surgical correction is avoided^[4].

The field of hernia repair has evolved as a result of surgical innovation and has benefited significantly from technologic improvements. The tension-free repair is one of the key concepts that have revolutionized hernia surgery. The use of mesh prosthesis to reinforce the fascial defect has resulted in a decrease in recurrence rates for inguinal and incisional hernias. More recently, laparoscopic approaches to the inguinal and incisional hernia have extended the options and approaches for repairing the fascial defect^[6].

Aims and Objectives

1. To Study Ventral Hernia according to the anatomical Location.
2. To study the prevalence of ventral Hernia with respect to age /sex/occupation of the patient.
3. To study the clinical presentation in these patients.
4. To study the risk factor and complications of ventral Hernias.

Materials and Methods

Present study was carried out in the department of General Surgery at tertiary care teaching hospital. This is a prospective descriptive study. Present study was conducted over a period from August 2019 to August 2021. During the study period, 50 patients of ventral hernias were included. Patients who met inclusion criteria were requested to sign a written informed consent form before being enrolled into the study.

Selection of cases

Inclusion criteria

1. Patients with – incisional hernia, epigastric hernia, umbilical hernia, paraumbilical hernia, spigelian hernia, recurrent incisional hernia and any other ventral hernia.

Exclusion criteria

1. Patients not willing to participate in the study.
2. Patients with groin hernia / inguinal hernia.
3. Patients with immunocompromised state.
4. Patients with Pregnancy.
5. Patients on anticoagulant therapy.
6. Patients with previous history of PTCA, bypass surgery, pacemaker etc.

Methods

The patients related factor namely age, sex, multiparity, obesity, COPD, constipation diabetes mellitus, hyper tension, steroid therapy, consumption of tobacco and alcohol, past surgical history were recorded.

A master chart has been made recording relevant history & findings of personally studied 50 cases of ventral hernia. Particular attention was given to study various aspects of ventral hernias like

1. Distribution of ventral hernias with respect to age and sex of the patient.
2. Types of hernia.
3. Period between the previous surgery and the development of incisional hernia.
4. Etiological / predisposing factors for the development of ventral hernias.
5. Common presentations.
6. Exact location and size of the defect.

Examination

All the patients with ventral hernia were examined thoroughly and baseline findings were recorded.

Investigations

Routine Investigations viz Hematology, RFT, Urine examination, chest x-ray, ECG, Ultrasound abdomen and Pelvis for all patients and other special investigations were done for associated diseases wherever required.

Each patient's data was created as per proforma, as a case

record.

All patient information, data in our study was studied and compared with other standard studies. Observations were made and discussion, summary, conclusions were drawn pertaining to aims and objectives.

Observations and Results

Table 1: Distribution according to age group

Sr. No	Age distribution (Years)	Number of patients	Percentage	Mean age of the patient (Years)
1	0-10	03	6%	46.58 years
2	11-20	01	2%	
3	21-30	04	8%	
4	31-40	09	8%	
5	41-50	10	20%	
6	51-60	12	24%	
7	61-70	06	12%	
8	>70	05	20%	
Total		50	100%	

From above table it is evident that the most commonly affected age group in our study is 51-60 years. Mean age of patients in our study group is 46.58 years.

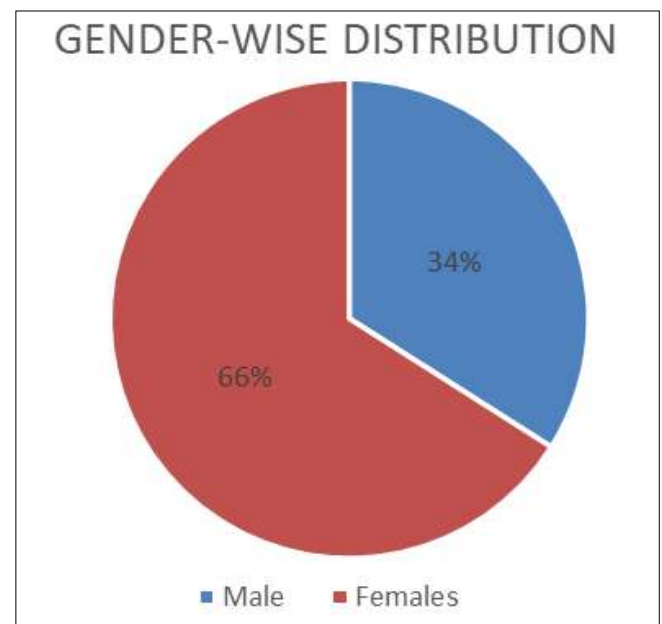


Fig 1: Distribution according to Gender

From the above diagram it is evident that females are more commonly affected than males in our study. Female to male ratio is 1.9:1.

Table 2: Distribution according clinical presentation

Sr. No	Symptoms and signs	Number of patients	Percentage
1	Swelling Over Abdomen	19	38%
2	Swelling Over Abdomen and Pain	10	20%
3	Swelling Over Umbilicus	08	16%
4	Swelling Over Umbilicus and Pain	13	26%

From the above table it is evident that swelling over abdomen is most common presenting symptom in our patients followed by pain.

Table 3: Distribution according to anatomical location of ventral hernia

Sr. No	Type of Ventral Hernia	Number of patients	Percentage
1	Umbilical Hernia	20	40%
2	Incisional Hernia	21	42%
3	Epigastric Hernia	02	04%
4	Supra Umbilical Hernia	01	02%
5	Infra Umbilical Hernia	01	02%
6	Port site Hernia	01	02%
7	Traumatic Hernia	01	02%
8	Parastomal Hernia	01	02%
9	Omphalocele	02	04%
	Total	50	100%

From the above table it is evident paraumbilical hernia and incisional hernia compromise majority of the ventral hernias.

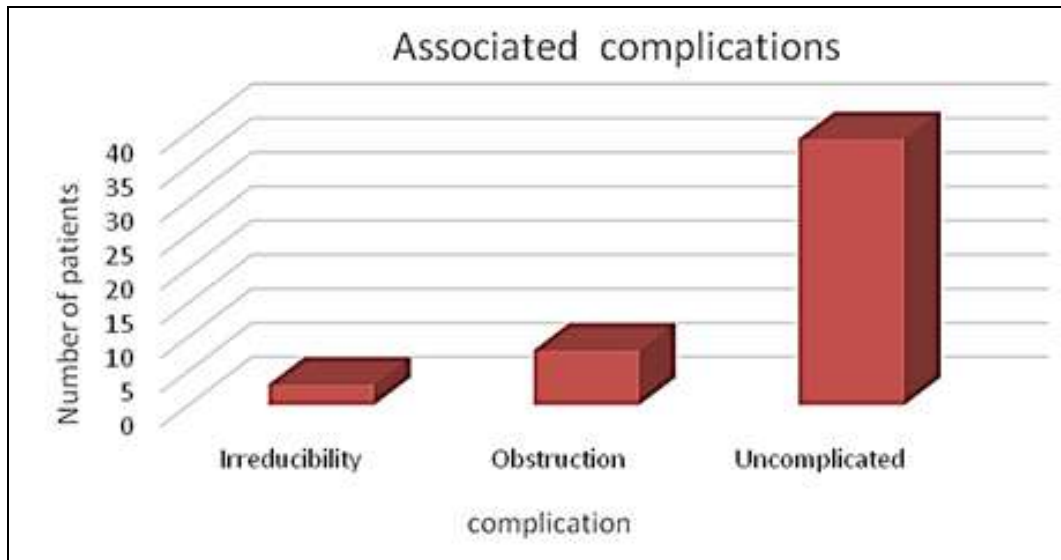


Fig 2: Associated Complication

From the above chart it is evident that Commonest complications at the time of presentation of ventral hernia were irreducibility, obstruction, strangulation, though most of them were uncomplicated.

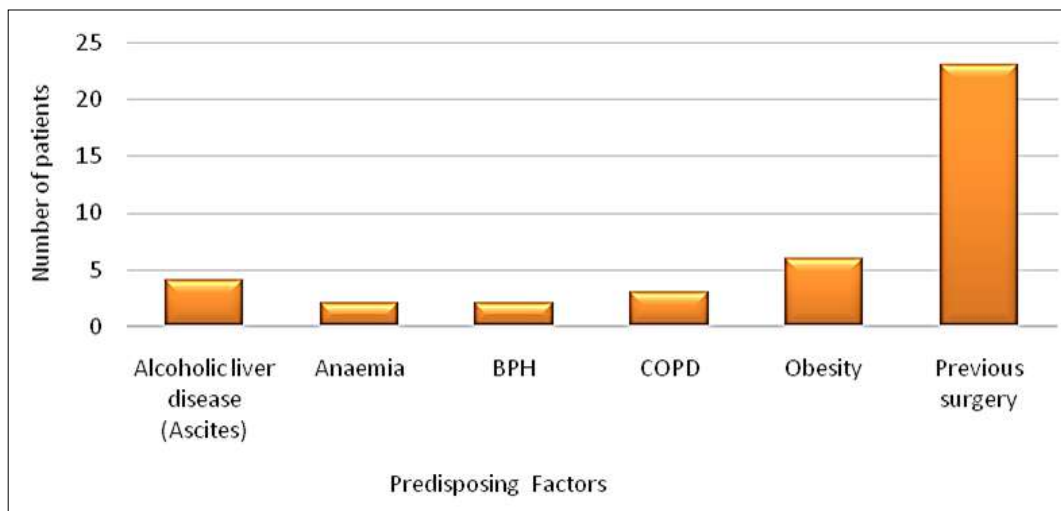


Fig 3: Predisposing factors in our patients

Previous of surgeries most commonly resulting in development of Ventral hernia, followed by Obesity, C O P D, ALD and Anemia.

Table 4: Types of Surgeries in our study Causing ventral hernias

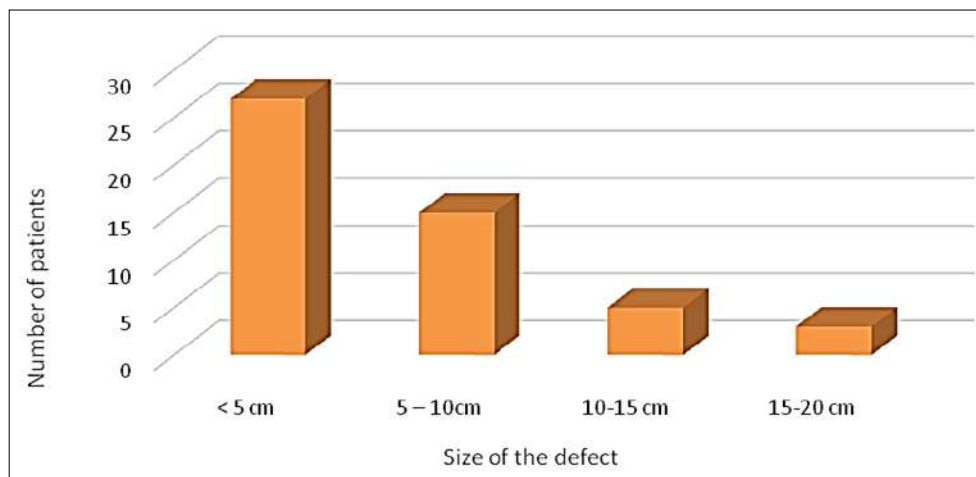
Sr. No	Types of Surgeries	No of patients	Percentage
1	Laparotomy	15	65.21%
2	Appendectomy	01	4.34%
3	LSCS	03	13.04%
4	Hysterectomy	02	8.69%
5	Tubectomy	02	8.69%
	TOTAL	23	100%

From the above table it is evident that most of the incisional hernias (15 out of 23) were caused through previous midline laparotomies.

Table 5: Time period of onset of ventral hernia after index Surgery

Sr. No	Time period	No of patients	Percentage
1	< 6 months	02	8.7%
2	6 months - 1 year	02	8.7%
3	1-5 years	09	39.1%
4	5-10 years	04	17.3%
5	>10 years	06	26.08%
	Total	23	100%

In our study of 50 patients, 23 of them were previously operated for Abdominal surgeries, of which majority developed hernia in previously operated site in less than 5 years.

**Fig 4:** Size of defect

From the above chart it is evident that in our present prospective study 54% i.e (27 out of 50) of the patients presented with ventral hernias had defect of size < 5 cm.

Table 6: Distribution according to Types of incisions

Sr. No	Types of incision	Number of patients	Percentage
1	Upper Midline	06	26.08%
2	Lower Midline	09	39.13%
3	Pfannenstiel	05	21.7%
4	McBurney's	01	4.34%
5	Other incision	02	8.69%
	Total	23	100%

From the above table it is evident that out of 50 patients, 23 patients developed ventral hernias in previously operated site for abdominal surgeries, of which majority developed incisional hernia over previously operated midline laparotomy incisions, (lower midline > upper midline).

Discussion

Ventral hernias are a common surgical problem. Millions of patients are affected each year, in incidence it is second only to

inguinal hernias, accounting for 25-35% of all hernias. Ventral hernias include incisional and primary defects in the abdominal fascia, which can cause umbilical, epigastric, or spigelian hernias [4].

In adults, incisional hernias account for 80% or more of ventral hernias that surgeons repair. The prevalence of incisional hernias after Laparotomy is 2% to 11% and increases substantially when certain risk factors for postoperative incisional hernia, such as a wound infection or obesity, are present.

In our study incisional hernias accounted for 46% of ventral hernias.

The sex ratio distribution of incisional hernias showed that females were affected more as compared to men. Ellis H. *et al.* have obtained 64.6% female population in their study of 342 patients [5]. In our study of 50 patients, 66% of female population was affected.

This female preponderance of incisional hernias could be due to relatively high frequency of employing lower midline incisions notoriously prone for herniation in women who undergo surgery for pelvic organ pathology.

Certainly, incisional hernia is not unique to elderly patients but wound healing is somewhat impaired in patients older than 60

years of age and the incidence in comparable situation is considerably increased with tissues senescence as reported by Robert J Baker [6].

Majority of the patients who underwent gynecological procedures (71.4%) namely Tubectomy – 25%, LSCS - 35%,

hysterectomy – 40% developed incisional hernia through lower midline incisions.

Rios A *et al.* has given the percentages of various incisions through which hernia has occurred as shown in table below [7].

Table 7: Incisional Hernia through various incisions

Sl.no	Incisional hernia through various incisions	No. of patients in Rios A <i>et al.</i> study	Percentage	No. of patients In our study	Percentage
1	Infraumbilical	77	36	14	60
2	Supraumbilical	35	16	06	26
3	Supra + Infraumbilical	32	15	10	43
4	Paraumbilical	32	15	00	00
5	Sub costal	13	6	00	00
6	Paramedian	12	5.5	01	04
7	Lumbotomies	5	2	00	00
8	Others	10	4.5	02	08

Balen *et al.* has reported the following percentage of site of Incisional hernia as shown in table below [8].

Table 8: Incisional Hernia through various incisions

Sl. no	Incisional Hernia through various incision	Percentage in Balen <i>et al.</i> study	Percentage in our study
1	Midline	41	43
2	Supra umbilical	20.68	26
3	Infra umbilical	9.1	39
4	Transverse	6.89	00
5	Sub costal	2.29	00
6	Pfannenstiel	2.29	21
7	McBurney's	2.29	04
8	Paramedian	3.41	00

Korenkov *et al.* has said that incisional hernia can occur after all types of abdominal surgery and the risk lies between 11% and 15% after midline Laparotomy and 0.2% to 1.2% after laparoscopy [9].

In our study most of the incisional hernias (43%) occurred following midline incisions. My study is comparable to the above series with respect to incisional hernias occurring through various incisions.

Time period of onset of ventral hernia after index Surgery in our study

In our study 8.7% of incisional hernias developed within 6 months. 8.7% between 6 months to 1 year and 39.1% between 1 to 5 years, 17.3% between 5 to 10 years and 26.08% after 10yrs. Hence about 17.4% of hernias developed within 1st year of surgery.

Hernias may appear even after more than 10 yrs. In 10 years, prospective trial involving 537 patients Mudge and Hughes showed that out of 62 patients of incisional hernia, 56% did so within 1st post-operative year and 35% after 5 yrs. More than half of all incisional hernias present within first 2 years primary surgery, but significant percentage of them can occur many years after primary operation (Keith W. Millicon) [10].

My study is comparable to above series with respect to time of onset of incisional hernias.

Modes of presentation

In our study swelling was the most common complaint (54%), followed by swelling with pain (46%).

Muschaweck mentioned that it may be impossible to clinically distinguish between hernia mass from a subcutaneous lipoma,

fibroma, however USG and / or CT may be used to verify the diagnosis, especially in obese patients. Most of the ventral hernias were uncomplicated at the time of presentation. In our study 78% were uncomplicated i.e., 39 cases, 6% i.e., 3 cases presented with irreducibility, 16% i.e., 08 cases with obstruction. K. Cassar and A. Munro defined incisional hernia as a bulge visible and palpable when the patient is standing and often requiring support or repair [11].

Toms P.A *et al.* said that abdominal wall hernias may be asymptomatic or present with life threatening emergency [12].

Incisional hernia can cause pain and may lead to serious condition, such as incarceration (6- 15%) or strangulation of bowel (2%) (Riet M. *et al.* 2002) [13].

The first sign of incisional hernia is usually an asymptomatic bulge noticed by the patient / the bulge can be noticed directly over the incision or in an adjacent area locally related to the incision (Millikan K.W, 2003) [10].

A bulge in the vicinity of the healed scar as said by Robert J Baker [6].

Rupture of large incisional hernias is uncommon but is encountered occasionally (Hamilton, 1966) [14].

Patients may experience pain and tenderness or vague discomfort due to omentum or even preperitoneal fat herniation through a small defect. Intestinal obstruction may be the presenting complaint in order patients with neglected hernias (Robert J. Baker) [6].

Associated risk factors and illness

Anemia, obesity, alcoholism, smoking has been associated with high percentage of post- operative hernias (Jack Abrahamson). In our study 5% i.e., 02 patients were anemic, 15% i.e. 06 were obese, 7.5% i.e. 03 were smokers and 10% i.e. 04 were alcoholic, 5% i.e 02 were having BPH.

Ellis group (1982) found that obesity was associated with 3-fold increase in herniation and recurrence [5].

19.9% were diabetic, 9.3% were obese and 3.7% were immune suppressed as quoted by Rios A *et al.* (2001) [15].

Obesity has been cited as a risk factor for acute fascial dehiscence and incisional hernia after major abdominal operations (Millikan K W, 2003) [10].

Obesity was not found to be an independent risk factor for incisional hernia by Makela (1995).

Conclusion

From our study it was concluded that Incisional hernias constituted 46% of all ventral hernias. Female preponderance

was seen in incisional hernias with Female to male ratio is 1.9:1, where as in epigastric and umbilical / para umbilical hernias male predominance was seen. Most of the ventral hernias presented in 4th to 6th decades. 78% of ventral hernias were uncomplicated at the time of presentation. Swelling was the most common complaint followed by pain. Previous surgery was the single most important cause for ventral (Incisional) hernias. Other etiological factors were multiparity, obesity, anemia, BPH, alcoholic liver disease and COPD.

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