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ORIGINAL RESEARCH

Study of the clinical profile and treatment modalities of ventral hernia

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ABSTRACT

Background: 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 incarceration, are the most common reasons patients seek surgical repair of hernias. **Materials and methods:** A clinical study of 50 cases of ventral hernia has been conducted during the period from July 2015 to June 2016 on patients admitted to Department of General Surgery, GMCH. **Results:** Ventral hernias accounted for 24.75% of all hernias.40% of ventral hernias were Umbilical hernia followed by Incisional(38%) and paraumbilical hernias(16%), Epigastric hernias(6%).Swelling was the most common complaint in 52%, followed by pain 10%, both pain and swelling 38%. Most of the Incisional hernias develops within 1st year of previous surgery. 82% of Ventral hernias were uncomplicated at the time of presentation, remaining 18 %presented with either obstruction or strangulation necessitating emergency repair. Mesh repair is the technique of choice for most of Incisional hernias and for all ventral hernias with large defect. Though sub lay/underlay mesh placement is more physiological, it can be placed either inlay or on lay. **Conclusion:** Laparoscopic approach for ventral hernia repair is definitely method of choice with the advantages of good operative field visibility, lessened duration of hospital stay, minimal post operative scar. Size of the defect and presence of complication are the guiding factors for choosing the type of repair

Keywords: Ventral Hernia, Incisional Hernia, Umbilical Hernia.

BACKGROUND

A hernia is the protrusion of an organ through the wall that normally contains it. 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 incarceration, are the most common reasons patients seek surgical repair of hernias. Advances in the basic and clinical sciences have allowed a better understanding of the pathophysiology of hernia formation. It is known, for example, based on Pascal's principle of hydrostatic forces and the law of Laplace that a hernia will continue to enlarge over time if not treated. Increased intra-abdominal pressure will exert its greatest force on the portion of the wall that is thinnest. As the hernia enlarges, the wall thins at that point, and the diameter increases.

This positive feedback loop virtually assures continued progression.Further review of the natural history of hernias suggests that Incisional hernias do not develop in the immediate postoperative period. Depending on the surgical techniques used at the time of the initial repair, recurrence rates as high as 50% have been documented for ventral and Incisional hernias.

The presence of a ventral hernia is itself, an indication for repair when no substantial co- morbid conditions exist. Elective ventral and Incisional hernia repair are undertaken largely to alleviate symptoms and to prevent hernia incarceration with subsequent strangulation of the intestine. It is estimated that about 10% of all ventral hernias result in incarceration, although the actual percentage is not known.

The Main Objectives and Aims of this Prospective Study

1. To study of Ventral hernias with respect to the various anatomical sites and various clinical presentations.

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2. To study of the various risk factors and complications of different types of ventral hernias.
3. To study clinically, the various forms of ventral hernias and the management protocol.

Inclusion Criteria

Patients with ventral hernias admitted to the Department of General Surgery, in Gauhati Medical College and Hospital, Guwahati, Assam, during the period from July 2015 to June 2016.

Exclusion Criteria

1. All cases of groin hernias.
2. Debilitated elderly patients with severe COPD and major cardiac disease.
3. Morbidly, obese, BPH, Metabolic disease, Ascities, Paediatric age group below 14 year.

Total number of various types of hernias that were admitted in the GMCH from study period is shown in the table no.1

Types of Hernia	Numbers
Incisional Hernia.	19
Paraumbilical Hernia.	8
Epigastric Hernia.	3
Umbilical Hernia	20
Total	50

Table 1. Distribution of various types Ventral Hernia in study from GMCH - 2013-15 (N=50)

Type of Hernia	Male	Female	Total
Umbilical	8	12	20
Incisional	6	13	19
Paraumbilical	3	5	8
Epigastric	2	1	3

Table 2. Relative distribution of ventral hernia with respect to sex in study from GMCH-2015-16 (N=50)

Symptoms	Male	Female	Total
Swelling	10	16	26
Pain	1	4	5
Swelling & Pain	8	11	19
	19	31	50

Table 3. Sex wise Common presenting symptoms ofventral hernias in study from GMCH, 2015-16(N=50)

Presentation	No. of Patients	Percentage
Uncomplicated	41	82%
Complicated		
Irreducible	1	2%
Obstructed	5	10%
Strangulated	3	6%
Total	**50**	**100%**

Table 4. Common complications of Ventral Hernias at the time of diagnosis in GMCH-2015-16 (N=50)

Risk Factors	No. of Patients	Percentages
Malnutrition	1	2%
Anaemia	4	8%
HT	4	8%
Obesity BMI<40	5	10%
T2DM	6	12%
Multiparity	7	14%

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Alcohol	9	18%
Smoking	12	24%
Previous Surgery	19	38%

Table 5. Common predisposing factors for development of Ventral Hernias instudy from GMCH -2015-16 (N=50)

Type of Incision	No. of Cases	Percentage
Upper Mid Line (Supra Umbilical)	5	26%
Lower Mid Line (Infra Umbilical)	11	58%
Pfannenstiel	2	11%
McBurney's	1	5%
Total	19	100%

Table 6. Types of previous incisions resulting in ventral hernias in study from GMCH-2015-16 (n=19)

DISUSSION

In our study ventral hernias constituted-24.75% and Incisional hernias-9.4% of all hernias. This is comparable to Hodgson N.C.F et al, and Robert J.Bakerseries.[69]

Incisional hernias accounted for 38% (along with traumatic ventral hernias) of ventral hernias. The overall sex ratio distribution ventral hernias was 1.6:1(31 female patients (62%), and 19 male patients(38%) and Incisional hernias female to male ratio was 2.2:1 (13 female patients(68%), and 6 males (32%). 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. With respect to umbilical and Epigastric hernias male preponderance was seen in Epigastric hernia {2 male (67%)and 1(33%)female} and {8 male each (40%) and 12 females (60%)}, respectively for Umbilical Hernia. For Epigastric hernia 67% Male incidence, and Female incidence was 33%. Incisional hernia is not unique to elderly patients but wound healing is somewhat impaired in patients older than 60 yrs of age and the incidence in comparable situation is considerably increased with tissues senescence.Majority of the patients who underwent gynaecological procedures (69%) namely Tubectomy-32%, hysterectomy-21%, LSCS-11%, Classical CS-5% developed incision hernia through lower midline incisions, 26% of the patients who underwent Laparotomy for perforation peritonitis developed Incisional hernia**.**

Time of Onset of Hernia following Previous Surgery

In our study 26% of Incisional hernias developed within 6 months. 37% between 6 months to 1st year, 16% between 1 to 5 years, 5% between 5 to 10 years and more than 10years 16% Incisional hernia develops, hence 63% of hernias developed within 1st year of surgery.

Modes of presentation

In our study swelling was the most common complaint (52%, i.e. 26 patients) followed by swelling with pain (38%, i.e. 19 patients); lastly pain alone (10%, i.e. 5 patients).

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 82% were uncomplicated (41 cases), 10% i.e. 5 cases with obstruction, and 6% i.e. 3 cases with strangulation and 2% i.e. 1 case with irreducible hernia.

Operative Procedures

In our study 12 patients i.e. 24% underwent Anatomical repair, 38 patients i.e. 76% underwent mesh repair, 46% patient underwent Inlay mesh, 28% patient underwent onlay mesh repair and 2% patient underwent Laparoscopic under lay mesh repair.

There were 3 cases of strangulation(6%) and 5 case of obstruction(10%) which was the indication for emergency surgery in my study. In techniques for the repair of Incisional hernias in which sutures are used, the edges of defect are brought together, which may lead to excessive tension and subsequent wound dehiscence or Incisional herniation as a result of tissue ischemia and the cutting suture through the tissues. With prosthetic mesh defects of any size can be repaired without tension. In addition Prolene mesh may by inducing inflammatory response, sets up scaffolding that in turn induces the synthesis of collagen.

Defect size

The size of the fascial defect and the appearance of fascia should dictate the selection of the most appropriate method of hernia repair (Santora and Roslyn, 1993).[70]

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In my study 38 (76%) patients had defect size up to 2 to 10 cm, in size.

Complications

In our study, 2 patients in mesh repair had wound infection and 3 patients wound infection in suture repaired patient. Common etiological factors responsible for recurrence after Incisional hernia repair are postoperative wound sepsis, suturing under tension, persistent post operative distention, missed defects of fascia not taken into repair (false recurrence)

Post operative pulmonary complications increases the incidence of herniation because of the strain placed on the wound closure by coughing or straining. Wound tensile strength patterns are grossly abnormal and ultimate wound integrity is usually less than satisfactory in malnourished patients.In our study none had neither Post operative pulmonary complications nor Enterocutaneous fistula.

Surgical site infection was the commonest complication was seen and one case of recurrent Incisional hernia were seen in Anatomical repair.(Suture repair).Out of 12 cases of suture repair 1 case of recurrence.(8.3%)

CONCLUSION

- Ventral hernias were common site for adult hernias second only to groin hernias.
- Among all types of Ventral hernias, Umbilical hernias weremost common followed by Incisional hernias, Paraumbilical hernias and Epigastric hernias.
- Female preponderance was seen in Incisional hernias, Umbilical, Para umbilical hernias where as in Epigastric hernias, males were more commonly affected.
- Most of the ventral hernias except congenital varieties presented in 3rd to 6th decades.
- Most of ventral hernias were uncomplicated at the time of presentation, remaining presented with either obstruction or strangulation necessitating emergency repair.
- Swelling, pain along with aesthetic concerns are the causes for seeking surgical solution.
- Previous surgery or trauma was the single most important cause for ventral (Incisional) hernias. Other etiological factors were Smoking, multiparity, Obesity, Diabetes mellitus, Anemia, COPD, Alcoholism.
- Post operative wound infection was important cause for development of Incisional hernias.
- Simple Anatomical repair was the choice of repair in emergencies in all age group of all the ventral hernias.
- Mesh repair is the technique of choice for most of Incisional hernias and for all ventral hernias with large defect. Though sub lay/underlay mesh placement is more physiological, it can be placed either inlay or on lay.

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