ORIGINAL RESEARCH PAPER

General Surgery

STUDY ON PREVALENCE OF VENTRAL HERNIAS AND ITS MANAGEMENT.

KEY WORDS: ventral hernia, incisional hernia, mesh repair, laparoscopy.

Dr. Ashok Teja .P Senior Resident, Department of General Surgery Guntur Medical College, Guntur Andhra Pradesh.

Dr. Rajat Kumar Patra* Assistant Professor, Department of General Surgery , Kalinga Institute of Medical Sciences, KIIT, Bhubaneswar. *Corresponding Author

ABSTRACT

Background – A hernia is a protrusion of the abdominal contents through an acquired or congenital area of weakness or defect in the wall. Ventral hernias are one of the common problems encountered by general surgeons. The current study has focused to determine the clinical presentations, wide range of surgical options and the changing trends in the management.

Materials and methods- A prospective observational study of 100 cases of ventral hernia has been done during the period from November 2017 to November 2019 on inpatients admitted to GEMS & Hospital, Srikakulam, Andhra Pradesh. A thorough case history and clinical examination was taken and relevant investigations were done followed by surgical management. Data collected was analyzed using software package for statistical analysis.

Result- Majority of ventral hernias were seen in the age group of 31 to 60 years with a major female preponderance in incisional hernias. The common predisposing factors identified were previous surgeries, followed by anemia. Most of the patients presented with swelling over the abdomen which were reducible

Conclusion - In our study prevalence of incisional hernias are more in female's undergone gynecological and obstetric procedures. Mesh repair was the technique of choice for the most hernias. Laparoscopic ventral hernia repair is also a preferred method of choice at present and done in few of our cases.

INTRODUCTION

A hernia is a protrusion of the abdominal contents through an acquired or congenital area of weakness or defect in the wall. Most hernias are asymptomatic, but incarcerated or strangulated hernias required immediate surgery. [1] The field of hernia repair evolved as a result of surgical innovation and technological improvements. Laparoscopic surgeries give new options to repair hernias. Placement of mesh in sub lay position is a better option than on lay placement in open ventral hernia repair. [2] The current study has focused on prevalence of different types of ventral hernias, risk factors and management of ventral hernias.

MTERIALS AND METHODS

A clinical study of 100 cases of ventral hernia has been done during the period from November 2017 to November 2019 on inpatients admitted to GEMS & Hospital, Srikakulam, Andhra Pradesh. The study was approved by ethics committee of the hospital and informed written consent was obtained from all patients. The patients related factor namely age, sex, multi parity, obesity, cough/COPD, constipation, prostatism, diabetes mellitus, hyper tension, steroid therapy, consumption of tobacco and alcohol, past surgical history were recorded. Data collected and analyzed using software package for statistical analysis.

As clinical diagnosis was made, patients with medical illness were appropriately treated to attain near normal parameters before surgery. At the induction of anesthesia, prophylactic dose of antibiotic (3rd generation cephalosporin) was given. Patients were assigned to undergo suture repair or mesh repair at operating surgeon's discretion. In suture repair continuous stitches with stitch width and interval approximately 1 cm was put using polypropylene (Prolene no. 1). In mesh repair Prolene mesh was used with at least 4 cm of mesh overlapping the edges of the facial defect and secured with no. 1 Prolene interrupted stitches over the fascia. Suction drain was used for all patients with Incisional hernia and drain removed 48 to 72 hrs interval or when drain decreased. Sutures were removed on 8th post operation day. Follow up of patients were done at interval of 1, 6, 12, 18 months.

INCLUSION CRITERIA:

1) Patients with ventral hernias
2) No sex delineation

EXCLUSION CRITERIA:

1) Significant comorbidity
2) Pregnancy
3) Groin Hernias
4) Divarication of Recti

RESULTS

Total 100 cases are included in our study and the overall sex ratio distribution of ventral hernias in the study group showed that female are more prone to develop ventral hernia than male. Incisional hernias are more common in females compared to males however Umbilical and epigastric hernia are more common in males. Most of the ventral hernias (except congenital varieties) presented in 3rd to 7th decades.

Table-1 Distribution of various types ventral hernia with respect to age & sex

Age in yrs	Male		Female		Total	
	No. of patients	percentage	No. of patients	Percentage	No. of patients	Percentage
0-5	1	2.7	1	1.58	2	2
6-20	1	2.7	1	1.58	2	2
21-30	2	5.4	12	18.96	14	14
31-40	10	27	8	12.64	18	18
41-50	9	24.3	17	28.86	26	26
51-60	6	16.2	10	15.8	16	16
61-70	8	21.6	14	22.12	22	22
>71	0	0	0	0	0	0
	37	100	63	100	100	100

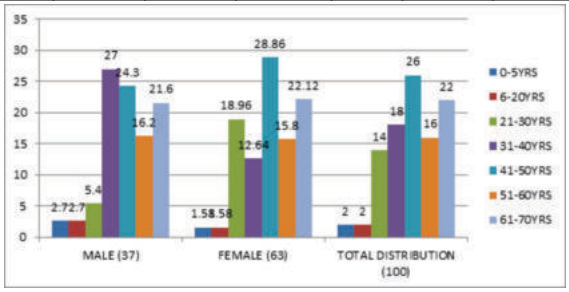

Figure 1: Distribution of sex and age groups of ventral hernias.

Table 2:Types of surgeries causing ventral hernias

Past Surgery	No. of Patients	Percentage
Appendicectomy	2	4.16
Laparotomy for Perforation Peritonitis	16	33.33
Hysterectomy	4	8.33
LSCS	9	18.75
Tubectomy	13	27.08
Incision Hernia Repair	2	4.16
Cholecystectomy	2	4.16

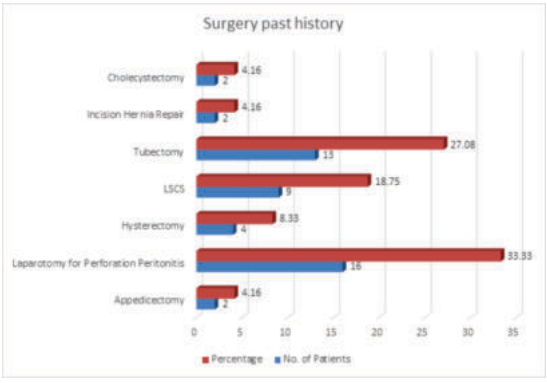

Figure2 Patients with past history of surgery

Most of the patients are asymptomatic and uncomplicated (86%), only 14% cases presented with complications. Common complications at the time of presentation of ventral hernias were irreducibility, obstruction.

In our study 41% of Incisional hernias developed within 6 months. 22% between 6 months to 1 yr and 22% between 1 to 5 yrs, 7.5% between 5 to 10 yrs

Table 3:Types of ventral hernia repair

Type of Repair	No. of patients	Percentage
Mayo's repair	22	22
Anatomical repair	22	22
On lay mesh repair	28	28
Inlay mesh repair	2	2
Sub lay mesh repair	26	26
Total	100	100

94 % of the patients underwent open surgical approach and 0nly 6% underwent laparoscopic surgery.

Post surgical complications

Seroma formation and surgical site infection are common complications noticed in our study.

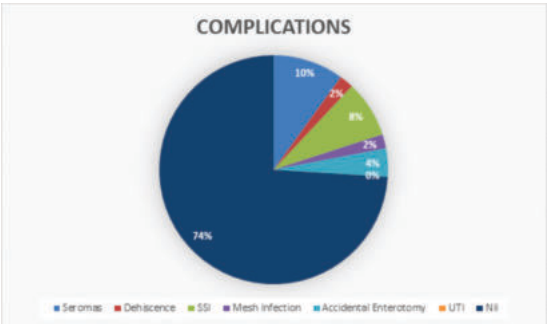

Figure 3 Post operative complications

DISCUSSION

Ventral hernias are common surgical problems encountered in day to day surgical practice accounting for 25-35 % of all hernias. Ventral hernias include Incisional, umbilical / paraumbilical, epigastric, and spigelian hernias.[3] In the present study incidence of Incisional hernias constituted of about 48%. It correlates with the study of to Hodgson N.C.F et, al.[4]

Incidence:

Incisional hernias are more common in females (64%) compared to males (37%) with the ratio of 2:1. Ellis H.et.al. have showed 64.6% female ponderance in their study of 342 patients.[5] Majority of the patients who underwent gynecological procedures (54%) developed incision hernia through lower midline incisions. 33% of the patients who underwent Laparotomy for perforation peritonitis developed Incisional hernia.

Halm JA found that Incisional hernia are more common following midline incision through the relatively avascular linea alba and are less common following transverse incision, especially where muscle splitting approaches were employd.[6] Carlson found a 10.5% ventral hernia rate in 4129 midline incisions compared with a 7.5% rate for transverse incision and a 2.5% rate of paramedian incision.[7] 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.[8]

Time of onset of hernia following previous surgery: In our study 63% of Incisional hernias developed within 1 yr and 22% between 1 to 5 yrs, 7.5% between 5 to 10 yrs and 7.5% after 10yrs. In 10 yrs prospective trial involving 537 patients Mudge and Hughes showed that of the 62 patients who developed incisional hernia, 56 % did so within 1st post-operative year and 35% after 5years.[9]

Modes of presentation:

In our study swelling was the most common complaint (78%) followed by swelling with pain (12%); and pain alone (10%). Santora A .T and Rosylin J.J have stated that incisional hernia manifest as a bulge in the abdominal wall [10]. The first sign of incisional hernia is usually an asymptomatic bulge noticed by the patient/ the bulge can be notices directly over the incision or in an adjacent area locally related to the incision (Millikan K.W, 2003)[11]. In our study previous surgeries (48% i.e.48 cases) were found to be most common risk factors followed by anemia. Bucknall stated common risk factors for ventral hernia which includes wound infection, obesity, emergency procedure, pulmonary complications (COPD), types of original incision, type of closure, suture material used, male gender and age[12].

Operative Procedures

In our study 44% patients underwent suture repair (simple suturing & Mayo's repair) and 56% patients underwent mesh repair. Most of patients were treated with mesh repair. Out of which 28 patients were Onlay and 2 patients were Inlay and 26 sublay mesh repair done. There were 2 cases of strangulation (2%) and 4 case of obstruction (4%) which was the indication for emergency surgery in my study and the results are comparable to prospective randomized controlled trial in which suture repair and mesh repair were compared by Lujendijk, W.R et, al[13].

With a prosthetic mesh defects of any size can be repaired without tension. Prolene mesh may be causing inflammatory response that in turn induces collagen synthesis. (Rebecca Knight, Michael E. Fenoglio).[14]

Complications

In this study post operatively in 74% patients there were no complications, 10% cases were having seroma formation and 8% cases were complicated with surgical site infection. 5% patients were lost for follow-up, due to inaccessibility. No recurrences were noted in the remaining 95 cases over a period of 6 months following the surgery.

CONCLUSION

In the present study female preponderance was seen in Incisional hernias and male preponderance was seen in epigastric hernia, umbilical / Para-umbilical hernias. Most of the ventral hernias presented in 3rd to 7th decades. 86% of ventral hernias were uncomplicated at the time of presentation. Previous Laparotomy, post-operative wound infections, abdominal trauma are the most pre-disposing factors for development of ventral (Incisional) hernias.

Mesh repair was the treatment of choice for all ventral hernias with large defect and yielded good results in the study group. Laparoscopic approach for ventral hernia repair is definitely method of choice with the advantages of good operative field visibility, lessened duration of hospital stays, minimal post-operative scar but cost of surgery and surgical expertise being the limiting factors.

REFERENCES:

1. Jenkins JT, O'Dwyer PJ. Inguinal hernias. *BMJ*. 2008; 336(7638):269–272.
2. Smith J, Parmely JD. Ventral Hernia. Treasure Island (FL): StatPearls Publishing; 2019 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK499927/
3. Townsend RC, Beauchamp BD, Mattox MEK. Clinical surgery of hernia. Sabiston Textbook of Surgery, 19th Edition, Volume II, Elsevier; 2016:1128
4. Hodgson NCF et al. "The search for an ideal method of abdominal closure," Annals of Surgery 1999:231 (3):436-442.
5. H Ellis, C D George "Incisional hernia: when do they occur?" Br J Surg. 1983 May;70 (5):209-1
6. Halm JA, Lip H, Schmitz PI, Jeekel J. Incisional hernia after upper abdominal surgery: a randomised controlled trial of midline versus transverse incision. *Hernia*. 2009; 13(3):275–280.
7. Carlson MA, Ludwig KA, Condon RE. Ventral hernia and other complications of 1000 midline incisions. South Med J. 1995;88:450-3.n
8. M kornekove, A Paul. Classification and surgical treatment of incional hernia Arch Surg. 2001 Jul;386(4):309.
9. M Mudge, L E Hughes Incisional hernia: a 10 year prospective study of incidence and attitudes Br J Surg 1985 Jan;72(1):70-1
10. Santora TA[1], Roslyn JJ.Incisional hernia Surg Clin North Am. 1993 Jun;73(3):557 70.
11. Keith MW, Millikan KW, Incisional hernia repair. Surg Clin North Am. 2003;83(5):1223-31.
12. Bucknall TE, Cox PJ, Ellis H. Burst abdomen and incisional hernia: a
13. Luijendijk RW[1], Hop WC, van den Tol MP A comparision of suture repair with mesh repair for Incisional hernia. N Engl J Med. 2000 Aug 10;343(6):3928
14. Knight, Rebecca & Fenoglio, Michael. The use of the Kugel mesh in ventral hernia repairs. American journal of surgery. July 2002 The American Journal of Surgery 183(6):642-5