International Surgery Journal
Clement SH et al. Int Surg J. 2018 Feb;5(2):714-718
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20180380

Original Research Article

A clinical study on ventral hernia at a tertiary care hospital

Suresh Clement H.[1], P. Vamshi Bharath[2]*, Harsha Omkar M.[3], Bharath Kumar Reddy[3]

[1]Department of General Surgery, Prathima Institute of Medical Sciences, Karimnagar, Telangana, India
[2]Department of General Surgery, MGM Hospital, Kakatiya Medical College, Warangal, Telangana, India
[3]Department of General Surgery, Prathima Institute of Medical Sciences, Karimnagar, Telangana, India

Received: 22 December 2017
Accepted: 27 December 2017

***Correspondence:**
Dr. P. Vamshi Bharath,
E-mail: bharath.svs@gmail.com

ABSTRACT

Background: Ventral hernias comprise the second most common hernial presentations in the surgical world. This study was undertaken to know the different clinical types, age incidence, predisposing factors for ventral hernia and also to study the post-operative results of different operative procedures. objective of present study was to investigate clinical profile of patients with ventral hernia.
Methods: Forty cases of abdominal wall hernia were studied during the period of 2 years. Informed consent was obtained. Detailed history, thorough clinical examination was carried out. Patients were operated with standard surgical procedure. They were followed for 3-18 more months to observe occurrence of complications among them. Data was analyzed using proportions and presented.
Results: Sixty percentage were Incisional hernia following an operation and remaining contributed to 40%. 22.5% patients had presented with complications like irreducibility, obstruction and strangulation. The presence of associated diseases, large hernia, poor condition of local tissue (muscle), all make the surgical management of ventral hernia a complex problem. Each patient was evaluated separately and thoroughly, and his surgery planned so as to obtain satisfactory results. Different methods of surgical procedures were undertaken in this study. The post-operative complication rate was minimal that is 12.5% and the recurrence rate observed was 0% but the sample size and follow up period (3-18 months) was short, in view of which I am not able to give a definite.
Conclusions: Good pre-operative evaluation and preparation; sound anatomical knowledge and meticulous attention to surgical detail are the most important factors for prevention of post-operative complications and recurrence of hernia.

Keywords: Epigastric hernia, Incisional hernia, Para-umbilical hernia, Umbilical hernia, Ventral hernia

INTRODUCTION

The protrusion of any organ (tissue) as a whole or part out of its boundary through an anatomical or acquired week spot. These hernias are basically classified into two types, depending upon their visibility.[1] a) External hernia is those which are visible from outside, like inguinal, incisional, femoral, epigastric. b) Internal hernia is those which are not visible from outside, they may be present between two adjacent cavities such as abdomen and thorax and they may herniate into a sub compartment of a pre-existing cavity. Common internal hernias are diaphragmatic hernia or hiatus hernia. Ventral hernia is those hernias which occur through the anterior abdominal wall.[2]

The anterior abdominal wall is the site of a variety of hernias due to means erect posture which renders the anterior abdominal wall weak. Almost all these hernias protrude through the abdominal wall to form palpable swellings. These hernias mainly present as a swelling and

they rarely go for complications like strangulation, incarceration and present with respective manifestations. Commonly hernias do not require any special investigations to diagnose them. (Clinically diagnosed) rarely they need investigations like computerized topography, ultrasound and herniography to confirm the diagnosis.[3]

The objectives of this study are to study ventral hernia with respect to the various anatomical sites and various clinical presentations such as swelling, pain and also the various risk factors and complications of different types of ventral hernias. To study clinically the various forms of ventral hernia and the management protocol adopted in our institution that is Department of Surgery Sri Siddhartha Medical College and District Hospital, Tumkur.

METHODS

Study was design hospital based follow up and the period of detailed study was carried out from March 2004 to March 2006. It was done at Department of General Surgery, Shree Siddhartha Medical College, Tumkur.

In this study, 40 cases (which were operated) of different types of ventral hernia sample size was used.

The patients were first examined and evaluated for presence of inclusion criteria laid down for the present study and then those who were found to be eligible for the present study were asked about their willingness to participate in the present study after explaining them the nature of the present study. If they agreed to be a part of this present study, then only they were included in the present study. Otherwise they were treated as any other general patient as per the protocol of the teaching hospital.

Inclusion criteria

- Patients only with ventral hernia of any type
- Patients willing to participate in the present study

Exclusion criteria

- Patients without ventral hernia
- Seriously ill patients with complications

Detailed history was recorded in the pre-designed pre-tested semi structured study questionnaire designed for the present study. Detailed history like name, age, sex, address, education, occupation, social class, chief complaints, date of observing the swelling in the abdominal region, whether the swelling was coming out during coughing, association of the swelling with any pain, redness, itching, abrasions etc was recorded.

The patient was thoroughly clinical evaluated and checked. All necessary investigations were carried out. If the patient was found fit for the surgery, he was posted for surgery. All necessary precautions were taken post operatively.

All patients were followed at monthly interval for a period which ranged from three months to 18 months. The follow up period depended upon the development of complications among the patients in the present study and the clinical assessment by the surgeon.

Statistical analysis

The data was recorded in the study questionnaire of the present study. Then it was transformed in the computer in excel sheet and analysed using percentages.

RESULTS

Table 1: Percentage of clinical types, sex incidence ratio and age distribution.

Type of hernia	No. of cases	Sex M:F	Age distribution	%
Incisional hernia	24	19	26-72	60%
Epigastric hernia	5	5	28-38	12.5%
Umbilical hernia	3	2	22-45	7.5%
Paraumbilical hernia	8	3	25-75	20%

Among the 40 cases of ventral hernia 24 (60%) were incisional hernia; 11 (27.5%) were umbilical hernia that is, 3 (7.5%) were umbilical hernia and 8 (20%) were para-umbilical hernia; 5 (12.5%) were epigastric hernia. The occurrence of ventral hernia in males was 37.5% and in females was 62.5%. Among incisional hernia majority of cases were females that are 19 cases of 24 incisional hernia and 5 cases were males out of 24 cases. Among epigastric hernia all five cases studied were male patients. Almost equal sex distribution was noted in umbilical hernia that is 5 cases were seen in males as compared to 6 cases among females (Table 1).

The younger patient with a ventral hernia was a male patient with an umbilical hernia aged 22 years and oldest was a male patient aged 75 years with a para umbilical hernia. The highest incidence of ventral hernia was noted in the 3rd decade that is 16 cases which amounted to 40% and the lowest incidence was in the 6th decade that is one case which is 2.5%. Among Incisional hernia most cases were found in the 3rd decade (10 cases) and 4th decade (8 cases) which amounted to 41.66% of all incisional hernia in the 3rd decade and 33.33% of all incisional hernia in the 4th decade. In epigastric hernia all the cases were noted in the 2nd and 3rd decade amounting to 40% and 60% of all epigastric hernias. The incidence in umbilical hernia was highest in 3rd decade that is 27.27% and

lowest in the 7th and 8th decade that is 9.09% of all umbilical hernias (Table 2).

All forty cases of ventral hernias presented with a swelling (100%) 12 cases presented with pain (30%), 6 cases presented with Irreducibility (15%) and 3 cases presented with features of obstruction with strangulation (7.5%). Thirty percentage of all cases of ventral hernias were obese (12cases), 10% of cases had chronic cough, secondary to chronic obstructive pulmonary disease (4 cases), 7.5% of all cases were multiparous (3 cases) and abdominal distention was a factor in 3% of cases (2 cases). 58.33% of all cases of incisional hernia gave a history of wound infection following previous surgery (14 cases). 8.33% of cases had abdominal distention (2 cases), 16.66% gave history of chronic cough secondary to COPD (4cases) 8.33% had history of obstructive uropathy and diabetes as a risk factors. 2 case each of obstructive uropathy and diabetic mellitus.

Table 2: Age incidence of different types of ventral hernia.

Type of hernia	21-30		31-40		41-50		51-60		61-70		71-80	
	M	F	M	F	M	F	M	F	M	F	M	F
Incisional	2	2	3	7	0	8	0	1	0	0	1	0
Epigastric	2	0	3	0	0	0	0	0	0	0	0	0
Para umbilical	1	0	0	2	0	1	0	2	0	1	1	0
Umbilical	1	0	1	0	0	1	0	0	0	0	0	0

Table 3: Clinical features of ventral hernia.

Clinical features	Incisional hernia		Epigastric hernia		Umbilical hernia	
	No.	%	No.	%	No.	%
Swelling	24	100	5	100	11	100
Pain	8	29.2	2	40	3	27.3
Irreducibility	3	12.5	0	0	3	27.3
Obstruction	3	8.3	0	0	0	0

Table 4: Pre-disposing factors for ventral hernia.

Factor	Number	Percentage
Obesity	12	30
Abdominal dissension	2	5
Multiparity	3	7.5
COPD	4	10

Table 5: Pre-disposing factors in the development of incisional hernias.

Factor	Number	Percentage
Wound infection	14	58.3
Abdominal distension	2	8.3
Chest infection/COPD	4	16.7
Obstructive uropathy	2	8.3
Diabetes	2	8.3

The history of wound infection was 58.33% of all cases in incisional hernia following previous surgery (14 cases). 8.33% of cases had abdominal distention (2 cases), 16.66% gave history of chronic Cough Secondary to COPD (4 cases) 8.33% had history of obstructive uropathy and diabetes as a risk factors. 2 case each of obstructive uropathy and Diabetic mellitus.

Table 6: Type of previous surgery in cases of incisional hernia.

Nature of surgery	No.	%	Type of incision
Tubectomy	4	16.7	Infra umbilical midline
Hysterectomy	5	20.8	Pffannensteil
Lower segment caesarian section	8	33.3	Pffannensteil
Explorative laparotomy	5	20.8	Right paramedian
Appendectomy	2	8.3	Grid iron

Among previous surgeries preceding to incisional hernia caesarian section was the commonest at 8 cases (33.33%) followed by Hysterectomy at 5 cases (20.83%). Tubectomy at 4 cases (16.66%) explorative laparotomy 5 cases (20.83%) and appendectomy at 2 cases (8.33%). Operative methods adopted for all ventral hernia surgeries at our institution. Among 40 cases of ventral hernias 22 underwent anatomical repair (55%) (the separation of all layers peritoneum, posterior rectus sheath, transverse abdominis, anterior rectus sheath and skin, reducing the inverted sac or excision of the hernial sac and the closure of all separated layers one by one, closure was done by prolene no. 1 sutures.) 6 cases underwent double breasting (15%) i.e., 4 cases underwent Mayo's repair (10%) (ring enlarged by incising the abdominal wall on each side and the contents reduced into the peritoneal cavity and defect closed by overlapping the upper flap of the abdominal wall over to the lower flap of the abdominal wall and skin closure) and 2 underwent Keel operation (5%) (The incision of skin overlaying the hernial sac, subcutaneous tissue mobilized, aponeurosis displaced below and above on each side of the sac, sac inverted to the abdomen, fibro aponeurotic margins of the defect united by sutures, continuous right angled sutures are applied to invest the

opposing muscles). Drains (Closed suction drain) were kept in all cases of Mayo's repair. Among the remaining cases 9 underwent anatomical repair with onlay mesh placement (22.5%) (Mesh was placed between the abdominal wall layer and subcutaneous tissue and skin). The Caesarian section (Lower segment).

Table 7: Treatment for various types of hernia.

Type of repair	Incisional hernia	Umbilical hernia	Epigastric hernia
Anatomical repair	11	7	4
Anatomical with mesh	8	0	1
Inter positional inlay	3	0	0
Double breasting	2	4	0

Mesh was fixed by prolene no. 2.0 suture and drains were used in all these cases (Closed suction drain). 3 cases underwent interpositional inlay mesh repair (7.5%) (Mesh was placed in between the peritoneum and the abdominal wall layers) and closed suction drains were used in all these cases.

DISCUSSION

This present study of 40 cases of ventral hernia had 24/40 cases (60%) of incisional hernia, 5/40 cases (12.5%) of epigastric hernia and 11/40 (27.5%) of umbilical hernia. There were no cases of Spigelian hernia or divarication of recti among the 40 cases.

In Bose SM et al series 44 of 175 cases 110 were incisional hernia (62.86%) 44 were umbilical hernias (25.13%), 21 cases were epigastric hernia (37.13%).[4] The incidence of the different types of ventral hernia matches with that of the SM Bose study.[4] There was no case of spigelian, Divarication of recti in both the studies. 100% of all cases presented with swelling in the anterior abdominal wall, 30% presented with pain, and 15% presented with irreducibility, and 7.5% presented with features of obstruction with strangulation. This compares well with the Bose SM series.[4]

In the present series 5 cases of epigastric hernia were studied which accounted to 12.5% of all ventral hernias. The incidence of epigastric hernia in the present series is comparable with that of the SM Bose series 44 and is slightly higher than the Rao MM.[4,5]

In this study of five cases of epigastric hernia all five cases were male (100%). The maximum age incidence was between 20-40 that is 100% of all cases were found between 20 and 40 years of age. This augurs well with the Ponka series which states that epigastric hernia is rarely seen in infants and children and is commonly seen in Males.[6]

Pain was a presenting complaint in 40% of cases, swelling was a presenting complaint in 100% of cases. There were no features of strangulation or obstruction and irreducibility in any of the cases studied. Pain may be due to herniation through a small defect.

Among 5 cases of epigastric hernia 4 were treated with anatomical repair and 1 case underwent anatomical repair with onlay mesh repair. During the follow-up period of 3-18 months none of the patients had recurrence. As the number of cases studied was small and the follow up period insufficient recurrence rates cannot be commented up on.

Out of 40 cases 11 cases were umbilical hernia and around. In the present series 11 cases of umbilical hernias were studied. Umbilical hernias contributed to 27.5% of all ventral hernias studied. Among the umbilical hernias 3 were umbilical hernia (27.27%) 0 and 8 were para-umbilical hernia (72.72%). This concurs well with Bose SM series where umbilical hernia contributed to 25.13% of all ventral hernias.[4] All cases of umbilical hernia presented with a swelling 11/11 (100%). 3/11 (27.27%) with pain, 3/11 (27.27%) with irreducibility. There were no cases with obstruction or strangulation. 4 cases of umbilical hernia underwent Mayo's repair, 7 cases of umbilical hernia underwent anatomical repair. One patient developed postoperative cough and was treated appropriately with antibiotics and chest physiotherapy. All 11 cases were followed for a period for 3 to 18 months during which no recurrence was noted. In the present series 24 cases of incisional hernia were studied which accounted for 60% of total ventral hernia. This study compares well with the Bose SM series (62.86%) but is higher than the Mohan Rao series (30.65%).[4,5]

The highest incidence was seen in the 4th and 3rd decade (41.66% and 29.16%) more than 90% of cases were found in the age group of 40-80 years (91.66%). This compares well, the peak incidence of 62% of incisional hernias occurred in the age group of 40-70 years.[8]

In the present series maximum number of patients gave a history of wound infection following previous surgical procedure (58.33%). This is similar to the Bose SM series where (53.63%) had wound infection as a predisposing factor.[4] Twelve cases were obese (50%) which concurs well with that of 36) Bose SM series (30%). Percentages of other predisposing factors also correlated to that of Bose SM series.[4] In this present series female predominance in the ratio of 1:3.8 M:F ratio was noted. This concurs well with the Akman series.[9]

This shows that incisional hernia occurs more commonly in females than in males. Swelling was the presenting complaint in 100% of Incisional hernia cases. Pain was complained by 29.16% of patients. 12.5% presented with

features of irreducibility with obstruction. Read and yonder reported that 17% of incisional hernias were operated for strangulation and obstruction. The present series concurs well with that of Read and Yonder series.[10]

Gynecological procedures were the major contributing procedures for incisional hernia in the present series contributing to almost 70.83% of all cases followed by explorative laparotomy 20.83% and appendectomy (8.3%). This concurs well with that of the Bose SM series as the highest number of gynecological procedures are done in the infra umbilical region.[4]

In the present series incisional hernia was found mainly in the Infra-umbilical midline region (91.66%). This concurs well with that of the Bose SM series (82.72%) Other sites of incisional hernia other than the midline also concur well with that of the Bose SM series.[4]

In the present series 10 cases of incisional hernia were treated with anatomical repair 2 cases with double breasting, 9 cases with anatomical with onlay mesh repair and 3 cases with intra-positional mesh repair. This concurs well with that of the Bose SM series.[4]

All 24 cases were followed for a period ranging from 3 to 18months. There was no recurrence at the end of the study with any kind of procedure be it anatomical repair or mesh repair.

The operative procedures performed at our institution concurs well with that of the Bose SM series, where in 55% underwent anatomical repair at out institution compared to 55.42 percent of Bose SM series.[4] Other procedures like anatomical with mesh repair, Mayo's repair also compares well with the Bose SM series percentages.[4]

CONCLUSION

Good pre-operative evaluation and preparation; sound anatomical knowledge and meticulous attention to surgical detail are the most important factors for prevention of post-operative complications and recurrence of hernia. The commonest ventral hernia was incisional hernia and among previous operative procedures which resulted in incisional hernia was gynecological procedures Complications in ventral hernias were found to be minimal. In view of limited period follow up and a small sample size it was not possible to comment on recurrence rates, but when proper surgical procedures are adopted along with pre-operative correction of co morbid factors, results will always be excellent.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Bennet HD, Kingsworth NA. Hernias, umbilicus and abdominal wall: Bailey and love's, Short practice of Surgery, 24th Ed. Arnold publishers, London; 2004:1272-1293.
2. Zollinger M, Robert JR. Nyhus and Condon's Hernia, 5th Ed. Philadelphia; 2002;5:331.
3. Jennings WK, Anson BJ, Wright RR. A new method of repair for indirect Inguinal Hernia Considered in reference to parietal anatomy. Surgery. Gynecology Obstetrics. 1942;74:697.
4. Bose SM, Lal R, Kalra M, Wig JD, Khanna SK. Ventral hernia: A review of 175 cases. Indian Journal of surgery. 2014:61(3):180 -4.
5. Rao MM. Surgery for ventral hernias. Recent advances in surgery. Jaypee Brothers Publishers. New Delhi. 1988;11(2):104-14.
6. Ponka LJ. Hernias of the abdominal wall, 3rd Ed. Philadelphia, WB Saunders Publishers; 1980:492.
7. Abrahamson. J. Hernias in Maingots Abdominal Operations 10th Ed. McGraw-Hill; 2001;14:479-580.
8. Obney JA, Barnes MJ, Lisagor PG, Cohen DJ. A method for mediastinal drainage after cardiac procedures using small silastic drains. Ann Thorac Surg. 2000;70(3):1109-10.
9. Akman PC. A Study of 500 incisional hernias, J Int Coll Surgs. 1962;37:125-42.
10. Read RC. The Development of Surgical herniography. surgical clinics of North America. 1984;64:185-96.

Cite this article as: Clement SH, Bharath PV, Omkar HM, Reddy BK. A clinical study on ventral hernia at a tertiary care hospital. Int Surg J 2018;5:714-8.