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A PROSPECTIVE STUDY ON EPIDEMIOLOGY AND MANAGEMENT OF INCISIONAL HERNIA

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Abstract

Introduction: Incisional hernia is an iatrogenic hernia. It is a common complication after abdominal surgery with a reported incidence of 11-20%. Incisional hernia is defined as any abdominal wall gap with or without a bulge in the area of a postoperative scar perceptible or palpable by clinical examination or imaging. More often than not the problem is recurrent and tests the abilities of even the most experienced surgeons. Unlike other abdominal wall hernias, which occur through anatomical points of weakness, incisional hernias occur through a weakness at the site of abdominal wall closure.

Materials and Methods: This prospective and observational study was done on 120 cases of incisional hernia admitted in the Department of General Surgery, Apollo Institute of Medical Sciences & Research, Chittoor during the period January 2021-December 2021 after taking informed consent. Detailed history of patients was recorded and clinical examination was done. Patients underwent routine blood examination and radiological investigations (chest X-ray, ultrasonography). Demographic profile and data regarding the type of surgery, postoperative complication, and duration after which incisional hernia developed were recorded in proforma.

Results: The age distribution of 120 cases of incisional hernia ranged from 10 to 60 years. Highest number of cases (66.6%) presented between 30–40 years of age for the first time followed by 24 cases (20%) presented between 40-50 years of age (Table 1). In this study, 108 out of 120 patients (90%) were females. Only 12 patients (10%) were male. Female to male ratio being 9:1. Intermittent swelling and pain was found to be the common presentation which was present in 64 cases (53.3%). Intermittent swelling on staining observed in 38 cases (30%). Dyspeptic symptoms other than above complaints were present in only 6.6 percent cases.

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Conclusion: Wound infection following previous surgery was the most important risk factor associated with incisional hernia. The other risk factors were obesity and COPD. Polypropylene mesh repair is superior to anatomical repair as it has less recurrence.

Key Words: Incisional hernia, abdominal surgery, COPD, Polypropylene mesh repair.

INTRODUCTION

Incisional hernia is an iatrogenic hernia. It is a common complication after abdominal surgery with a reported incidence of 11-20%. Incisional hernia is defined as any abdominal wall gap with or without a bulge in the area of a postoperative scar perceptible or palpable by clinical examination or imaging.[1] More often than not the problem is recurrent and tests the abilities of even the most experienced surgeons. Unlike other abdominal wall hernias, which occur through anatomical points of weakness, incisional hernias occur through a weakness at the site of abdominal wall closure.[2]

The incidence of these hernias is high even with the recent advances in surgery, anaesthesiology, antibiotics, suture materials used. Incidence of incisional hernia is next to inguinal hernia and may be higher than reported, since most of them are asymptomatic.[3] Among abdominal incisions, highest incidence is found with lower midline abdominal incisions because it is through this incision most of the gynaecological and lower abdominal surgeries are being done.[4] The postulated predisposing factors for incisional hernia are obesity, diabetes mellitus, steroids, smoking, sub-optimal surgical technique, old age, malnutrition, multiple laparotomies, chronic pulmonary disease, type of incision and closure including suture material used and the most important wound infection.[5]

There are various methods used for repair of incisional hernias like anatomical repair, onlay mesh pair, laparoscopic repair etc. After Usher reported his experience with use of polypropylene suture, Prolene mesh, modern era of prosthetic hernia repair began in 1958 being widely used for wide defects in incisional hernias with considerably good results.[6] Laparoscopic techniques of hernia repair have revolutionised the treatment of incisional hernia repair by reducing the morbidity and less hospital stay. Advantages of laparoscopic incisional hernia repair are no re-incision, less painful, safe, speedy recovery and less recurrence.[7]

The aim of the present study was to evaluate the incidence and clinical presentation of incisional hernia in elective abdominal surgery and emergency abdominal surgery, to enumerate the different causal factors for incisional hernia in abdominal surgery in our hospital setup and to evaluate mode of prevention and proper management for incisional hernia.

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MATERIALS AND METHODS

Study design: a prospective and observational study

Study location: Department of General Surgery, Apollo Institute of Medical Sciences & Research, Chittoor

Study Duration: January 2021-December 2021

Sample Size: 120 cases.

This prospective and observational study was done on 120 cases of incisional hernia admitted in the Department of General Surgery, Apollo Institute of Medical Sciences & Research, Chittoor during the period January 2021-December 2021 after taking informed consent.

Inclusion criteria: All the patients with incisional hernia of both sexes.

Exclusion criteria

1. Patient unfit for surgery

2. Pregnancy with incisional hernia

3. Strangulated and incarcerated incisional hernia

Detailed history of patients was recorded and clinical examination was done. Patients underwent routine blood examination and radiological investigations (chest X-ray, ultrasonography). Demographic profile and data regarding the type of surgery, postoperative complication, and duration after which incisional hernia developed were recorded in proforma.

Various parameters which were studied are: Age distribution, Sex distribution, Mode of presentation, Time interval of onset of Herniation, Common etiological factors predisposing incisional hernia, Frequency of hernia in type of incision, Mode of management

Statistical Analysis: The data were tabulated and analyzed descriptively using mean and SD.

RESULTS

The age distribution of 120 cases of incisional hernia ranged from 10 to 60 years. Highest number of cases (66.6%) presented between 30–40 years of age for the first time followed by 24 cases (20%) presented between 40-50 years of age (Table 1). In this study, 108 out of 120 patients (90%) were females. Only 12 patients (10%) were male. Female to male ratio being 9:1. Intermittent swelling and pain was found to be the common presentation which was present in 64

cases (53.3%). Intermittent swelling on staining observed in 38 cases (30%). Dyspeptic symptoms other than above complaints were present in only 6.6 percent cases.

Age group (Years)	No of cases	Percentage
10-20	4	3.3
21-30	8	6.6
31-40	80	66.6
41-50	24	20.0
51-60	4	3.3

Table 1: Age distribution

Type of incision	No of cases	Percentage
Infraumbilical midline	88	73.3
Right upper paramedian	4	3.3
Right subcostal incision	8	6.6
Right lower paramedian	8	6.6
Upper midline	4	3.3
Infraumbilical transverse incision	4	3.3
Gridiron incision	4	3.3

Table 2: Incidence of incisional hernia after different types of incision

In present study 88 cases (73.3%) of incisional hernia was observed in Infraumbilical midline incision. 8 cases (6.6%) each developed through right subcostal and right lower paramedian incision. Upper midline, Infraumbilical transverse and gridiron incision was observed in 4 cases (3.3%) each of incisional hernia.

Time interval	No of cases	Percentage
1-3 months	0	0
3-6 months	8	6.28
6-12 months	36	30
1-2 years	48	40
2-5 years	28	23.3

Table 3: Time interval of onset of Herniation

Maximum number of cases 48 (40%) reported between 1-2 years of appearance of incisional hernia followed by 36 cases (30%) reporting between 6 to 12 months. 2-5 years of delay in presentation were observed in 28 cases (23.3%).

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Etiological factors	No of cases	Percentage
General		
Chronic constipation	36	30
Chronic cough	24	20
Anaemia	12	10
Hypertension	12	10
Hypoproteinemia	8	6.6
Diabetes mellitus	8	6.6
Chronic asthma and bronchitis	8	6.6
Toxaemia	4	3.3
Tuberculosis	4	3.3
Dysuria	4	3.3
Local		
Wound infection	36	30
Peritoneal contamination	24	20
Wound dehiscence	12	10
Repeated incision	4	3.3

Table 4: Etiological factors in patients with incisional hernia

Common general etiological factors were chronic constipation (30%, 36 cases) and chronic cough (20%, 24 cases) followed by anaemia and hypertension (10%, 12 cases) each. Hypoproteinemia, diabetes mellitus and chronic asthma were observed in 8 cases each. Among local etiological factors, 30% of total cases having incisional hernia had wound infection followed by 20% who had peritoneal contamination. 10% of the cases had wound dehiscence postoperatively.

Types of repair	Percentage
Polypropylene mesh	**40%**
Modified Cattell operation	**30%**
Double breasting	**13.3%**
Anatomical repair	**13.3%**
Shoelace darn repair	**3.3%**

Table 5: Types of repair in present series

After the correction of anaemia and blood pressure all the patients underwent surgical management of hernia repair. In 40% of cases, extraperitoneal polypropylene mesh applied followed by modified Cattell repair which was done in 30% cases. Double breasting and anatomical repair was done in 13.3% each. Shoelace darn repair was done in two cases (3.3%).

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DISCUSSION

This prospective and observational study was conducted on 120 patients with the aim of studying the incidence, mode of presentation, etiopathogenesis and different mode of management of incisional hernia.

In our study, postoperative wound infection was the main etiological factor for the development of incisional hernia. The other general factors were chronic constipation, chronic cough and anemia etc. In several studies, wound infection following surgery was the main factor for the development of incisional hernia.[8]

In this study, maximum patients (40%) of incisional hernia occurred between 1-2 years after surgery and 73.3% patients had infraumbilical midline incision. Bucknell et al in their study reported that 42% patients presented with hernia 1-5 years after primary surgery. 68% patients who had lower abdominal incisions developed incisional hernia followed by 18% patients with upper midline incision. Similarly Millbourn et al and Carlson et al also reported that incisional hernia is common in females undergoing gynaecological surgeries in which lower abdominal incisions are made.[9]

In our study, five different methods were used for the repair of incisional hernia among which polypropylene mesh repair was used in 40% of patients followed by modified Cattell operation (30%), double breasting and anatomical repair (13.3% each) and Shoelace darn repair (3.3%).[10] There was no recurrence of hernia in our study. According to Bessa et al the mesh repair is simple and effective operation for incisional hernia. Jenkins reported in their study in 154 patients, established the superiority of mesh repair over anatomical repair with regard to recurrence of hernia.[11, 12]

CONCLUSION

Incisional hernias occur more commonly in females than males. Wound infection in the post operative period was the most common risk factor for incisional hernia. Recurrence rate is more in emergency operated cases. Polypropylene mesh repair is superior to anatomical repair as it has less recurrence rate. Proper preoperative preparation of the patients with high risks (diabetes mellitus, COPD, obesity etc.) is an important factor in preventing recurrence of incisional hernia. As lower midline incisions are more prone for incisional hernia their use should be restricted whenever possible. Meticulous aseptic technique and careful closure of the abdominal wound is necessary to prevent post-operative wound infection and subsequent incisional hernia formation.

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