

Study of Clinical Profile and Management of Incisional Hernia

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ABSTRACT

Introduction: Incisional hernia is a serious postoperative complication of surgical intervention. Incisional hernia is diffuse extrusion of peritoneum and abdominal contents through the weak scar of an operation of abdominal wall. We have studied here the etiology and risk factor for the development of incisional hernia. The aim of present study was to evaluate the incidence, clinical presentation, causal factors, mode of prevention and proper management of incisional hernia.

Material and methods: This was a prospective and observational study conducted on 60 patients in Rajendra Institute of Medical Sciences, Ranchi, Jharkhand during the period January 2015 to June 2016. Patients who had herniation at the site of previous surgery through the previous surgical scar were chosen for study. Observations were made with regard incidence, time interval between first appearance and treatment, type of operation and incision, etiological factors and postoperative wound complications.

Results: In our study 90% patients were women because of high incidence of gynaecological operations. As caesarean section is done through lower midline incision, was the commonest cause of incisional hernia. The commonest age group was from 30 to 40 years. Maximum cases (40%) of incisional hernia occurred between 1 to 2 years after surgical intervention. Most common method of treatment applied was polypropylene mesh repair.

Conclusion: Incisional hernia commonly seen in females and affect 30-40 years of age group preferably housewives. It is mostly presents with intermittent swelling and pain. Previous elective and emergency surgery in lower midline has high chances of incisional hernia. Polypropylene mesh repair has been found to give best result with nil recurrence.

Keywords: Incisional Hernia, Polypropylene Mesh Repair, Lower Midline Incision, Previous Surgical Scar

INTRODUCTION

Incisional hernia is a serious postoperative complication of laparotomy. Incisional hernia is a diffuse extrusion of peritoneum and abdominal contents through the weak scar of an operation or accidental wound of anterior abdominal wall, occurring at the points other than inguinal, femoral or umbilical openings. By far the greater numbers of these are postoperative hernias. Incisional hernia is a common surgical problem which is the result of a failure of fascial tissue to heal and close following laparotomy.^{1,2}

Infection at the surgical site, which leads to the development of excessive tension causing inadequate healing is the most common cause of incisional hernia. Besides infection, obesity, pregnancy, advance age, malnutrition, ascitic and other conditions that increase intra-abdominal pressure also contributes the increase in the incidence of incisional hernia. Like any other hernia, it can lead to pain, bowel obstruction, incarceration and strangulation.³⁻⁵

The average intra-abdominal pressure measures about 8 cm of

water both in the upper and lower abdomen in supine posture. Breathing causes a fluctuation of 2–4 cm of water. In the erect posture the upper abdominal pressure remains 8 cm of water while the lower abdominal pressure increases to 20 cm of water. Coughing, vomiting, straining during micturition and defecation elevate the intra-abdominal pressure over 80 cm of water.^{6,7}

The incidence of incisional hernia is about 5-11% in developed countries but the incidence might be very high in developing countries like India due to malnutrition and increased rate of infection.⁸

The mode of management of incisional hernia ranges from anatomical repair to laparoscopic intervention. In open surgical repair, the weakened scar tissue of the abdominal wall is re-incised and repair is reinforced using a prosthetic mesh. The laparoscopic hernia repair is the new technique of surgical method. In this method, the mesh is applied underneath the abdominal muscle through small incision to the sides of hernia. Advantages of laparoscopic incisional hernia repair are no re-incision, less painful, safe, speedy recovery and less recurrence.⁹ 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.

MATERIAL AND METHODS

This prospective and observational study was done on 60 cases of incisional hernia admitted in the Department of Surgery of Rajendra Institute of Medical Sciences, Ranchi during the period January 2015-June 2016 after taking informed consent. The approval of institutional ethics committee was taken prior to the commencement of this study.

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,

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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:-

- a. Age distribution
- b. Sex distribution
- c. Mode of presentation
- d. Time interval of onset of herniation
- e. Common etiological factors predisposing incisional hernia
- f. Frequency of hernia in type of incision
- g. Mode of management

STATISTICAL ANALYSIS

The data were tabulated and analyzed descriptively using mean and SD.

RESULTS

The age distribution of 60 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 12 cases (20%) presented between 40–50 years of age (Table 1).

In this study, 54 out of 60 patients (90%) were females. Only 6 patients (10%) were male. Female to male ratio being 9:1 (Figure 1).

Intermittent swelling and pain was found to be the common presentation which was present in 32 cases (53.3%). Intermittent swelling on staining observed in 18 cases (30%). Dyspeptic symptoms other than above complaints were present in only 6.6 percent cases.

In present study 44 cases (73.3%) of incisional hernia was observed in Infraumbilical midline incision. Four cases (6.6%) each developed through right subcostal and right lower paramedian incision. Upper midline, Infraumbilical transverse and gridiron incision was observed in two cases (3.3%) each of incisional hernia (Table 2.)

Maximum number of cases 24 (40%) reported between 1–2 years of appearance of incisional hernia followed by 18 cases (30%) reporting between 6 to 12 months. 2–5 years of delay in presentation were observed in 14 cases (23.3%) (Table 3).

Common general etiological factors were chronic constipation (30%, 18 cases) and chronic cough (20%, 12 cases) followed by anaemia and hypertension (10%, 6 cases) each. Hypoproteinemia, diabetes mellitus and chronic asthma were observed in 4 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 (Table 4).

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%) (Figure 2).

DISCUSSION

This prospective and observational study was conducted on 60 patients with the aim of studying the incidence, mode of presentation, etiopathogenesis and different mode of management of incisional hernia.

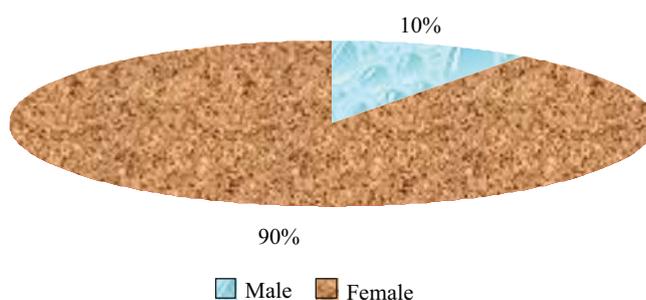


Figure-1: Sex distribution of patients of incisional hernia studied

| Age group (years) | No. of cases | Percentage |
|-------------------|--------------|------------|
| 10–20 | 2 | 3.3 |
| 20–30 | 4 | 6.6 |
| 30–40 | 40 | 66.6 |
| 40–50 | 12 | 20.0 |
| 50–60 | 2 | 3.3 |

Table-1: Age distribution of the patients

| Types of incision | No. of cases | Percentage |
|------------------------------------|--------------|------------|
| Infraumbilical midline | 44 | 73.3 |
| Right upper paramedian | 2 | 3.3 |
| Right subcostal incision | 4 | 6.6 |
| Right lower paramedian | 4 | 6.6 |
| Upper midline | 2 | 3.3 |
| Infraumbilical transverse incision | 2 | 3.3 |
| Gridiron incision | 2 | 3.3 |

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

| Time interval | No. of cases | Percentage |
|---------------|--------------|------------|
| 1–3 months | 0 | - |
| 3–6 months | 4 | 6.28 |
| 6–12 months | 18 | 30 |
| 1–2 years | 24 | 40 |
| 2–5 years | 14 | 23.3 |

Table-3: Time interval of onset of herniation

| Etiological factors | No. of cases | Percentage |
|-------------------------------|--------------|------------|
| General: | | |
| Chronic constipation | 18 | 30 |
| Chronic cough | 12 | 20 |
| Anaemia | 6 | 20 |
| Hypertension | 6 | 10 |
| Hypoproteinemia | 4 | 6.6 |
| Diabetes mellitus | 4 | 6.6 |
| Chronic asthma and bronchitis | 4 | 6.6 |
| Toxaemia | 2 | 3.3 |
| Tuberculosis | 2 | 3.3 |
| Dysuria | 2 | 3.3 |
| Local: | | |
| Wound infection | 18 | 30 |
| Peritoneal contamination | 12 | 20 |
| Wound dehiscence | 6 | 10 |
| Repeated incision | 2 | 3.3 |

Table-4: Etiological factors in patients with incisional hernia

In our study, the most common age group involved was 30–40 years (66.6% patients) with female to male ratio was found

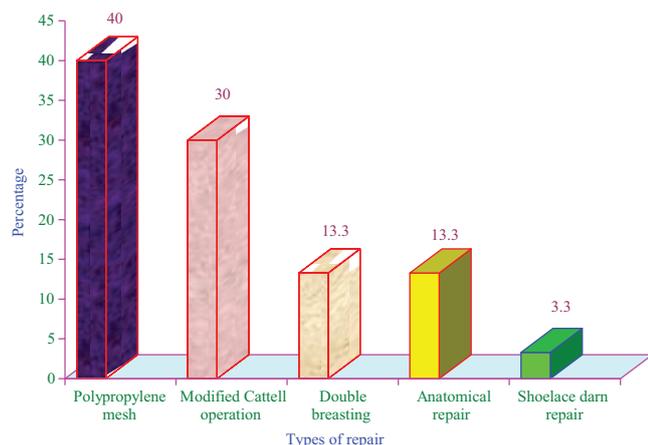


Figure-2: Types of repair in present series

to be 9:1. Ellis et al⁸ in their study reported that 48% patients developing incisional hernia belonged to the age group of 31-40 years with female to male ratio 4.8:1. In our series incidence of female population was 90% while Millbourn et al¹⁰ reported an incidence of 64.6% female population in their study of 383 patients. The higher incidence of incisional hernia in female population may be due to laxity of the abdominal muscles due to multiple pregnancies and increased number of lower abdominal incisions in females.

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,¹¹⁻¹³ wound infection following surgery was the main factor for the development of incisional hernia.

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 al⁹ 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 al¹⁰ and Carlson et al¹¹ also reported that incisional hernia is common in females undergoing gynaecological surgeries in which lower abdominal incisions are made.

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%). There was no recurrence of hernia in our study. According to Bessa et al⁵ the mesh repair is simple and effective operation for incisional hernia. Jenkins¹³ reported in their study in 154 patients, established the superiority of mesh repair over anatomical repair with regard to recurrence of hernia.

CONCLUSION

It has been observed that incisional hernia is commonly seen in females and affect 30-40 years of age group of patients preferably housewives and sedentary workers which appears usually within 2 years of inciting operation, the commonest of which being gynaecological operations or emergency laparotomies through Infraumbilical midline incision. Common accompaniments

being postoperative wound infection, peritoneal contamination, obesity, multiparity, chronic cough and constipation, the patients seek help commonly for intermittent swelling and pain at incisional line and sac commonly contains adherent omentum and small coils of intestine. Polypropylene mesh repair has been found to give best result with nil recurrence.

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