



TO STUDY THE FACTORS RESPONSIBLE FOR INCREASED INCIDENCE OF INCISIONAL HERNIA

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ABSTRACT

BACKGROUND: Incisional hernia can be the most frustrating and difficult to treat among all hernias. It occurs as a result of excessive tension and inadequate healing of a previous incision, which may be associated with surgical site infection.

OBJECTIVES: This study is undertaken to know the various factors which influence the formation of incisional hernia and also to know the incidence of incisional hernia in our institute.

METHODS: 50 patients are studied over a period of 2 years from march 2018 to march 2020 who are admitted in department of general surgery, King George hospital / Andhra medical college, Visakhapatnam.

RESULTS: Out of 50 patients included in study, females constituted 92%. Among the initial surgery underwent by these patients, more cases are seen with emergency laparotomy and hysterectomy procedures. Based on the site of previous incision, patients are again stratified into groups. Among all these, lower midline incisions about 36% are more predominantly seen causing incisional hernias.

CONCLUSION: Operations on the female pelvic organs and emergency laparotomy surgeries were the most common procedures preceding the development of incisional hernia. Etiology is multifactorial. Obesity and post-operative wound infection are important predisposing factors.

KEYWORDS : Incisional hernia , obesity, wound infection , incision, previous surgeries.

INTRODUCTION:

Incisional hernia (IH) is defined by the European hernia society as "any abdominal wall gap with or without a bulge in the area of postoperative scar perceptible or palpable by clinical examination or imaging." They occur as a result of excessive tension and inadequate healing of a previous incision which maybe associated with surgical site infection. Large hernias result in loss of abdominal domain, which results in compromise of abdominal wall rigidity.

Defect size, location on the abdominal wall, patient comorbidities, loss of domain, presence of contamination, necessity for an ostomy, acuity of the presentation, and history of prior repairs allow an infinite number of permutations.

Various procedures and techniques have been described for both prevention and treatment of incisional hernia but there is still a lack of consensus regarding the best approach.

Patient risk factors associated with a higher incidence (usually described as a higher "rate") of IHs include diabetes mellitus [1], obesity [2, 3], cachexia [4], increasing age [5], male sex [5, 7], chronic obstructive pulmonary disease (COPD) [6, 8], history of (or operation for) an abdominal aortic aneurysm (AAA) [10], anaemia [6], smoking [7], and corticosteroids.

Surgical characteristics associated with greater IH formation include urgent surgery, layered rather than mass closure, and interrupted rather than continuous suture closure, whilst use of closure adjuncts such as prophylactic mesh may reduce IH rates.

MATERIALS AND METHODS:

50 cases of incisional hernia are studied in this crosssectional observational study for a period of 2 years from march 2017 to march 2019, who are admitted in department of general surgery, king George hospital.

INCLUSION CRITERIA:

- 1) Age between 18-70 years
- 2) All patients with incisional hernia of both sex are included.

EXCLUSION CRITERIA:

- 1) Patients aged < 18 years and > 70 years
- 2) Patients who didn't followup / who didn't give consent.

OBSERVATION AND RESULTS:

Table no: 1 Showing percentage of sex incidence

Number of cases	Male	Female
50	04 (8%)	46 (92%)

- 1) Out of the 50 cases of incisional hernia studied, majority are females (92%) and 8% are males

Table No 2: Showing incidence of most common age group

s.no	Age of the patient	Number in each group
1	<20 years	Nil
2	20-30 y	5
3	30-40y	9
4	40-50y	18
5	50-60y	16
6	60-70y	2

- 2) In the age distribution pattern of patients, it is more commonly seen in the 4th and 5th decade. Mean age at presentation is 48 years.

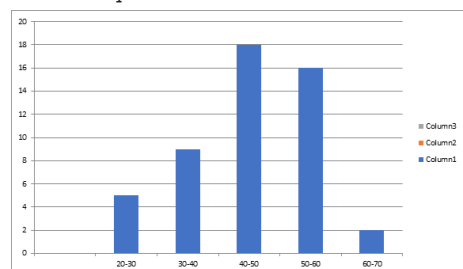


Fig NO: 1- Showing the age group distribution

Table No 3: Showing no. of patients with previous surgeries predisposing to incisional hernia

s.no	Previous surgery	Number of cases in each group
1	Emergency laparotomy	14
2	Hysterectomy	10
3	LSCS	7
4	Classical C section	5
5	Malignancy	4
6	Tubectomy	5
7	Others	4

3) Among the initial surgeries underwent by these patients , more cases are seen with emergency laparotomy and hysterectomy procedures.

Table No. 4_ Showing incidence of incisional hernia among various laparotomy incisions

s.no	Type of incision	Number of cases in each group
1	Lower midline	18
2	Midline laparotomy	16
3	Upper midline	6
4	Pfannensteil	8
5	Mcburneys	2

4. Based on the site of previous incision, patients are again stratified into groups. Among all these, lower midline incisions about 36% are more predominantly seen causing incisional hernias.

Table No 5 : Showing incidence of incisional hernia with number of previous surgeries

s.no	Number of previous surgeries	Number of cases
1	1	18
2	2	22
3	>2	10

5. Incisional hernia was more commonly seen in patients undergoing surgery for more than 2 times.

As the number of surgeries operated increase, the rate of hernia occurrence is also increased in parallel relation.

DISCUSSION :

Fifty patients participated in this study during a time span of 24 months from March 2017 to March 2019. Incisional hernia usually occurs from the third decade of life onwards, the peak incidence was after the age of 45 years. Ellis et al [13] in their study noticed a mean age of 49.4 years. The current study found more incidence of incisional hernia in the female population as reported by previous studies.[13,14]. High incidence of incisional hernia was seen in middle aged and elderly females, whereas there was no increased incidence in males. This can be explained by multiparity and repeated surgeries on female pelvic organs.

In present study, 60.5% of the incisional hernias occurred following operations on female pelvic organs which are correlated with the other studies. [15-17] In present study, 75% of incisional hernias appeared in the midline incisions. Shukla et al [18] reported 53% of the incisional hernia in midline infraumbilical incisions. Ponka [19] reported 36% of incisional hernia through the midline infra Umbilical incision and Agbakwuru et al [20] also found that 81.9% incisional hernias occur through the midline infraumbilical incision.

In current study, 68 percent of patients with incisional hernia found to be obese. The repeated surgery through same incision resulted in an incisional hernia in 56.5 percent of cases. Lamont and Ellis found the incidence of incisional hernia was 6 percent after freshly made incision and on the other hand the incidence increased after both re-incision

(12%) and incisional hernia (44%) respectively.

The comorbidities associated with each patient has also been noted. The various comorbidities are obesity, diabetes, increased abdominal pressure conditions like ascites, malignancy, chronic pulmonary disease, chronic constipation.

Personal habits like smoking and alcohol history and drug history which includes steroid therapy and chemotherapy are also noted.

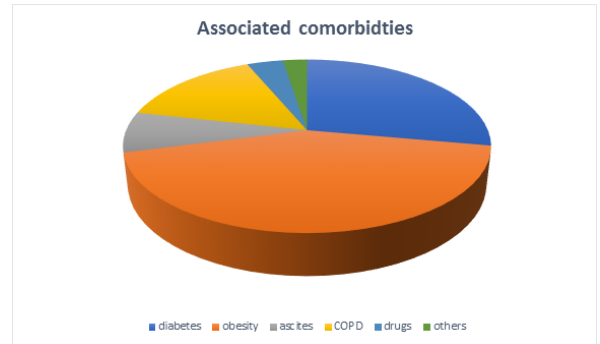


Fig. 2 : Showing Associated Co morbidities

Occurrence of incisional hernia appears to be multifactorial and these factors are inter-related. Association of one or more factors increases the predisposition to the occurrence of incisional hernia. An attempt is made to study the inter-relationship of these factors to the incidence of incisional hernia using "Fisher's exact test". Obese females have a specific predilection towards occurrence of incisional hernia. This study sample is relatively small.

A larger study is needed to emphasize this association more strongly. In Sharma et al [19] study obesity as a causative factor was prominent in 12 (23%) female patients. Obesity is prone for wound infection, as 76.9 percent of obese people had a history of wound infection following previous surgery, as against 14.28 percent of non-obese patients. Obesity and wound infection shows a strong association with incisional hernia with P < 0.05. Obese patients with lower midline incision constitute 92.3 percent and non-obese with lower midline incision constitute 64.28 percent. There appears a strong association between lower midline incision in an obese person and the occurrence of incisional hernia (P < 0.05).

Previous history of wound infection is also noted. Among the obese patients, the incidence of wound infection appeared more , and in non obese patients wound infection was less compared to obese individuals.

Table No 6: Showing no. of patints had wound infection

S.NO	BMI	Number of patients	Patients who got wound infection
1	OBESE	34	26
2	NON OBESE	16	5

Wound infection has also individually led to increase in the number of incisional hernia cases.

Repeat surgery done through a lower midline incision resulted in incisional hernia in 60.6 percent of patients in current study whereas repeat surgery done through other than lower midline incision resulted in 14.28 percent of cases. There was a very strong association between these two factors as P < 0.05.

CONCLUSION:

In this study the highest incidence of incisional hernia is

observed in elderly patients (age between 41-55 years) with female preponderance. Operations on the female pelvic organs and emergency laparotomy surgeries were the most common procedures preceding the development of incisional hernia. Etiology is multifactorial. Obesity and post-operative wound infection are important predisposing factors. Presence of more than one risk factor in a patient shows increased predisposition to the incidence of incisional hernia.

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