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CLINICAL STUDY OF RISK FACTORS IN THE DEVELOPMENT OF POSTLAPAROTOMY INCISIONAL HERNIAS"

General Surgery

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ABSTRACT

Introduction: An incisional hernia is a common problem after abdominal surgery. Patients present with pain, swelling and intestinal obstruction. It may be repaired by either anatomical suturing or mesh repair. **Methods:** We recruited 50 patients with incisional hernia admitted to surgical wards in the Department of General surgery during the study period from 2018 to 2020. **Results:** In this study, 84% were females and the male to female ratio being 1:5. An incisional hernia is more common in females and 30 - 50 years of age (66%). Major risk factors were wound infection (52%), overweight (54%). It is found to be more associated with gynecological (72%) than gastrointestinal operations(28%) and more so with lower abdominal midline incision (76%) **Conclusion:** xv Overweight females of age range between 30 - 50 years with a history of gynecological operations by lower abdominal midline incision are more prone to develop an incisional hernia. This incidence increases when there is a wound infection. Mesh repair is the choice of operation for incisional hernia.

KEYWORDS

INTRODUCTION:

Incisional hernia refers to abdominal wall hernia at the site of a previous surgical incision. It is a common surgical problem. The classical presentation is a bulge with a positive cough impulse at the site of the incision. Patients with incisional hernias are also at risk for incarceration, obstruction, or strangulation. Incisional hernia has also been reported after traumatic abdominal wall injuries[1]. Incisional hernias develop because of the failure of the abdominal wall to close properly[2]. Reasons for failure to close properly include: patients related factors, disease-related factors, and technical factors[3,4,5].

Patient-related factors that impair proper wound healing and affect the strength of the new tissue to support the abdominal wall increase the incidence of incisional hernia. Systemic chronic diseases like DM, renal failure, obesity, smoking, and malnutrition conditions; or systemic long term medications like steroids and immunosuppressants increase the likelihood of developing an incisional hernia. Morbid obesity is a common associated risk factor[6].

Disease-related factors including incision site, timing, and urgency of procedure, complications, and the underlying disease play an important role in the occurrence of incisional hernia. Emergency surgeries[7], midline incisions, infection[8], and acute abdominal surgeries are associated with a higher incidence of incisional hernia development.

Wound infection, in particular, is a commonly associated risk factor with incisional hernia. Technical factors related to the surgical technique or suture materials used for closure. Poor surgical technique may result in acute wound dehiscence or delayed healing failure in the form of incisional hernia[9]. When the fascial edges are not approximated side to side appropriately with using the appropriate strength and length of suture material incisional hernia is more likely to occur. Despite advancements in techniques for abdominal wall closure the incisional hernia rate following laparotomy is as high 15% to 20%[10].

AIM AND OBJECTIVES

The study aims to assess the risk factors in the development of incisional Hernia with one or in various combinations, such as

- Age,
- Sex,
- Obesity,
- History of previous wound infection,
- The type of incision used and
- The number of previous operations.

METHODOLOGY:

A Prospective Observational Study done on 50 patients with incisional hernia admitted to surgical wards in the Department of General surgery during the study period from November 2018 to November 2020.

Inclusion Criteria:

All patients between age 20 to 80 years with Incisional Hernia, Both the sexes.

Exclusion Criteria:

Strangulated and Incarcerated Incisional Hernia, Pregnancy with Incisional Hernia, Patients with age < 20 years &> 80 years.

RESULTS:

- Mean age of presentation is 38.44 years. Median is 37 years. Minimum and Maximum age of presentation is 24 and 67 years. Most common Age of presentation is in 3rd decade.
- 84% of female and 16% of males
- 72 % of the hernias followed operations on female pelvic organs (TAH 36%, LSCS 24%, Tubectomy 12%), 4% followed after incisional hernia repair and 24% cases followed after acute abdominal procedures.
- 76 % of incisional hernias recurred in Lower midline incision. Upper midline 12%, Mc Burney's 4% and midline 8%
- Incisional hernia recurred in 56 % of cases following a second surgery.
- Wound infection is present in 52 cases amounting to 52% of incisional hernias.

Table 1: Obesity & Sex

	Female	Male	Total	Rate of Incidence
Obese	25	2	27	92.5%
Non Obese	17	06	23	73.9%

Total	42	08	50	

Among the obese people 92.5% were females. P value is close to 0.05 and shows a clear association between obesity and female sex.

Table 2: Obesity And Wound Infection

	Wound infection	No Infection	Total	Incidence
Obese	18	09	27	66.66%
Non Obese	08	15	23	34.78%
Total	26	24	50	

Among the obese people 66.66 % had wound infection during previous surgery. The P value is 0.05 showing a strong association between obesity and wound infection to the occurrence of incisional hernia.

Table 3: Obesity And Lower Midline Incision

	lower midline incision	Other Incisions	Total	Incidence
Obese	26	01	27	96.3%
Non Obese	12	11	23	52.1%
Total	38	12	50	

Obese people with Lower midline incision constitute 96.3% and non-obese with Lower midline incision were 52% P value is <0.005 showing a very strong correlation between obesity and Lower midline incision to result in incisional hernia.

Table 4: Lower Midline Incision And More Than One Surgery

	>2 Surgeries	One Surgery	Total	Rate of incidence
Lower midline Incision	26	12	38	68.42%
Other incision	02	10	12	16.67
Total	28	22	50	

Lower midline incision compared to other incisions with repeated surgeries through the same scar, the incidence of incisional hernia is 68.42% and 16.67% respectively. This study shows a very strong correlation (p<0.005) between repeat surgery through lower midline incision to the occurrence nof incisional hernia

DISCUSSION:

Incisional hernia usually appears from the 3rd decade onwards, the peak incidence is in the 4th decade. Goel and Dubey[11],Harikishnan & Karr[12], Bhutia et al[13] and Bhattarai et al[14] also found more incidence in the 3rd 4th and 5th decades.

In this study 84% were females and male to female ratio being 1:5. Dasilva[15] W.T. Bhutia [13] and Manohar [16] also found more incidence among females. Patroianu[16] found more incidence among females.

Harikrishan [12] (1991) found 24.1% of the incisional hernias occurred following TAH, 42% following LSCS, 11.1% after Tubectomy, 13.3% occurred following Acute Abdomen With Peritonitis.

Bhattarai [14](2010) found 17% of the incisional hernias occurred following TAH, 33.3% following LSCS, 8.3% following Tubectomy, 17% following Acute Abdomen With Peritonitis.

Goel & Dubey[11] Found 48 % of incisional hernias appeared in the lower midline incisions, 5% of incisional hernias appeared in Mc. Burney's incisions. Manohar et al[16](2010) found 74% of incisional hernias appeared in the lower midline incisions, 2% of incisional hernias appeared in Mc. Burney's incisions.

In our present study infection was present in 52 percent of cases. T.E. Bucknall[17] wound infection in 48% of patients who subsequently developed incisional hernia. Ponka[18](1980) reported wound infection in 58% of cases in his study.

In our study 54% patients with incisional hernia found to be obese. J.L. Ponka[18] attributed 40% of incisional hernias to obesity. Marc H.F Schreinemache[19] (2010) observed 59.1% incisional hernias in obese individuals.In our study repeated surgery through the same incision resulted in an incisional hernia in 56% of cases.

Incidence of incisional hernia appears to be multifactorial and these factors are interrelated association of one or more factors increase the predisposition to the incisional hernia. Obese females have a specific predilection towards occurrence of incisional hernia as the p ~ 0.05 our study sample is relatively small we feel a larger study is needed to emphasize this association more strongly.

Obesity is prone to wound infection, as 66.66% of obese people had a history of wound infection, as against 34% of non-obese people. Obesity and wound infection show an association to incisional hernia with $p < 0.05$.

Obese people with lower midline incision constitute 96.3% and non obese with lower midline incision was 52%. There appears a strong association between lower midline incision in an obese person to the occurrence of incisional hernia ($p<0.05$).

Repeat surgery done through a lower midline incision resulted in incisional hernia in 68.4 percent of patients in our study, where as repeat surgery done through other incisions resulted in 16% of cases, showing a strong association ($p<0.005$).

CONCLUSION:

An incisional hernia is common in the 3rd decade of life in obese females. Operations on the female pelvic organs were the most common procedure preceding the development of an incisional hernia. Postoperative wound infection at previous surgery & repeated surgeries through the same incision are associated risk factors for the development of incisional hernia

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