



Clinical Profile and Management of Incisional Hernia at Tertiary Care Hospital, Khulna, Bangladesh.

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ABSTRACT

Background: Incisional hernia is a common complication following abdominal surgery, with significant morbidity and potential mortality. It is a serious postoperative complication of surgical intervention. An incisional hernia is diffuse extrusion of the peritoneum and abdominal contents through the weak scar of an operation of the abdominal wall.

Aim of the study: The study aimed to evaluate the clinical profile and management of incisional hernia at the Khulna Medical College and Hospital, Khulna, Bangladesh.

Methods: This is a prospective study; a total of 20 were enrolled and analyzed in this study. The study was conducted from June 2021 to July 2022 at the Department of Surgery, Khulna City Medical College and Hospital, Khulna, Bangladesh. All the cases were operated on, and the procedure adopted was anatomical repair or mesh repair. The selection of the operative procedure was based on the size of the defect of the incisional hernia. The patients were closely followed up for early post-operative complications. Long-term complications like recurrence, chronic infections, and sinus tract formation were also evaluated as far as possible.

Result: In this prospective study, our findings indicate that the majority (30%) of patients fall within the age range of 51-60 years. 80% of the patients were females and 20% were males. The most frequent defect size range was 21-40 sq. cm, occurring 8 times, representing 40% of the total defects. Hysterectomy was the most common surgery performed, accounting for 30% of the cases, while exploratory laparotomy and appendectomy had the same percentage of 40% each, and 15% of the patients underwent L.S.C.S. Complications related to incisional hernia during previous operations were rare, with 60% of the study population showing no complications. The majority (50%) of patients experienced hernia

onset within 3 months to 1 year after the previous surgery. Postoperative complications were minimal, with 75% of the study population showing no complications, while wound infection and seroma were reported in 15% and 10% of patients respectively.

Conclusion: In conclusion, the incisional hernia is a common complication following abdominal surgery in Khulna, Bangladesh, with risk factors such as obesity and diabetes mellitus contributing to its occurrence. Surgical management, particularly open hernia repair with mesh, is the mainstay of treatment, with acceptable outcomes and low complication rates. Further studies are needed to evaluate long-term outcomes and optimize the management of incisional hernia in this population.

Keywords: clinical profile, incisional hernia, tertiary care and mesh repair.

I. INTRODUCTION

The incisional hernia is a type of hernia caused by an incompletely-healed surgical wound. An incisional hernia is a severe postoperative complication of laparotomy. An incisional hernia is a diffuse extrusion of peritoneum and abdominal contents through the weak scar of an operation or accidental wound of the anterior abdominal wall, occurring at points other than inguinal, femoral, or umbilical openings. By far, the more significant numbers of these are postoperative hernias. Incisional hernia is a common surgical problem resulting from 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, advanced age, malnutrition, ascitic and other conditions that increase intra-abdominal pressure also contribute to the incidence of



incisional hernia [3-5]. Incisional hernias (IH) are among the most common abdominal surgery complications. The estimated incidence of IH ranges from 2 to 11%, and 80–95% develop it within six months to 3 years after surgery. 8 to 29% of the IH are asymptomatic and remain unaccounted for if the patient is not examined. Wound infection, suture closure technique and obesity are the most critical risk factors for developing IH [4]. An incisional hernia is a late complication following abdominal surgery, resulting from a dehiscence of fascial closure and an iatrogenic disease [5]. The incidence after laparotomy has been reported as ranging between 4% and 12%, but the actual incidence is underestimated [6]. Many incisional hernias are asymptomatic, but if symptoms are present, an incisional hernia may be associated with morbidity, reduced work time for those who are employed, and low quality of life. Given the high cost of incisional hernia repair and the disappointing recurrence rates of up to 45%, incisional hernia remains a significant challenge for most surgeons [7]. 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 incised, and repair is reinforced using a prosthetic mesh. The present study aimed to evaluate the clinical profile and management of incisional hernia at the Khulna Medical College and Hospital, Khulna, Bangladesh.

II. METHODOLOGY & MATERIALS

This is a prospective study; a total of 20 were enrolled and analyzed in this study. The study was conducted from June 2021 to July 2023 at the Department of Surgery, Khulna City Medical College and Hospital, Khulna, Bangladesh. Before enrolling patients for the study, written, informed, and valid consent was obtained from all patients. A detailed history of all patients was taken, and a thorough clinical examination was done as a significant step to determine the type and cause of the hernia. All patients were analyzed in various aspects like age, sex, risk factors, mode of presentation, previous operation, and site of previous scar. Patients were also evaluated for other risk factors like obesity, Diabetes Mellitus, and malignant disease. Routine investigations like Blood, Urine, CXR, and ECG were done. All the cases were operated on, and the procedure adopted was anatomical repair or mesh repair. The selection of the operative procedure was based on the size of the defect of the incisional hernia. The anatomical repair was done in case of defect size less than

2cm. For extensive defects, mesh repair was performed. The patients were closely followed up for early post-operative complications. Long-term complications like recurrence, chronic infections, and sinus tract formation were also evaluated as far as possible.

• Inclusion criteria:

- Patients aged from 15 years to 70 years were admitted to the Department of Surgery during the study period.

• Exclusion criteria:

- Incisional hernias associated with other abdominal wall hernias.
- Patients aged >70 years.

All data were presented in a suitable table or graph according to their affinity. A description of each table and the graph was given to understand them clearly. All statistical analysis was performed using the statistical package for social science (SPSS) program, and Windows. Continuous parameters were expressed as mean±SD and categorical parameters as frequency and percentage. The significance of the results, as determined by a $P < 0.05$ was considered statistically significant.

III. RESULT

In this prospective study, our findings indicate that the majority (30%) of patients fall within the age range of 51-60 years. Additionally, the age groups of 31-40 years and 41-50 years both had a frequency of 5, accounting for 25% each of the study population, suggesting equal representation. In contrast, the age groups of 11-20 years, 61-70 years, and 21-30 years had lower frequencies of 1, 1, and 2 respectively, corresponding to 5%, 5%, and 10% of the total sample respectively (Table 1). The distribution of sex in the study population, as shown in Figure 1, reveals that 80% of the patients were females and 20% were males. The most frequent defect size range was 21-40 sq. cm, occurring 8 times, representing 40% of the total defects. The second most common defect size range was 41-60 sq. cm, accounting for 30% of the study population (Table 3). Hysterectomy was the most common surgery performed, accounting for 30% of the cases, while exploratory laparotomy and appendectomy had the same percentage of 40% each, and 15% of the patients underwent L.S.C.S. (Table 4). Complications related to incisional hernia during previous operations were rare, with 60% of the study population showing no complications.



Wound infection, obesity, and post-operative cough were reported in 25%, 20%, and 10% of patients respectively (Table 5). The majority (50%) of patients experienced hernia onset within 3 months to 1 year after the previous surgery (Table 6).

Postoperative complications were minimal, with 75% of the study population showing no complications, while wound infection and seroma were reported in 15% and 10% of patients respectively (Table 7).

Table 1: Age distribution of the study population (n=20).

| Age Group (in Years) | Frequency | Percentage |
|----------------------|-----------|------------|
| 11-20 | 1 | 5.00 |
| 21-30 | 2 | 10.00 |
| 31-40 | 5 | 25.00 |
| 41-50 | 5 | 25.00 |
| 51-60 | 6 | 30.00 |
| 61-70 | 1 | 5.00 |
| Total | 20 | 100.00 |

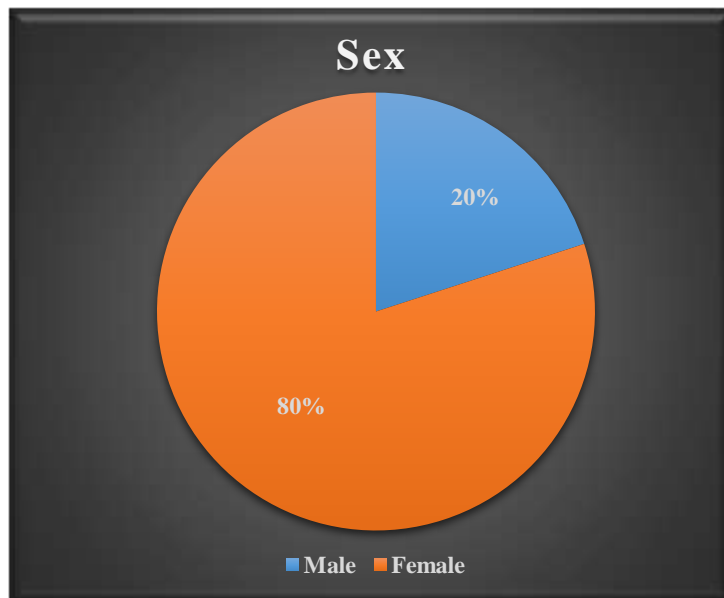


Figure 1: Sex distribution of the study population (N=20).

Table 2: Mode of Presentation (n=20).

| Presenting Complaints | Frequency | Percentage |
|-----------------------|-----------|------------|
| Swelling | 16 | 80.00 |
| Swelling and Pain | 3 | 15.00 |
| Pain | 1 | 5.00 |
| Total | 20 | 100.00 |

Table 3: Defect size of the study population.

| Defect Size (in sq. cm) | Frequency | Percentage |
|-------------------------|-----------|------------|
| Up to 20 | 3 | 15.00 |
| 21-40 | 8 | 40.00 |
| 41-60 | 6 | 30.00 |
| 61-80 | 3 | 15.00 |
| Total | 20 | 100.00 |



Table 4: Previous Surgeries Undergone (n=20).

| Past Surgery | Frequency | Percentage |
|---|-----------|------------|
| Hysterectomy | 6 | 30.00 |
| L.S.C.S | 3 | 15.00 |
| Tubectomy | 1 | 5.00 |
| Exploratory Laparotomy | 4 | 20.00 |
| Appendectomy | 4 | 20.00 |
| Open Cholecystectomy | 1 | 5.00 |
| Miscellaneous (Hernioplasty, Nephrectomy) | 1 | 5.00 |
| Total | 20 | 100.00 |

Table 5: Risk factors responsible for the occurrence of incisional hernia during previous operations (n=20).

| Post-Operative Complications of Past Surgery | Frequency | Percentage |
|--|-----------|------------|
| No Complications | 12 | 60.00 |
| Wound Infection | 5 | 25.00 |
| Obesity | 4 | 20.00 |
| Wound Dehiscence | 3 | 15.00 |
| Post-Operative Cough | 2 | 10.00 |
| Total | 20 | 100.00 |

Table 6: Time of onset of hernia after previous surgery (n=20).

| Duration Since Surgery | Frequency | Percentage |
|------------------------|-----------|------------|
| 0-3Months | 4 | 20.00 |
| >3months-<1 year | 10 | 50.00 |
| 1 year-3 years | 4 | 20.00 |
| >3years | 2 | 10.00 |
| Total | 20 | 100.00 |

Table 7: Post-Operative Complications (n=20).

| Complications | Frequency | Percentage |
|------------------|-----------|------------|
| NO Complications | 15 | 75.00 |
| Wound Infection | 3 | 15.00 |
| Seroma | 2 | 10.00 |
| Death | 0 | 0.00 |
| Recurrence | 0 | 0.00 |
| Total | 20 | 100.00 |

IV. DISCUSSION

Any anterior abdominal wall hernia occurring through a previous surgical incision is an incisional hernia [8]. All patients with incisional hernias do not require extensive diagnostic tests. An incisional hernia is usually a clinical diagnosis. Ultrasonography is the most useful diagnostic test and will often reveal an impalpable defect, particularly in obese patients. Other associated intra-abdominal pathology can also be detected, which can be dealt with during the operation. Other investigations are done as routine to assess the fitness for an operation, like Hb%, urine

examination, FBS & RBS for diabetes, blood urea, blood grouping, and typing; blood urea, and serum creatinine for renal function. ECG for heart diseases and Chest X-Ray for lung diseases. The maximum age incidence of incisional hernia in our study has been 40-60 years, as maximum cases of Exploratory post-laparotomy are recorded. In their study, Ellis, Gajraj, and George noticed a mean age of 49.4 years[9]. The youngest patient in our study was 16 years, and the oldest was 70 years. The sex incidence of incisional hernia among the 20 cases studied is 1:4 (M: F), showing a female preponderance. This is because of the laxity of



abdominal muscles due to multiple pregnancies and increased obesity in females. Compared with Western countries, incisional hernia in Indians occurs earlier because of early marriage and multiple pregnancies [10]. Ellis, Gajraj, and George obtained an incidence of 64.6% female population in their study of 383 patients [9]. J B Shah's studies and Goel and Dubey series have male-to-female ratios of 1:1.17 and 1:1.25 (M: F), respectively [11,12]. Md. Mukhtar Naved, ShitalMalua, et al. had female preponderance with a ratio of 1:9 [13]. The emergency operation has been reported to carry a higher risk of incisional hernia. Bose et al. [14] reported in their study that 50% of incisional hernias developed following emergency surgery. 70% of our patients developed hernia following emergency surgery, as reported by Umeshchandra DG et al., [10] Millbourn et al. and Carlson et al. also reported that incisional hernia is common in females undergoing gynaecological surgeries, constituting 68% and 57% respectively in which lower abdominal incisions are made [15,16]. In our study, 50% of patients had undergone gynaecological procedures, and 50% had undergone emergency laparotomies. Almost all patients presented with abdominal swelling and pain (95%). Only 1 out of 20 patients (5%) presented with pain as the only symptom. Intermittent swelling and pain were the standard presentations in 32 cases (53.3%) [13]. Incisional hernias rates do not differ by type of incision, and the incision should be driven by the surgeon's preference concerning the patient's disease and anatomy.

Limitations of the study: Every hospital-based study has some limitations and the present study undertaken is no exception to this fact. The limitations of the present study are mentioned. Therefore, the results of the present study may not be representative of the whole of the country or the world at large. The number of patients included in the present study was less in comparison to other studies. Because the trial was short, it was difficult to remark on complications and mortality.

V. CONCLUSION AND RECOMMENDATIONS

An incisional hernia is a complex surgical procedure that presents challenges to surgeons due to its high recurrence rate. According to the latest study, incisional hernias are more prevalent in females, particularly after prior gynecological surgeries involving infra-umbilical incisions. Common symptoms include swelling, with some cases also experiencing associated pain. The

majority of cases were successfully treated with mesh repair, resulting in no recurrence of the hernia. Infection rates were low, and no mortality was observed in any of the cases.

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