

Incisional Hernia: Incidence, Clinical Profile, Risk Factors, and Prevention

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Abstract

Background: Incisional hernias are highly prevalent. After inguinal hernias, they are the second most prevalent form of hernia.

Aim and Objective: To study the incidence and various risk factors leading to incisional hernia.

Materials and Methods: This prospective study was conducted in the Department of Surgery, Shyam Shah Medical College Rewa MP, India, from May 2021 to May 2022. All the cases were analyzed in various aspects like age, sex, parity, relative incidence, clinical presentation, nature of the previous operation, site of the previous scar, and precipitating factors like obesity, wound infection, and abdominal distension.

Results: The incidence approximates 6.5%. The maximum incidence of incisional hernia was found in patients aged 30 to 60. The ratio of females to males was four to one. The incisional hernia was more prevalent among patients with a history of gynaecological surgery. Most patients presented with an incisional hernia in the infra umbilical region. Over half of the patients presented with incisional hernias within three years of the operation. Wound infection remains the most prevalent risk factor associated with wound failure.

Conclusions: Incisional hernias are caused by medical intervention and can be avoided by avoiding midline incisions, particularly in the infraumbilical region.

Keywords: Incisional Hernia, Incidence, Risk Factors, Prevention.

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Introduction

Incisional hernias are highly prevalent. After inguinal hernias, they are the second most prevalent form of hernia. In the United States, approximately 4 million laparotomies are performed annually, with 2 to 3 percent resulting in incisional hernia. Between 100,000 and 150,000 ventral

incisional hernia repairs are performed annually in the United States. [1]

After laparotomy, incisional hernias are primarily caused by the failure of the fascia to repair, which involves both technical and biological factors. Approximately 50% of all incisional hernias occur within the first

two years after surgery and 74% within the third year. [1]

Depending on its extent, the repair of an incisional hernia can range from simple suturing to extensive abdominal wall reconstruction through muscle flaps and large pieces of mesh. This can be accomplished via an open or laparoscopic approach.

Five to eleven percent of patients who undergo abdominal surgery develop an incisional hernia. [2] Age, sex, obesity, chest infection, type of suture material used, and most importantly, wound infection are all linked to incisional hernia. All of these present a difficult challenge for the surgeon. Recent studies have shown that roughly two-thirds will appear within the first five years, and another third will appear between five and ten years after the operation. [3] In Indian settings, there is a shortage of information regarding the incidence and numerous risk factors associated with incisional hernia. Therefore, the present investigation aims to investigate the incidence and various risk factors associated with incisional hernia.

Materials and Methods

This prospective observational study was conducted on 40 cases of incisional hernias admitted to Shyam shah medical college Rewa (MP) from May 2021 to May 2022. The institutional ethics committee approved the study.

The study included all patients who underwent abdominal surgery and developed an incisional hernia during the study period.

The following variables were recorded: age, sex, parity, relative incidence, clinical presentation, nature of the previous operation, site of the previous scar, and precipitating factors like obesity, wound infection, and abdominal distension.

Statistical Analysis:

Data were analyzed using SPSS version 25. Descriptive statistics were used to describe the study population. All the data were expressed as numbers and proportions.

Results

In this study, 6.5% of the 500 surgically repaired hernias were incisional hernias. The ratio of females to males in this study was 4:1, or 80%, with females predominating. In my research, the incidence of incisional hernia is highest among those aged 30 to 60, with a mean age of 45.

The youngest participant was 23 years old, and the eldest was 70. The majority of patients were homemakers, followed by agricultural laborers. In nearly 83% of patients, the hernia site was infra-umbilical. Only three patients had incisional hernias following appendectomy; the remainder underwent gynecological procedures, most frequently tubectomy, hysterectomy, and cesarean section.

The incisional hernia was more prevalent after lower midline incisions in this study. Incisional hernia risk factors, wound infection, and dehiscence were the most prevalent. In this investigation, 30% of patients were affected.

This investigation included six obese patients with incisional hernias out of thirty cases (20%).

This investigation reveals that 54 percent of patients developed a hernia within three years of surgery. Prior to 5 years following the operation, late hernias were uncommon. Possible causes include aging, tissue deterioration, elevated intraabdominal pressure related to chronic wheezing, and constipation. Wound infection and wound exposure made up 30% of the total. 20% of patients have obesity, 16.6% have diabetes, and 16.6% have postoperative respiratory complications. In 16.6% of patients, there were no complications.

Discussion

Incisional hernias account for 6.5% of the 500 hernia repairs performed in this study. The rates were 1.7%, 11.5%, and 5% in the

Devlin HB, De Bord JR, and Gibson CL study series. [4-6].

Table 1: Incidence of hernia

Types of hernia	BL Coley series		JB Shah Bombay		Present study	
	N	%	N	%	N	%
Inguinal hernia	2793	93	880	88	500	81.9
Incisional hernia	38	1.3	50	5	40	6.5
Umbilical and para-umbilical hernia	14	0.5	36	3.6	50	8.1
Femoral hernia	54	1.5	22	2.2	0	0
Epigastric hernia	101	3.3	12	1.2	20	3.2

Table 2: Distribution of cases based on the previous incision was made

Name of operation	Ponk %	Goel and Dubey %	Present study
Hysterectomy	34	-	10
LSCS	2	28.76	12
Tubectomy	-	-	40
Appendectomy	16	3.42	8
Gastrojejunostomy + vagotomy	11	12.32	-
Cholecystectomy	21	-	5
Closure of peptic ulcer perforation	-	15.06	12
Colon and colostomy operations	9	-	-
Suprapubic cystostomy	-	15	-
Kidney operations	-	9.58	-

In this research, women outnumbered men by a factor of four, or 80% to 20%. An incisional hernia is more common in men, according to Thomas A. Santora. [7] Ellis included only women (64.6%) from their sample of 342. [8] In our country; women are more likely to suffer from incisional hernias than men since repeated pregnancies weaken the abdominal wall.

In my research, incisional hernias were more common among participants aged 30-60, with a mean age of 45. According to Ellis's findings, the average age was 49.4 years. [8] People as young as 23 participated in my study, with the oldest participant being 70. Homemakers comprised most of the hospital's patients,

with farmers the next largest group. Only three patients had incisional hernias after an appendectomy; the rest received gynecological surgeries, most commonly tubectomy, hysterectomy, and cesarean section. Nearly 83% of patients had hernias in the infra-umbilical region. The linea Alba is narrower and less well-protected with the infraumbilical midline approach, commonly used for female pelvic surgery. According to Jack Abrahamson, a higher risk of incisional hernia and subsequent recurrence following surgery is associated with lower incisions in the abdomen, among other factors. In other studies, lower midline incisions have been linked to a higher risk of incisional hernia. [3]

Table 3: Various risk factors associated with incisional hernia

Risk factors	A.B. Thakore et al.	%	Present study	%
Wound infection	35	46.05	22	55
Wound gaping	10	13.15	9	22.5
Late eventeration	1	1.3	2	5
Chest complication	10	13.15	12	30

Retention of urine	2	2.63	3	7.5
Obesity	-	-	5	12.5
Diabetes mellitus	-	-	3	7.5

The most prevalent causes of incisional hernia are untreated wound infection and dehiscence. Thirty percent of my study's patients experienced this. This is in line with JN Parekh's research. [9]

Six of the thirty patients in my study had an incisional hernia, which is twenty percent. Of 200 instances, Ellis found that 30 (or 15%) involved obese people. However, other factors can contribute to the development of incisional hernia.⁸ Although the Ellis group identified a threefold increase in herniation and recurrence in obese patients, the exact reason or technical variables involved remain unclear. [8] According to a systematic review of the literature, most incisional hernias develop within the first two years following surgery.

Within three years of surgery, a hernia developed in 54% of the patients in this study. According to Jack Abrahamson's research, 80% of hernias at Kings North AN appeared within the first two years, and 77% developed within three years of the procedure. Up to 5 years following surgery, cases of late hernia were uncommon, according to studies. [3,10] After five years, Mudge and Hughes saw 35% of cases, but we saw 46% in our research. [11] Ageing, tissue weakening, and increased intraabdominal pressure due to chronic cough and constipation may be to blame. Infected wounds and gaping wounds accounted for 30% of the total. Twenty percent are affected by obesity, sixteen and a half percent by diabetes, and sixteen and a half percent by respiratory issues following surgery. Only 16.6 percent of patients experienced no problems. [12]

There are several caveats to this study. The results may not apply to other situations because the study was only conducted at one location. The population of patients

who had abdominal surgery may differ from the sample size of 40 individuals with incisional hernias. Because incisional hernias might develop years after the initial operation, the study's short follow-up time may need extended. Smoking, a family history of hernia, and collagen problems were not examined in the study, but they may have contributed to the results in the same way as the risk factors. Due to the absence of a control or comparison group, the full impact of the indicated risk variables cannot be determined.

Conclusion

Avoiding midline incisions, especially in the infra-umbilical region, can help reduce the risk of incisional hernias caused by medical intervention. Patients with a gynecological surgery history were more likely to develop an incisional hernia. Preoperative care for patients at high risk of complications is essential for reducing the likelihood of a recurrence.

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