

## A Hospital-Based Study Assessing Clinic-Etiologic Profile and Management in Incisional Hernia.

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### Abstract

**Aim :** The aim of the present study was to assess the risk factors, clinical presentation and management in incisional hernia.

**Methods :** The present study was conducted in the Department of General Surgery, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India and patients having incisional hernia were included in our study by applying the following inclusion and exclusion criteria. The study was conducted over a period of 1 yr and a total of 50 cases were taken for study.

**Results :** The study showed that incisional hernia is more common in females than in males. Most of the patients belonged to 21-60 years. The study showed that all the patients (100%) presented with swelling in the abdomen. In the present study, 44% had obesity and 24% had anemia. 24% patients had associated pain in the swelling. In this study 70% of patients presented with infra umbilical swelling, 16% presented with supra umbilical swelling, 8% with right iliac fossa swelling and 6% with right lumbar swelling. 46% of the patients presented with incisional hernia within a year of the previous surgery. 22% of patients presented between 1 to 2 years. 30% underwent elective surgery and 70% underwent emergency surgery. In the study 7 patients had surgical site infection and 7 patients had seroma formation. 5 patients had respiratory tract infection. Almost half of the patients in the study group were followed up for complications, including recurrence. 10 patients were followed up for up to one year duration.

**Conclusion :** Incisional hernia is more common in females, especially the multiparous. Incisional hernia is more common in patients who underwent previous surgery on an emergency basis. Cough impulse was present in all the cases and the swelling reduced on lying supine. Seroma formation and surgical site infection were the common complications in the post-operative period. No recurrence was seen in the follow up of the patients.

**Keywords :** risk factors, clinical presentation, management, incisional hernia.

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### Introduction

A hernia is a protrusion of a viscus or part of a viscus through an abnormal opening in the walls of its containing cavity. Incisional hernias arise through a defect in the musculofascial layers of the abdominal wall in the region of a post-operative scar. Thus they may appear anywhere in the abdominal surface. [1] Incisional hernias of the abdominal wall are a frequently encountered complication in cases of open abdominal surgeries like midline laparotomies, caesarian sections etc. [2] Overall incidence ranges from 2 to 11% following abdominal surgeries and majority (80-95%) occur within 6 months after initial surgery. [3] Wound infections, obesity, poor healing due to malnutrition, immunosuppression or steroid therapy and surgical

factors like inappropriate suture materials or incorrect suture placement were thought to be the important causative factors in the development of incisional hernia. [4]

Incisional hernia is a common complication of surgical intervention. It's incidence is 10-50% in laparotomy incisions and 1-5% in laparoscopic incisions. [5,6] It is the result of failure of musculofascial tissue to heal in the early post-operative period. Highest incidence was observed in midline incisions however such hernias can occur after any type of abdominal wall incision. [7] Incisional hernia has multiple predisposing factors which include wound infection, diabetes, post-operative abdominal distention, respiratory tract

infection, anemia, obesity, and immunosuppression. These factors alone or in combination lead to development of incisional hernia. Other contributing factors for incisional hernia are type of surgical procedure, surgical technique, suture material used and post-operative events. [8,9] Most common presentation is localized swelling and pain along previous incision scar. Recurrence rate after primary anatomical repair ranges from 20-40%. [10] Among various modalities available for management of incisional hernia, mesh repair by open or laparoscopic method is common. Irrespective of technique used, tension free approximation of musculofascial layer and use of prosthetic mesh minimizes recurrence.

The aim of the present study was to assess the risk factors, clinical presentation and management in incisional hernia.

### Materials and Methods

The present study was conducted in the Department of General Surgery, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India for one year and patients having incisional hernia were included in our study by applying the following inclusion and exclusion criteria. The study was conducted over a period of 1 yr and a total of 50 cases were taken for the study.

#### Inclusion Criteria :

- All patients with incisional hernia between 8 to 70 years
- Both sexes (male and female)

#### Exclusion Criteria :

- Patients with uncontrolled diabetes mellitus and COPD
- Recurrent incisional hernia

- Strangulated and incarcerated incisional hernia
- Pregnancy with incisional hernia

All the patients were inquired about the duration of hernia, progression and main associated symptoms like pain, vomiting, cough, dysuria, reducibility of the swelling, association with pregnancy.

Past history pertaining to previous surgery – it's nature, duration, type of surgery and closure was recorded. Patients were also asked about the complications associated with previous surgery like infections. Recording about the scar of the previous surgery, the hernia defect, it's position, size, shape, cough impulse, reducibility and the overlying skin over the defect were made. Other comorbidities like anaemia, jaundice, hypertension, hypoproteinemia, obesity, benign prostatic hypertrophy were recorded. Chest screening was done to rule out COPD.

Multiparity was recorded for female patients with more than 2 children. If patient was found to have ascites, ultrasound abdomen was done. Data was collected from a specially designed case recording proforma (CRF) pertaining to patient's particulars, proper history, clinical examination, investigations, diagnosis and surgical procedures, infection following surgery, length of stay in the hospital.

Following pre-operative investigations were done and recorded for all the patients - Hb%, random blood sugar, urea, serum creatinine, chest x-ray, ECG and ultrasound abdomen (when indicated). Pre-surgery work up constituted informed consent, NPO a night before the surgery, inj. cefotaxime 1 gm i.v. stat immediately before the surgery (as pre-operative antibiotic), inj. tetanus toxoid 0.5 cc i.m. and indwelling urinary catheterization.

### Results

**Table 1 : Patient characteristics**

Sex	Number	Percentage
Male	15	30
Female	35	70
<b>Age in years</b>		
10-20	4	8
21-30	11	22
31-40	12	24
41-50	10	20
51-60	9	18
61-70	3	6
71-80	1	2
<b>Clinical presentation</b>		
Swelling	50	100
Pain and swelling	12	24
<b>Risk factors</b>		
Obesity	22	44
Anemia	12	24

The study showed that incisional hernia is more common in females than in males. Most of the patients belonged to 21-60 years. The study showed that all the patients (100%) presented with swelling

in the abdomen. 24% Patients had associated pain in the swelling. In the present study, 44% had obesity and 24% had anemia.

**Table 2 : Position of the swelling in the abdomen and time of onset of incisional hernia after previous surgery**

Position of swelling	No. of cases	Percentage
Supra umbilical	8	16
Infra umbilical	35	70
RLR (right lumbar region)	3	6
RIF (right iliac fossa)	4	8
<b>Time of onset</b>		
0 to 1 year	23	46
1-2 year	11	22
2-5 year	10	20
>5 year	6	12

In this study 70% of patients presented with infra umbilical swelling, 16% presented with supra umbilical swelling, 8% with right iliac fossa swelling and 6% with right lumbar swelling. 46% of

the patients presented with incisional hernia within a year of the previous surgery. 22% of patients presented between 1 to 2 years.

**Table 3 : Elective versus emergency surgery**

Type	No. of cases	Percent
Elective	15	30
Emergency	35	70

30% underwent elective surgery and 70% underwent emergency surgery.

**Table 4 : Post-operative complications**

Complications	No. of cases	Percentage
Wound infection	7	14%
Seroma	7	14%
Skin necrosis / suture line necrosis	0	0
RTI	5	10%

In the study 7 patients had surgical site infection and 7 patients had seroma formation. 5 patients had respiratory tract infection.

**Table 5 : Period of follow-up**

Period	No. of cases
Less than 6 months	24
6 months to 1 year	10
1-1.5 year	3
1.5 - 2 year	1

Almost half of the patients in the study group were followed up for complications, including recurrence. 10 patients were followed up for up to one year duration.

### Discussion

Incisional hernia is a common surgical condition encountered in day to day practice. It is most often seen in obese individuals. Based on national

operative statistics, incisional hernias account for 15% to 20% of all abdominal wall hernias. Of all the hernias encountered, incisional hernias can be the most frustrating and difficult to treat. Incisional hernias occur as a result of excessive tension, post-operative abdominal distension and inadequate healing of a previous incision, which is often associated with surgical site infection and persistent post-operative cough. Several technical and patient-

related factors have been linked to the occurrence of incisional hernias. There is no conclusive evidence that demonstrates that the type of suture or technique of incisional closure at the primary operation affects hernia formation. [11]

The study showed that incisional hernia is more common in females than in males. The incidence is more in females because of laxity of abdominal muscles due to multiple pregnancies. In males, the incidence of incisional hernia is relatively less as most of the surgeries are above the umbilicus and the strength and integrity of abdominal wall is good because of well developed muscles and fascia. Most of the patients belonged to 21-60 years. The study showed that all the patients (100%) presented with swelling in the abdomen. 24% Patients had associated pain in the swelling. In this study 70% of patients presented with infra umbilical swelling, 16% presented with supra umbilical swelling, 8% with right iliac fossa swelling and 6% with right lumbar swelling. Patients presented with swelling followed by swelling with pain (24%) in our study. [12] In study by Prasad et al too where 68% presented with swelling and 24% presented with both pain and abdominal discomfort. [13]

In the present study, 44% had obesity and 24% had anemia. 46% of the patients presented with incisional hernia within a year of the previous surgery. 22% of patients presented between 1 to 2 years. 30% underwent elective surgery and 70% underwent emergency surgery. The Study done by Pollock in 1989, where only 1.2% of the patients operated on elective basis had incisional hernia while 23.9% of the patients operated on emergency basis had incisional hernia. [14,15] In the study 7 patients had surgical site infection and 7 patients had seroma formation. 5 patients had respiratory tract infection. Almost half of the patients in the study group were followed for complications, including recurrence. 10 patients were followed up for up to one year duration.

### Conclusion

Incisional is more common in females, especially the multiparous. Incisional hernia is more common in patients who underwent the previous surgery on an emergency basis. Cough impulse was present in all the cases and the swelling reduced on lying supine. Seroma formation and surgical site infection were the common complications in the post-operative period. No recurrence was seen in the follow up of the patients.

### References

1. Williams NS, Bulstrode CJK, O'Connell PR. Baily and Love Short Practice of Surgery. 26th ed. Boca Raton, FL: CRC Press; 2013. p. 964.
2. Santora TA, Roslyn JJ. Incisional hernia. Surg Clin North Am. 1993;73(3):557-70.
3. Mudge M, Hughes IE. Incisional hernia: a 10 year prospective study of incidence and attitudes. Br J Surg. 1985;72(1):70-1.
4. Cruse PJM, Foord R. The epidemiology of wound infection: A 10- year prospective study of 62,939 wounds. Surg Clin North Am. 1980 ;60(1):27-40.
5. Bucknall TE, Cox PJ, Ellis H. Burst abdomen and incisional hernia: A prospective study of 1129 major laparotomies. British Medical Journal 1982;284:931-3.
6. Mudge M, Hughes LE. Incisional hernia: A 10 year prospective study of incidence and attitudes. Br J Surg 1985;72:70-1.
7. Ponka JL, Hernias of the abdominal wall. Philadelphia, PA: WB Saunders 1981.
8. Richards PC, Balch CM, Aldrete JS. Abdominal wound closure A randomized prospective study of 571 patients comparing continuous vs interrupted suture technique. Ann Surg 1983;197:238-43.
9. Carlson MA, Condon RE. Polyglyconate (maxon) versus nylon suture in midline abdominal incision closure: a prospective randomized trial. Ann Surg 1995;61:980-3.
10. George CD, Ellis H. The results of Incisional hernia repair. A twelve year review. Ann R Coll Surg Engl 1986;68:185-7.
11. Rucinski J, Margolis M, Panagopoulos G, Wise L. Closure of the abdominal midline fascia: meta-analysis delineates the optimal technique. The American surgeon. 2001 May;67(5):421-6.
12. Garg N, Batra P, Bali S. The clinical study of the incisional hernia and its management. Int Surg J. 2017;4(7):2281-7.
13. Prasad A, Saikrishna, Jehna A. Clinical study of Incisional Hernia. Am Med Sci Clin Res. 2016;4(4):10237-41.
14. Greenall MJ, Evans M, Pollock AV. Midline or transverse laparotomy? a random controlled clinical trial. Part 1: Influence on healing. Br J Surg. 1980;67:188-90.
15. Greenall MJ, Evans M, Pollock AV. Midline or transverse laparotomy? A random controlled clinical trial. Part 2: Influence on postoperative pulmonary complications. Br J Surg. 1980; 67:191-4.