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Research Article

Clinical Study on Incisional Hernias In Patients Attending Railway Hospital, Lallaguda, Secunderabad, South Central Railway

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ABSTRACT

Background: Incisional hernia is a common complication following abdominal surgery, resulting from weakness at the previous incision site. It contributes to significant morbidity and may complicate subsequent surgeries. Understanding the clinical profile, predisposing factors, and surgical outcomes is essential for effective management.

Objective: To evaluate the clinical characteristics, predisposing factors, and surgical outcomes of patients presenting with incisional hernia at Railway Hospital, Lallaguda, Secunderabad.

Materials and Methods: This hospital-based cross-sectional study included 80 patients aged ≥18 years presenting with incisional hernia between May 2023 and November 2024. Patients underwent detailed clinical evaluation, routine laboratory investigations, and imaging (ultrasound and CT abdomen for complex cases). Surgical management, including the type of repair and mesh positioning, along with postoperative complications, was recorded.

Results: The majority of patients were aged 51–60 years (32.5%) and female (71%). Most hernias developed following elective surgeries (70%), with hysterectomy (36.25%) and LSCS (18.75%) being the most common preceding procedures. Swelling was the most frequent presentation (47.5%). Primary healing of previous incisions was observed in 77.5% of cases. Mesh repair was performed in 86.25% of patients, with onlay placement being the most common (59.4%). Postoperative complications were minimal.

Conclusion: Incisional hernia is more common in older females and those with prior gynecological or obstetric surgeries. Mesh repair, particularly onlay and sublay techniques, provides favorable outcomes with low recurrence. Early recognition, risk factor management, and appropriate surgical technique are essential to minimize morbidity.

Keywords: *Incisional hernia, Mesh repair, Onlay, Sublay, Abdominal surgery, Postoperative complications.*

INTRODUCTION

Incisional hernia is defined as a hernia that develops through a previously made surgical incision in the abdominal wall, typically occurring at the site of fascial weakness following laparotomy [1]. It is one of the most common complications of abdominal surgery, with reported incidence ranging from 10% to 20% depending on the type of surgery, patient-related factors, and surgical technique employed [2,3].

Several risk factors have been identified for the development of incisional hernias, including patient-related factors such as advanced age, obesity, chronic cough, diabetes mellitus, and poor nutritional status, as well as surgery-related factors such as emergency surgery, wound infection, poor closure technique, and postoperative complications [4,5]. Women are reported to have a higher incidence due to a higher frequency of gynecological and obstetric abdominal surgeries [6].

Clinically, patients may present with an asymptomatic swelling, pain at the surgical site, or complications such as obstruction or strangulation. The diagnosis is primarily clinical, supported by imaging modalities like ultrasonography and computed tomography in complex or recurrent cases [7].

Surgical repair remains the definitive management of incisional hernias, with techniques including anatomical repair and various mesh-based approaches. Mesh repair, particularly with onlay, sublay, inlay, and intraperitoneal onlay mesh (IPOM) positioning, has shown lower recurrence rates compared to primary suture repair [8,9]. However, postoperative complications such as wound infection, seroma formation, and chronic pain remain concerns [10].

Understanding the epidemiology, risk factors, and management outcomes of incisional hernias in specific populations is crucial for improving surgical strategies and reducing morbidity. This study aims to evaluate the clinical profile, precipitating factors, and surgical outcomes of patients presenting with incisional hernias at the Railway Hospital, Lallaguda, Secunderabad, South Central Railways.

MATERIAL AND METHODS

Study Site

The study was conducted in the Department of General Surgery at Railway Hospital, Lallaguda, Secunderabad, South Central Railways.

Study Population

The study will include all patients aged 18 years or older presenting with an incisional hernia who are giving consent at Railway Hospital, Lallaguda General Surgery Department & Emergency.

Study Design

This is a hospital-based cross-sectional study designed to evaluate the clinical profile, precipitating factors, and management outcomes of incisional hernias.

Sample Size

Calculated using the below formula

N= 4pq/d^2 P–Prevalence q = 100-p
d = Absolute/Relative precision Calculating N=72 rounding off **N=80**

Study Duration

The study was conducted from 06.05.2023 to 06.11.2024(18 months)

Inclusion Criteria

- Patients aged more than 18years with incisional hernia.
- Both male and female patients.
- Patients are willing to provide informed consent.

Exclusion Criteria

- Patients who are not willing to provide informed consent.
- Recurrent Incisional Hernia
- Incisional hernia associated with another abdominal hernia.

Clinical Examination

A thorough general physical examination was conducted.
Detailed abdominal examination to assess the hernia site, size, reducibility, and complications (e.g., obstruction or strangulation).

Investigations

Routine laboratory investigations will include:
Complete blood count (CBC), blood sugar, liver and renal function tests, ECG, serum electrolytes, viral markers, clotting and bleeding time when planning for surgery.

Imaging studies:

Ultrasound of the abdomen and pelvis: To evaluate the contents of the hernial sac and any evidence of obstruction or complications, and CT whole abdomen in complex hernias. Chest X-ray when planning for surgery.

Management Plan
Based on clinical findings and imaging results, a management plan was formulated for each patient. Surgical interventions and outcomes were recorded as part of the study.

Outcome Measures
Incidence and clinical profile of incisional hernias. Common etiological and precipitating factors. Management approaches and outcomes, including recurrence and complications

RESULTS AND OBSERVATIONS

TABLE1– DISTRIBUTION OF PATIENTS ACCORDING TO AGE(N=80)

Age	No.of Cases	Percent
21-30years	5	6.25
31-40years	15	18.75
41-50years	18	22.5
51-60years	26	32.5
61and above	16	20
Total	80	100

TABLE2– DISTRIBUTION OF PATIENTS ACCORDING TO SEX(N=80)

Gender	**No. of Cases**	**Percent**
Male	18	29
Female	62	71
Total	80	100

TABLE 3: DISTRIBUTION OF THE PATIENTS BASED ON TYPE OF PREVIOUS SURGERY(N=80)

Emergency/ Elective	No.of Cases	Percent
Elective	56	70
Emergency	24	30
Total	80	100

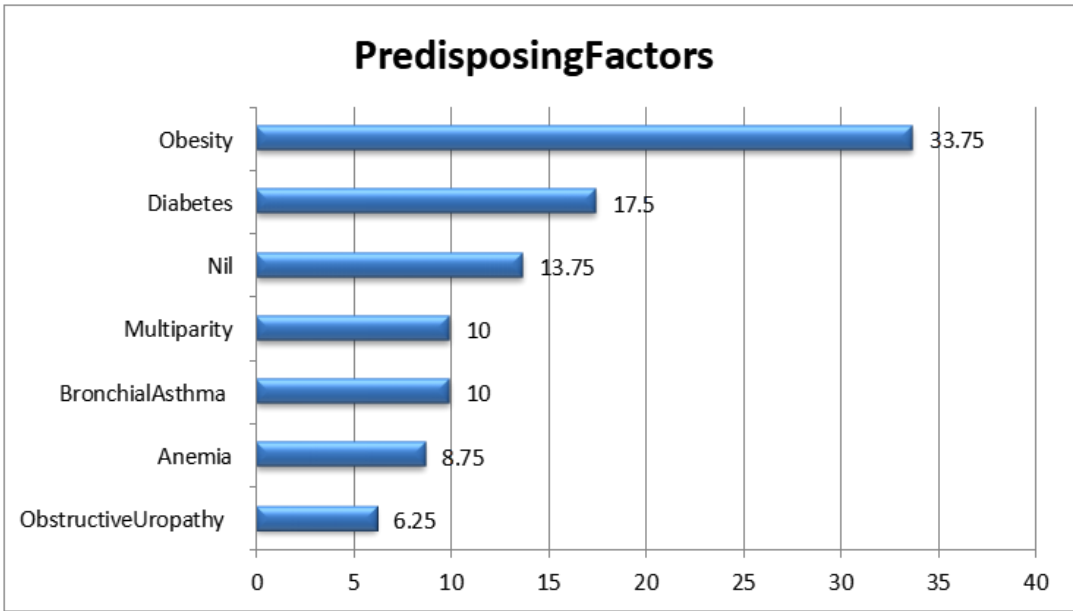


Figure 1 Distribution Of Patients According To Predisposing Factors(N=80

TABLE 4: DISTRIBUTION OF PATIENTS ACCORDING TO MODE OF PRESENTATION

Mode of presentation	No.of Cases	Percent
Swelling	38	47.5
Swelling and Pain	16	20
Pain	12	15
Nausea	6	7.5
Vomiting	4	5
Constipation	4	5
Total	80	100

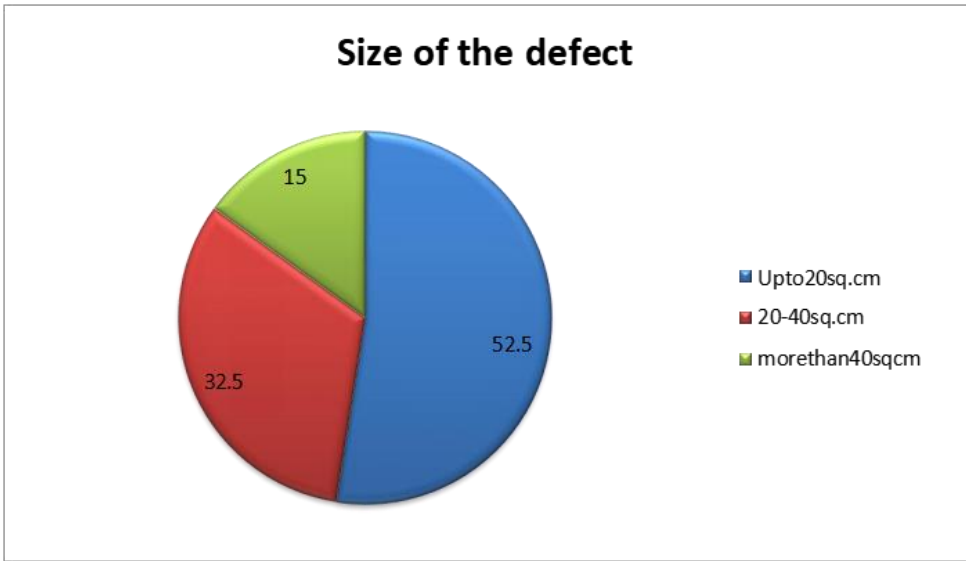


Figure 2 Distribution Of The Patients According To Size Of Defect(N=80)

TABLE; 5 –DISTRIBUTION OF PATIENTS ACCORDING TO PREVIOUS SURGERIES (N=80)

Previous Surgeries	No.of Cases	Percent
Hysterectomy(open)	29	36.25
LSCS	15	18.75
Tubectomy(open)	13	16.25
Open cholecystectomy	2	2.5
Laparoscopic cholecystectomy	3	3.75
Exploratory Laparotomy	10	12.5
Left nephrectomy	1	1.25
Appendectomy(open)	7	8.75
Total	80	100

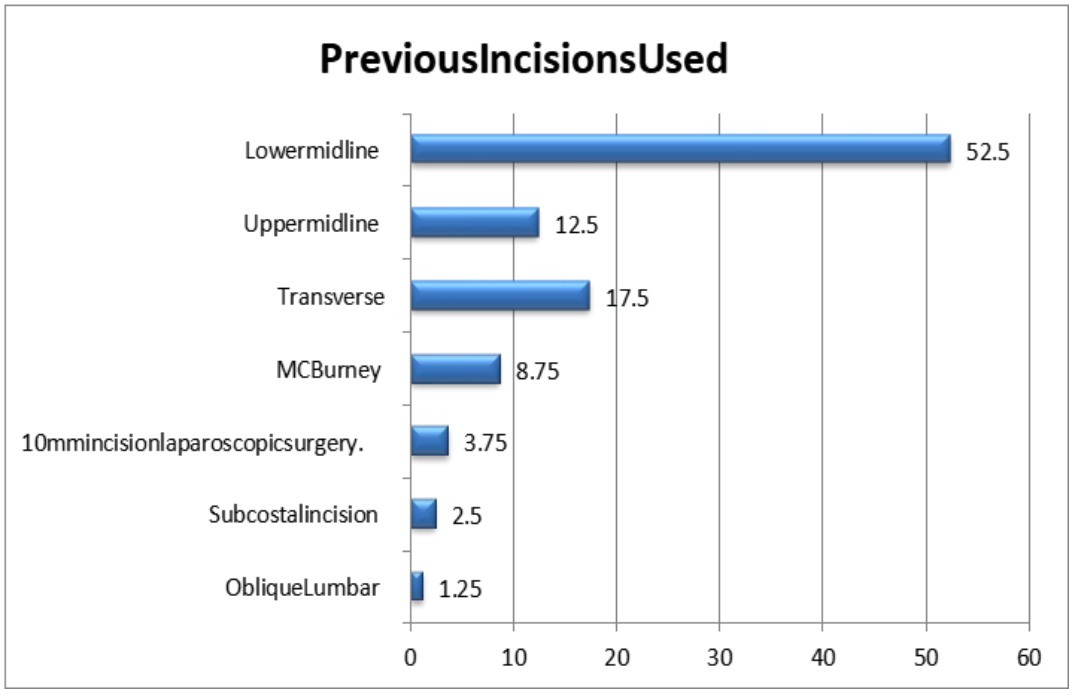


Figure3 Distribution Of Patients According To Previous IncisionsUsed(N=80)

TABLE; 6 -TYPE OF HEALING DISTRIBUTION OF PATIENTS IN PREVIOUS SURGERY (N=80)

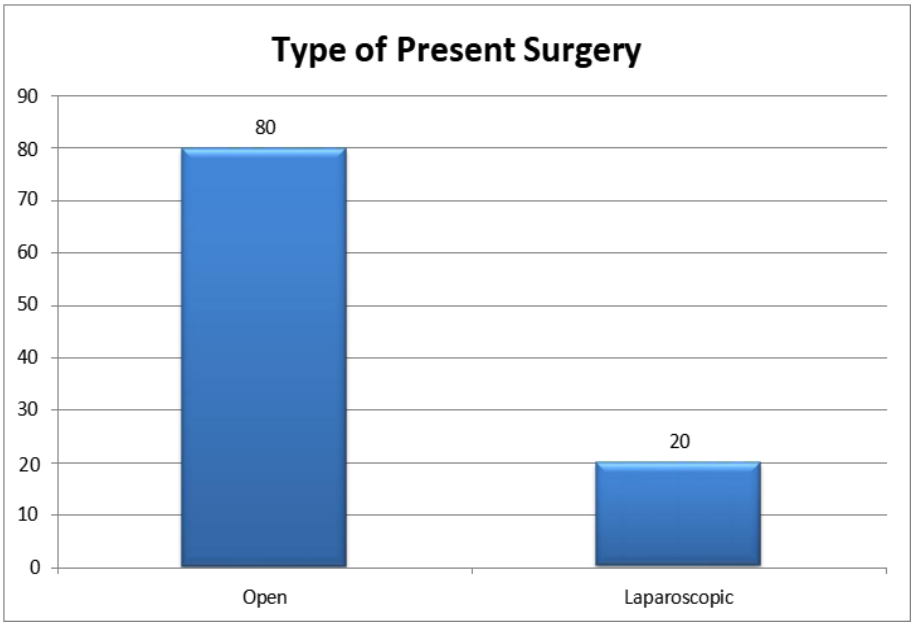
Type of Healing	No.of Cases	Percent
Primary	62	77.5
Secondary	18	22.5
Total	80	100.00

TABLE; 7 NO OF PREVIOUS ABDOMINALSURGERIES(N=80)

No.Ofpreviussurgery	No.of patient	Percent
One	52	65
Two	24	30
>Two	4	5
Total	80	100.00

TABLE 8 DISTRIBUTION OF PATIENTS ACCORDING TO TYPE OF REPAIR IN PRESENT SURGERY(N=80)

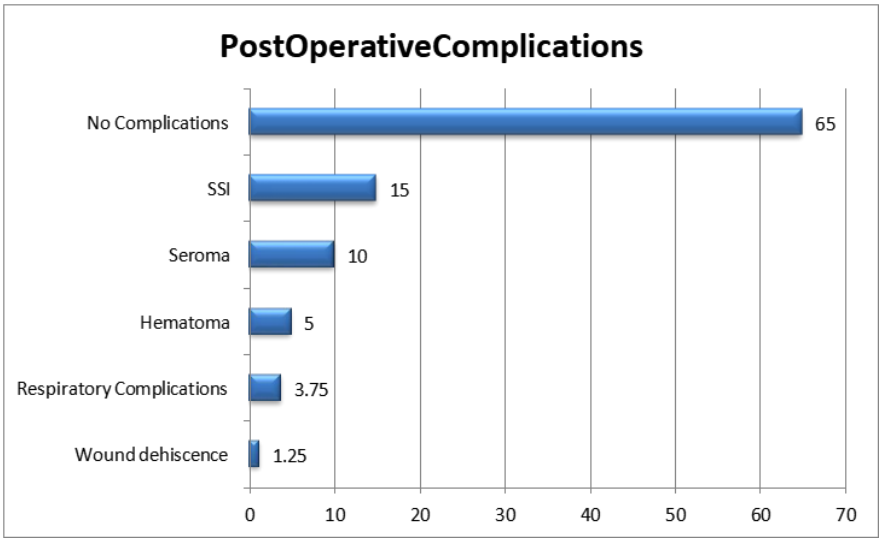
Type of Repair	No.of Cases	Percent
Anatomical Repair	11	13.75
Mesh Repair	69	86.25
Total	80	100.00



Figure; 4 Type Of Present Surgery(N=80)

TABLE; 9 TYPE OF MESH POSITIONING(N=80)

Type of MESH Positioning	**No. of Cases**	**Percent**
Onlay	41	59.4%
Sublay	12	15%
Inlay	2	2.89%
IPOM	14	20.2%
Total	69	100.00



Figure; 5 Post-Operative Complications In Present Surgery(N=80)

DISCUSSION

Incisional hernia is a frequent complication of abdominal surgery, arising due to weakness in the abdominal wall at the site of a previous incision. The incidence varies depending on patient factors, type of surgery, and wound healing, with reported rates ranging from 10–20% following laparotomy [1,2]. Understanding patient characteristics, surgical factors, and repair outcomes is essential to optimize management.

In the present study, the majority of patients were in the 51–60 years age group (32.5%), followed by 41–50 years (22.5%). This reflects the increased risk of hernia formation with advancing age, likely due to reduced collagen quality, impaired tissue healing, and comorbidities such as diabetes or chronic cough [3,4].

Females constituted 71% of the cohort, with males representing 29%. This is consistent with literature reporting higher incidence in women, attributed to a greater frequency of gynecological and obstetric surgeries, which were the most common previous procedures in this study. Hysterectomy (36.25%) and cesarean section (18.75%) were leading contributors, followed by tubectomy (16.25%) and laparotomy (12.5%). Emergency surgeries accounted for 30%, while elective surgeries comprised 70%, emphasizing that both urgent and planned surgeries can predispose to incisional hernia [5,6].

The study also highlighted the importance of wound healing. Primary healing was observed in 77.5% of patients, while 22.5% had secondary healing. Poor healing, along with multiple prior surgeries, increases the likelihood of hernia formation. Most patients had only one prior surgery (65%), but 30% had two, and 5% had more than two, confirming the cumulative risk associated with repeated abdominal operations [7,8].

Predisposing factors identified included wound infection, obesity, advanced age, and repeated surgeries. Swelling was the most common mode of presentation (47.5%), followed by swelling with pain (20%) and isolated pain (15%). Gastrointestinal symptoms such as nausea, vomiting, and constipation were less common, reflecting that most hernias were uncomplicated at presentation [9].

Surgical management predominantly involved mesh repair (86.25%), with anatomical repair performed in 13.75% of patients. Mesh placement was mostly onlay (59.4%), followed by intraperitoneal onlay mesh (IPOM) (20.2%), sublay (15%), and inlay (2.89%). The high proportion of mesh repairs reflects current best practices, as mesh significantly reduces recurrence compared to primary suture repair [10,11]. Anatomical repair was limited to small defects or cases where mesh was contraindicated.

Postoperative complications were observed in a small proportion of patients, consistent with the literature emphasizing that careful surgical technique and appropriate mesh positioning minimize morbidity. Onlay mesh, while technically easier, carries a slightly higher risk of seroma formation, whereas sublay placement is associated with lower recurrence [12,13].

This study reinforces known risk factors for incisional hernia, including female sex, age above 50 years, previous abdominal surgeries, poor wound healing, and emergency surgery. It also demonstrates the effectiveness of mesh repair as the standard surgical approach, with a preference for onlay or sublay placement based on defect characteristics and patient factors.

CONCLUSION

Incisional hernias are a common postoperative complication, particularly in patients above 50 years of age and in females, largely due to prior gynecological and obstetric surgeries. The risk is further increased by factors such as poor wound healing, multiple previous abdominal surgeries, and emergency procedures.

Clinical presentation is most often swelling at the surgical site, with pain and gastrointestinal symptoms being less common. Mesh repair, particularly onlay and sublay techniques, is the preferred surgical approach due to lower recurrence rates and favorable outcomes compared to anatomical repair.

Careful patient assessment, optimization of predisposing factors, and appropriate surgical technique are essential to minimize postoperative complications and recurrence. This study reinforces the importance of early recognition, risk factor management, and the use of mesh repair as the standard of care in incisional hernia management.

REFERENCES

1. Luijendijk RW, Hop WC, van den Tol MP, et al. A comparison of suture repair with mesh repair for incisional hernia. *N Engl J Med.* 2000;343:392–398.
2. Burger JW, Luijendijk RW, Hop WC, et al. Long-term follow-up of a randomized controlled trial of suture versus mesh repair of incisional hernia. *Ann Surg.* 2004;240:578–583.
3. Israelsson LA, Jonsson T. Factors affecting wound healing and the development of incisional hernia. *Eur J Surg.* 1996;162:175–179.
4. Flum DR, Horvath K, Koepsell T. Have outcomes of incisional hernia repair improved with time? *Ann Surg.* 2003;237:129–135.

5. Schumpelick V, Klinge U, Stumpf M, et al. Incisional hernia: review of the literature and personal experience. *Br J Surg*. 2000;87:1023–1033.
6. Awais O, LeBlanc K. Current trends in the repair of incisional hernia. *Surg Clin North Am.* 2008;88:87–100.
7. Holihan JL, et al. Mesh repair of ventral hernias: outcomes and complications. *Surg Clin North Am.* 2016;96:105–123.
8. Israelsson LA. Incisional hernia: a growing problem. *Surg Clin North Am.* 2003;83:1135–1146.
9. Burcharth J, et al. Clinical presentation and diagnosis of incisional hernia. *Hernia*. 2013;17:107–112.
10. Rosen MJ. Mesh-based techniques in abdominal wall reconstruction. *Surg Clin North Am.* 2013;93:119–132.
11. Luijendijk RW, et al. Mesh repair of incisional hernia: a critical review. *World J Surg*. 2001;25:450–456.
12. Rosen MJ. Surgical outcomes and complications of incisional hernia repair. *Clin Colon Rectal Surg*. 2015;28:1–8.
13. van Ramshorst GH, Eker HH, Hop WC, et al. Risk factors for recurrence after incisional hernia repair: a systematic review. *Surgery*. 2010;147:592–601.