

STUDY OF VARIOUS MODALITIES IN MANAGEMENT OF INCISION HERNIA REPAIR*Raghu Rachha¹, Pavithra Shanmugam², Ravi Vangari³, Sivateja Pandi⁴, Suresh Jaddi⁵*¹Associate Professor, Department of General Surgery, Osmania Medical College, Hyderabad.²Senior Resident, Department of General Surgery, Osmania Medical College, Hyderabad.³Assistant Professor, Department of General Surgery, Osmania Medical College, Hyderabad.⁴Junior Resident, Department of General Surgery, Osmania Medical College, Hyderabad.⁵Junior Resident, Department of General Surgery, Osmania Medical College, Hyderabad.**ABSTRACT****BACKGROUND**

Incisional hernias are a major problem following abdominal surgery and their repairs are among the common surgeries done by a general surgeon.¹ Besides the preoperative factors such as anaemia, BMI over 25 kg/m² and smoking which are leading causes contributing to the development of Incisional hernia, laparotomy performed through the abdominal incision doubles the risk of IH.² In addition, wound infection, increases the risk of IH formation by 1.9 times.³ If left unattended they may attain large size therefore cause discomfort and lead to the complications like Obstruction, Strangulation, Incarceration increasing the risk of morbidity and mortality.⁴ Treatment of IH involves further major surgery and the results may be poor, with the recurrence rates of up to 49% reported.⁵ A wide spectrum of surgical techniques have been developed and recommended ranging from sutured techniques to the various types of prosthetic mesh.

MATERIALS AND METHODS

30 patients were studied who presented to emergency department with incisional hernias during August 2014 – September 2016 at Gandhi Medical College and Hospital. All patients underwent definitive treatment.

RESULTS

From our study it is observed that

1. The maximum cases of incisional hernias presenting to the emergency surgical department were found to be in 51-60 years age group.
2. There was female preponderance.
3. Obstruction is the most common presenting symptom found in 60% of cases followed by irreducibility (33.3%) and strangulation (6.67%).
4. The onset of incisional hernias is more after 10 years following previous surgery.
5. Among 30 patients, bowel was viable in 18 patients (60%) and mesh repair was done in 13 patients. Bowel was gangrenous in 12 patients (40%) and anatomical repair was done in 17 patients.
6. Out of 30, women got infected in 11 patients (36.67%) wound dehiscence noted in 5 patients (16.67%).
7. The recurrence rate was 6.67% with 6 months follow up.

CONCLUSION

1. The mean age of presentation with IH is 55.4 years
2. Time lapse between previous surgery and presentation with acute symptoms is more than 10 years.
3. The risk of IH was more in midline vertical type of incision than transverse.
4. The incidence of wound infection, wound dehiscence is low in mesh repair than anatomical repair. PP Mesh can be used in presence of contamination in view of usage of higher antibiotics that prevented the mesh getting infected. Hence contaminated wound is not an absolute contraindication for mesh repair.
5. There were no recurrences in patients treated with mesh in a follow up evaluation of 6 months.

KEYWORDS

Pain Abdomen, Gangrene, Anatomical Repair, Mesh Repair, Wound Infection, Incisional Hernia.

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BACKGROUND

Incisional hernias are a major problem following abdominal surgery and their repairs are among the common surgeries done by a general surgeon.¹ Besides the preoperative factors such as anaemia, BMI over 25 kg/m² and smoking which are leading causes contributing to the development of Incisional hernia, laparotomy performed through the abdominal incision doubles the risk of IH.²

In addition, wound infection, increases the risk of IH formation by 1.9 times.³ If left unattended they may attain large size therefore cause discomfort and lead to the complications like Obstruction, Strangulation, Incarceration increasing the risk of morbidity and mortality.⁴

Treatment of IH involves further major surgery and the results may be poor, with the recurrence rates of up to 49% reported.⁵

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A wide spectrum of surgical techniques has been developed and recommended ranging from sutured techniques to the various types of prosthetic mesh.

With this back ground, the study was conducted in Gandhi Medical College and Hospital, Secunderabad in patients presenting with incisional hernia in Emergency Surgical Department where all the basic lab investigations, emergency X-ray and ultrasound facilities are available.

The use of synthetic mesh to reinforce a weakened abdominal wall or to repair especially large hernias has been a fairly recent development, mainly starting after World War II.

Prosthesis were developed to add strength and to avoid the excessive tension created when large defects are bridged together by approximating the patient's own tissues.

Currently, several especially synthetic meshes are used. They differ in strength, durability, absorbability, transparency, incorporation, tissue tolerance, porosity, flexibility, ease of handling, and tolerance in the presence of infection. With this background study was conducted in Gandhi Medical College and Hospital, Secunderabad in patients presenting with incisional hernia in surgical department.

Aims and Objectives

Aim of the Study

1. To study the different techniques of Incisional hernia repair done in emergency.
2. To study the outcomes of emergency repair of Incisional hernia with a follow up period of 6 months.

Objectives of the Study

1. To record the clinical presentation and evaluate the cases of Incisional hernia presenting as an emergency.
2. To study the different techniques of repair and management of Incisional hernia.
3. To monitor and record the postoperative progress of these patients.
4. To evaluate and record the outcomes (wound infection, wound dehiscence, recurrence) with a follow up period of 6 months.

Study the Design of the Topic

Prospective study

Sample Size

30

MATERIALS AND METHODS

30 patients were studied who presented to emergency surgical department with incisional hernias during August 2014 – September 2016 at Gandhi Medical College and Hospital. All patients underwent definitive treatment.

Inclusion Criteria

All the patients with incisional hernia presenting to emergency surgical department and operated were taken up for the study

Exclusion Criteria

- Patients with incisional hernia presenting to the surgical department for other abdominal emergency.
- Patients who expired in perioperative period due to other medical comorbidities.

Investigations

- a) Complete Blood Picture
- b) Renal Function Test
- c) Serum Electrolytes
- d) Random Blood Sugar
- e) X Ray erect abdomen
- f) Chest X Ray PA view
- g) Ultrasound abdomen

RESULTS

A total of 30 patients presenting with incisional hernia in emergency were included in the study with majority of patients being females (24) 80%.

Gender	No. of Patients	Percentage
Female	24	80%
Male	6	20%
Total	30	100%

Table 1. Gender Distribution in Present Study

Age Distribution

Majority of them were 50 years and above presenting with obstructed incisional hernia. Out of 30 patients, the mean age of presentation of incisional hernia in emergency is 55.4 years.

Duration Between Previous operation and Incisional hernia onset in years	No. of Patients	Percentage
<1 yr.	2	6.67%
1-2 yrs.	2	6.67%
2-5 yrs.	6	20.00%
5-10 yrs.	9	30.00%
>10 yrs.	11	36.67%
Total	30	100.00%

Table 2. Time Lapse between Previous Surgery and Presentation

Distribution of Cases Based on Type of Incision

Among 30 patients, midline vertical type of incision had been common incision in 25 patients presenting with incisional hernia (83.33 %) and rest of them with transverse type of incision (16.67 %).

In a systematic review conducted by Ammori J B et al, the risk of hernia was significantly more for midline incision compared with transverse incision. In the current study midline vertical incision was noted in 83.33% and the rest of them with transverse incision 16.67%.⁶

		Intraoperative Bowel	
		Viable	Gangrene
Duration of Symptoms	1 day	6	0
	2 days	10	4
	>2 days	2	8

Table 3. Comparison of Intraoperative Findings and Duration of Symptoms

Intraoperative Bowel Finding

In the current study, based on the viability of bowel and other intraoperative findings, repair of the defect is planned like mesh placement or anatomical repair. Among 30 patients, bowel was viable in 18 patients (60 %) and mesh repair done in 13 patients (43.33 %). Bowel was gangrenous in 12 patients (40%) and anatomical repair done in 17 patients (56.67 %)

Intraoperative Repair	No. of Patients	Percentage
Anatomical	17	56.67%
Mesh	13	43.33%
Total	30	100.00%

Table 4 Distribution of Cases based on Intraoperative Repair

Distribution of Cases Based on Postoperative Complications-

Out of 30 patients, wound got infected in 11 patients (36.67%) and wound dehiscence noted in 5 patients (16.67%) and wound dehiscence in 5 patients (16.67%).

Study	Year	Wound Infection
Vix et al	1997	10.6%
Birolini et al	2000	20 %
Geisler et al	2003	7%
Machiarias et al	2008	15.7%
Present study	2016	10 %

Table 5. Comparison of Wound Infection in MR Cases

Distribution of Patients with Recurrence at Follow Up-

Among 30 patients, recurrence was noted in 2 patients that is (6.67%) and has no association with inoperative bowel finding.

Recurrence at 6months Follow up	No. of Patients	Percentage
Yes Recurrence	2	6.67%
No Recurrence	28	93.33%
Total	30	100.00%

Table 6. Distribution of Cases Based on Recurrence at Follow Up

Study	year	MR	FU	Recurrence
Usher et al	2003	Pp	>1 year	10.3 %
Ponka et al	2005	Pp	1 year	3.2 %
Chevrel et al	2008	Pp	Not reported	9 %
Present study	2016	Pp	0.5 year	Nil

Table 7. Comparison of Recurrence in Mesh Repair Cases

In this study, polypropylene was used in emergency incisional hernia repair which is known to be potentially contaminated field, and found to have no recurrences in the follow up.

DISCUSSION

In the clinical practice there are still difficulties to find an appropriate indication for prosthetic implant in emergency hernia repair because of contaminated and potentially contaminated surgical fields.⁷

Many studies discuss and advocate the use of prosthetic mesh in clean surgical fields. However, the use of prosthetic grafts in potentially contaminated and contaminated settings is seldom described and their results are of limited value.

In 2000 Mandala et al published a series of patients with incisional hernias treated with nonabsorbable prostheses and associated visceral surgery. The low incidence of suppurative complications, with neither removal of the patch nor recurrences in the short term, showed that non-absorbable mesh repair in potentially contaminated fields was safe

A recent literature review by Coccolini et al covered the use of biological meshes for abdominal reconstruction in emergency and elective setting in transplanted patients reported complication rate 9.4%⁸.

The choice of the prosthesis depends on the site where it will be implanted, a reticular mesh (PP or Polyester) in prefascial and intra parietal sites (Chevrel and Rives procedure) a laminar (e PTFE) prosthesis intraperitoneally or a composite prosthesis since it avoids adhesions with viscera.

The technique of closure of incisional hernias has tended to develop as a practical, experiential matter. Several authors reported favourable results with mesh repair; but to date this technique has never been investigated in a proper randomised fashion.

Novel techniques to limit the amount of dissection, flap and resultant dead space creation are being investigated and should be analysed for associated outcomes.

Fox et al found an improvement to 6 % of wound complications from 27 % when comparing laparoscopic to open techniques.

Biological meshes can be further subdivided in two categories those totally remodelling that are completely substituted by a new created tissue and those partially remodelling that due to cross linking process do not disappear completely complicated IH Repair is still a surgery with poor prognosis and high morbidity. The introduction of such materials in clinical practice has provided a new perspective for abdominal wall repair in contaminated fields.

In literature, synthetic prosthesis have been shown to be superior in efficacy to simple suture as our own study. However, they cannot be used in area in which there is a potential for contamination.

CONCLUSION

In IH presenting as emergency, obstruction is commonest clinical presentation, strangulation is seen after 48 hours of duration of symptoms. The mean age of presentation with IH is 55.4 years. Time lapse between previous surgery and presentation with acute symptoms is more than 10 years. The risk of IH was more in midline vertical type of incision than transverse. The incidence of wound infection, wound dehiscence is low in mesh repair than anatomical repair. PP Mesh can be used in presence of contamination in view of usage of higher antibiotics that prevented the mesh getting infected. Hence contaminated wound is not an absolute contraindication for mesh repair. There were no recurrences in patients treated with mesh in a follow up evaluation of 6 months.

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