



STUDY OF SURGICAL MANAGEMENT OF INCISIONAL HERNIA

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ABSTRACT **Background:** The present study was conducted to study various aspects of incisional hernia in terms of aetiology, modes of presentation, treatment methods and complications.

Methods: Forty-eight patients of incisional hernia presenting to OPD/emergency during two years study period were enrolled. After proper selection; based on the size of defect, associated risk factors and comorbidities; patients were selected for open suture repair, open mesh repair or laparoscopic mesh repair.

Results: Wound infection following previous surgery was the commonest risk factor (22, 45.83%). Twenty-nine patients (60.41%) patients presented with defect size 5-10cm. Open suture repair & open mesh repair have almost similar complications but lower recurrence in open mesh repair. Laparoscopic mesh repair cases had comparatively lesser complications and no recurrence.

Conclusion: Laparoscopic mesh repair is recommended to be the procedure of choice in properly selected patients at centres with available facilities.

KEYWORDS : Incisional hernia, surgical management, repair

INTRODUCTION:

Incisional Hernia is a common (~10%) long term complication following abdominal surgery, with true incidence being probably higher since majority are asymptomatic.¹ Early incisional hernia repairs included primary fascia closures, however, recurrence rates ranged between 12-54%.¹ Usher et al² in 1958 introduced prosthetic materials in primary hernia repairs with good results. Use of prostheses reduced recurrences, but didn't eliminate them altogether. Despite convincing evidence for benefit of mesh for incisional hernia repairs, which open mesh repair provides lowest recurrence remains debatable.¹ LeBlanc et al³ were first to report laparoscopic repair of an incisional hernia. Since then laparoscopic repairs have become increasingly popular because of demonstrated decreased hospital stay, lower recurrence & complication rates.¹ Pailler et al⁴ defined postoperative incisional hernia by three essential criteria, based on perfect clinic-pathological knowledge of the abdominal wall site: thae site, dimensions and defect.

The present study was conducted to study various aspects of incisional hernia in terms of etiology, modes of presentation, treatment methods and complications.

METHODOLOGY:

Type of study- Hospital based observational study
Study setting- Department of Surgery, Government Medical College & Hospital, Nagpur
Study duration- Two years
Sample Size- 48 eligible patients (consecutive sampled)

Inclusion criteria-

- All patients with diagnosed clinically as incisional hernia, presented to OPD/emergency
- Willingness for consent

Exclusion criteria-

- Presence of major illness like active pulmonary tuberculosis, heart disease
- Conditions increasing intraabdominal pressure, like Benign Hypertrophy of Prostate, Ascites
- Patients with recurrent incisional hernias

Procedure-

A detailed enquiry was made regarding the history of previous operations, its nature, postoperative period, onset and progress of present hernia to find out any possible etiological factors for development of incisional hernia. After thorough general examination, local examination was done to estimate the size of abdominal wall defect in at-least two dimensions, reducibility and tone of abdominal

wall muscles. Preoperative investigations were done for associated factors like obesity, anaemia and diabetes etc. Based on the size of defect, associated risk factors and comorbidities, patients were selected for open suture repair, open mesh repair or laparoscopic mesh repair; as appropriate. All cases were followed up for two years for general condition, wound complications, and recurrence.

The study was initiated after approval from the Institutional Ethics Committee. The data were analysed using SPSS (Version 18).

RESULTS:

Out of 48 patients enrolled for the study, majority (21, 43.75%) belonged to 31-40 years age group, followed by 11 (22.92%) patients in 41-50 age group. Females (33) outnumbered males (15) by ratio of 2.2:1. 'Swelling alone' (52.08%) and 'swelling with pain (33.33%) were the most common presentations followed by less common acute intestinal obstruction (10.42%) and strangulation (4.17%).

Twenty six (54.17%) patients had undergone elective surgery and 22 (45.83%) had undergone emergency surgery previously, which lead to the present incisional hernia. In patients with repeated lower segment caesarean sections, factors related to last surgery were considered. Maximum (29, 60.41%) patients presented with defect size 5-10cm, 17 (35.42%) with defect size <5cm and 2 (4.17%) with defect size >10cm. The mean size of defect was 5.71+2.33 cm. Midline vertical abdominal incision was the commonest site of occurrence of incisional hernia (87.5%). Incidence of infra-umbilical midline incisional hernia was much higher (66.67%) than supra-umbilical midline incisional hernia (20.83%).

Incisional hernia was more common in females with previous history of obstetric & gynaecological operation (31, 64.58%), followed by exploratory laparotomy (11, 22.92%). Wound infection following previous surgery was the commonest associated risk factor (22, 45.83%). Other risk factors were anaemia, repeated surgery and obesity. (Table 1)

Table 1- Etiological factors responsible for development of risk factors

Factors Responsible	Number of patients	Percentage
Type of Previous Surgery		
Lower Segment Caesarean Section (LSCS)	21	43.75%
Tubectomy	06	12.50%
Hysterectomy	04	8.3%
Exploratory Laparotomy	11	22.92%

Appendectomy	03	6.25%
Nephrectomy	01	2.08%
Miscellaneous (Stab Injury)	02	4.17%
Associated Risk Factors		
Wound infection	22	45.83%
Anaemia	10	20.83%
Repeated Surgery	09	18.75%
Obesity	08	16.67%
Respiratory complications	05	10.42%
Diabetes Mellitus	03	6.25%
Smoking	03	6.25%
Wound dehiscence	02	4.17%
Malignancy	01	2.08%
No significant associated factor	08	16.67%

In the majority of patients (27, 56.25%), incisional hernia occurred within one year of previous operation. Wound infection as a risk factor was significantly associated with onset of hernias at or within one year ($p < 0.05$). Mean duration of onset was 32.10+44.93 months (range 3.240 months). Wound infection as a risk factor for incisional hernia was also significantly associated in patients operated on emergency basis previously ($p < 0.05$).

Out of 48 patients, 15 (31.25%) were treated with open suture repair, 21 (43.75%) with open mesh repair and 12 (25%) with laparoscopic mesh repair. The mean defect size was significantly less in open suture repair as compared with open and laparoscopic mesh repair ($p < 0.05$).

Postoperative complications of various methods of repair of incisional hernia is shown in **Table 2**.

Table 2- Postoperative complications of various methods of repair of incisional hernia

Complications	Open suture repair (n=15)	Open mesh repair (n=21)	Laparoscopic mesh repair (n=12)	Total
Wound Infection	3 (20%)	3 (14.28%)	0	6 (12.5%)
Wound dehiscence	1 (6.67%)	1 (4.76%)	0	2 (4.17%)
Seroma	2 (13.33%)	2 (9.52%)	3 (25%)	7 (14.58%)
Ileus	0	2 (9.52%)	1 (8.33%)	3 (6.25%)
Pain	0	1 (4.76%)	0	1 (2.08%)
Respiratory Complication	1 (6.67%)	0	0	1 (2.08%)
Fistula/sinus	0	1 (4.76%)	0	1 (2.08%)
Mesh removal	0	1 (4.76%)	0	1 (2.08%)
Death	0	0	0	0

Mean duration of hospital stay of the patients for open suture repair was 5.2 days, open mesh repair was 5.19 days and laparoscopic mesh repair was 2.16 days. The mean duration of hospital stay in laparoscopic mesh repair was significantly lesser. Recurrence rate after rate after open suture repair was higher (7.14%) as compared with open mesh repair (5%). There was no recurrence after laparoscopic mesh repair in the available follow-up. Out of 48 patients treated for incisional hernia by various methods, 44 (91.68%) patients were cured, 2 (4.16%) patients developed recurrence and 2 (4.16%) patients didn't come for follow-up. a

DISCUSSION:

In the present study, we studied 48 patients of incisional hernia for aetiology, modes of presentation, treatment methods and complications including recurrence at our tertiary care centre.

The recurrence rate with open suture repair was higher than open mesh repair within the mean follow-up of 15.33 and 15.57 months respectively. This difference in recurrence rates is in line with findings of various previous similar studies^{5,9}. The generally higher recurrence rates in these studies as compared to what was observed in present study can be explained by the longer follow-up in these studies and the fact that these studies were conducted much earlier when surgical

instruments/techniques were not that evolved.

In the present study, the recurrence rate with open mesh repair (5%) and there was no recurrence with laparoscopic mesh repair within the mean follow-up of 15.57 and 10.08 months respectively. This finding is comparable to those observed by Carbajo et al¹⁰, who reported recurrence rate of 7% in open mesh repair and no recurrence in laparoscopic mesh repair with mean follow-up of 27 months, and those observed by Lomanto et al¹¹, who reported recurrence rate of 10% and 2% in open mesh and laparoscopic mesh repair respectively. Generally higher recurrence rates were observed in previous similar studies, which is atleast partly explainable by longer period of follow-up.

At the end, few conclusions may be drawn. Although midline incision is easy and fast, one should be cautious with its use, because of the high incidence of incisional hernia. Hence it should be limited to emergency and exploratory surgery in which unlimited access to the entire abdominal cavity is necessary. Meticulous aseptic technique and careful closure of the abdominal wound is necessary to prevent incisional hernia. Proper selection of method of incisional hernia repair for treatment of individual patient is very important. Open suture and open mesh repair have similar complications, with recurrence rate being lower in open mesh repair. Laparoscopic incisional hernia mesh repair involves smaller incisions, no wide fascial dissection, less wound complications, minimal discomfort to the patient, shorter hospital stay and almost no chance of recurrence. Therefore, it is recommended to be the procedure of choice in properly selected patients at centres with available facilities.

DECLARATIONS:

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Conflict of interest: None

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