

CLINICAL STUDY AND MANAGEMENT OF INCISIONAL HERNIAS: OUR EXPERIENCE

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ABSTRACT: BACKGROUND: Incisional hernia, by definition represents a breakdown or loss of continuity of a fascial closure. Surgical management of incisional hernias has evolved over the last century. This study was performed to review clinical profile and management of incisional hernia in our institute. **AIMS AND OBJECTIVES:** To analyze the etiopathogenesis of incisional hernia with respect to patient variable factors, types of surgical intervention. **MATERIALS AND METHODS:** This a prospective study conducted at our institute between February 2009 and January 2011(24 months). 100 patients were included and followed up for immediate post-operative complications. **OBSERVATIONS AND RESULTS:** Incisional hernia was found to occur more often in 31-40yr age group, and mostly in females. Most commonly occurred following gynecological operations, lower abdominal incisions, post operative wound infection. Most patients noticed the incisional hernia only 1 to 5 years after the index surgery. Laparoscopic hernioplasty was the most commonly performed surgery. **CONCLUSION:** In Incisional hernias the choice of operative technique is crucial. Incisional hernias occur more often in females as they are more likely to undergo lower abdominal surgeries. Mesh repair is considered superior to anatomical repair alone and we recommend Laparoscopic Hernioplasty as the first line of treatment.

KEYWORDS: Incisional hernia, ventral hernia, post operative hernia, mesh repair, Laparoscopic Hernioplasty.

INTRODUCTION Incisional hernia is defined as any abdominal wall gap with or without a bulge in the area of a postoperative scar perceptible or palpable by clinical examination or imaging¹. Also, by definition, it represents a breakdown or loss of continuity of a fascial closure. Ian Aird defines incisional hernia as a diffuse extrusion of peritoneum and abdominal contents through a weak scar of an operation or accidental wound.

Incisional hernias occur as a result of excessive tension and inadequate healing of a previous incision, which is often associated with surgical site infection. These hernias enlarge over time, leading to pain, bowel obstruction, incarceration, and strangulation. Obesity, advanced age, malnutrition, ascites, pregnancy, and conditions that increase intra-abdominal pressure are factors that predispose to the development of an incisional hernia¹⁴.

Incisional hernia occurs in 5-11% of patients subjected to abdominal operations^{2,3}. More than 50% of incisional hernias present within first 2 years after primary operation^{4,5}.

For more than hundred years attempts have been made to develop successful methods for repairing incisional herniae from anatomical repair to laparoscopy, but most attempts were followed by high incidence of recurrence and complications. The number of techniques described for incisional hernia only shows that failure rates are not uncommon and hence the search for an ideal procedure. We analyse the various factors responsible for developing incisional hernia, and the most effective treatment modalities.

AIMS AND OBJECTIVES: To analyze the etiopathogenesis of incisional hernia with respect to patient variable factors and operative dependant variables, ascertain various modes of presentation and various therapeutic modalities.

MATERIAL AND METHODS: This is a prospective study done at our institute between February 2009 and January 2011(24 months). A total number of 100 cases were included in the study.

Inclusion Criteria: All patients with incisional hernias with history of previous surgery.

Exclusion Criteria: Patients with Chronic Cough, respiratory diseases and other debilitating medical illness.

Data collection included a detailed history and thorough clinical examination. Patients underwent routine blood and radiology (ultrasound, chest x-ray) investigations . Patients were followed up for immediate post-operative complications. Data was entered in the proforma, tabulated and analyzed for statistical significance using univariate and multivariate analysis.

RESULTS: 100 cases of incisional hernia admitted at our institute from Feb 2009 to Jan 2011 included in the study. Various parameters to analyse data included, age and sex incidence, mode and time of presentation, probable preoperative and post-operative factors involved, type of surgery, complications and follow up.

1. **Age and Sex distribution:** The age distribution of the 100 cases of incisional hernia ranged from 19years to 70years and had maximum number of patients in the 31-40yrs age group(48%), 82% patients were less than 50years of age. This study had 83female patients and 17 male patients, female to male ratio being 4.8:1.
2. **Mode of presentation:** Of 100 patients, 81 patients presented with history of dragging pain, and on examination was reducible. The others had complications ranging from irreducibility to strangulation (table 1).

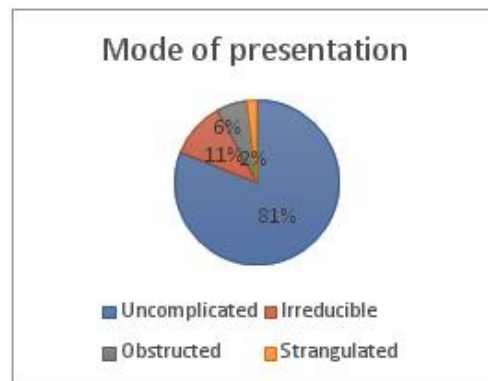


Table 1

3. **Time of Onset:** 25 patients had an early onset of herniation within 6 months following primary surgery, 42 cases between 1-5 years and 88% patients had herniation by the end of 5 years.(table 2)

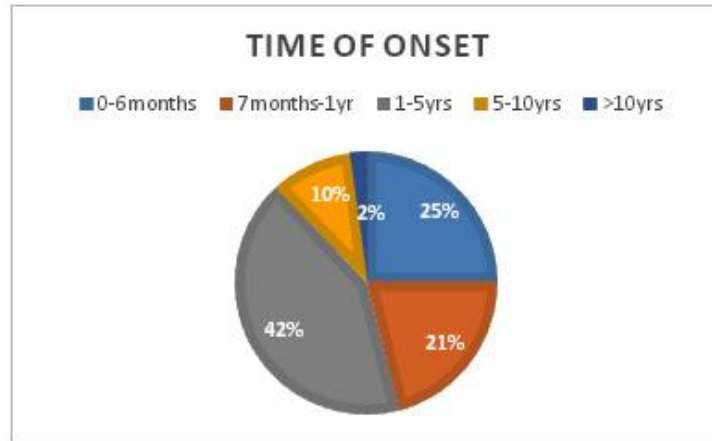


Table 2

4. **Pre and post-operative factors:** Out of 100 cases, 42 cases had known definite history of factors possibly leading to eventual herniation (table 3).

Sl No.	Factors involved	Number
1	Post-op wound infection	20
2	Post-op cough	12
3	Early return to work	9
4	Post-op straining	1
	Total	42

Table 3

5. **Incisions through which herniation occurred:** 59% patients had previous surgeries through lower abdominal incisions, 13 patients with upper midline incision, 15 patients with right paramedian incision, 5 with Mc Burneys, and 8 with left Paramedian incision(table 4).

Site of Incision in index surgery	Number
Lower abdominal incisions → Transverse	41
→ Vertical	18
Upper midline	13
Mc Burneys	5
Rt Paramedian	15
Left paramedian	8

Table 4

6. **Number of Surgeries:** Out of 100 patients, 79 patients had only one surgery as the index surgery, 18 patients had 2 surgeries and 3 patients had 3 previous surgeries. 9 Patients had undergone previous repair for incisional hernia, of which 2 had recurrence after repair.

7. **Surgeries through lower abdominal incision:** Lower abdominal incision was the commonest incision predisposing to incisional hernia. Out of 59 patients who had lower abdominal incisions during index surgery, 21 cases had undergone Caesarian section, 15 cases- Abdominal hysterectomy, 10cases- tubectomy, 4 patient had undergone laparotomy. Out of 9 cases which underwent recurrent incisional hernia repair, 5 occurred following Caesarian section, 3cases following tubectomy and 1 case after hysterectomy (table 5).

Surgeries through lower abdominal incision	Number
Caesarian section	21
Hysterectomy	15
Tubectomy	10
Recurrent incisional hernia repair	9
Laparotomy	4
Total	59

Table 5

8. **Size of Hernia Defect:** The hernia defect was measured preoperatively on ultrasound and the various sizes of defects are depicted in table 6. The size of the defect was less than 3 cm in 41% patients.

4 out of 6 patients who presented with obstructed hernia had a defect size of < 3 cm. 1 patient with strangulated hernia had a defect size of less than 3 cm.

Size of Defect	Number of Patients
<3	41
4-6	39
7-9	12
10-12	5
>12	3

Table 6

9. **Operative Procedures:** All 100 patients were operated, optimised after control of sugars in diabetics, and correction of anemia in 9 patients.
- Laparoscopic Hernioplasty was done in 49 cases (49%)
 - Preperitoneal Mesh Repair in 36 cases
 - Anatomical repair in 15 cases

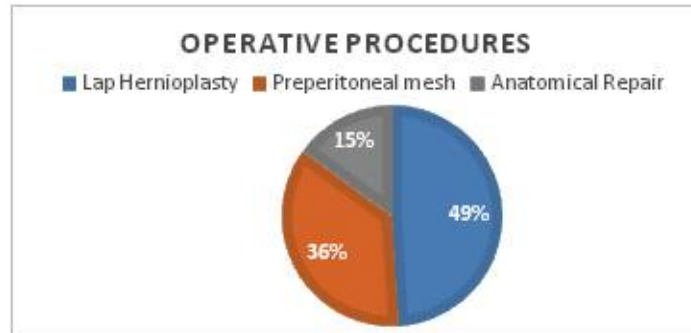


Table 7

10. Complications: No complications were noted in 46 cases who underwent Laparoscopic Hernioplasty. 10 Patients (10%) had wound infection ranging from mild to moderate degree, with seroma formation which resolved with regular dressings. Post operative cough was present in 6 cases, treated symptomatically.

11. Follow up and Recurrence: 82 cases were followed up for variable periods of time limited by the study period, ranging from 6 weeks to 1 year. No immediate recurrence was noted upto 6 months.

1 case who underwent Anatomical repair presented with recurrence 10 months after surgery. The recurrence rate in this series is 1% limited by the limited follow up period.

Mortality: There were no pre or post-operative deaths reported in our study.

12. Duration of Hospitalisation: The average duration of hospitalisation for cases which underwent Laparoscopic hernioplasty was 4.6 days (49 cases), 43 cases had an average duration of hospitalisation of 8.3 days, 8 cases who underwent Emergency surgery had an average duration of hospitalisation of 10.3 days.

13. Emergency surgeries: 6 cases with obstructed hernia and 2 cases with strangulated hernia underwent emergency exploratory laparotomy.

DISCUSSION: The incidence of incisional hernia is 2-11.5% following abdominal surgery.^{7,8,9} 100 cases were included in the study, 48% patients belonged to the age group of 31-40 years. Female to male ratio is 4.8:1, reason could be, laxity of abdominal muscles due to multiple pregnancies and increased number of lower abdominal incisions in females. Ellis et al reported an incidence of 64.6% female population in their study of 383 patients⁶.

Wound infection following the index surgery puts the patients at increased risk for incisional hernia¹⁵. Incidence is increased if patient developed wound infection/burst abdomen, chronic cough during post-operative period.

In our series, 20 patients had post-op wound infection after index surgery. Factors like post operative cough, post operative wound infection, early return to work increase intra-abdominal pressure following index surgery and are contributory to onset of herniation.

In our study, 42% cases presented with hernia 1-5 yrs after index surgery. 59% of our patients presented with lower abdominal incisional hernias, mainly gynaecological surgeries and

this was significant. This is comparatively higher with the results by Milbourn et al ¹², and Carlson et al ¹³. 41 patients had a defect size of less than 3cm.

The mesh repair is a simple and effective operation for incisional hernia. Ronald et al., in their study in 154 patients established the superiority of mesh repair over suture repair with regard to the recurrence of hernia^{10,49} cases underwent Laparoscopic Hernioplasty in our series. The average hospital stay was 4.6days in patients who patients undergoing laparoscopic procedure as compared to 8.3 days in Anatomical and Preperitoneal mesh repair.

Incisional hernia rates do not differ by type of incision and incision should be driven by surgeon's preference with respect to the patient's disease and anatomy.¹³

CONCLUSION: Incisional hernias occur more commonly in females post lower abdominal surgeries, and gynaecological surgeries. Mesh repair is considered superior to anatomical repair alone. We recommend Laparoscopic Hernioplasty as the first line of treatment for uncomplicated incisional hernias.

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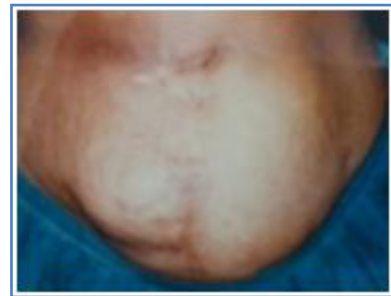
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Recurrent incisional hernia



Incisional hernia- Right Paramedian incision



Incisional hernia- Vertical infra-umbilical incision

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