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A study of various modes of presentation, management and post-operative outcome of complicated inguinal hernias in adults presenting in a tertiary care hospital

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Abstract
Objective:
Hernia is a common, simple and easily treatable condition, yet, if ignored can lead to life- threatening complications. Lack of health awareness, poverty, and paucity of surgical facilities result in neglecting the condition for a long period of time. The patient ultimately approaches the emergency department with devastating complications.
This study aims at illustrating the various modes of presentation, management and post-operative outcome in complicated inguinal hernias.
Methods:
The material for this study was collected from the patients of complicated inguinal hernia admitted in the Surgical Department of Narayan Medical College and Hospital, Sasaram, Bihar from January 2021 to December 2022.
Result:
The mean of age of sampled patients was 53.88 + 14.23 years, with increased incidence in males. Right sided, indirect inguinal hernia was frequently involved. Commonest postoperative complication was wound infection. Tension free repair Lichenstein's technique (Hernioplasty) was done in maximum cases.
Conclusions:
Mesh repair (hernioplasty) is acceptable and safe option for inguinal hernia repair in emergency setting. Early hospitalization and timely surgical intervention are associated with better outcome.
Keywords: *Inguinal hernia; Obstructed hernia; Strangulated hernia; Herniorrhaphy; Hernioplasty.*

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I. INTRODUCTION

Inguinal hernias are amongst the most common problem encountered by surgeons and may have significant complications. Despite the high incidence and a long history, the technical aspects of hernia repair continue to evolve. Since the first inguinal hernia repair performed in 1884 by Bassini, hernia repair has evolved in a great way and has now turned into a day care procedure.

Inguinal hernia repair is among the most frequent and widespread general surgery procedure performed.

The protrusion of viscus or part of viscus through an abnormal opening in the walls of its containing cavity is called Hernia.75% of all abdominal wall hernias are found in groin.95% groin hernias are inguinal hernias with remaining being femoral hernias. Inguinal hernias are nine times more common in males than female. Inguinal hernia if not treated well timed, presents with complications like, incarceration, strangulation and bowel obstruction.

Most of the patients with inguinal hernia are asymptomatic in initial phase or having minor discomforts, due to this some patients delay thesurgical consultation and present with complicated inguinal hernia.

Hernia is incarcerated (irreducible) when the contents cannot bereturned to its original compartment. Hernia is obstructed when the bowel loops present in hernia sac are obstructed. A strangulated herniais a life-threatening complication, were blood supply to herniating contents is compromised. The complication of hernias

(incarceration, strangulation, and bowel obstruction) is found more commonly at extremes of age1.Urgent surgical management is required in patients who presents with incarcerated hernia, incarceration predisposes to obstruction and strangulation and physical examination alone is not diagnostic. Late hospitalization and delayed intervention increase morbidity and mortality.

Inguinal hernia repair is one of the most common operations in general surgery., There are a lot of advancement in techniques of elective inguinal hernia surgery, but progress for management of complicated inguinal hernia fall behind.

The objective of this study was to know the age distribution, identify the pattern of presentation, and to evaluate the outcome of various types of surgical procedure done on complicated inguinal hernia and their post-operative complications.

II. Materials And Methods

This retrospective study was done in Department of General Surgery, NMCH Jamuhar, Sasaram, Bihar.62 adult male patients above 20 years of age, who underwent emergency surgery for complicated inguinal hernia, between Jan2021 to Dec 2022 were included in this study.

Inclusion Criteria:

All adult patients (>18years), admitted with complicated inguinal hernia i.e., irreducibility, obstruction and strangulation, during the time period of study were included in the study.

Exclusion Criteria:

Patients admitted with irreducible hernia that got reduced spontaneously were excluded from the study.

Clinical data, including demographic characteristics, clinical findings, surgical procedure details and post-operative complications were collected from medical records. Sutures were removed on the 7 or 8 day and were discharged. Patients were advised for follow- up and also advised against lifting heavy objects for 3months.

III. Result

Out of 62 patients in this study,53 (84.48%) cases had indirect inguinal hernia and 9 (14.51%) cases had direct inguinal hernia. The mean age of patients was 53.88+ 14.23 years (30 years was minimum age and 76 years was maximum age).70.96% cases presented with right sided hernia and 29.03%patients had hernia on left side. The commonest content of hernia sac was small bowel loops followed by omentum. The duration of symptoms ranges from 6-48 hours, represented in Table 1. Cases which presented after 48 to72 hours mostly had strangulated hernia and had more post-operative complications.

Table 1: Duration between the onset of symptoms and hospitalization

Duration	No. of cases	Percentage
Less than 1 day	29	46.77%
1-2 days	7	11.29%
2-3days	14	22.58%
>3days	12	12.90%

Table 2. shows commonest complication was incarceration (Irreducibility)which was present in 28 cases,22 cases had obstructed hernia and 12 cases had strangulated hernia.

Table 2: Type of complicated inguinal hernia and surgical repair done.

Type of hernia	Total No. of patients(n=62)	Type of surgery	No. of patients
Irreducible	28	Hernioplasty	45
Obstructed	22	Omentectomy +Herniorrhaphy	5
Strangulated	12	Bowel Resection, end to end anastomosis +herniorrhaphy	12

The surgical procedure, tension free mesh repair (Lichenstein 's technique) hernioplasty was done in maximum cases 72.58%, this was done in patients with early presentation and with viable hernia sac content. Herniorrhaphy (Bassini's repair) was done in 17 cases (27.41%), and this was done in cases with non-viable hernia sac contents. Excision of omentum with herniorrhaphy was done in 5 cases (8.06%). Bowel resection and anastomosis along with tissue repair, herniorrhaphy were performed in 12 cases (19.35%) with strangulated inguinal hernia, these were the cases with longer duration of symptoms and delayed hospitalization (Table 2).

Table 3: Postoperative complications and outcome

Complications	Tension free mesh repair	Herniorrhaphy
Hematoma formation		2
Seroma formation	-	1
Wound infection	2	3
Paralytic ileus	-	4
Neuralgia	1	-
Mortality	-	4

Table 3 shows that wound infection was seen in 5 cases managed conservatively, no mesh related infection encountered. Paralytic ileus was there in 4 cases and one patient had chronic pain. Mortality occurred in 6.45% cases of complicated inguinal hernia patients and this were the cases with delayed presentation to hospital and in this cases contents of hernia sac were non-viable.

In our study it was observed that tension free mesh repair (hernioplasty)was a safe procedure for complicated inguinal hernia patients with viable hernia sac content.

IV. Discussion

A retrospective study of 62 cases of complicated inguinal hernia was conducted at Department of Surgery, NMCH Jamuhar, Sasaram, Bihar, between Jan2021 to Dec 2022.The outcome of the study correlated well with the existing clinical trials. In our study the mean age is 53.88 years. In study done by Prakash JS et al on-groin hernias presenting as surgical emergency, the incidence was highest in the age groups between 60-69 years 2, whereas in the present study the incidence was highest in 56-65 years age group which correlates with the findings of a study on obstructed hernia by Padmasree G3. Similar studies conducted by Pollock et al and Andrew et al on the outcomes of complicated hernias reported that the mean age of patients with complicated hernias was 55 yrs and 65 yrs 4,5 respectively, the findings were consistent with the present study. [4,5]

In our study all patients were male, there was a male preponderance, no single female patient was treated for complicated inguinal hernia during the study period, the findings are consistent with studies of 3,6 Padmasree G, Tatar et al.[6]

The present study reported the incidence of right sided hernias to be about 70.29% and left sided hernias to be about 29.03%, the findings which had correlation with the studies of Prakash Jet al (right 80% and left 20%) study on groin hernia presenting as surgical emergency. Kulah et al (right versus left: 33,50% vs 17,40%) study conducted 2,7 on incarcerated inguinal hernias.[7]

In our study 72.58% of cases were treated by tension free mesh repair (Lichenstein Technique, hernioplasty) and in 27.41%cases Bassini's repair herniorrhaphy was done, where as 47.16% of cases in Padmasree G study were treated by hernioplasty and in 28.30% cases Bassini's repair was done, whereas 75% of cases in Hariprasad et al' s study was treated by herniorrhaphy and no mesh repair was done[8]. In our study mesh repair was not done in cases with non-viable contents of hernia sac to avoid risk of bacterial translocation and wound infection ,where as in study done by Tatar et al and Junji et al mesh was used in cases with strangulated hernia without mesh related complications[6,9.] According to study of S.S.Bessa et al the use of mesh in repair of incarcerated and strangulated hernia is acceptable, and presence of non-viable intestine cannot be regarded as contraindication for prosthetic repair[10].Delayed hospitalization with history of longer duration of irreducibility resulted in gangrenous intestine and needed bowel resection in 12patients in this study, the results of which were comparable with the Eze et al, study on obstructed inguinal hernias.[11]Postoperative complications are proportional to the duration of complication of inguinal hernia.

The commonest content in hernia sac was small bowel followed by omentum the findings are consistent with study of Amos et al and 12,13 Goyal et al .[12,13]

The outcome of this study show that it is not unthoughtful to correct a complicated inguinal hernia with prosthetic material mesh in emergency setting. Atila et al and Derici H et al found the same low incidence of wound infections in acute hernia repair with the use of prosthetic mesh in their studies on acute incarcerated hernias.[14,15] This also shows similarity with other studies involving the use of 16 prosthetic mesh in complicated hernias. [16]

V. Conclusion

Tension free mesh repair (hernioplasty)is safe, associated with minimal post-operative complication and having better outcome in complicated inguinal hernia patients with early hospitalization and timely surgical intervention. Proper selection of procedure is important for a patient.

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