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Clinical Profile and Surgical Outcomes in Patients with Inguinal Hernia: A Prospective Study.

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ABSTRACT

Inguinal hernia is one of the most common surgical conditions encountered in general surgery, particularly amongst adult males. Surgical repair remains the definitive treatment, and outcome depends on patient profile, hernia type, and surgical approach. To evaluate the clinical profile and surgical outcomes in patients with inguinal hernia undergoing operative management at a tertiary care center. This prospective observational study was conducted over one year and included 48 patients diagnosed with inguinal hernia. Detailed clinical evaluation and routine investigations were performed. Patients underwent either open Lichtenstein mesh hernioplasty or laparoscopic repair (TAPP/TEP) based on suitability. Intraoperative findings, postoperative complications, hospital stay, and recovery time were recorded. Data were analyzed using descriptive and inferential statistics, with $p < 0.05$ considered significant. Most patients were males (91.7%), with the highest incidence in the 31–50 years age group. Right-sided (62.5%) and indirect (66.7%) hernias were predominant. Open repair was performed in 75% of patients. Postoperative complications were minimal, with wound infection (8.3%) and seroma (6.3%) being most common. The mean hospital stay was 3.6 days, and recurrence was observed in 2.1% of cases. Inguinal hernia predominantly affects middle-aged males. Mesh-based open repair remains a safe and effective treatment with low complication and recurrence rates.

Keywords: Inguinal hernia, Mesh repair, Surgical outcome

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INTRODUCTION

Inguinal hernia is one of the most common surgical conditions encountered worldwide, representing a significant proportion of general surgical procedures. It occurs due to protrusion of abdominal contents through a weak point in the lower abdominal wall, predominantly in the inguinal region. The condition is more prevalent in males than females, with risk factors including chronic cough, constipation, heavy weight lifting, obesity, and advanced age. Clinically, patients may present with a groin swelling, discomfort, or complications such as irreducibility, obstruction, or strangulation, which may necessitate emergency intervention [1, 2].

The management of inguinal hernia has evolved remarkably, with surgical repair remaining the definitive treatment. Various techniques—ranging from conventional open hernioplasty (Lichtenstein tension-free repair) to laparoscopic approaches—aim to achieve durable repair, minimize recurrence, and enhance postoperative recovery. Surgical outcomes are influenced by factors such as patient age, hernia type (direct or indirect), duration of symptoms, comorbidities, and type of procedure performed [3-5].

This prospective study aims to evaluate the clinical profile and surgical outcomes of patients with inguinal hernia, focusing on demographic distribution, clinical presentation, intraoperative findings, postoperative complications, and recurrence rates. The findings will help identify key determinants of successful outcomes and guide optimization of hernia management strategies in a tertiary care setting.

STUDY METHODOLOGY

This prospective observational study was conducted in the Department of General Surgery at a tertiary care hospital over a period of one year. A total of 48 patients diagnosed with inguinal hernia and admitted for surgical management were included in the study. Ethical clearance was obtained from the institutional ethics committee before commencing the study. Written informed consent was obtained from all participants after explaining the nature and purpose of the study in their local language.

Patients presenting with primary or recurrent inguinal hernia, aged above 18 years, and willing to undergo surgery were included. Patients with complicated hernias requiring bowel resection, those unfit for anesthesia, and patients with recurrent hernia following mesh repair at another institute were excluded. A detailed history was recorded, and a thorough clinical examination was performed for all cases, focusing on duration of symptoms, side of hernia, reducibility, and presence of complications such as obstruction or strangulation.

Routine preoperative investigations, including complete blood count, blood sugar, renal function tests, chest X-ray, and ECG and USG Abdomen for prostate and post void residue were carried out. All patients were operated on under spinal or general anesthesia depending on the case and surgeon's preference. Surgical procedures included open hernioplasty (Lichtenstein tension-free mesh repair) or laparoscopic repair based on indication and patient suitability. Intraoperative findings such as type of hernia, sac contents, and complications were documented.

Postoperatively, patients were monitored for pain, wound infection, hematoma, seroma, urinary retention, and recurrence during follow-up. The duration of hospital stay and return to routine activity were also recorded. Data were entered into Microsoft Excel and analyzed using descriptive and inferential statistics. Results were presented as percentages, means, and standard deviations, and associations between clinical and surgical variables were analyzed using chi-square and t-tests, with p-value <0.05 considered statistically significant.

RESULTS

Table 1: Demographic and Clinical Profile of Patients with Inguinal Hernia (n = 48)

Parameter	Category	Number of Patients	Percentage (%)
Age Group (years)	18-30	6	12.5
	31-50	18	37.5
	51-70	16	33.3
	>70	8	16.7
Gender	Male	44	91.7
	Female	4	8.3
Side of Hernia	Right	30	62.5
	Left	12	25.0
	Bilateral	6	12.5
Type of Hernia	Indirect	32	66.7
	Direct	16	33.3
Duration of Symptoms	<6 months	18	37.5
	6-12 months	20	41.7
	>12 months	10	20.8

Table 2: Surgical Approach and Intraoperative Findings

Parameter	Category	Number of Patients	Percentage (%)
Type of Surgery	Open (Lichtenstein Mesh Repair)	36	75.0
	Laparoscopic Repair (TAPP/TEP)	12	25.0
Type of Anesthesia	Spinal	30	62.5
	General	18	37.5
Intraoperative Findings	Reducible Hernia	38	79.2
	Irreducible Hernia	6	12.5
	Strangulated Hernia	4	8.3
Average Duration of Surgery (minutes)	<60	20	41.7
	60-90	22	45.8
	>90	6	12.5

Table 3: Postoperative Complications and Surgical Outcomes

Postoperative Parameter	Category	Number of Patients	Percentage (%)
Pain (VAS Score on Day 1)	Mild (1-3)	10	20.8
	Moderate (4-6)	28	58.3
	Severe (7-10)	10	20.8
Complications	Wound Infection	4	8.3
	Seroma	3	6.3
	Hematoma	2	4.2
	Urinary Retention	3	6.3
	Recurrence (at 6-month follow-up)	1	2.1
Mean Hospital Stay (days)	2-4	32	66.7
	5-7	12	25.0
	>7	4	8.3
Return to Routine Activities (days)	<10	26	54.2
	10-14	14	29.2
	>14	8	16.6

DISCUSSION

Inguinal hernia remains one of the most frequently encountered surgical conditions worldwide, with a high incidence among adult males. In the present prospective study of 48 patients, the clinical profile and surgical outcomes of inguinal hernia were evaluated over a period of one year. The findings provide valuable insight into demographic patterns, surgical preferences, postoperative recovery, and complication rates, reflecting current trends in hernia management in a tertiary care setup [6, 7].

In the present study, the majority of patients were males (91.7%), which aligns with the well-documented male predominance in inguinal hernia due to inherent anatomical factors such as the presence of the spermatic cord and a relatively wider inguinal canal. Similar male preponderance was noted in studies by Kulkarni et al. (2018) and Reddy et al. (2020), where male incidence ranged between 88–95%. The peak age group affected was between 31 and 50 years, accounting for 37.5% of cases, indicating that hernia occurrence is highest in the active working population. Factors such as physical exertion, occupational strain, and connective tissue weakness contribute to the development of hernia in this group [8].

Right-sided hernias (62.5%) were more common than left-sided (25%) or bilateral (12.5%) hernias, which is consistent with previous reports suggesting that delayed descent of the right testis and late closure of the processus vaginalis predispose the right side to herniation. Indirect hernia (66.7%) was found to be the predominant type compared to direct hernia (33.3%), which correlates with findings from Prakash et al. (2019), emphasizing that indirect hernias are more common in younger and middle-aged adults, while direct hernias predominate in elderly patients due to acquired posterior wall weakness [9-11].

In the present series, most patients (75%) underwent open Lichtenstein mesh hernioplasty, while 25% underwent laparoscopic repair (TAPP/TEP). The preference for open repair was primarily due to cost-effectiveness, shorter learning curve, and availability in rural and semi-urban centers. Laparoscopic repair was associated with shorter postoperative pain duration and earlier return to normal activity, in accordance with the outcomes reported by Bittner et al. (2019), who observed faster convalescence and lower chronic pain rates following minimally invasive techniques. The average operative time for most cases ranged between 60 and 90 minutes, which is comparable with international literature on uncomplicated hernia repairs.

Postoperative complications were minimal in this study. The most common were wound infection (8.3%), seroma (6.3%), and urinary retention (6.3%). These results were comparable to those of Shah et al. (2017), who reported an overall complication rate of 10%. The recurrence rate in this study was only 2.1% after six months, which demonstrates the efficacy of mesh-based repair techniques. The mean hospital stay was 3.6 days, with 66.7% of patients discharged within 2–4 days, highlighting the effectiveness and safety of modern hernia repair methods. Most patients resumed routine activities within 10–14 days, consistent with other prospective analyses in similar populations.

In summary, this study confirms that inguinal hernia occurs predominantly in middle-aged males, with indirect and right-sided types being the most frequent. The open Lichtenstein technique remains a safe, effective, and economical procedure, though laparoscopic repair offers faster recovery and reduced postoperative pain. Careful patient selection and adherence to standard surgical principles can minimize complications and recurrence, ensuring favorable outcomes in inguinal hernia management.

CONCLUSION

Inguinal hernia predominantly affects middle-aged males. Mesh-based open repair remains a safe and effective treatment with low complication and recurrence rates.

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