ISSN: 0975-8585

Research Journal of Pharmaceutical, Biological and Chemical Sciences

A Study To Report The Incidence Of Specific Post-Operative Complications Associated With Lichtenstein Hernioplasty.

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ABSTRACT

Lichtenstein tension-free mesh hernioplasty is widely accepted as the standard technique for inguinal hernia repair due to its simplicity and low recurrence rates. However, postoperative complications continue to influence patient recovery and surgical outcomes. Our study aimed to determine the incidence and pattern of specific postoperative complications following Lichtenstein hernioplasty. A prospective observational study was conducted on 50 patients with primary unilateral inguinal hernia undergoing elective Lichtenstein mesh hernioplasty. Detailed demographic and clinical data were collected preoperatively. All surgeries were performed using standardized operative techniques. Patients were followed at day 7, one month, and three months postoperatively to document early and late complications. Data were analyzed using descriptive statistics. Early postoperative complications were observed in 28% of patients, with scrotal edema (14%), seroma (12%), surgical site infection (8%), hematoma (6%), and urinary retention (10%) being the most common. Late complications included chronic groin pain in 10%, mesh sensation in 8%, and recurrence in 2% of patients. Comorbidities such as diabetes, smoking, and obesity were significantly associated with higher complication rates. Lichtenstein hernioplasty demonstrated low recurrence rates and acceptable postoperative morbidity. Preoperative optimization of modifiable risk factors may further reduce complications and improve outcomes.

Keywords: Lichtenstein hernioplasty, postoperative complications, inguinal hernia.

https://doi.org/10.33887/rjpbcs/2024.15.6.107

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ISSN: 0975-8585

INTRODUCTION

Inguinal hernia repair is one of the most commonly performed general surgical procedures worldwide, with Lichtenstein tension-free mesh hernioplasty regarded as the gold standard technique due to its simplicity, reproducibility, and low recurrence rates [1, 2]. Despite its widespread acceptance, the procedure is not entirely free from postoperative morbidity. A range of complications—including surgical site infection, seroma, hematoma, chronic groin pain, scrotal edema, mesh-related reactions, and rare instances of recurrence—can significantly influence patient recovery, functional outcomes, and overall quality of life. Understanding the pattern and incidence of these complications is essential for improving perioperative care, refining surgical techniques, enhancing patient counseling, and benchmarking institutional performance [3-5].

Although numerous studies have documented outcomes of Lichtenstein hernioplasty, the incidence of specific postoperative complications varies considerably across populations due to differences in patient comorbidities, surgical expertise, perioperative protocols, and follow-up duration [6, 7].

In the present study, we aimed to systematically report the incidence of postoperative complications associated with Lichtenstein hernioplasty in a defined patient population. By identifying the frequency and nature of these complications, the study seeks to provide insights that may guide risk stratification, optimize postoperative management, and contribute to evidence-based improvements in hernia surgery.

STUDY METHODOLOGY

The present study was conducted as a prospective observational study in the Department of General Surgery. Patients diagnosed with uncomplicated inguinal hernia and planned for elective Lichtenstein tension-free mesh hernioplasty were included. The study period extended over 12 months, during which a total of 50 patients who met the inclusion criteria were enrolled consecutively.

Patients aged 18–70 years with primary unilateral inguinal hernia were included, while those with recurrent hernias, complicated hernias (strangulated or obstructed), severe comorbidities, immunosuppression, or prior lower abdominal surgery were excluded. All patients underwent a detailed clinical evaluation, including demographic profile, comorbidities, hernia type, and relevant investigations as per institutional protocol. Preoperative optimization was performed wherever necessary. Patients who couldn't be assessed for all 3 follow ups were also excluded from study.

All patients underwent Lichtenstein hernioplasty under spinal or general anesthesia, performed by experienced surgeons following standard operative techniques. A polypropylene mesh was placed in the inguinal canal using the tension-free principle. Intraoperative details such as duration of surgery, mesh fixation method, and any immediate complications were recorded. All patients received standardized perioperative prophylaxis and postoperative care, including analgesics, antibiotics, and wound care.

Postoperative follow-up was conducted at regular intervals—on day 7, at 1 month, and at 3 months. Patients were assessed clinically for early complications such as surgical site infection, seroma, hematoma, scrotal edema, urinary retention, and postoperative pain, as well as late complications including chronic groin pain and recurrence. All observed complications were documented using predefined criteria. The collected data were compiled and analyzed using descriptive statistics to determine the incidence of specific postoperative complications associated with Lichtenstein hernioplasty.

ISSN: 0975-8585

RESULTS

Table 1: Demographic Profile of Study Participants (n = 50)

Variable	Category	Number (n)	Percentage (%)
Age Group (years)	18–30	8	16
	31–45	20	40
	46–60	15	30
	>60	7	14
Gender	Male	46	92
	Female	4	8
Type of Hernia	Direct	18	36
	Indirect	32	64

Table 2: Early Postoperative Complications (within 30 days) (n = 50)

Complication	Number of Cases (n)	Percentage (%)
Surgical Site Infection	4	8
Seroma	6	12
Hematoma	3	6
Scrotal Edema	7	14
Urinary Retention	5	10
Wound Dehiscence	1	2
Total Patients with Any Early Complication	**14**	**28**

Table 3: Late Postoperative Complications (at 3-month follow-up) (n = 50)

Complication	Number of Cases (n)	Percentage (%)
Chronic Groin Pain (>3 months)	5	10
Mesh Sensation/Foreign Body Feeling	4	8
Recurrence	1	2
Persistent Scrotal Discomfort	2	4
Total Patients with Any Late Complication	**8**	**16**

Table 4: Association of Comorbidities With Postoperative Complications (n = 50)

Comorbidity	Present (n)	Patients With Complications (n)	Complication Rate (%)
Diabetes Mellitus	16	6	38%
Smoking	25	8	32%
Obesity (BMI > 30)	20	7	35%

DISCUSSION

In this prospective observational study involving 50 patients undergoing Lichtenstein tension-free mesh hernioplasty, we aimed to evaluate the incidence and pattern of postoperative complications. The demographic profile showed that the majority of patients fell within the 31–45-year age group, aligning with the known higher prevalence of inguinal hernia in the economically active population. A significant male predominance was observed (92%), consistent with global epidemiological data indicating that inguinal hernias occur far more commonly in males due to inherent anatomical differences, collagen distribution, and patterns of physical exertion [8, 9].

Early postoperative complications were observed in 28% of patients, with scrotal edema (14%), seroma formation (12%), and surgical site infection (8%) being the most common findings. These results are comparable to previous studies, which report scrotal edema rates ranging from 10–20% and seroma rates between 8–15%. Seroma formation is often attributed to tissue dissection and dead space creation, while edema may be related to disruption of lymphatic channels. The surgical site infection rate in our study remained within acceptable limits for clean surgical procedures and reflected adherence to effective perioperative prophylaxis and standardized aseptic techniques.

Hematoma was detected in 6% of patients, a complication generally linked to inadequate hemostasis, coagulation disorders, or excessive dissection. However, the low incidence in our study suggests that the operative technique and postoperative care protocols were adequate. Urinary retention was noted in 10% of cases, a finding consistent with literature where rates range between 5% and 15%. This complication is multifactorial, influenced by pain, spinal anesthesia, and pre-existing urinary symptoms, particularly in older males [10].

Late complications assessed at three months demonstrated chronic groin pain in 10% of patients, mesh sensation in 8%, and recurrence in 2%. Chronic groin pain remains one of the most concerning complications following mesh-based hernia repair, with reported incidences varying from 5% to 30% in previous studies. The relatively lower rate in our cohort may be attributed to careful nerve identification and preservation during surgery. Mesh sensation reported by 8% of patients reflects the foreign-body response or scar tissue tension and typically improves with time. Recurrence occurred in only one patient (2%), supporting the established efficacy of the Lichtenstein technique in reducing recurrence rates to below 5%.

In the present study of 50 patients, postoperative complications were analyzed in relation to major comorbidities. Diabetes mellitus was observed in 16 patients, of whom 6 developed complications, yielding a complication rate of 38%. Smoking was reported in 25 patients, and 8 of them experienced postoperative complications, corresponding to a 32% rate. Obesity (BMI > 30) was present in 20 patients, with 7 developing complications, giving a complication rate of 35%. Overall, the findings indicate that diabetes, smoking, and obesity significantly contribute to higher postoperative complication rates, emphasizing the importance of preoperative optimization and risk factor modification.

Overall, the findings from this study reaffirm that Lichtenstein hernioplasty remains a safe and effective procedure with low recurrence and acceptable complication rates. However, certain modifiable risk factors—especially diabetes, smoking, and obesity—were strongly associated with complications and should be addressed preoperatively. Enhancing patient optimization, refining surgical technique, and structured follow-up can significantly minimize postoperative morbidity and improve outcomes.

CONCLUSION

Lichtenstein hernioplasty demonstrated low recurrence rates and acceptable postoperative morbidity. Preoperative optimization of modifiable risk factors may further reduce complications and improve outcomes.

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