

A CLINICAL STUDY OF LICHTENSTEIN'S TENSION - FREE PROLENE MESH HERNIOPLASTY IN CASES OF INGUINAL HERNIA

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Abstract

Background: Inguinal hernia is a common surgical issue with a recurrence rate of 0.5%-10%. Lichtenstein hernioplasty is the most frequently performed procedure for inguinal hernia repair. The current investigation aimed to examine the postoperative problems associated with various forms of inguinal hernias following Lichtenstein hernioplasty. **Material & Methods:** This prospective study included 213 patients who underwent general surgery at the Department of General Surgery, Tirunelveli Medical College and Hospital between December 2017 and June 2019. A detailed clinical examination was performed and recorded. Patients were assessed, and Lichtenstein's tension-free Prolene mesh hernioplasty was performed in all patients in an elective setting. The patients were observed for intraoperative complications during surgery and early postoperative complications during the postoperative period. **Results:** The mean age of the subjects was 50.1±16.6 years with a range of 13-85 years. The most common hernia was the indirect type, followed by the direct and pantaloon types. There was no statistical significance on the side of the presentation, as the right and left sides were presented nearly equally. Occupation is the most common predisposing factor. Of the 213 patients, 209 underwent surgery with Lichtenstein's repair and were observed for intraoperative and early postoperative complications. The most common early complication was early postoperative pain, followed by urinary retention, UTI, and orchitis. The incidence of early postoperative complications was 9.5%. **Conclusion:** The study results showed that Lichtenstein hernioplasty is a reliable and safe treatment for repairing inguinal hernias.

INTRODUCTION

Inguinal hernia is a common surgical problem affecting the general population, and the recurrence rate is reported to be 0.5%-10%. Surgery for inguinal hernia repair has evolved over centuries. The prolene mesh tension-free repair, introduced by Irwing Lichtenstein, caused a dramatic drop in the recurrence rate and became the procedure of choice. A profound understanding of the functional anatomy and pathophysiology of the abdominal wall and the inguinal canal has helped me reach this end. More than 500,000 hernias are diagnosed annually in India, making hernia repair one of the most common operations performed by a general surgeon. Despite the frequency of the procedure, no surgeon has ideal results and complications such as postoperative

pain, nerve injury, surgical site infection, and recurrence remain. The modern era in hernia repair demands that surgeons be proficient in analysing the outcomes of their surgeries. Using statistics, he is expected to know exactly his complications, infection, and recurrence rates while using various modalities. Thus, he can judge his operative skills in an unbiased manner.^[1-4]

Thus, the present study estimated the distribution of various etiological factors of inguinal hernia, including chronic respiratory illness, pulmonary tuberculosis, benign prostatic hyperplasia, and manual heavy labour. Additionally, we estimated the case distribution based on age, sex, type of hernia (direct, indirect, or pantaloon) and the distribution of early postoperative complications

such as urinary retention, urinary tract infection, orchitis, surgical site infection, neuralgia, and pain.

MATERIALS AND METHODS

This prospective clinical study with 213 participants was conducted at the General Surgery units in the Department of General Surgery, Tirunelveli Medical College and Hospital from December 2017 to June 2019.

Inclusion Criteria

We included all patients with uncomplicated inguinal hernias of both sexes over 12 years.

Exclusion Criteria

Participants unwilling to undergo surgery, follow-up, or emergency surgical procedures for inguinal hernia were excluded from the study.

Data collection and blood investigations

Ethical committee approval and informed written consent were obtained from each participant. Patient age, sex, occupation, and number of contacts were recorded. Additionally, a detailed clinical examination was performed and recorded. We performed basic blood investigations for anaesthesia assessment and ultrasonography of the inguinal region. Patients were assessed, and Lichtenstein's tension-free Prolene mesh hernioplasty was performed in all patients in an elective setting. The posterior wall was repaired in patients with a direct hernia and mesh placement. The patients were observed for intraoperative complications during surgery and early postoperative complications during the postoperative period. The patients were discharged and reviewed after a week to check for postoperative wound status and suture removal.

Follow-up: After three months, patients were asked to come for follow-up through phone calls. When the patients came for follow-up, a thorough physical examination was performed, and a history was elicited regarding the development of any late postoperative complications.

Statistical Analysis

Continuous variables were described and analysed in terms of averages and interpreted using the Student's independent t-test. Categorical variables are described as percentages and interpreted using the χ^2 (Chi-square) test. Statistical analysis was performed using the IBM SPSS statistics -20. P

values less than or equal to 0.05 ($p \leq 0.05$) were considered statistically significant.

RESULTS

Description of total subjects according to age and sex

A total of 213 patients had inguinal hernias. The mean age of the males was 50.3 ± 16.5 years, and that of the females was 46.2 ± 18.5 years. The mean age of the subjects was 50.1 ± 16.6 years, with a range of 13-85 years. The difference in age between sexes was not statistically significant ($p > 0.05$). [Table 1]

Distribution of hernia types

The most common hernia was the indirect type, with 130 of 213 cases presenting as indirect inguinal hernia, followed by the direct type in 79 patients. However, we observed only four patients with the pantaloon type. There was no statistical significance on the side of the presentation, as the right and left sides were presented nearly equally. [Table 2]

Predisposing Factors

The most common predisposing factor was occupation, with nearly 41 patients (19.24%) working as manual labourers with a history of heavy weight-lifting. Other etiological factors observed were diabetes mellitus (19 cases), Strain/Difficulty in Micturition (12 cases), chronic bronchitis (10 cases), and pulmonary tuberculosis (9 cases). [Table 3]

Early and late postoperative complications

Of the 213 patients, 209 underwent surgery with Lichtenstein's repair and were observed for intraoperative and early postoperative complications. There were no intraoperative or lethal complications during the surgery.

The most common early complication observed was early postoperative pain in 11 patients (5.3%), followed by urinary retention in six patients (2.8%), UTI in two patients (0.9%), and orchitis in one patient (0.45%). There were no cases of infection. The incidence of early postoperative complications was 9.5%. Most patients were discharged on postoperative days three and five. One hundred thirteen patients (54%) and 75 patients (36%) were discharged on the fifth postoperative day. Only 21 patients (10%) were discharged within three days. [Table 4]

Table 1: Age and gender-wise classification of total subjects

Age group (Years)	Males	Females	Total
<20	11 (5.4%)	1 (11.1%)	12 (5.6%)
20-29	15 (7.4%)	1 (11.1%)	16 (7.5%)
30-39	26 (12.7%)	1 (11.1%)	27 (12.7%)
40-49	40 (19.5%)	1 (11.1%)	41 (19.2%)
50-59	41 (20.1%)	4 (44.4%)	45 (21.1%)
60-69	47 (23%)	0	47 (22.1%)
70-79	19 (9.3%)	1 (11.1%)	20 (9.4%)
80-89	5 (2.5%)	0	5 (3.3%)
Total	204 (100)	9 (100%)	213 (100%)
Mean \pm SD	50.3 \pm 16.5	46.2 \pm 18.5	50.1 \pm 16.6
Significance	p=0.475		Range=13-85 years

Table 2: Distribution of types of hernia

Type	Percentage	Right	Left	Bilateral	Total
Direct	79 (37%)	16	24	39	79
Indirect	130 (61%)	53	43	34	130
Pantaloon	4 (2%)	3	1	-	4
Total	213 (100%)	72	68	73	213

Table 3: Predisposing Factors

Predisposing Factor	Percentage
Diabetes Mellitus	19 (8.9%)
Known PTB	9 (4.22%)
COPD/Chronic Bronchitis	10 (4.6%)
Heavy Physical Work	41 (19.24%)
Straining/Difficulty in Micturition	12 (5.6%)
None	122 (57.2%)

Table 4: Early and late postoperative complications

Complications	Number (Percentage)
Intraoperative complications	0
Early Postoperative complications	20 (9.5%)
Urinary retention	6 (2.8%)
Urinary tract infection	2 (0.9%)
Orchitis	1 (0.45%)
Surgical site infection	0
Neuralgia, pain	11 (5.26%)
Life-threatening complication	0
Late postoperative complications	
Seroma	4 (2.32%)
Orchitis	0
Infection	1 (0.5%)
Chronic pain	11 (6.4%)
Recurrence	0
Hospital Stay	
3 days	21 (10%)
3-5 days	113 (54%)
>5 days	75 (35.9%)

DISCUSSION

In the present study, the most common age group was 40–70, and the maximum incidence was 50–60. The study showed a similar distribution of hernia cases compared with previous studies by Singh et al. The highest number of cases presented were males aged > 45 years. In our study, the maximum age group was between 40 and 70 years (63.4%), and the highest incidence was 60–69 (22.1%) cases. Similar results were seen in a study by Delving et al., but the most common age group was >70 years, with 32% presenting in that age group.^[5-7]

The most common hernia was the indirect type, followed by the direct and pantaloon types. This is consistent with previous data, in which the percentage of indirect hernias presented was 63%, and Direct and pantaloon hernias followed this.^[8,9] There was no statistical significance on the side of the presentation, as the right and left sides were presented nearly equally on both sides. The most common predisposing factor was occupation, with nearly 19.2% of the patients working as manual labourers with a history of heavy weight lifting. Other etiological factors observed were diabetes mellitus, Straining/Difficulty in Micturition, COPD or Chronic Bronchitis, and pulmonary tuberculosis. The most common early complication was early postoperative pain, followed by urinary retention, UTI, and orchitis. There were no cases of infection,

and the incidence of early postoperative complications was 9.5%. The incidences of early and late postoperative complications were compared with those of a previous study by Neumayer et al. and were found to be lower. Early postoperative complications (9.5%) and late postoperative complications (9.55%) are lower than Neumayer et al., which had 19.4% and 17.4%, respectively.^[10] The incidence of UTI (0.9%), urinary retention (2.8%) and pain (5.26%) are higher than that noted by Neumayer et al., which had UTI (0.4%), urinary retention (2.2%), and pain (3.6%) respectively.^[10]

CONCLUSION

The study showed a similar demographic distribution of cases compared to previous studies. There was no right or left preponderance, as the right, left, and bilateral hernia incidences were nearly equal. The incidence of all early and late postoperative complications was lower than that reported in the previous studies. The incidence of UTI was higher than that reported in other studies, and this can be effectively prevented by adhering to strict asepsis during catheterisation. The incidence of early postoperative pain in this study was higher than that reported in previous studies. Better postoperative analgesic use can effectively reduce this risk. The other early and late postoperative complications were similar to those reported in

previous studies. No cases of recurrence have been reported. The study showed that Lichtenstein hernioplasty is a reliable and safe treatment for repairing inguinal hernias.

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