



## COMPARATIVE STUDY BETWEEN MODIFIED BASSINI'S REPAIR AND LICHTENSTEIN MESH REPAIR IN INGUINAL HERNIA

### General Surgery

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### ABSTRACT

**Background:** Inguinal hernia is a common surgical condition. While mesh-based repairs are widely accepted, tissue-based techniques such as Modified Bassini's repair are still practiced. **Aim:** To compare Lichtenstein's tension-free mesh repair with Modified Bassini's herniorrhaphy in patients with primary unilateral inguinal hernia. **Materials And Methods:** This prospective comparative study was conducted from March 2023 to February 2025 in a tertiary care hospital. Fifty adult patients with primary unilateral uncomplicated inguinal hernia were divided into two groups: Group A underwent Lichtenstein mesh repair and Group B underwent Modified Bassini's repair. Postoperative pain, complications, hospital stay, and recurrence were evaluated over three months. **Results:** The Lichtenstein group had lower postoperative pain, fewer complications, and shorter hospital stay. One recurrence occurred in the Modified Bassini group, with none in the Lichtenstein group. **Conclusion:** Lichtenstein tension-free mesh repair provides superior postoperative outcomes and remains a safe and effective technique for primary unilateral inguinal hernia.

### KEYWORDS

Inguinal hernia, Lichtenstein tension-free mesh repair, Modified Bassini's herniorrhaphy, Postoperative outcomes, Hernia recurrence

### INTRODUCTION

Inguinal hernia is one of the most common surgical conditions encountered in general practice, accounting for nearly three-quarters of all abdominal wall hernias. It predominantly affects males and often presents as a groin swelling associated with discomfort or pain. Surgical repair remains the definitive treatment, as untreated hernias may progress to complications such as incarceration and strangulation, leading to significant morbidity.

Over the years, various surgical techniques have been developed for inguinal hernia repair. Tissue-based anatomical repairs formed the basis of early surgical management, with Bassini's repair being a landmark contribution. Modified Bassini's herniorrhaphy reinforces the posterior wall of the inguinal canal by approximating the conjoint tendon to the inguinal ligament. This technique continues to be practiced, particularly in patients with good tissue quality and in situations where the use of prosthetic material is contraindicated or unavailable.

However, tissue-based repairs are inherently associated with tension at the suture line, which may result in increased postoperative pain, delayed recovery, and higher recurrence rates. To address these limitations, tension-free mesh repairs were introduced. The Lichtenstein tension-free mesh repair has gained widespread acceptance and is currently regarded as the gold standard for open inguinal hernia repair. By placing a synthetic mesh over the posterior wall of the inguinal canal, the repair minimizes tension, reduces recurrence, and allows for early ambulation and faster return to daily activities.

Despite its advantages, mesh repair is not devoid of complications. Postoperative seroma formation, chronic groin pain, and the risk of mesh-related infection remain concerns. Additionally, in resource-limited settings, factors such as cost, availability of mesh, and surgeon preference influence the choice of surgical technique. Consequently, both mesh and non-mesh repairs continue to be performed in routine clinical practice.

In this context, the present study was undertaken to prospectively compare Lichtenstein tension-free mesh repair with Modified Bassini's herniorrhaphy in patients with primary unilateral inguinal hernia, focusing on postoperative pain, complications, duration of hospital stay, and short-term recurrence.

### MATERIALS AND METHODS

This hospital-based prospective comparative study was conducted in the Department of General Surgery, Jaipur National University

Institute of Medical Sciences and Research Centre, Jaipur, Rajasthan, from March 2023 to February 2025. A total of 50 adult patients with primary unilateral uncomplicated inguinal hernia were included after obtaining informed written consent. Patients aged 18 years and above were enrolled, while those with recurrent, bilateral, congenital or complicated hernias, associated femoral hernia, bowel obstruction or strangulation, pregnant women, patients on anticoagulant therapy, those with bleeding disorders, and patients medically unfit for surgery were excluded.

The enrolled patients were divided into two groups of 25 each by an alternate serial method. Group A underwent Lichtenstein tension-free mesh hernioplasty, and Group B underwent Modified Bassini's herniorrhaphy. All procedures were performed under spinal anaesthesia using standard operative techniques. Preoperative evaluation included detailed clinical examination and routine laboratory investigations required for surgical fitness.

Postoperative outcomes assessed included pain, seroma formation, wound infection, duration of hospital stay, and recurrence. Patients were followed up clinically for a period of three months after surgery. Appropriate statistical tests were applied, and a p-value of less than 0.05 was considered statistically significant. The study protocol was approved by the Institutional Ethics Committee, and confidentiality of patient data was maintained throughout the study.

### RESULTS

A total of 50 patients with primary unilateral inguinal hernia were included in the study and were equally divided into two groups. Group A comprised 25 patients who underwent Lichtenstein tension-free mesh hernioplasty, while Group B included 25 patients who underwent Modified Bassini's herniorrhaphy. All patients completed the study and were available for follow-up.

All patients in both groups were male. The age of the patients ranged from 18 to 70 years. The majority of patients in both groups belonged to the 31–50 year age group. There was no statistically significant difference in age distribution between the two groups, indicating that both groups were comparable with respect to baseline demographic characteristics.

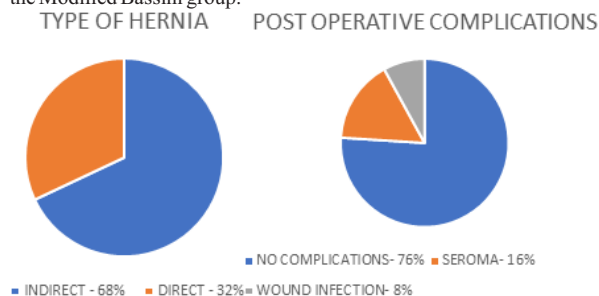
With respect to the side of hernia, right-sided inguinal hernia was more common than left-sided hernia in both groups. Indirect inguinal hernia constituted the majority of cases, followed by direct inguinal hernia. The distribution of type and side of hernia was comparable between the two groups, with no statistically significant difference.

Postoperative pain was observed in both groups; however, patients in

the Lichtenstein repair group experienced lower intensity of postoperative pain compared to those in the Modified Bassini group. The difference in postoperative pain between the two groups was statistically significant.

Postoperative complications such as seroma formation and wound infection were more frequently observed in the Modified Bassini group compared to the Lichtenstein group. The duration of hospital stay was shorter in patients who underwent Lichtenstein repair than in those who underwent Modified Bassini's repair, and this difference was statistically significant.

During the three-month follow-up period, no recurrence was observed in the Lichtenstein group, whereas one case of recurrence was noted in the Modified Bassini group.



## DISCUSSION

Inguinal hernia repair is one of the most commonly performed procedures in general surgery, and the choice of surgical technique continues to evolve. This prospective comparative study evaluated the outcomes of Lichtenstein tension-free mesh repair and Modified Bassini's herniorrhaphy in patients with primary unilateral inguinal hernia, with emphasis on postoperative pain, complications, hospital stay, and short-term recurrence.

In the present study, all patients were male, reflecting the known male predominance of inguinal hernia. Baseline demographic characteristics were comparable between the two groups, allowing a fair comparison of surgical outcomes. Right-sided and indirect inguinal hernias were more common, findings consistent with previous studies.

Postoperative pain was significantly lower in the Lichtenstein group compared to the Modified Bassini group. This can be attributed to the tension-free nature of mesh repair, whereas tissue approximation in Modified Bassini's repair leads to increased tension at the repair site. Similar findings have been reported in other comparative studies demonstrating reduced pain and faster recovery following mesh repair. Postoperative complications such as seroma formation and wound infection were more frequent in the Modified Bassini group. Increased tissue handling and suture line tension in tissue-based repairs may contribute to higher complication rates. Patients undergoing Lichtenstein repair also had a shorter duration of hospital stay, likely due to reduced pain and earlier mobilization.

Recurrence is a key indicator of the success of hernia repair. In this study, no recurrence was observed in the Lichtenstein group during the three-month follow-up, whereas one recurrence occurred in the Modified Bassini group. Although the follow-up period was short, this finding supports existing evidence favoring mesh repair for lower recurrence rates.

Modified Bassini's repair may still be considered in selected cases where mesh use is contraindicated or unavailable. Limitations of this study include a small sample size, short follow-up duration, and single-center design. Larger studies with longer follow-up are required to confirm these findings.

Overall, Lichtenstein tension-free mesh repair demonstrated superior short-term outcomes compared to Modified Bassini's herniorrhaphy in the management of primary unilateral inguinal hernia.

## CONCLUSION

Lichtenstein tension-free mesh repair demonstrates superior short-term outcomes compared to Modified Bassini's herniorrhaphy in the management of primary unilateral inguinal hernia. It is associated with reduced postoperative pain, fewer complications, shorter hospital stay,

and a lower early recurrence rate. Owing to its simplicity, safety, and effectiveness, Lichtenstein repair remains the preferred technique for routine open inguinal hernia repair.

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