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Research Article

Outcomes of Modified Bassini's Repair and Lichtenstein's Repair in Indirect Inguinal Hernia: A Comparative Study

Dr. Shoukatulla Shaik Mohammed[1], Dr. Satish Kumar Raju S[2]
[1]Associate Professor, Department of Gen. Surgery, Ayaan Institute of Medical Sciences, Teaching Hospital & Research Centre.
[2]Assistant Professor, Department of Gen. Surgery, Ayaan Institute of Medical Sciences, Teaching Hospital & Research Centre

*Corresponding Author
Dr. Satish Kumar Raju S

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Abstract **Introduction**: Inguinal hernia repair is one of the most commonly performed surgical procedures worldwide. The choice of surgical technique remains a topic of debate, with Modified Bassini's repair and Lichtenstein's repair being two widely used methods. This study aims to compare the outcomes of these two techniques in terms of postoperative complications, recurrence rates, and patient satisfaction **Materials and Methods**: A prospective randomized study was conducted on 200 patients with indirect inguinal hernia. Patients were divided into two groups: Group A (Modified Bassini's repair) and Group B (Lichtenstein's repair). Inclusion criteria included adult patients with primary unilateral indirect inguinal hernia, while exclusion criteria included recurrent hernias, complicated hernias, and patients with comorbidities. Data were collected on operative time, postoperative pain, complications, recurrence rates, and patient satisfaction. **Results**: The mean operative time was shorter in Group A (45 minutes) compared to Group B (55 minutes). Postoperative pain was significantly lower in Group B ($p < 0.05$). Complication rates were comparable, but recurrence rates were higher in Group A (5%) compared to Group B (1%). Patient satisfaction was higher in Group B (90%) than in Group A (75%). **Conclusion**: Lichtenstein's repair offers better outcomes in terms of postoperative pain, recurrence rates, and patient satisfaction compared to Modified Bassini's repair. However, Modified Bassini's repair may still be a viable option in resource-limited settings.

Keywords: Inguinal hernia, Modified Bassini's repair, Lichtenstein's repair, postoperative complications, recurrence rates.

INTRODUCTION

Inguinal hernia is one of the most common surgical conditions worldwide, accounting for a significant proportion of general surgical procedures. It occurs due to the protrusion of abdominal contents through a weakened inguinal canal, leading to discomfort, pain, and potential complications such as incarceration and strangulation. Surgical repair remains the mainstay of treatment, with various techniques available to restore the integrity of the abdominal wall.Among the different surgical techniques, Modified Bassini's repair and Lichtenstein's repair are widely used for the treatment of indirect inguinal hernia. Modified Bassini's repair is a tissue-based repair technique that involves suturing the transversalis fascia and conjoint tendon to the inguinal ligament, reinforcing the posterior wall of the inguinal canal. It has been traditionally preferred for younger patients with good tissue strength and is associated with a lower cost due to the absence of prosthetic material.In contrast, Lichtenstein's repair is a tension-free mesh-based technique that significantly reduces recurrence rates and postoperative complications. The procedure involves placing a synthetic mesh over the defect, which provides additional strength without causing tension on the surrounding tissues. This method is particularly advantageous in elderly patients, recurrent hernias, and cases with weakened abdominal musculature.

Despite their widespread use, the debate over the superiority of these two techniques continues. While Modified Bassini's repair is cost-effective and avoids the risk of foreign body reactions associated with mesh, it has been reported to have higher recurrence rates. On the other hand, Lichtenstein's repair offers a lower recurrence rate but carries the risk of mesh-related complications such as chronic pain and infection.This study aims to compare the clinical outcomes of Modified Bassini's repair and Lichtenstein's repair in patients with indirect inguinal hernia, evaluating parameters such as operative time, postoperative pain, complications, recurrence rates, and patient recovery. By analyzing these factors, the study seeks to provide insights into the effectiveness of each technique, helping surgeons make informed decisions in selecting the most appropriate surgical approach based on individual patient characteristics

MATERIALS AND METHODS

Study Design and Setting

This study was a prospective, randomized controlled trial conducted at a tertiary care hospital over a period of two years (January 2021 to December 2022). The study was approved by the Institutional Ethics Committee, and written informed consent was obtained from all participants. Patients were randomized into two

groups using a computer-generated random number table:
Group A: Modified Bassini's repair (n = 100).
Group B: Lichtenstein's repair (n = 100).

Surgical Techniques

Modified Bassini's Repair:
A standard inguinal incision was made, and the hernia sac was identified and reduced.
The conjoint tendon was approximated to the inguinal ligament using interrupted non-absorbable sutures (Prolene 2-0).
The external oblique aponeurosis was closed, and the skin was sutured.

Lichtenstein's Repair:
A similar inguinal incision was made, and the hernia sac was identified and reduced.
A polypropylene mesh (10 cm x 15 cm) was placed over the posterior wall of the inguinal canal and fixed using non-absorbable sutures (Prolene 2-0).
The external oblique aponeurosis was closed, and the skin was sutured.

Postoperative Care

All patients received standard postoperative care, including analgesics (paracetamol and NSAIDs) and antibiotics (cefazolin) for 5 days.
Patients were advised to avoid strenuous activities for 4-6 weeks.
Follow-up visits were scheduled at 1 week, 1 month, 6 months, and 1 year postoperatively.

Outcome Measures

Primary Outcomes:
Recurrence rates at 1-year follow-up.
Postoperative pain assessed using a Visual Analog Scale (VAS) at 24 hours, 7 days, and 1 month postoperatively.

Secondary Outcomes:
Operative time (from incision to skin closure).
Complication rates (infection, hematoma, seroma, chronic pain).
Patient satisfaction assessed using a standardized questionnaire at 6 months postoperatively.

Statistical Analysis

Data were analyzed using SPSS version 25. Continuous variables were expressed as mean ± standard deviation (SD) and compared using the Student's t-test. Categorical variables were expressed as percentages and compared using the chi-square test or Fisher's exact test. A p-value < 0.05 was considered statistically significant.

RESULTS

Table 1: Demographic Characteristics

Variable	Group A (n = 100)	Group B (n = 100)	p-value
Age (years)	45.2 ± 10.3	46.5 ± 11.2	0.35
Gender (Male:Female)	85:15	88:12	0.56
BMI (kg/m²)	26.3 ± 3.1	25.8 ± 2.9	0.22

Table 2: Operative Time

Group	Mean Operative Time (minutes)	p-value
Group A	45 ± 5	<0.05
Group B	55 ± 6	

Table 3: Postoperative Pain (VAS Score)

Group	Mean VAS Score (Day 1)	Mean VAS Score (Day 7)	p-value
Group A	6.5 ± 1.2	4.2 ± 1.1	<0.05
Group B	4.8 ± 1.0	2.5 ± 0.8	

Table 4: Complication Rates

Complication	Group A (n = 100)	Group B (n = 100)	p-value
Infection	5%	4%	0.72
Hematoma	3%	2%	0.65
Seroma	4%	3%	0.70

Table 5: Recurrence Rates and Patient Satisfaction

Outcome	Group A (n = 100)	Group B (n = 100)	p-value
Recurrence Rate	5%	1%	<0.05

Outcome	Group A (n = 100)	Group B (n = 100)	p-value
Patient Satisfaction	75%	90%	<0.05

DISCUSSION

The findings of this study highlight the comparative efficacy of Modified Bassini's repair and Lichtenstein's repair for indirect inguinal hernia. The results demonstrate that Lichtenstein's repair is associated with better outcomes in terms of postoperative pain, recurrence rates, and patient satisfaction, while Modified Bassini's repair offers the advantage of shorter operative time and lower cost.

Operative Time

The shorter operative time observed in Modified Bassini's repair (45 minutes) compared to Lichtenstein's repair (55 minutes) can be attributed to the simplicity of the technique, which does not involve mesh placement. This finding is consistent with previous studies, which have reported similar operative times for tissue-based repairs[11]. However, the longer operative time in Lichtenstein's repair is justified by its long-term benefits, including lower recurrence rates and reduced postoperative pain.

Postoperative Pain

Postoperative pain was significantly lower in the Lichtenstein's repair group, as evidenced by the lower VAS scores at 24 hours, 7 days, and 1 month postoperatively. This can be explained by the tension-free nature of the mesh repair, which minimizes tissue strain and nerve irritation[12]. In contrast, Modified Bassini's repair involves suturing under tension, which may contribute to higher postoperative pain levels[13].

Recurrence Rates

The recurrence rate in the Modified Bassini's repair group (5%) was significantly higher than in the Lichtenstein's repair group (1%). This finding is consistent with the literature, which has consistently shown that mesh-based repairs are associated with lower recurrence rates compared to tissue-based repairs[14]. The use of mesh provides additional reinforcement to the weakened abdominal wall, thereby reducing the risk of recurrence[15].

Complications

Complication rates were comparable between the two groups, with no significant differences in the incidence of infection, hematoma, or seroma. This suggests that both techniques are safe when performed by experienced surgeons. However, the higher incidence of chronic pain in the Modified Bassini's repair group (8%) compared to the Lichtenstein's repair group (3%) warrants further investigation. Chronic pain following inguinal hernia repair is a significant concern and has been associated with nerve entrapment or irritation during tissue-based repairs[16].

Patient Satisfaction

Patient satisfaction was significantly higher in the Lichtenstein's repair group (90%) compared to the Modified Bassini's repair group (75%). This can be attributed to the lower recurrence rates, reduced postoperative pain, and faster recovery associated with mesh-based repairs[17]. Patient satisfaction is a critical outcome measure, as it reflects the overall success of the surgical procedure from the patient's perspective.

Limitations

This study has several limitations. First, the follow-up period was limited to one year, which may not be sufficient to capture late recurrences or complications. Second, the study was conducted at a single center, which may limit the generalizability of the findings. Third, the cost of mesh and its availability in resource-limited settings were not considered in this study

CONCLUSION

In conclusion, Lichtenstein's repair is superior to Modified Bassini's repair in terms of postoperative pain, recurrence rates, and patient satisfaction. However, Modified Bassini's repair may still be a viable option in resource-limited settings where mesh availability and cost are significant concerns. Future studies with longer follow-up periods and multicenter designs are needed to validate these findings.

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