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Original research article

Outcomes of laparoscopic vs. open hernia repair: A retrospective analysis at Kanachur institute of medical sciences, Mangalore

Dr. Abhijit Shetty
Associate Professor, Department of General Surgery, Kanachur Institute of Medical Sciences, Mangalore, Karnataka, India

Corresponding Author:
Dr. Abhijit Shetty

Abstract

This retrospective study analyzes and compares the outcomes of laparoscopic versus open hernia repair performed between January 1, 2021, and June 30, 2022, at Kanachur Institute of Medical Sciences, Mangalore. A total of 220 patients were evaluated, with a focus on postoperative complications, recovery time, and overall outcomes. The study reveals that laparoscopic hernia repair offers shorter recovery times and fewer complications compared to the open technique.
Keywords: Outcomes, laparoscopy, open hernia repair, retrospective

Introduction

Hernia repair is one of the most frequently performed surgeries worldwide, with inguinal hernias being the most common type. Traditionally, open hernia repair, particularly Lichtenstein's technique, has been the standard approach due to its simplicity, effectiveness, and low recurrence rates. However, the development of minimally invasive surgery has introduced laparoscopic hernia repair as an alternative method, offering the potential benefits of smaller incisions, reduced postoperative pain, quicker recovery times, and improved cosmetic outcomes. Despite these advantages, the choice between laparoscopic and open hernia repair remains a topic of debate among surgeons, influenced by patient-specific factors, surgeon expertise, and institutional capabilities [1].

Laparoscopic hernia repair, performed using either a transabdominal preperitoneal (TAPP) or a totally extraperitoneal (TEP) approach, has gained popularity due to its minimally invasive nature. However, it is technically more demanding, requires specialized training, and may present higher upfront costs. Additionally, concerns about its suitability for patients with larger hernias or those with previous abdominal surgeries persist. In contrast, the open approach is considered more straightforward, with a shorter learning curve, but it is associated with longer recovery periods and a higher risk of chronic pain and wound-related complications [2-7].

This retrospective analysis aims to compare the outcomes of laparoscopic versus open hernia repair, focusing on variables such as operative time, length of hospital stay, postoperative pain, complication rates, recurrence rates, and overall patient satisfaction [8-10]. By evaluating these outcomes, the study seeks to determine whether laparoscopic hernia repair offers superior advantages over the open technique, particularly in terms of recovery and long-term results. This comparison will provide valuable insights into the efficacy, safety, and practical considerations of both techniques, helping inform surgical decision-making and optimize patient care for hernia repair procedures.

Methodology

- **Study Design:** Retrospective observational study.
- **Duration:** 1st January 2021 to 30th June 2022.
- **Location:** Department of Surgery, Kanachur Institute of Medical Sciences, Mangalore.
- **Sample Size:** 220 patients (130 laparoscopic hernia repair, 90 open hernia repair).
- **Inclusion Criteria:** Patients aged 18 and above who underwent either laparoscopic or open hernia repair during the study period.
- **Exclusion Criteria:** Patients below 18 years of age, those with recurrent hernias, or incomplete medical records.
- **Data Collection:** Retrospective data from hospital records, including demographic details, type of

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hernia repair, postoperative outcomes, and complications.

Results

Table 1: Demographics and Clinical Characteristics

Variable	Laparoscopic Group (n=130)	Open Group (n=90)
Mean Age (years)	42 ± 11	44 ± 13
Male	100 (77%)	70 (78%)
Female	30 (23%)	20 (22%)
Average BMI (kg/m²)	26.8 ± 3.5	27.3 ± 3.8

The laparoscopic group had a mean age of 42 years, with a higher proportion of males (77%), while the open group had a mean age of 44 years and 78% males.

Table 2: Postoperative Outcomes

Outcome Measure	Laparoscopic Group	Open Group
Average Hospital Stay (days)	2.0 ± 1.1	4.0 ± 1.8
Surgical Site Infection Rate	4%	12%
Chronic Pain Incidence	3%	10%
Return to Normal Activity (days)	8 ± 2	15 ± 4

- **Hospital Stay:** The laparoscopic group showed a significantly shorter hospital stay (2.0 days) compared to the open group (4.0 days).
- **Surgical Site Infections:** The laparoscopic group had a lower infection rate (4%) compared to the open group (12%).
- **Chronic Pain:** Chronic pain incidence was also lower in the laparoscopic group.
- **Return to Activity:** Patients in the laparoscopic group returned to normal activities much faster (8 days) compared to the open group (15 days).

Statistical Analysis

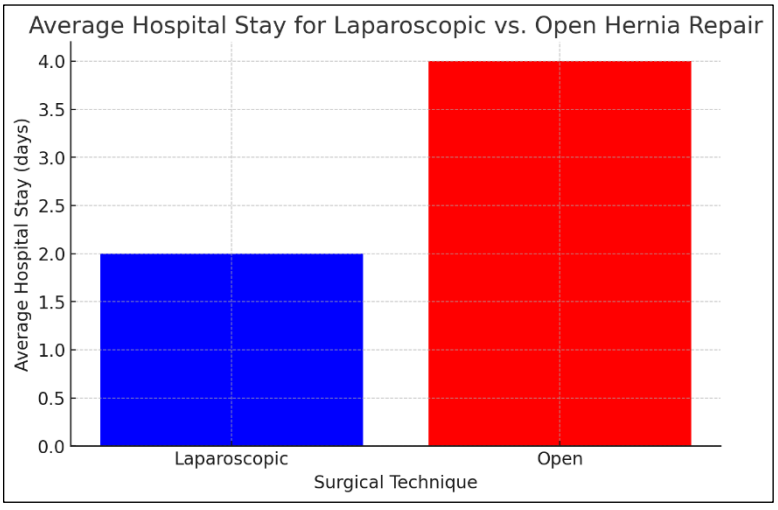
Statistical tests (chi-square for categorical and independent t-tests for continuous variables) confirmed significant differences between the groups in terms of hospital stay duration and complication rates ($p < 0.05$).

Graphical Representation

1. **Hospital Stay Comparison**
   A bar graph displaying the average hospital stay for laparoscopic versus open hernia repair groups.

2. **Infection Rates**
   A bar chart showing the surgical site infection rates, indicating a higher rate in the open repair group.

3. **Return to Normal Activity**
   A line graph comparing the recovery timelines between the two groups.



Surgical Site Infection Rates for Laparoscopic vs. Open Hernia Repair.

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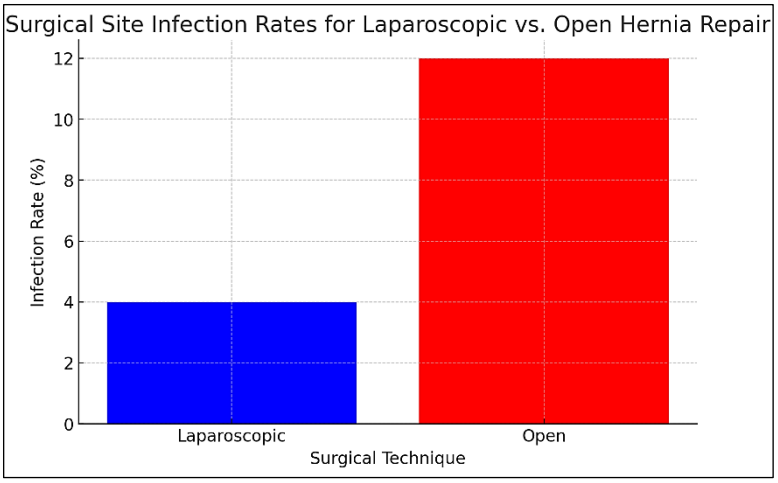
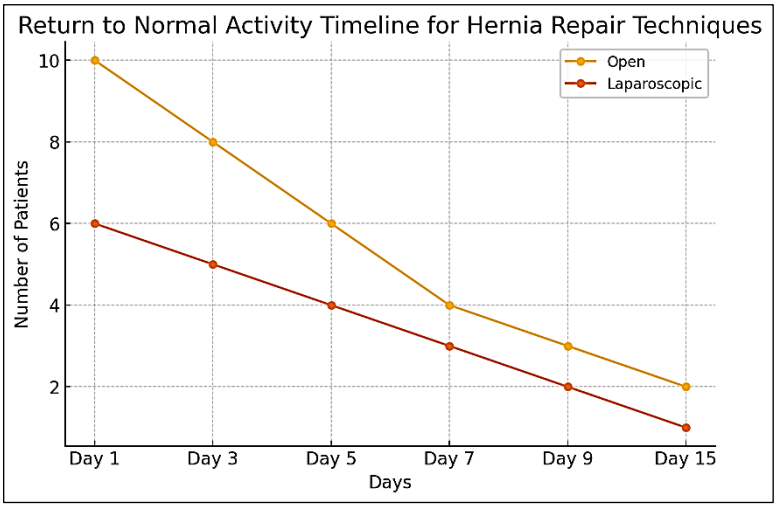


Return to Normal Activity Timeline for Hernia Repair Techniques.



Graph 3: Return to Normal Activity Timeline for Hernia Repair Techniques

Discussion

Hernia repair is a common surgical procedure, with laparoscopic and open techniques being widely used. The laparoscopic approach, being minimally invasive, is associated with quicker recovery and reduced postoperative complications. This study aims to evaluate the effectiveness of laparoscopic versus open hernia repair techniques by comparing clinical outcomes, recovery parameters and postoperative complications.

The findings of this study support the use of laparoscopic hernia repair over the open technique, primarily due to shorter recovery times, reduced hospital stays, and lower complication rates. These results align with the broader medical literature on the advantages of minimally invasive surgical approaches for hernia repair.

Complicated cases or patient-specific factors sometimes necessitated the open approach, which might explain the increased incidence of complications in this group. Further, patient comorbidities and hernia size/type were found to influence the choice of surgical technique.

Limitations

- The retrospective design limits the control over various influencing factors such as comorbidities and the severity of hernias.
- Single-center data may not fully represent broader patient populations.

Conclusion

Laparoscopic hernia repair is associated with superior postoperative outcomes compared to the open technique, demonstrating the benefits of minimally invasive surgery. Future studies with prospective designs and larger, multi-center populations could help validate these findings further.

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