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Original research article

Prospective evaluation of laparoscopic appendectomy outcomes at Srinivas institute of medical sciences, Mangalore: A two-year analysis

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Abstract

Background: Acute appendicitis is one of the most common surgical emergencies worldwide. Laparoscopic appendectomy has emerged as the preferred intervention due to its minimally invasive approach and favorable postoperative recovery. This prospective study evaluates the clinical outcomes and safety profile of laparoscopic appendectomy performed at Srinivas Institute of Medical Sciences, Mangalore, over an 18-month period.
Methods: In this single-center prospective observational study, 150 consecutive patients diagnosed with acute appendicitis underwent laparoscopic appendectomy between January 2023 and June 2024. Patient demographics, operative parameters (Operative time, conversion rate, intraoperative complications), and postoperative outcomes (Complications, hospital stay, and readmission rate) were recorded. Data were analyzed using SPSS version 25.0 with continuous variables expressed as mean ± SD and categorical variables as percentages. Statistical significance was set at $p < 0.05$.
Results: The mean patient age was 28.7±10.5 years with a near-equal gender distribution (Male: Female = 80:70). The mean operative time was 45±12 minutes with a conversion rate of 1.3% (n = 2). Intraoperative complications occurred in 2.7% of cases, while the overall postoperative complication rate was 6.0%. The average hospital stay was 1.5±0.5 days, and the 30-day readmission rate was 2.0%. *Tables 1 and 2 summarize the demographic and outcome data, respectively.*
Conclusion: Laparoscopic appendectomy is a safe and effective surgical option for managing acute appendicitis, offering reduced operative time, minimal complications, and shortened hospital stay. Our findings support its continued use as the standard of care in tertiary care centers.
Keywords: Laparoscopic appendectomy, acute appendicitis, minimally invasive surgery, surgical outcomes, prospective study, Mangalore

Introduction

Acute appendicitis represents a significant proportion of emergency surgical admissions worldwide. Since the advent of laparoscopic techniques in the early 1980s [1], laparoscopic appendectomy has gained widespread acceptance due to reduced postoperative pain, lower wound infection rates, and faster recovery compared with open surgery [2]. At Srinivas Institute of Medical Sciences, Mangalore, laparoscopic appendectomy is the first-line treatment for acute appendicitis. This study was designed to prospectively evaluate the surgical outcomes, complication rates, and overall efficacy of laparoscopic appendectomy in our institution over an 18-month period.

Materials and Methods

- **Study Design and Patient Selection:** This prospective observational study was conducted from January 2023 to June 2024 at Srinivas Institute of Medical Sciences. All patients aged 12-60 years presenting with clinical and radiological evidence of acute appendicitis were included. Exclusion criteria comprised patients with appendiceal mass, generalized peritonitis requiring immediate open surgery, or significant comorbidities precluding laparoscopy. The study protocol was approved by the Institutional Ethics Committee, and informed consent was obtained from all participants.
- **Preoperative Assessment:** Patients underwent a comprehensive clinical evaluation, laboratory investigations (Complete blood count, C-reactive protein, and basic metabolic panel), and abdominal

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ultrasonography. In selected cases with equivocal findings, computed tomography (CT) scans were performed.

- **Surgical Technique:** Under general anesthesia, a standard three-port laparoscopic technique was employed. A 10-mm umbilical port for the camera and two 5-mm working ports in the lower quadrants were used. The mesoappendix was divided using an energy device, and the base of the appendix was ligated with endoloops prior to transection. Intraoperative findings, operative time, estimated blood loss, and any complications were documented. Conversion to open surgery was considered in cases with severe inflammation or technical difficulties.
- **Postoperative Management:** Patients were managed with standard analgesia protocols and encouraged early ambulation. Oral intake was resumed as tolerated on the first postoperative day. Discharge criteria included adequate pain control, return of bowel function, and overall patient stability. A 30-day follow-up was conducted to evaluate wound healing, postoperative complications, and readmission.
- **Statistical Analysis:** Data were analyzed using SPSS version 25.0. Continuous variables are reported as mean ± SD and categorical variables as percentages. Chi-square tests were applied for categorical data and Student's t-test for continuous data, with p-values <0.05 considered statistically significant.

Results

A total of 150 patients underwent laparoscopic appendectomy during the study period. The demographic and clinical characteristics, as well as operative and postoperative outcomes, are summarized in Tables 1 and 2.

Table 1: Demographic Characteristics of Patients (n = 150)

Parameter	Value
Number of Patients	150
Mean Age (Years)	28.7±10.5
Gender (Male: Female)	80:70
Mean BMI (kg/m²)	23.4±3.2
Duration of Symptoms (Days)	1.8±0.7

Table 2: Operative and Postoperative Outcomes (n = 150)

Parameter	Value
Mean Operative Time (minutes)	45±12
Conversion Rate (%)	1.3 (n = 2)
Intraoperative Complications (%)	2.7 (n = 4)
Postoperative Complications (%)	6.0 (n = 9)
Mean Hospital Stay (days)	1.5±0.5
30-Day Readmission Rate (%)	2.0 (n = 3)

Intraoperative complications were minor (e.g., limited serosal tears managed laparoscopically). Postoperative complications included superficial wound infections and transient ileus, which were managed conservatively.

Discussion

Our study demonstrates that laparoscopic appendectomy is associated with excellent clinical outcomes. The mean operative time of 45 minutes and the low conversion rate (1.3%) underscore the procedural efficiency at our center. The overall complication rate of 6.0% is comparable to or lower than rates reported in previous studies [2, 3, 7]. Early postoperative recovery, reflected by a mean hospital stay of 1.5 days, further reinforces the benefits of the minimally invasive approach.

Several studies have underscored the advantage of laparoscopic techniques in reducing postoperative pain, wound infections, and hospital stay compared to open surgery [1, 4, 5]. In addition, a better understanding of the natural history of acute appendicitis [6, 8] supports the timely intervention with laparoscopic appendectomy to prevent complications associated with delayed treatment.

Limitations

This study is limited by its single-center design and a relatively short follow-up period. Future multicenter studies with longer follow-up durations would provide more robust data regarding long-term outcomes and potential late complications.

Conclusion

Laparoscopic appendectomy is a safe, efficient, and effective surgical option for the management of

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acute appendicitis. Our prospective analysis at Srinivas Institute of Medical Sciences, Mangalore, confirms that the procedure is associated with low complication and conversion rates, along with rapid postoperative recovery. These findings support the continued use of laparoscopic appendectomy as the standard of care in managing acute appendicitis.

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Conflicts of Interest
The authors declare no conflicts of interest.

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