Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

COMPARITIVE STUDY OF OPEN vs LAPAROSCOPIC APPENDICECTOMY IN ACUTE APPENDICITIS

Author : Dr P. Rajendra Kumar

Associate professor , department of General surgery , Anjarkandy Medical college, Kannur , Kerala.

Second Author : DR Sasikanth Reddy,

Assistant Professor, General Surgery.

Sasisesi114@gmail.com

Third Author : Dr B. Sneha Bhuvanala

Resident in General Surgery.

bhuvanalasneha@gmail.co

ABSTRACT

Introduction :

Acute appendicitis is one of the most common causes of abdominal pain that requires emergency surgery, and its treatment has evolved over time. Traditionally, open appendectomy, first described by McBurney, has been the standard approach for removing an inflamed appendix. This technique involves making an incision in the lower right side of the abdomen to access and remove the appendix.

However, with the advancement of surgical techniques, laparoscopic appendectomy was introduced in 1983 as a less invasive alternative. Laparoscopic appendectomy combines both diagnosis and treatment in a single procedure, as it allows surgeons to visualize the appendix and surrounding structures through small incisions using a camera and specialized instruments. This method is associated with smaller incisions, shorter hospital stays, and faster recovery times.

Despite these advantages, both open and laparoscopic appendectomy have their respective pros and cons. The choice between the two approaches has been the subject of ongoing debate in the surgical community. Some studies suggest that laparoscopic appendectomy offers better outcomes in terms of recovery time, postoperative pain, and cosmetic results. On the other hand, open appendectomy may be favored in cases of complicated appendicitis, such as when there is an abscess, perforation, or extensive inflammation, where the laparoscopic approach may present challenges.

Several factors influence the decision to choose one technique over the other, including the surgeon's experience and familiarity with laparoscopic procedures, the patient's clinical condition, and the presence of any complications. Research

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

has shown varying results, with some studies indicating that laparoscopic appendectomy may be associated with fewer complications, while others find no significant difference between the two techniques.

Ultimately, the decision on whether to perform an open or laparoscopic appendectomy is individualized, depending on the patient's specific condition and the surgeon's expertise. Ongoing studies and clinical trials continue to provide more insight into the optimal approach for managing appendicitis, and the choice remains a topic of active discussion among healthcare professional

AIMS AND OBJECTIVES :

To compare open and laparoscopic appendicectomy with respect to:

1. Duration of procedure
2. Post operative pain
3. Post operative complications
4. Duration of hospital stay
5. Cost difference

METHODS AND MATERIALS :

- **Study Period**: November 2022 to October 2023
- **Sample Size**: 100 patients (50 patients in the open appendectomy group, 50 patients in the laparoscopic appendectomy group)
- **Study Method**: A comparative study
- **Study Location**: Inpatient Department, K.S. Hegde Medical Academy

Methodology:

1. **Sample Selection**:
    - Patients were assigned to either the open or laparoscopic appendectomy group after being fully informed of the advantages and disadvantages of each method. The choice of surgical method was based on the patient's decision after the procedure was explained.

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

2. **Preoperative Evaluation**:
    - History and clinical examination
    - Routine blood investigations
    - Ultrasound (USG) and any other necessary investigations were performed.
3. **Surgical Procedure**:
    - The study evaluated the outcomes of open appendectomy and laparoscopic appendectomy in patients diagnosed with acute appendicitis. The patients were monitored intraoperatively and postoperatively for various parameters such as pain, nausea/vomiting, fever, wound infection, and paralytic ileus.
4. **Postoperative Follow-Up**:
    - After discharge, patients were followed up after 2 weeks to assess complications and return to normal activities.
5. **Statistical Analysis**:
    - Data analysis was done using **Chi-square test** and **Student's t-test** to evaluate the differences between the two groups.

Inclusion Criteria:

- All adult patients diagnosed with acute appendicitis based on clinical examination and ultrasound.

Exclusion Criteria:

- Patients with associated gynecological disorders
- Patients under the age of 15
- Patients with appendicular mass

Study Parameters:

The study focuses on the following parameters for comparison:

1. **Duration of the Procedure**: Comparing how long each procedure took from start to finish.

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

2. **Postoperative Pain**: Assessing pain intensity and the need for analgesics after surgery.
3. **Postoperative Complications**: Monitoring complications such as wound infection, nausea/vomiting, fever, and paralytic ileus.
4. **Duration of Hospital Stay**: Comparing how long patients stayed in the hospital after surgery.
5. **Cost Difference**: Analyzing the cost differences between the two surgical approaches.

Expected Results:

This comparative study aims to provide insight into the advantages and disadvantages of **open appendectomy** vs. **laparoscopic appendectomy** based on real-world data, helping to identify which method offers better outcomes in terms of duration, recovery, complications, hospital stay, and costs.

RESULTS :

1. Gender Distribution:

- **Open Appendicectomy Group**:
    - Males: 34 patients (68%)
    - Females: 16 patients (32%)
- **Laparoscopic Appendicectomy Group**:
    - Males: 28 patients (56%)
    - Females: 22 patients (44%)

2. Mean Age:

- **Open Appendicectomy Group**: Mean age = 32.56 years
- **Laparoscopic Appendicectomy Group**: Mean age = 26.54 years
    - The difference in mean age between the two groups is notable, with the open appendicectomy group being older on average.

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

3. Mean Duration of Surgery:

- **Open Appendicectomy Group**: Mean surgery duration = 65.10 ± 30.6 minutes
- **Laparoscopic Appendicectomy Group**: Mean surgery duration = 89.20 ± 36.08 minutes
    - The difference in surgery duration between the two groups was statistically significant ($P < 0.001$), with laparoscopic surgery taking significantly longer.

4. Postoperative Pain (assessed using the Visual Analogue Score):

- **Open Appendicectomy Group**: Mean pain score = 5.16 ± 1.03
- **Laparoscopic Appendicectomy Group**: Mean pain score = 4.62 ± 0.901
    - The difference in postoperative pain was statistically significant ($P = 0.007$), with the laparoscopic group reporting significantly less pain.

5. Postoperative Complications:

- **Wound Infection**:
    - Open Appendicectomy Group: 6 patients (12%)
    - Laparoscopic Appendicectomy Group: 2 patients (4%)
    - The incidence of wound infection was higher in the open appendicectomy group.
- **Postoperative Fever**:
    - Open Appendicectomy Group: 8 patients (16%)
    - Laparoscopic Appendicectomy Group: 2 patients (4%)
    - Fever was more common in the open appendicectomy group.
- **Postoperative Vomiting**:
    - Open Appendicectomy Group: 4 patients (8%)
    - Laparoscopic Appendicectomy Group: 6 patients (12%)

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

    - Vomiting was slightly more common in the laparoscopic appendicectomy group, but the difference was not statistically significant (P = 0.13).

- **Postoperative Paralytic Ileus**:
    - Open Appendicectomy Group: 8 patients (16%)
    - Laparoscopic Appendicectomy Group: 10 patients (20%)
    - Paralytic ileus was more common in the laparoscopic group, though the difference was not statistically significant (P = 0.13).

6. Duration of Hospital Stay:

- **Open Appendicectomy Group**: Mean hospital stay = 5.62 ± 3.8 days
- **Laparoscopic Appendicectomy Group**: Mean hospital stay = 5.36 ± 2.6 days
    - The difference in the duration of hospital stay was not statistically significant (P = 0.695), suggesting no major difference in the length of hospitalization between the two groups.

7. Cost of Surgery:

- **Open Appendicectomy Group**: Mean expenditure = 12,696.76 ± 6,562.02 rupees
- **Laparoscopic Appendicectomy Group**: Mean expenditure = 16,415.90 ± 5,500.50 rupees
    - The difference in cost between the two groups was statistically significant (P = 0.003), with laparoscopic appendicectomy being significantly more expensive than open appendicectomy.

Summary of Key Findings:

- **Surgical Duration**: Laparoscopic appendicectomy takes significantly longer than open appendicectomy.
- **Postoperative Pain**: Laparoscopic appendicectomy is associated with less postoperative pain.

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

- **Postoperative Complications**:
    - **Wound Infection and Fever**: Higher in the open appendicectomy group.
    - **Vomiting and Paralytic Ileus**: Slightly higher in the laparoscopic group, but differences were not statistically significant.
- **Hospital Stay**: No significant difference in the length of hospital stay between the two groups.
- **Cost**: Laparoscopic appendicectomy is significantly more expensive than open appendicectomy.

Conclusion:

This study highlights that **laparoscopic appendicectomy** generally results in less postoperative pain and fewer complications like wound infections and fever compared to **open appendicectomy**. However, it is associated with longer surgery time and higher costs. The length of hospital stay and incidence of other complications such as vomiting and paralytic ileus showed no significant differences between the two methods.

Ultimately, laparoscopic appendicectomy provides advantages in terms of recovery and postoperative comfort, but these come at a higher financial cost.