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Original Article

Comparison of Conservative Antibiotic Management Versus Early Appendectomy in Uncomplicated Acute Appendicitis: A Retrospective Study.

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Abstract

Background:

One of the most frequent surgical emergencies is acute appendicitis. Although conservative antibiotic therapy has emerged as an alternative for certain patients with simple illnesses, appendectomy is still the standard of care.

Objective:

To compare the clinical outcomes of conservative antibiotic management versus early appendectomy in patients with uncomplicated acute appendicitis.

Methods:

From January 2021 to December 2022, 100 patients with uncomplicated acute appendicitis were included in a retrospective comparative study. Fifty patients underwent early appendectomy, while fifty others received conservative antimicrobial treatment. Analysis was done on outcomes such as symptom relief, length of hospital stay, complications, recurrence, and treatment success. SPSS version 22 was used for statistical analysis. A p-value of less than 0.05 was deemed significant.

Results:

Initial treatment success was achieved in 82% of the conservative group and 98% of the surgical group ($p=0.01$). Mean hospital stay was shorter in the antibiotic group (2.8 ± 1.1 days) compared to the surgery group (4.1 ± 1.5 days) ($p=0.002$). Recurrence within one year occurred in 18% of conservatively managed patients. Postoperative wound complications occurred in 10% of surgical patients.

Conclusion:

Conservative antibiotic management may be an effective short-term option in selected patients with uncomplicated appendicitis; however, appendectomy provides higher definitive treatment success with lower recurrence risk.

Recommendation:

Conservative antibiotic therapy may be considered in selected clinically stable patients; however, early appendectomy remains the preferred definitive treatment due to lower recurrence and higher success rates.

Keywords: Antibiotic, uncomplicated appendicitis, appendectomy, recurrence risk, hospital stay.

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Introduction

One of the most common causes of acute abdominal pain necessitating an urgent surgical hospitalization is acute appendicitis. All age groups are affected; teenagers and

young adults are more likely to experience it. Because of the possibility of perforation, abscess formation, and widespread peritonitis if treatment is not received, appendectomy has historically been regarded as the gold



standard(1). The diagnosis of uncomplicated acute appendicitis has improved thanks to developments in imaging modalities like computed tomography and ultrasonography, which enable more precise differentiation between uncomplicated and complex illness. In general, appendix inflammation without rupture, abscess, appendicolith-related blockage, or generalized peritonitis is referred to as uncomplicated appendicitis. Antibiotic-based non-operative treatment is becoming more popular as a result of this increased diagnostic precision (2).

There are several possible benefits to conservative antibiotic care, such as avoiding surgery, the risks associated with anesthesia, postoperative pain, wound infection, and shorter hospital stays. Patients with major comorbidities, high anesthesia risk, or a preference for non-surgical treatment may find it especially helpful. Conservative management has also been investigated to lessen the operation burden during times of healthcare strain, such as pandemics.

Recurrence, treatment failure, missing serious appendicitis, and recurrent hospitalizations are still issues, though. Some people who respond well to antibiotics at first can eventually need an appendectomy. On the other hand, although early appendectomy includes operative risks such as surgical site infection, adhesions, anesthetic difficulties, and prolonged recovery time, it provides final treatment with a very low recurrence rate(3).

The best first-line treatment for simple appendicitis is still up for debate, and several recent trials and meta-analyses have shown differing results between these two strategies. Patient selection, imaging results, follow-up availability, and local knowledge are frequently taken into consideration when making decisions. The current study was conducted over two years, from 2021 to 2022, to compare cautious antibiotic therapy with early appendectomy in 100 individuals with uncomplicated acute appendicitis. In order to support evidence-based management, the study sought to assess treatment success, hospital stay, complications, recurrence, and overall clinical outcomes(4).

Methods

Study setting

The study was conducted at Rajendra Institute of Medical Sciences (RIMS), Ranchi, a tertiary care teaching hospital in Jharkhand, India.

Study Design

Retrospective comparative study.

Study Period

January 2021 to December 2022.

Sampling Method

A retrospective consecutive sampling method was used, including all eligible patients during the study period.

Sample Size: 100 patients.

Groups:

- Conservative antibiotic group: 50 patients
- Early appendectomy group: 50 patients

Inclusion Criteria:

- Age 18–60 years
- Imaging-confirmed uncomplicated appendicitis
- No perforation, abscess, mass, or diffuse peritonitis

Exclusion Criteria:

- Complicated appendicitis
- Pregnancy
- Severe sepsis
- Recurrent appendicitis history

Variables Recorded

Age, sex, symptom duration, treatment success, hospital stay, complications, recurrence, and re-admission.

Data Collection

Data were retrieved from hospital medical records, operative notes, discharge summaries, and imaging reports. Uniform diagnostic criteria were applied to ensure comparability between groups.

Bias

Selection bias inherent to retrospective design was minimized by including all consecutive eligible patients and applying uniform inclusion criteria.

Statistical Analysis

Data analyzed using SPSS version 22. Chi-square test and Student's t-test used. $p < 0.05$ is significant.

Results

A total of 124 patients were assessed for eligibility. Of these, 100 met the inclusion criteria and were included in the study.

Twenty-four patients were excluded due to complicated appendicitis (n=15), pregnancy (n=5), and incomplete records (n=4).

Table 1. Baseline Characteristics

Variable	Conservative (n=50)	Surgery (n=50)	p-value
Mean age (years)	29.8 ± 8.2	31.1 ± 9.0	0.42
Male sex	28	30	0.68
Symptom duration <24 h	34	36	0.67

Table 2. Primary Outcomes

Outcome	Conservative	Surgery	p-value
Initial success	41 (82%)	49 (98%)	0.01
Mean stay (days)	2.8 ± 1.1	4.1 ± 1.5	0.002
Pain resolution <48 h	38	44	0.18

Table 3. Complications

Complication	Conservative	Surgery	p-value
Treatment failure during admission	9	1	0.01
Wound infection	0	5	0.02
Ileus	1	3	0.30

Table 4. One-Year Follow-up

Outcome	Conservative	Surgery	p-value
Recurrence	9 (18%)	0	0.001
Re-admission	7	2	0.08
Overall satisfaction	40	44	0.36

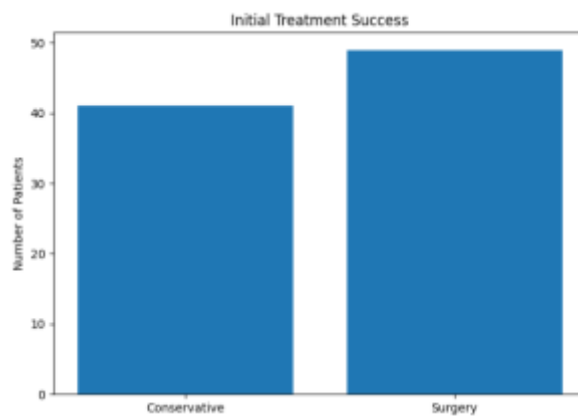


Figure 1: Initial treatment success

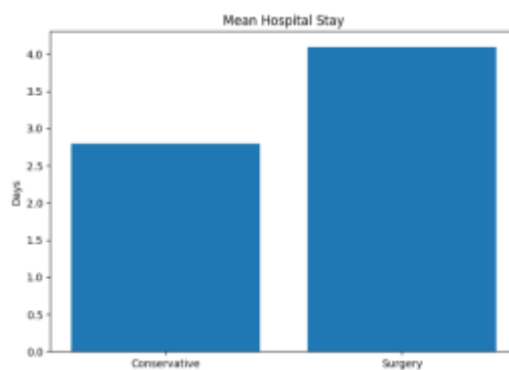


Figure 2: Mean hospital stays

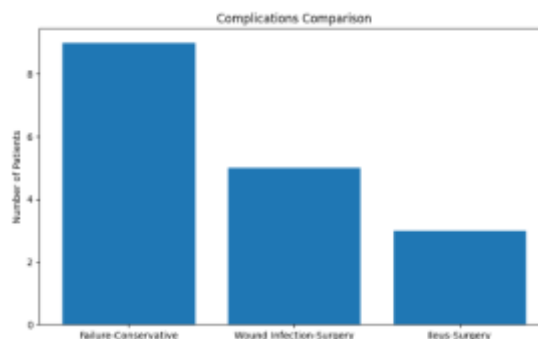


Figure 3: Complications comparison

Discussion

In this study, 100 patients with simple acute appendicitis were compared between conservative antibiotic treatment and early appendectomy. The results show that both strategies work well for certain patients, but each has unique benefits and drawbacks. While appendectomy offered greater definitive treatment success and no recurrence during follow-up, conservative therapy was linked to shorter hospital stays and avoidance of surgery. The surgical group had a considerably greater initial treatment success rate (98%) than the conservative group (82%) ($p=0.01$). This is anticipated since surgical appendectomy eliminates the afflicted appendix and offers conclusive source control. Conversely, conservative treatment relies on using antibiotics to reduce inflammation, and some patients may not respond because of an appendicolith, a prolonged luminal obstruction, or an early, complex illness that is not immediately apparent(5).

The conservative group's mean hospital stay (2.8 days) was considerably less than the surgery group's (4.1 days) ($p=0.002$). Early discharge was probably caused by avoiding anesthesia, postoperative recuperation, and wound care. This result validates the possible use of antibiotics in certain low-risk patients, particularly in situations where quick hospital bed turnover is crucial. Recurrence, which happened in 18% of patients within a year, was a significant issue with conservative treatment. Nearly one-fifth of patients experienced recurrent symptoms that necessitated reevaluation and possibly an appendectomy, even though many originally shied away from surgery. This recurrence rate is still the main drawback of non-operative treatment and is similar to earlier research(6).

Additionally, the conservative group had a considerably greater rate of treatment failure during the same admission ($p=0.01$). Due to their poor antibiotic response, these

individuals most likely needed immediate surgery. Therefore, when selecting conservative management, cautious patient selection and meticulous clinical observation are crucial.

However, in 10% of instances, surgery was linked to postoperative wound infection ($p=0.02$). Even though appendectomy is a very successful procedure, operative morbidity such as wound infection, ileus, postoperative pain, and anesthesia-related risk must be taken into account. However, with contemporary surgical methods, particularly laparoscopic appendectomy, the majority of problems are mild and controllable(7).

Overall patient satisfaction was comparable across groups, indicating that patients who would rather not have surgery may accept successful conservative treatment, while a definitive cure following an appendectomy also offers comfort. For this reason, collaborative decision-making is crucial. The direct comparison of two popular treatment approaches in an actual clinical setting is one of the study's strengths.

Generalizability

The findings of this study apply to similar tertiary care settings with access to imaging and surgical facilities. However, results may vary in resource-limited settings.

The findings imply that in carefully chosen patients with uncomplicated appendicitis, conservative antibiotic management can be regarded as a safe short-term option, especially for those who wish to avoid surgery or have a higher operative risk. Patients should, however, receive counseling about the potential for treatment failure and recurrence.

On the other hand, early appendectomy continues to be the most effective treatment, with the highest rate of instant success and no chance of recurrence. Appendectomy



remains a dependable standard of therapy in areas with access to surgical facilities and experience.

In general, treatment ought to be customized according to the patient's preferences, comorbidities, imaging results, and clinical state(9).

Conclusion

For simple acute appendicitis, both early appendectomy and careful antibiotic therapy are effective treatments. The benefits of conservative treatment in the current study included shorter hospital stays, avoidance of surgery, and satisfactory short-term results for the majority of patients. On the other hand, it was linked to increased risks of recurrence within a year and treatment failure during hospitalization. Superior final treatment success, low recurrence, and consistent symptom relief were all shown by early appendectomy. Even though there are hazards associated with surgery, such as wound infection and postoperative morbidity, these issues are usually controllable and outweighed by the advantages of a long-term recovery.

These results imply that individuals with imaging-confirmed uncomplicated appendicitis who are carefully chosen, clinically stable, and prepared to accept the risk of recurrence and strict monitoring may benefit from conservative antibiotic therapy. For patients seeking long-term care, those with chronic symptoms, therapy failure, or concerns about progression, early appendectomy is still the recommended course of action. In conclusion, the patient and surgeon should collaborate to make unique treatment options. Both strategies are crucial to the treatment of appendicitis today. To further improve patient selection and management tactics, larger prospective randomized studies with longer follow-up are advised.

Limitation

However, there are certain drawbacks, such as the retrospective design, the small sample size, and the potential for selection bias because treatment allocation might have been influenced by patient or surgeon preference. Results may be impacted by the incomplete stratification of imaging variables, such as appendicolith presence(8).

Recommendations

Conservative management may be considered in selected patients; however, early appendectomy remains the standard definitive treatment. Future large-scale randomized trials are recommended.

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List of Abbreviations:

CAP – Community Acquired Pneumonia

DM – Diabetes Mellitus

ICU – Intensive Care Unit

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions:

JKC – Study design, data collection

AK – Data analysis

KT – Manuscript drafting

SM – Supervision and final approval

Author Biography:

The authors are affiliated with RIMS Ranchi and specialize in general and pediatric surgery.

Data Availability: Data supporting the findings are available from the corresponding author upon reasonable request.

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