Complications of Acute Appendicitis: Impact of Delayed Presentation – A Retrospective Study

Abstract

Background: Acute appendicitis is one of the most common surgical emergencies in India[1]. Delay in presentation is a major factor contributing to increased disease severity and postoperative morbidity[2].

Aim: To evaluate the spectrum of complications of acute appendicitis and assess their association with delayed presentation.

Materials and Methods: This retrospective observational study included 100 consecutive patients who underwent open appendectomy between January 2024 and June 2025 at Basaveshwar Teaching and General Hospital, Kalaburagi. Delayed presentation was defined as symptom duration ≥48 hours. Data were analyzed using the chi-square test and independent t-test. Odds ratios (OR) were calculated, and a p-value <0.05 was considered statistically significant.

Results: Of the 100 patients, 38% presented after 48 hours. Complicated appendicitis was observed in 42% of cases. The major complications included perforation (26%), gangrene (16%), appendicular abscess (8%), surgical site infection (10%), and postoperative ileus (6%). Delayed presentation was significantly associated with higher rates of perforation ($p < 0.001$), gangrene ($p = 0.002$), surgical site infection ($p = 0.04$), and prolonged hospital stay ($p < 0.001$).

Conclusion: Delayed presentation significantly increases the risk of complications in acute appendicitis. Early diagnosis and timely surgical referral are essential to reduce morbidity, particularly in tier-2 Indian settings.

Keywords: Acute appendicitis; complications; delayed presentation; perforation; India

Introduction

Acute appendicitis remains one of the most common causes of emergency abdominal surgery worldwide and continues to pose a significant healthcare burden in India[1]. Although appendectomy is a relatively straightforward surgical procedure, delayed presentation can result in a wide spectrum of complications, including perforation, gangrene, appendicular abscess, and peritonitis[2],[3].

Several studies have demonstrated that delayed presentation is a major risk factor for complicated appendicitis, particularly in developing countries where access to healthcare and referral systems may be limited[3],[4]. In tier-2 Indian cities, delays often occur due to socioeconomic factors, delayed recognition of symptoms, and late referral from peripheral healthcare facilities[5].

The present study was undertaken to analyze the spectrum of complications of acute appendicitis and evaluate the impact of delayed presentation on these complications at our center.

Materials and Methods

Study Design: Retrospective observational study.

Study Setting: Department of General Surgery, Basaveshwar Teaching and General Hospital, Kalaburagi.

Study Period: January 2024 to June 2025.

Sample Size: 100 consecutive patients undergoing open appendectomy.

Inclusion Criteria:

- Age ≥12 years

- Patients undergoing emergency or elective appendectomy

Exclusion Criteria:

- Interval appendectomy

- Negative appendectomy

- Incomplete medical records

Data Collection:

Data were obtained from hospital medical records and operative registers.

Operational Definitions:

- Delayed presentation: Duration of symptoms ≥48 hours

- Complicated appendicitis: Presence of perforation, gangrene, appendicular abscess, or postoperative complications

Statistical Analysis:

SPSS version 25 (IBM Corp., Armonk, NY, USA). P-value <0.05 significant.

Ethical Considerations:

Approved by Institutional Ethics Committee.

Results

Demographic Profile:

Mean age 29.4 ± 11.2 years. Males 62%, females 38%. Rural 54%.

Table 1. Demographic and Clinical Profile of Patients (n = 100)

Variable	Value
Mean age (years)	29.4 ± 11.2
Male	62%
Female	38%
Rural residence	54%
Urban residence	46%

Clinical Presentation:
Early 62%, delayed 38%.

Complications:
Simple 58%
Perforation 26%
Gangrene 16%
Abscess 8%
SSI 10%
Ileus 6%

Table 2. Association Between Delayed Presentation and Complications

Presentation	Total	Complicated (%)	Perforation (%)
Early (<48 h)	62	29.0%	12.9%
Delayed (≥48 h)	38	63.2%	47.4%

Hospital Stay

6.8 ± 2.1 vs 3.9 ± 1.4 ($p < 0.001$)

Discussion

Delayed presentation strongly associated with complications. Findings consistent with previous studies[3,4,10]. Higher perforation rate explained by disease progression[7]. Increased SSI and hospital stay consistent with literature[2,6].

Limitations

Retrospective, single center, small sample.

Conclusion

Delayed presentation increases complications. Early referral needed.

Declarations

Funding: None

Conflict of Interest: None

Ethical Approval: Yes

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