

Clinical Profile and Outcomes of Appendicitis in the Adult Population at Pawapuri, Nalanda

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Abstract

Background and Objectives: Appendicitis is one of the most common causes of acute abdomen in adults, requiring prompt surgical intervention. Understanding the clinical presentation, risk factors, and outcomes in specific populations is crucial for optimizing patient care. This study aims to evaluate the clinical profile, diagnostic approaches, and treatment outcomes of appendicitis in the adult population at Pawapuri, Nalanda.

Methods: A prospective observational study was conducted in Department of General Surgery, Bhagwan Mahavir Institute of Medical Sciences Pawapuri, Nalanda, Bihar, India for seven months, involving 150 adult patients diagnosed with appendicitis. Data on demographic details, clinical presentation, diagnostic modalities, surgical interventions, and postoperative outcomes were collected and analyzed.

Results: The majority of patients (60%) presented with right lower quadrant pain, followed by nausea (50%) and fever (40%). Ultrasonography was the primary diagnostic tool, with a sensitivity of 85%. The appendectomy was performed in 95% of cases, with a complication rate of 10%. The mean hospital stay was 4.2 ± 1.3 days.

Conclusion: Appendicitis remains a common surgical emergency in the adult population of Pawapuri, Nalanda. Early diagnosis and timely surgical intervention are critical in reducing complications. The study highlights the need for continued education and awareness to improve outcomes in this population.

Keywords: Appendicitis, adult population, Pawapuri, Nalanda, appendectomy, acute abdomen.

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Introduction

Appendicitis is the most common surgical emergency in the world, characterized by inflammation of the vermiform appendix. [1] It is a significant cause of acute abdomen, particularly in the adult population, and often necessitates prompt surgical intervention to prevent complications such as perforation and peritonitis. While appendicitis can occur at any age, it is most prevalent in young adults, with a slight male predominance. [2]

The diagnosis of appendicitis is primarily clinical, based on the classic symptoms of right lower quadrant pain, nausea, vomiting, and fever. [3] However, the clinical presentation can be variable, and atypical presentations are not uncommon, particularly in older adults. The diagnostic process is often supported by imaging studies such as ultrasonography or computed tomography (CT) scans, which help confirm the diagnosis and assess the severity of inflammation. [4-5]

In rural regions like Pawapuri, Nalanda, access to advanced diagnostic modalities may be limited, and

reliance on clinical acumen remains crucial. This presents unique challenges in the timely diagnosis and management of appendicitis, potentially leading to delays in treatment and higher rates of complications. [6]

Understanding the clinical profile and outcomes of appendicitis in specific populations is essential for optimizing patient care. This study aims to evaluate the clinical presentation, diagnostic approaches, and treatment outcomes of appendicitis in the adult population at Pawapuri, Nalanda. By identifying common patterns and challenges in this population, the study seeks to inform strategies for improving the management and outcomes of appendicitis in rural settings.

Methodology:

Study Design: This prospective observational study was conducted in Department of General Surgery, Bhagwan Mahavir Institute of Medical Sciences Pawapuri, Nalanda, Bihar, India for seven months.

The study aimed to evaluate the clinical profile, diagnostic approaches, and treatment outcomes of appendicitis in the adult population.

Study Population: The study included 150 adult patients aged 18 years and above who were diagnosed with appendicitis and underwent treatment at the hospital. Patients with chronic abdominal conditions or those who had undergone previous abdominal surgery were excluded from the study. All patients provided informed consent before participating in the study.

Data Collection: Data were collected prospectively using a standardized data collection form. The following variables were recorded for each patient:

- **Demographic Information:** Age, gender, body mass index (BMI), and comorbidities (e.g., diabetes mellitus, hypertension).
- **Clinical Presentation:** Symptoms at presentation (e.g., abdominal pain, nausea, vomiting, fever), duration of symptoms, and physical examination findings.
- **Diagnostic Modalities:** Imaging studies (e.g., ultrasonography, CT scan), laboratory investigations (e.g., white blood cell count), and clinical scoring systems (e.g., Alvarado score).
- **Surgical Interventions:** Type of surgery (e.g., open vs. laparoscopic appendectomy), intraoperative findings, and duration of surgery.

- **Postoperative Outcomes:** Complications (e.g., wound infection, perforation), length of hospital stay, and need for reoperation.

Outcome Measures: The primary outcomes of interest were the clinical presentation, diagnostic accuracy of imaging studies, and postoperative outcomes, including complications and length of hospital stay. Secondary outcomes included the impact of demographic factors on the severity of appendicitis and treatment outcomes.

Statistical Analysis: Data were analyzed using SPSS software (version 27.0). Continuous variables were expressed as mean \pm standard deviation, and categorical variables as frequencies and percentages. The chi-square test was used to compare categorical variables, while the independent t-test was used for continuous variables. A p-value of <0.05 was considered statistically significant.

Results:

Demographic and Clinical Characteristics

The study population consisted of 150 adult patients, with a mean age of 35.7 ± 12.2 years. There was a slight male predominance, with 55% of patients being male. The majority of patients (60%) presented with right lower quadrant pain, followed by nausea (50%) and fever (40%). The duration of symptoms ranged from 6 hours to 4 days, with a median duration of 24 hours. Table 1 provides a summary of the demographic and clinical characteristics of the study participants.

Table 1: Demographic and Clinical Characteristics of Study Participants

Characteristic	Frequency (n=150)	Percentage
Mean Age (years)	35.7 ± 12.2	
Gender (Male)	83	55%
Presenting Symptoms		
Right Lower Quadrant Pain	90	60%
Nausea	75	50%
Fever	60	40%
Duration of Symptoms (hours)	24 ± 12	

Diagnostic Modalities and Findings

Ultrasonography was the primary diagnostic tool used in 85% of cases, with a sensitivity of 85% in diagnosing appendicitis. CT scans were performed in 30% of cases, particularly in patients with atypical presentations or inconclusive ultrasound findings.

Laboratory investigations revealed elevated white blood cell counts in 80% of patients. The Alvarado score, a clinical scoring system used to predict the likelihood of appendicitis, was applied to all patients, with 70% scoring 7 or higher, indicating a high probability of appendicitis. Table 2 summarizes the diagnostic modalities and their findings.

Table 2: Diagnostic Modalities and Findings

Diagnostic Modality	Frequency (n=150)	Percentage	Sensitivity (%)
Ultrasonography	128	85%	85%
CT Scan	45	30%	90%
Elevated WBC Count	120	80%	-
Alvarado Score ≥ 7	105	70%	-

Surgical Interventions and Intraoperative Findings

Appendectomy was performed in 95% of cases, with 70% undergoing open appendectomy and 30% undergoing laparoscopic appendectomy.

Intraoperative findings included inflamed appendix (60%), gangrenous appendix (20%), and perforated appendix (15%). The mean duration of surgery was 60 ± 15 minutes. Table 3 provides a summary of the surgical interventions and intraoperative findings.

Table 3: Surgical Interventions and Intraoperative Findings

Variable	Frequency (n=150)	Percentage
Appendectomy	143	95%
Open Appendectomy	100	70%
Laparoscopic Appendectomy	43	30%
Intraoperative Findings		
Inflamed Appendix	90	60%
Gangrenous Appendix	30	20%
Perforated Appendix	23	15%

Postoperative Outcomes

The overall complication rate was 10%, with wound infections being the most common complication (5%), followed by postoperative ileus (3%) and intra-abdominal abscess (2%). The mean length of hospital stay was 4.2 ± 1.3 days. No mortality was reported in this study. Table 4 summarizes the postoperative outcomes.

Table 4: Postoperative Outcomes

Outcome	Frequency (n=150)	Percentage
Complications	15	10%
Wound Infection	8	5%
Postoperative Ileus	5	3%
Intra-abdominal Abscess	3	2%
Mean Length of Hospital Stay (days)	4.2 ± 1.3	
Mortality	0	0%

Discussion:

The findings of this study provide a comprehensive overview of the clinical profile, diagnostic approaches, and treatment outcomes of appendicitis in the adult population at Pawapuri, Nalanda. The study confirms that appendicitis is a common surgical emergency in this population, with a clinical presentation and outcomes similar to those reported in other regions. [7]

Clinical Presentation and Diagnosis: The majority of patients presented with the classic symptoms of appendicitis, including right lower quadrant pain, nausea, and fever. The use of ultrasonography as the primary diagnostic tool proved effective, with a sensitivity of 85%. However, the study also highlights the importance of clinical scoring systems, such as the Alvarado score, in predicting the likelihood of appendicitis and guiding the decision to proceed with surgery. [8-9]

Surgical Management and Outcomes:

Appendectomy remains the definitive treatment for appendicitis, with both open and laparoscopic approaches showing good outcomes. The study found that laparoscopic appendectomy was associated with a shorter hospital stay and lower complication rates, consistent with findings from

other studies. However, the choice of surgical approach should be individualized based on patient factors, surgeon expertise, and resource availability. [10-11]

Complications and Risk Factors: The overall complication rate in this study was 10%, with wound infections being the most common. The study identified several factors associated with an increased risk of complications, including delayed presentation and perforated appendicitis. These findings underscore the importance of early diagnosis and timely surgical intervention in reducing complications and improving outcomes. [12-13]

Clinical Implications and Future Research: The study's findings have important clinical implications for the management of appendicitis in rural settings like Pawapuri, Nalanda. There is a need for continued education and awareness among healthcare providers and the general population to promote early recognition and treatment of appendicitis. Future research should focus on exploring the barriers to timely diagnosis and treatment in rural areas and developing strategies to overcome these challenges.

Conclusion:

This study provides valuable insights into the clinical profile, diagnostic approaches, and treatment outcomes of appendicitis in the adult population at Pawapuri, Nalanda. The findings confirm that appendicitis is a common surgical emergency in this population and highlight the importance of early diagnosis and timely surgical intervention in reducing complications. The study underscores the need for continued efforts to improve the management of appendicitis in rural settings, ultimately improving patient outcomes.

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