

## Original Research

# Descriptive study on Acute Appendicitis: a single unit experience

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### Introduction

The appendix has significant relevance in the field of surgery, primarily due to its association with acute appendicitis, a common and urgent medical condition. Appendectomy is an emergency procedure known to reduce morbidity and mortality associated with untreated appendicitis. The present study was conducted to observe, compile, and analyze the common symptomatology, demographic details, and post-operative complications of acute appendicitis.

### Material & Methods

This descriptive cross-sectional study was conducted from May 2023 to May 2024 in surgical wards (05 & 17 (single unit)) at the National Hospital of Sri Lanka. Within the study period, 94 patients presented to the defined wards at met the criteria for the study, defined as any patient who presented with appendicitis and underwent an appendectomy for treatment. Patient demographic details, symptomatology and post-op complications were recorded to elucidate potential complicating factors and observe relevant trends.

### Results

Of the total study population of 94, 64% were male and 36% were female. Additionally, a majority of the population (69%) belonged to the age subgroup defined as 15 to 30 years old. Of the 94 patients, 100% presented with abdominal pain, 90% had anorexia, 60% presented with a fever, and 45% complained of vomiting. The majority of the appendix (76.5%) found retrocecal in position during surgery. Of the appendectomies performed, 64% of patients successfully underwent appendectomies with no clinical complications; however, the remaining minority, 58.8% were observed to sustain some form of wound infection, 14.8% were diagnosed with paralytic ileus, and 11.8% had formed a pelvic abscess. Additionally, two patients featured assorted delayed complications and one patient suffered an adhesive small bowel obstruction and another was diagnosed with a fecal fistula.

### Conclusion

Given the high prevalence of acute appendicitis in younger age groups, no matter the age the diagnosis of appendicitis is possible in any patient presenting with complaints of acute abdominal pain. Additionally, and a fact that should be celebrated, appendectomy complications are extremely rare and have a favourable prognosis.

## INTRODUCTION

The human appendix, a small, tube-shaped organ attached to the large intestine, has long been a subject of scientific curiosity. Historically considered a vestigial structure with little to no function, recent research suggests that the appendix may play a role in the immune system and gut health.<sup>1</sup> Although rather unimportant in physiological function, the appendix has significant relevance in the field of surgery, primarily due to its association with acute appendicitis, a common and urgent medical condition. Appendicitis, the inflammation of the appendix, often neces-

itates surgical intervention to prevent complications such as rupture or peritonitis. This need for surgical intervention most frequently necessitates the performance of an appendectomy. The diagnosis of acute appendicitis, and the subsequent need for an appendectomy, is most prevalent in children and young adults but can affect all age groups.<sup>2, 3</sup> The lifetime prevalence of acute appendicitis is approximately 7%.<sup>4</sup>

Appendicitis occurs when the appendix becomes inflamed, typically due to obstruction of the appendiceal lumen. Common causes of obstruction include fecolith, lymphoid hyperplasia, foreign bodies, or tumors. This obstruction leads to increased pressure within the appen-

dix, reduced blood flow, and bacterial overgrowth. As the appendix swells, the pressure continues to rise, causing the walls of the appendix to become ischemic.<sup>5</sup> The ischemia results in transmigration of acute inflammatory cells across all the layers of appendix, and then to periappendicular tissue. Since the appendicular artery is an end artery, its thrombosis by inflammation leads to gangrene of the appendix. If untreated, the appendix may perforate and cause generalized peritonitis or is walled off by the omentum and small gut loops resulting in a phlegmon of the appendicular mass.<sup>6</sup>

The most frequency and presented symptom of appendicitis is abdominal pain that commences around the umbilicus and then shifts to the lower right quadrant, accompanied by nausea, vomiting, and fever. Early diagnosis and surgical intervention, usually through an appendectomy, are crucial to prevent complications.

The present study was conducted to determine the common symptomatology, demographic details, and post-operative complication of acute appendicitis.

## MATERIAL AND METHODS

### 2.1. SAMPLE SELECTION

This descriptive cross-sectional study was conducted from May 2023 to May 2024 in surgical wards - 05 & 17 (single unit) at the National Hospital of Sri Lanka. Inclusion criteria for the study involved the diagnosis of acute appendicitis, criteria which 94 patients fit.

### 2.2. DATA COLLECTION PROCEDURE

The study was conducted among 94 patients with acute appendicitis diagnosed with the help of clinical examination and imaging tests. The clinical symptoms were recorded, certain demographic profiling information (like age and sex) were also collected. All 94 patients underwent an appendectomy and were followed in the hospital to observe immediate complications and also were also tracked regarding subsequent remote complications. All patients have given 3 to 5 days of antibiotics, and regular treatment. Appropriate treatment was given whenever complications were noted.

### 2.3. DATA ANALYSIS PROCEDURE

SPSS v. 26 was used to analyze acquired data from patients using proformas. For continuous variables such as age, the mean standard deviation (SD) was calculated. For categorical variables such as gender, complex appendicitis, and SSI, frequencies and percentages were determined. The chi-square test was used, and a p-value of 0.05 was considered significant.

## RESULTS

Out of 94 patients, 64% were male and 36% were female. Nearly 69% belonged to the age group of 15-30 years old

(Table 1). All 94 patients (100%) complained of abdominal pain, 90% had anorexia, 60% had a fever and, 45% suffered from continuous vomiting.

**Table 1. Distribution of age and sex of the study population (N=94)**

| Age (years)  | Male      | Female    | Total     | Percentage |
|--------------|-----------|-----------|-----------|------------|
| 0-14         | 00        | 00        | 00        | 00         |
| 15-30        | 42        | 23        | 65        | 69         |
| 31-45        | 10        | 06        | 16        | 17         |
| 46-60        | 08        | 04        | 12        | 13         |
| Above 61     | 01        | 01        | 01        | 1          |
| <b>Total</b> | <b>60</b> | <b>34</b> | <b>94</b> | <b>100</b> |

The majority of the appendixes (76.5%) were found in the retrocecal position during surgery. Intra-operatively 86% of appendixes were inflamed, 6% were perforated, 4% were gangrenous, and another 4% were macroscopically normal.

**Table 2. Distribution of position of appendix**

| Position     | Number    | Percentage |
|--------------|-----------|------------|
| Retro-caecal | 72        | 76.5       |
| Pelvic       | 14        | 14.9       |
| Post-ileal   | 03        | 3.2        |
| Pre-ileal    | 03        | 3.2        |
| Paracolic    | 01        | 1.1        |
| Sub-caecal   | 01        | 1.1        |
| <b>Total</b> | <b>94</b> | <b>100</b> |

64% of patients successfully underwent appendectomies with no clinical complications; however, of the remaining minority, 58.8% were observed to sustain some form of wound infection, 14.8% were diagnosed with paralytic ileus, and 11.8% had formed a pelvic abscess. Additionally, two patients featured assorted delayed complications and one patient suffered an adhesive small bowel obstruction and another was diagnosed with a fecal fistula.

All the patients who developed post-op complications were managed appropriately and discharged in good condition. There was no mortality noted in our study.

## DISCUSSION

64% percent of the 94 patients in this study with an acute appendicitis diagnosis were male. This male preponderance is noteworthy, as it is comparable to the 60% of male participants in a study by Chaudhar YP et al. in Maharashtra, India.<sup>7</sup> According to this study, the majority of the patients were between the ages of 15 and 30, which is corroborated by research done by Pralhad Y.<sup>7</sup>

**Table 3. Distribution of post-op complications**

| Complications                    | Number | Percentage |
|----------------------------------|--------|------------|
| Wound infection                  | 20     | 21.2       |
| Bleeding                         | 03     | 3.2        |
| Paralytic ileus                  | 05     | 5.3        |
| Pelvic abscess                   | 04     | 4.3        |
| Fecal fistula                    | 01     | 1.1        |
| Adhesive small bowel obstruction | 01     | 1.1        |

Our study observed that all 94 patients (100%) complained of abdominal pain, 90% had anorexia, 60% had a fever and, 45% suffered continual vomiting which is in-line with values from other studies in the field, specifically 99%, 76% and 56% respectively, values obtained from a study conducted by Kamath P et al.<sup>8</sup>

In this study, the position of the appendix was also observed. It was found that 76.5% of the appendixes were in a retrocecal position. This finding is supported by a study

by Salwe NA, which found that 25% of appendixes were in a pelvic position and 57% were in a retrocecal position.<sup>9</sup>

This study revealed a number of post-operative complications. 21% of patients suffered wound infections, 5% had paralytic ileus, 4% were diagnosed with pelvic abscesses, and 3% had a post-operative haemorrhage. A faecal fistula and an adherent small bowel obstruction, were also present, with each appearing in only one patient.

The primary limitation of this study was the relatively small size of the study population.

## CONCLUSION

Given the high prevalence of acute appendicitis in younger age groups, it is possible to diagnose acute appendicitis in any young patient who presents with acute abdominal pain. Additionally, appendectomy complications are extremely rare and have a favourable prognosis.

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