

# Clinical Profile of Patients having Acute Appendicitis: A Cross-Sectional Study

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## ABSTRACT

**Aim:** To examine the clinical characteristics of patients with acute appendicitis

**Study design:** A cross-sectional study

**Place and Duration:** This study was conducted at Liaquat University Hospital Jamshoro / Hyderabad from March 2021 to March 2022.

**Methodology:** Present study included 118 patients who went through emergency appendectomy for acute appendicitis. The study evaluated the patient's clinical profile who presented with acute appendicitis. A detailed history was taken, a clinical examination was performed, and tests such as a complete blood test and ultrasonography were performed. Patients of either gender, above 10 years of age, and with clinical diagnoses of acute appendicitis were incorporated in the study. Patients having an appendicular mass or right ureteric/renal colic were excluded from the study.

**Results:** In the current study the mean age of patients was  $27.56 \pm 9.8$  years. Out of 118 patients, 71 (60.1%) were males, and 47 (39.83%) were females. We observed the predominance of males in the current study. Majority of the patients presented with complaints of right iliac fossa pain (98.3%) and migration of pain (67.8%). Nausea and anorexia were present in 86.4% of cases, and vomiting was present in 84.7% of cases. Tenderness was observed in right iliac fossa in all patients while Dunphy sign (59.3%), guarding (63.5%), rebound tenderness (69.4%), rigidity (5.9%), Psoas sign (45.7%), Rovsing sign (35.5%) and Obturator sign (21.1%).

**Conclusion:** Males are more likely to have acute appendicitis than females between 10 and 30 years of age. The most common signs and symptoms were discomforts, anorexia, nausea/vomiting, and abdominal pain. Tenderness, guarding, and rebound tenderness were the most prevalent symptoms.

**Keywords:** Appendectomy, emergency department, Abdomen pain, Acute appendicitis

## INTRODUCTION

One of the common reasons to visit the hospital in emergencies is abdominal pain. It presents a diagnostic problem for emergency physicians because the causes might range from benign to life-threatening. Gastrointestinal, urological, and gynecological issues are among the most frequent causes. (1) Despite the careful investigation, a quarter of patients had a non-specific etiology, although this figure has dropped because of recent radiological imaging breakthroughs. The most prevalent reason for emergency abdominal surgery is acute appendicitis. About 6% of the population suffers from Acute appendicitis (AA) at some point. (2) The overall death rate for AA varies from 0.3 percent in non-perforated cases to 6.5 percent in perforated cases. AA is diagnosed clinically based on the patient's physical examination and medical history. Clinical examination accuracy has been observed to range from 71% to 97%, and it varies substantially depending on the examiner's experience. (3)

Mechanical obstruction, smoking, air pollution, inadequate dietary fiber, and hereditary susceptibility have all been suggested as probable causes of the condition. AA can occur at any time of year; however, the incidence of AA varies significantly. (4) Patients with AA have abdominal pain that starts in the periumbilical area and moves to the right iliac fossa. It causes anorexia, vomiting, nausea, and low-grade fever. The majority of diagnoses are clinical. For example, the Alvarado score's clinical scoring systems have been used to increase clinical diagnostic accuracy and minimize the negative appendectomy rate. (5)

Any delay in diagnosing acute appendicitis and, as a result, in performing an appendectomy might result in catastrophic complications such as perforation and peritonitis. (6) Because of the frequency of obstetrical, pelvic inflammatory disease (PID) and gynecological illnesses, the negative appendectomy rate ranges from 15 to 35 percent in young women (up to 45 percent). More accuracy is desired to detect AA at the initial level to lower the rate of perforation and negative appendectomy. (7) As a result, the

purpose of this study was to examine the various clinical characteristics of patients with AA.

## METHODOLOGY

The present cross-sectional study was conducted on 118 patients diagnosed with acute appendicitis. The method of participant sampling chosen for this study was convenience sampling. Patients who were clinically diagnosed with AA and scheduled for an emergency appendectomy were included as participants. A detailed history was taken, a clinical examination was performed, and tests such as a complete hemogram and ultrasonography were performed. The study was approved by the institutional ethics committee and informed written consent was taken from all participants before starting the study. Patients of either gender, above 10 years of age, and with clinical diagnoses of AA were incorporated into the study. Patients having an appendicular mass or right ureteric/renal colic were excluded. Patients' complaints and physical examination findings were gathered from their medical records, and their demographics, clinical characteristics, surgical findings, and histological results were recorded on a customized patient proforma.

A detailed history was collected in each patient, focusing on symptoms such as discomfort in the abdomen, vomiting/nausea, shifting pain, fever, and anorexia. Tenderness, right iliac fossa pain, rebound rigidity, and guarding were signs of peritoneal inflammation. Cases were supposed to regular laboratory tests and ultrasounds as per hospital policy once an acute appendicitis diagnosis was suspected.

SPSS statistical software version 16.0 was used to enter and analyze the collected data. The mean and standard deviation (SD) were used to present quantitative variables. Proportions were used to represent qualitative factors.

## RESULTS

The current study involved 118 clinically diagnosed AA individuals referred for an emergency appendectomy. The present study

included patients ranging from 10 to 62 years and the mean age of patients was  $27.56 \pm 9.8$  years. The current study observed 71 (60.1%) males and 47 (39.83%) females out of 118 cases. The extreme number of cases, approximately 43.2%, was observed in the 10-20 year of age group, followed by 23.7% cases in the age group of 21-30 years. Minimum cases, approximately 5.0%, were observed in the age group of 51-60 years, as shown in Table1. Males had the highest cases of AA in the age group of 10 to 20 years (22%), followed by those aged 21 to 30 years (15.5%), 31 to 40 years (9.3%), and 41 to 50 years old (5.9 %). Females followed a similar pattern of age distribution, with the largest prevalence in the younger age groups: 10-20 years (20.3%), 21-30 years (8.4%), 31-40 years (3.38%), and 41-50 years (1.7%), as shown in Table-1.

Out of 118 patients, 116 presented with right iliac fossa complaints. Pain migration to RIF was reported by 80 individuals (67.8%). Coughing pain was experienced by 68% of patients, anorexia was recorded by 102 (86.4%), and nausea and vomiting were reported by 100 (84.7%). Fever was mentioned by 28 patients (23.7 percent), as shown in Table2.

Abdominal tenderness was observed in all 118 cases, rebound tenderness 82 (69.4%), Psoas sign 54 (45.7%), guarding (63.5%) and Dunphy's sign 70 (59.3%) cases. The prevalence of several indications of acute appendicitis is mentioned in Table3.

In the current study, 87.5% of cases were determined to be positive for acute appendicitis on histology, while 12.5% of instances were negative. As a result, the current study's negative appendectomy rate is 12.5%. In addition, the negative appendectomy rate in females at 7% was higher than in males at 5.5%.

Table-1: Distribution of cases with age and gender

Age Groups (years)	Female	Male	Total (N)	Percentage
10-20	24	27	51	43.3
21-30	10	18	28	23.72
31-40	4	11	15	12.7
41-50	4	7	11	9.3
51-60	2	4	6	5.08
>60	3	4	7	5.9
Total	47	71	118	100

Table-2: Description of prevalence symptoms in acute appendicitis (n=118)

Symptoms	No. of cases	Percentage
Nausea/vomiting	100	84.7
H/O Fever	28	23.7
Pain in Right Iliac Fossa (RIF)	116	98.3
Migration of Pain to RIF	80	67.8
Anorexia	102	86.4
Pain on coughing	68	57.6

Table-3: Distribution of symptoms in individuals with acute appendicitis (n=118)

Signs	No of Cases	Percentage
Tenderness	118	100
Rebound tenderness	82	69.4
Pulse (>90)	84	71.1
Temperature (>37.5 o C)	22	18.6
Rigidity	7	5.9
Rovsing's sign	42	35.5
Guarding	75	63.5
Psoas sign	54	45.7
Obturator sign	25	21.1
Dunphy's sign	70	59.3
Baldwin's sign	10	8.4

## DISCUSSION

The most common surgical emergency in the abdominal cavity is acute abdominal appendicitis (AA). The diagnosis of AA is particularly intriguing in young, pregnant, and elderly patients since it can lead to more serious complications. AA is the most common indication for emergency abdominal surgery and it can also be a source of inflammatory disorders and neoplasms.(8) Prompt diagnosis is critical since complications such as gangrene,

phlegmon development, and perforation can result in mortality. Negative appendectomy has severe indisposition, such as intestinal obstruction, infertility, and wound infection; hence, high diagnostic accuracy is essential.(9) Present study was conducted on 118 patients diagnosed clinically with acute appendicitis.

The average age of the patients in our study was  $27.56 \pm 9.8$  years. The highest number of cases were observed in the age group of 10-20 years (43.2%), followed by 21-20 years (23.7%). It could be the presence of maximum numbers of lymphocytes in the body at a younger age. However, the lowest number of cases were observed after 50 years of age. Similar results were acquired by Rajesh et al. in 2020 showed that the number of cases was reduced with age.(10) A study performed in Wah cant Pakistan also mentioned that the majority of AA cases occur between 10 to 30 years of age.(11) According to the study conducted in Aga Khan Hospital, Karachi, Pakistan, in 1999 showed, the mean age of cases was 27 years.(12) Guraya et al. reported the mean age of participants was 23.7 years.(13) Whereas, Rasool et al. (2016) reported the mean age of acute appendicitis was  $35 \pm 12$  years.(14)

The present study showed that males were predominant per AA cases, as out of 118 cases, 60.1% were males and 39.83% were females. Similar results were documented by Kumar et al. (Males 58% and Females 42%)(10), Nasir Ali et al. (Males 80% and Females 20 %)(15), and male predominance was also reported by Ahmed et al. (2018).(16) Clinical assessment is very critical in the diagnosis of AA. The accuracy of diagnosis is very high in young one older age patients. The accuracy of diagnosis of AA also depends upon the experiences of surgeons.(17) AA can be easily misdiagnosed as it mimics gynecological disease, torsion, ectopic pregnancy, pelvic inflammation, and ovarian cysts rupture.

In this study, patients presented with the pain in right iliac fossa (98.3%), pain migration to the right iliac fossa (67.8%), pain during coughing (68%), anorexia (86.4%), fever (23.7%) and vomiting/nausea (84.7%). Another study mentioned that cases with pain in the right iliac fossa were 92%, anorexia was presented in 77.2%, while vomiting/nausea was observed in 75.2%.(18) Similar findings were observed by Soomro et al. (2008) localized pain in the right iliac fossa (57.9%) followed by anorexia (86.2%), fever (43.10%), and vomiting (68.9%).(19) Patients in the present study presented with abdominal tenderness (100%), Higher Pulse rate (69.4%), Fever (18.6%), Rovsing's sign (35.5%), Obturator sign (21.1%), Rigidity (5.9%), Psoas sign (45.7%), Dunphy's sign (59.3%) and Baldwin's sign (8.4%). A similar study showed rebound tenderness (72%), Rovsing sign (55%), muscle guarding (43%), Obturator test (23%), RIF tenderness (92%), and Psoas sign (50%).(20) Whereas Kumar et al. reported the patient present with Guarding (64%), Obturator sign (22%), Dunphy sign (60%), rigidity (6%), Rovsing sign (36%), and all patients had pain in the right iliac fossa.(10)

## CONCLUSION

According to our findings, acute appendicitis is more common in younger male cases in their second and third decades of life. Pain in the abdomen, nausea, anorexia, and vomiting were the most common symptoms. Guarding, tenderness, and rebound tenderness, were the most prevalent symptoms.

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