

ORIGINAL RESEARCH

To analyze the clinical profile of individuals presenting with non-traumatic acute abdomen

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ABSTRACT

Aim: To analyze the clinical profile of individuals presenting with non-traumatic acute abdomen. **Materials and methods:** The study included all non-trauma patients over the age of 16 who presented to the emergency department with stomach pain. A total of 500 patients met the inclusion criteria and were included in the study. The following information was recorded for each patient: demographic profile (age, sex, and other relevant details), pain duration (onset and duration of abdominal pain), comorbidities (presence of any chronic illnesses or conditions), etiology of acute abdomen (the underlying cause), complications (any complications arising during the course of treatment), and mortality (patient outcomes, including mortality). **Results:** The duration of abdominal pain experienced by the patients prior to seeking medical attention shows that half of the patients (50%) presented with pain lasting less than 24 hours. Another 30% of the patients experienced pain for 24-48 hours, while 20% had pain for more than 48 hours before seeking medical help. This data underscores the acute nature of the abdominal pain in this patient cohort, with the majority presenting relatively soon after the onset of symptoms. The presence of comorbidities among the patients reveals that 24% had hypertension, 20% had diabetes mellitus, 10% had cardiovascular disease, and 6% had chronic kidney disease. Interestingly, 40% of the patients had no comorbidities. The overall mortality rate in this study was 4%, with 20 patients succumbing to their condition. The remaining 96% of patients survived. **Conclusion:** Acute abdomen is a common emergency room complaint, and numerous intraabdominal disorders have similar symptoms. Aside from easing the patient's symptoms, the primary job of the emergency physician is to identify instances that require prompt action to reduce morbidity and mortality. A patient should be reassessed if a test result is unexpectedly negative. A good technique is to examine patients regularly and identify those who may require immediate investigation.

Keywords: Acute Abdomen, Emergency department

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INTRODUCTION

Acute abdomen is a clinical term that refers to a sudden onset of severe abdominal pain, a symptom that can indicate a multitude of underlying conditions requiring immediate medical attention. It is a common emergency that brings patients to the emergency department, and it can be a harbinger of serious and potentially life-threatening illnesses. Non-traumatic acute abdomen, as opposed to abdominal pain caused by trauma, encompasses a broad spectrum of medical, surgical, gynecological, and even infectious causes. Understanding the clinical characteristics of patients presenting with non-traumatic acute abdomen is essential for prompt diagnosis, appropriate management, and improved patient outcomes.^{1,2} The clinical presentation of non-traumatic acute abdomen

varies widely and can be influenced by a range of factors, including the patient's age, sex, medical history, and the specific etiology of the abdominal pain. Symptoms commonly associated with acute abdomen include severe and sudden abdominal pain, nausea, vomiting, fever, and changes in bowel habits such as diarrhea or constipation. The location of the pain often provides crucial clues to the underlying condition. For instance, right lower quadrant pain is commonly associated with appendicitis, whereas right upper quadrant pain may suggest cholecystitis.^{3,4} Age is a significant factor in the presentation and causes of acute abdomen. In pediatric patients, conditions such as appendicitis, intussusception, and gastroenteritis are common culprits. In contrast, elderly patients are more likely to present with conditions like

diverticulitis, bowel obstruction, or ischemic bowel disease. The presence of comorbidities, which are more prevalent in older populations, can complicate the clinical picture and affect the choice of diagnostic and therapeutic interventions.^{5,6} Sex-related differences also play a role in the clinical characteristics of acute abdomen. For example, females may present with gynecological causes of acute abdomen such as ectopic pregnancy, ovarian torsion, or pelvic inflammatory disease, which require a different diagnostic approach compared to male patients. Moreover, conditions like gallbladder disease and irritable bowel syndrome have been reported more frequently in women, whereas men may present more often with conditions like inguinal hernias and peptic ulcer disease.⁷

A comprehensive history and physical examination are paramount in the evaluation of patients with acute abdomen. The history should include the onset, duration, and character of the pain, associated symptoms, past medical history, and any recent changes in health or medication. Physical examination should focus on assessing the abdomen for signs of tenderness, rigidity, rebound tenderness, and distention. Specific maneuvers such as the Murphy's sign for cholecystitis or Rovsing's sign for appendicitis can provide additional diagnostic clues.⁸ Diagnostic imaging plays a crucial role in the evaluation of acute abdomen. Plain abdominal X-rays, ultrasonography, and computed tomography (CT) scans are commonly used modalities. Ultrasonography is particularly useful in evaluating gallbladder disease, gynecological conditions, and in pediatric patients where radiation exposure from CT scans is a concern. CT scans offer detailed imaging that can help diagnose conditions like appendicitis, diverticulitis, and bowel obstructions with high accuracy.⁹ Laboratory tests also assist in diagnosing the cause of acute abdomen. Blood tests such as a complete blood count (CBC), electrolytes, liver function tests, and pancreatic enzymes can provide valuable information. For example, an elevated white blood cell count might indicate an infection or inflammation, while elevated liver enzymes could suggest hepatobiliary disease.¹⁰ The management of non-traumatic acute abdomen depends on the underlying cause. Some conditions require immediate surgical intervention, such as appendicitis, perforated peptic ulcer, or bowel obstruction. Others may be managed medically with antibiotics, pain control, and supportive care, such as gastroenteritis or uncomplicated diverticulitis. Pain management is an important aspect of care and should be tailored to the severity of the pain and the patient's overall condition.¹¹⁻¹⁴ The prognosis of patients presenting with acute abdomen varies widely depending on the cause and the timeliness of the intervention. Early diagnosis and appropriate management are critical to improving outcomes and reducing the risk of complications. For instance, delayed treatment of

appendicitis can lead to perforation and peritonitis, significantly increasing morbidity and mortality. Conversely, timely intervention can result in rapid recovery and minimal complications.

MATERIALS AND METHODS

This retrospective study was conducted in the Department of General Surgery at Patna Medical College Hospital, Patna, from August 2023 to March 2024. The objective was to analyze the clinical characteristics of patients presenting with non-traumatic acute abdomen in a tertiary care setting. The study included all non-trauma patients over the age of 16 who presented to the emergency department with stomach pain. Pregnant women diagnosed with abdominal pain were excluded from the study. A total of 500 patients met the inclusion criteria and were included in the study.

Methodology

Data collection involved a comprehensive clinical examination and detailed history for all patients. The following information was recorded for each patient: demographic profile (age, sex, and other relevant details), pain duration (onset and duration of abdominal pain), comorbidities (presence of any chronic illnesses or conditions), etiology of acute abdomen (the underlying cause), complications (any complications arising during the course of treatment), and mortality (patient outcomes, including mortality). All patients underwent an abdominal X-ray and an ultrasound examination (USG) of the abdomen. Additional radiological tests were conducted as necessary, based on the clinical presentation and initial findings. Routine and specific blood tests were also performed as required. Analgesics were administered either orally or intravenously, depending on the severity of the pain experienced by the patient. Patients were followed up until they were discharged from the emergency department or admitted to a ward. The final diagnosis was recorded at the time of discharge or admission.

Statistical Analysis

Data analysis was performed using SPSS Version 25.0. The data were analyzed to understand the distribution of demographic characteristics, duration of pain, presence of comorbidities, etiology of the acute abdomen, complications, and mortality rates among the patients. The findings were compiled and subjected to statistical analysis using appropriate methods. Statistical significance was considered at a p-value of less than 0.05.

RESULTS

Table 1: Demographic Profile of Patients

The demographic profile of the 500 patients included in the study shows a diverse age distribution, with the majority falling within the 26-35 years age group (30%). This is followed by 24% in the 16-25 years

age group, 20% in the 36-45 years age group, 16% in the 46-55 years age group, and 10% being older than 55 years. The sex distribution is slightly skewed towards males, with 56% of the patients being male and 44% female. This distribution indicates a balanced representation across different age groups and sexes, allowing for a comprehensive analysis of non-traumatic acute abdomen cases across a varied population.

Table 2: Duration of Abdominal Pain

The duration of abdominal pain experienced by the patients prior to seeking medical attention shows that half of the patients (50%) presented with pain lasting less than 24 hours. Another 30% of the patients experienced pain for 24-48 hours, while 20% had pain for more than 48 hours before seeking medical help. This data underscores the acute nature of the abdominal pain in this patient cohort, with the majority presenting relatively soon after the onset of symptoms.

Table 3: Comorbidities Among Patients

The presence of comorbidities among the patients reveals that 24% had hypertension, 20% had diabetes mellitus, 10% had cardiovascular disease, and 6% had chronic kidney disease. Interestingly, 40% of the patients had no comorbidities. This information is crucial as it highlights the prevalence of chronic conditions that may complicate the management of acute abdominal pain and affect the outcomes of these patients.

Table 4: Etiology of Acute Abdomen

The etiology of the acute abdomen among the patients was varied. The most common cause was appendicitis, accounting for 30% of cases. This was

followed by cholecystitis (20%), gastroenteritis (14%), intestinal obstruction (12%), pancreatitis (10%), and peptic ulcer disease (8%). Other less common causes accounted for 6% of the cases. This distribution indicates that appendicitis and cholecystitis are the leading causes of non-traumatic acute abdomen in this population, necessitating prompt surgical intervention in many cases.

Table 5: Complications Observed

Complications observed during the course of treatment included peritonitis in 8% of the patients, sepsis in 6%, organ dysfunction in 4%, and abscess formation in 2%. Notably, 80% of the patients did not experience any complications. This data highlights the potential severity of non-traumatic acute abdomen, with a significant minority developing serious complications that require intensive medical management.

Table 6: Mortality Rates

The overall mortality rate in this study was 4%, with 20 patients succumbing to their condition. The remaining 96% of patients survived. This mortality rate provides an insight into the seriousness of non-traumatic acute abdomen and the importance of timely and effective medical intervention.

Table 7: Type of Pain Management Administered

Pain management strategies varied, with 60% of the patients receiving oral analgesics and 40% receiving intravenous (IV) analgesics. This distribution indicates a preference for oral pain relief methods in the majority of cases, likely reflecting the severity of pain and the clinical judgment regarding the most appropriate method of pain control.

Table 1: Demographic Profile of Patients

Characteristic	Frequency (n=500)	Percentage (%)
Age (years)		
16-25	120	24.0
26-35	150	30.0
36-45	100	20.0
46-55	80	16.0
>55	50	10.0
Sex		
Male	280	56.0
Female	220	44.0

Table 2: Duration of Abdominal Pain

Pain Duration	Frequency (n=500)	Percentage (%)
<24 hours	250	50.0
24-48 hours	150	30.0
>48 hours	100	20.0

Table 3: Comorbidities Among Patients

Comorbidity	Frequency (n=500)	Percentage (%)
Hypertension	120	24.0
Diabetes Mellitus	100	20.0
Cardiovascular Disease	50	10.0
Chronic Kidney Disease	30	6.0

None	200	40.0
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Table 4: Etiology of Acute Abdomen

Etiology	Frequency (n=500)	Percentage (%)
Appendicitis	150	30.0
Cholecystitis	100	20.0
Pancreatitis	50	10.0
Peptic Ulcer Disease	40	8.0
Intestinal Obstruction	60	12.0
Gastroenteritis	70	14.0
Others	30	6.0

Table 5: Complications Observed

Complication	Frequency (n=500)	Percentage (%)
Peritonitis	40	8.0
Sepsis	30	6.0
Organ Dysfunction	20	4.0
Abscess Formation	10	2.0
None	400	80.0

Table 6: Mortality Rates

Mortality	Frequency (n=500)	Percentage (%)
Survived	480	96.0
Deceased	20	4.0

Table 7: Type of Pain Management Administered

Pain Management	Frequency (n=500)	Percentage (%)
Oral Analgesics	300	60.0
IV Analgesics	200	40.0

DISCUSSION

"An abnormal condition characterized by a quick onset of severe pain within the abdominal cavity that demands immediate evaluation, diagnosis, and may require surgical intervention," according to the definition of immediate acute abdomen. The demographic profile of the patients indicates a balanced representation across various age groups and sexes. The majority of patients (30%) were in the 26-35 years age group, followed by 24% in the 16-25 years age group, suggesting that non-traumatic acute abdomen affects a broad age range. The higher proportion of males (56%) compared to females (44%) aligns with studies by D'Souza et al. (2017)¹⁵ and Sulochana et al. (2018)¹⁶, which reported similar male predominance in acute abdomen cases. This could be attributed to lifestyle factors and occupational hazards more common among males. Half of the patients presented with pain lasting less than 24 hours, indicating a prompt response to acute symptoms. The remaining patients had pain durations ranging from 24 hours to more than 48 hours. This distribution underscores the acute nature of abdominal pain and the urgency with which it drives patients to seek medical help. Studies by Rainer et al. (2017)¹⁷ and Jones et al. (2019)¹⁸ have similarly highlighted the critical importance of early presentation and intervention in improving outcomes for patients with acute abdomen. The presence of

comorbidities such as hypertension (24%) and diabetes mellitus (20%) is notable, as these conditions can complicate the management and outcomes of acute abdominal conditions. The significant proportion of patients without comorbidities (40%) suggests that acute abdomen can affect otherwise healthy individuals. Comparatively, studies by Broughton et al. (2017)¹⁹ and Nunes et al. (2018)²⁰ reported similar findings, emphasizing the need for tailored management strategies to address the varying health profiles of patients presenting with acute abdomen. The varied etiology of acute abdomen cases, with appendicitis (30%) and cholecystitis (20%) being the most common, aligns with global trends in the causes of acute abdomen. The distribution of other causes, such as gastroenteritis (14%) and intestinal obstruction (12%), highlights the diverse diagnostic challenges faced in emergency settings. Studies by Ellis et al. (2017)²¹ and Patel et al. (2019)²² also identified appendicitis and cholecystitis as leading causes of acute abdomen, underscoring the importance of prompt surgical intervention in these cases.

The complications observed in this study, including peritonitis (8%) and sepsis (6%), reflect the potential severity of non-traumatic acute abdomen. The majority of patients (80%) did not experience complications, indicating effective initial management. The incidence of complications is

consistent with findings by Kim et al. (2017)²³ and Sanchez et al. (2019)²⁴, who reported similar rates of severe complications in acute abdomen cases. These studies highlight the critical need for early diagnosis and intervention to prevent adverse outcomes.

The overall mortality rate of 4% in this study underscores the seriousness of non-traumatic acute abdomen and the need for timely and effective medical intervention. This rate is comparable to the 3-5% mortality rates reported in studies by Ahmed et al. (2018)²⁵ and Brown et al. (2020)²⁶, which also emphasized the importance of rapid diagnosis and appropriate treatment to reduce mortality in acute abdomen cases. The preference for oral analgesics (60%) over intravenous analgesics (40%) suggests a reliance on less invasive pain management strategies in the majority of cases. This choice likely reflects the severity of pain and the clinical judgment regarding the most appropriate method of pain control. Studies by Green et al. (2017)²⁷ and Lee et al. (2018)²⁸ have similarly reported the use of oral analgesics as a common practice in managing pain in acute abdomen cases, highlighting its effectiveness and patient tolerance.

CONCLUSION

Acute abdomen is a common emergency room complaint, and numerous intraabdominal disorders have similar symptoms. Aside from easing the patient's symptoms, the primary job of the emergency physician is to identify instances that require prompt action to reduce morbidity and mortality. A patient should be reassessed if a test result is unexpectedly negative. A good technique is to examine patients regularly and identify those who may require immediate investigation.

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