



CLINICAL SPECTRUM AND OUTCOMES OF NON-TRAUMATIC ACUTE ABDOMINAL PAIN IN ADULTS PRESENTING TO THE EMERGENCY DEPARTMENT: A PROSPECTIVE OBSERVATIONAL STUDY

Emergency Medicine

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ABSTRACT

Background: Non-traumatic acute abdominal pain is among the most common and diagnostically challenging presentations in the Emergency Department (ED). It encompasses a wide etiological spectrum ranging from benign medical conditions to life-threatening surgical emergencies. Prompt evaluation and appropriate triage are critical to ensure optimal outcomes and efficient use of emergency healthcare resources. **Objectives:** To evaluate the clinical profile, etiological spectrum (medical versus surgical), diagnostic approach, management strategies, and short-term outcomes of adult patients presenting with non-traumatic acute abdominal pain to the ED. **Methods:** This prospective observational study was conducted over six months (November 2024–April 2025) in the Emergency Medicine Department of a tertiary care medical college hospital. Adult patients aged 18–70 years presenting with non-traumatic acute abdominal pain were enrolled. Demographic data, comorbidities, clinical assessment including Visual Analog Scale (VAS) for pain, investigations, management approach, and outcomes were recorded. Data were analyzed descriptively. **Results:** A total of 120 patients were included, with a male predominance (62.5%). Nearly half (45%) belonged to the 15–30-year age group. Common comorbidities included hypertension (35.8%) and diabetes mellitus (30%). Imaging modalities played a decisive diagnostic role in 60% of cases. Surgical intervention was required in 32% of patients, predominantly appendectomies, while 68% were managed conservatively. Nearly 45% were discharged directly from the ED. Hospital stay was ≤ 3 days in 81% of patients, with almost half discharged within 24 hours. Prolonged hospitalization (> 7 days) occurred in 4.2%. Surgical patients had a longer average hospital stay compared to conservatively managed patients (6 vs. 3 days). **Conclusion:** Non-traumatic acute abdominal pain in adults presents with diverse etiologies and outcomes. Early clinical assessment supported by appropriate imaging is pivotal in distinguishing surgical from medical causes, guiding timely intervention, and optimizing patient outcomes in the ED.

KEYWORDS

Acute abdomen, Emergency department, Abdominal pain, Non-traumatic, Surgical outcomes, Imaging

INTRODUCTION

Acute abdominal pain constitutes a substantial proportion of adult presentations to emergency departments and continues to pose significant diagnostic uncertainty due to its varied clinical manifestations and overlapping symptomatology.¹ It accounts for a substantial proportion of ED consultations and hospital admissions, contributing significantly to healthcare utilization and costs.² Non-traumatic abdominal pain in adults may arise from a wide range of underlying pathologies, from transient medical conditions to rapidly progressive surgical emergencies that demand urgent intervention.³

In India and other low- and middle-income countries, delays in diagnosis and referral can significantly increase morbidity, length of hospital stay, and healthcare burden.⁴ Accurate early differentiation between medical and surgical causes is essential to ensure appropriate management, reduce unnecessary admissions, and prevent complications.⁵ Clinical evaluation alone may be insufficient due to overlapping presentations, making laboratory investigations and imaging modalities crucial adjuncts in decision-making.⁶

Despite its clinical importance, there is limited prospective data from Indian emergency care settings evaluating the clinical profile, diagnostic approach, and short-term outcomes of adults presenting with non-traumatic acute abdominal pain.^{7,8} This study was undertaken to address this gap and to provide evidence relevant to emergency physicians working in tertiary care settings.

MATERIALS AND METHODOLOGY:

Design: Prospective Observational study approved by ethics and informed consent obtained.

Sample Size - 120 patients.

Inclusion Criteria

- Patients aged 18–70 years
- Presenting with acute abdominal pain
- Willing to provide informed consent

Exclusion Criteria

- Age < 18 years or > 70 years
- History of trauma
- Current cardiac or respiratory instability
- Unwillingness to participate

AIMS:

Primary Objective:

To assess the clinical profile and etiological spectrum (medical versus surgical) of non-traumatic acute abdominal pain in adults presenting to the ED.

Secondary Objectives:

To evaluate diagnostic modalities used, management strategies employed, and short-term outcomes including hospital stay and discharge status.

Data Collection:

After Institutional Ethics Committee approval and informed consent, patients were evaluated using a structured proforma. Clinical history, physical examination findings, and pain severity assessed using the Visual Analog Scale (VAS; 0–10)⁹ were recorded. Baseline laboratory investigations were performed for all patients. Imaging studies—ultrasonography, erect abdominal X-ray, and CT abdomen and pelvis—were obtained when clinically indicated.¹⁰ Management decisions and outcomes were documented.

Statistical Methods:

Data were entered into Microsoft Excel and analyzed using descriptive statistical methods. Categorical variables were expressed as frequencies and percentages.

Clinical Definitions

- **Acute abdominal pain:** Pain of sudden onset, duration less than 7 days.⁵
- **Surgical abdomen:** Abdominal pain requiring operative intervention.¹¹

RESULTS:

Table – 1: Patient Demographics

Variable	N=120	Frequency(%)
1. AGE		
18-30	54	45%
30-50	44	36.7%
50-70	22	18.3%
2. GENDER		
Male	75	62.5%
Female	45	37.5%
3. DURATION OF PAIN		
1 day	47	39.16%
1-3 days	55	45.8%
> 3 days	18	15%
4 CO- MORBIDITIES		
Diabetic Mellitus	36	30%
Hypertension	43	35.8%
Ischemic Heart disease	7	5.8%
Chronic Pancreatitis	5	4.2%
5. SURGICAL HISTORY		
Yes	19	15.8%

Table 2: Pain Characteristics

Variable	Number	Percentage
1. Pain Severity Score		
1-4	33	27.5%
5-7	65	54.2%
8-10	22	18.3%
2. Onset Of Pain		
Sudden	66	55%
Gradual	54	45%
3. Localization Of Pain		
Upper abdominal	32	26.7%
Lower abdominal	52	43.3%
Generalized	36	30%
4. Radiation		
None	74	61.2%
Groin	13	10.8%
Back	12	10%
Shoulder	3	2.5%
Not able to express	18	15%

Table 3: Primary Outcome

FINAL DIAGNOSIS	Number	Percentage
Medical causes	74	61.7%
Surgical causes	46	38.7%

Table 4: Secondary Outcome

Outcome Assessed	Number	Percentage
1. Disposition from ED		
Discharged	34	28.3%
Admitted in ED	20	16.6%
Referral to specialty	66	55%
Death	0	0%
2. Duration of Hospital Stay		
<24 hours	44	36.6%
1-3 days	53	44.2%
3-7 days	18	15%
>7 days	5	4.2%

DISCUSSION:

This prospective observational study highlights the diverse clinical spectrum and outcomes of non-traumatic acute abdominal pain in adults presenting to the ED. The observed male predominance and younger age distribution are consistent with findings from similar Indian studies. Hypertension and diabetes mellitus were common comorbidities, reflecting the increasing burden of non-communicable diseases among ED patients.⁴¹¹

The predominance of lower abdominal pain in our study (43.3%), corresponds with the observed proportion of appendicular and other surgical pathologies. Moderate pain severity (VAS 5-7) constituted the largest subgroup (54.2%), indicating that pain intensity alone may not reliably predict surgical pathology.

In the present study, diagnostic imaging substantially influenced clinical decision-making and aided in distinguishing patients requiring operative management from those suitable for conservative treatment.¹² The proportion of patients requiring surgical intervention (38.7%) aligns with earlier studies reporting operative rates between

25-40%.³ Surgical patients experienced longer hospital stays, emphasizing the impact of operative management and postoperative care on resource utilization.

A structured bedside evaluation combined with judicious use of radiological investigations facilitated timely triage and appropriate disposition planning in our study population.¹³ These findings underscore the importance of structured evaluation protocols in emergency care.

LIMITATIONS:

- Single-center observational design limits generalizability
- Imaging modalities were not uniformly utilized across all patients.¹⁴
- Etiological classification details were limited

CONCLUSION:

Non-traumatic acute abdominal pain in adults presents a wide etiological spectrum in the Emergency Department. Timely bedside evaluation supported by selective radiological investigations enables early identification of patients requiring surgical attention.¹⁵ Adoption of systematic evaluation strategies can optimize patient outcomes, reduce hospital stay, and improve emergency care efficiency.

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Ethical approval: The study was approved by Institutional Ethical Committee

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