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A CLINICO-EPIDEMIOLOGICAL STUDY OF ACUTE ABDOMEN IN A TERTIARY CARE CENTRE OF EASTERN UP - A DESCRIPTIVE OBSERVATIONAL STUDY

General Surgery

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ABSTRACT

Background: There are a group of different reasons, both surgical and non-surgical, that can cause sudden, severe abdominal pain. It's actually a serious medical emergency that needs to be evaluated and treated right away. Delaying diagnosis can really worsen the patient's condition and even be life-threatening. To get a better understanding of how common these cases are, what symptoms they usually show, the ways we diagnose them, and how patients respond to treatment, this study was done at a top-tier medical centre in Eastern Uttar Pradesh. **Methods:** In this study, we looked at 139 patients in a row who came into a tertiary care hospital in Eastern Uttar Pradesh with sudden abdominal pain. We took a good look at their symptoms, other health issues, how they were treated, the various tests like CT scans, ultrasounds, and X-rays, and what kind of people they were **Results:** The study revealed that the majority of patients were men residing in urban settings, suffering from conditions such as COPD, diabetes, hypertension, and were undergoing anti-tubercular therapy. Common presenting symptoms included abdominal pain, liver abscess rupture, acute pancreatitis, and peritonitis due to perforation. Surgical intervention was necessary in approximately 78.4% of cases, with a mortality rate of 20.9% and a discharge rate of 78.4%. **Conclusion:** The high incidence of acute surgical crises, especially perforation peritonitis, emphasizes the necessity of prompt surgical intervention, early diagnosis, and public education regarding the dangers of NSAID abuse and postponed treatment. In such dire situations, improving community knowledge and emergency care infrastructure might lead to better results.

KEYWORDS

Acute abdomen, Abdominal pain, Acute gastroenteritis, Intestinal obstruction

INTRODUCTION

Abdominal pain is a very common complaint of patients attending the medical emergency room. Abdominal pain accounts for about 5-10% of all emergency department visits.[1] The term "acute abdomen" denotes a wide spectrum of surgical, medical, and gynecological conditions ranging from benign to life-threatening, necessitating hospital admission, thorough investigations, and prompt treatment.[2] It encompasses a diverse array of potential diagnoses, spanning from self-limiting to critical conditions.[3] Abdominal pain constitutes a primary cause for emergency room visits, with the majority of cases being benign and transient, although a subset necessitates urgent attention due to serious intra-abdominal pathology.[4]

Acute abdominal pain can last ranging from a few hours to many days, and its symptoms are frequently deceptive and frequently overlap. The possible causes of acute abdomen may range from benign and psychogenic pain to life-threatening aortic dissection.[5]

Children and young adults frequently experience abdominal pain due to severe gastroenteritis, acute appendicitis, and abdominal trauma. Among middle-aged and older patients, diverticulitis, appendicitis, biliary disorders, and intestinal blockage are frequent causes. Common non-surgical causes include metabolic and cardiac emergencies (e.g., acute inferior wall myocardial infarction.[6,7]

Prognosis of acute abdomen largely depends on the severity of the underlying disease and presence of comorbidities being diagnosed in a timely manner. Early intervention markedly improves outcomes while delays conversely heighten risks of sepsis and mortality greatly in many vulnerable populations apparently. Socioeconomic barriers and high patient loads severely hinder prompt care in eastern Uttar Pradesh alongside woefully limited diagnostic facilities. Regional epidemiological differences starkly underscore necessity for bespoke emergency response strategies and judicious allocation of resources locally nationwide.[8]

Therefore, this clinico-epidemiological study of acute abdomen in a tertiary care centre in Eastern Uttar Pradesh aims to identify common etiologies, risk factors, and treatment outcomes. By examining patient demographics, clinical profiles, diagnostics, and management, it seeks to enhance diagnostic accuracy and reduce morbidity and mortality. The findings will contribute to national epidemiological data, support regional comparisons, and inform healthcare policies for better emergency and surgical resource allocation.

Review of Literature

The clinical and epidemiological characteristics of patients with acute abdomen in a tertiary care hospital were investigated by Shinde et al. (2024).[9] The most prevalent diagnosis was acute appendicitis, and the majority were between the ages of 26 and 50. The urgency of these problems is demonstrated by the fact that 45.08% of patients required surgical procedures. Following therapy, pain scores significantly decreased, demonstrating the effectiveness of pain management. The study emphasizes how common renal and gastrointestinal disorders are in patients with severe abdominal pain.

The aim of Rani et al. (2024)[10] study's was to present a thorough clinical-epidemiological account of SBO in adults at a western Indian tertiary care facility. Between July 2020 and June 2022, 88 SBO patients in need of surgery were enrolled in this hospital-based cross-sectional study. According to the study, the most typical signs of acute ileal stricture (SBO) were distension of the abdomen, nausea, constipation, and abdominal discomfort. Ileal strictures were the most prevalent cause, and the most common surgical procedures were resection and anastomosis. The older population's comorbidities and postoperative complications were the cause of the postoperative 30-day death rate of 11.36%. Early diagnosis and efficient treatment can lower morbidity and death and enhance results.

Chanana et al. (2015)[11] conducted a study at a tertiary care facility in India that focused on the diagnosis, results, and demographics of non-traumatic stomach pain. According to the study, there is a small male predominance and the majority of patients are between the ages of 15 and 40. The study highlights the significance of taking into account numerous diagnoses in the emergency room by identifying ureteric colic, acute pancreatitis, and urinary tract infections as some of the main causes.

Boukar et al. (2014)[12] assessed the prevalence, etiologies, and clinical profile of acute abdomen in pregnant women in Southwest Cameroon. The study finds a higher prevalence than the global average and emphasizes the diversity in etiology and clinical presentations, with ectopic pregnancy and appendicitis being common causes. The research calls for awareness among primary care physicians due to the significant health implications.

MATERIALS AND METHODS

Study Design and Setting

This 18-month prospective observational study was carried out in the general surgery department of (B.R.D.) Medical College in Gorakhpur, a tertiary care facility that serves Eastern Uttar Pradesh, India.

Study Population

Patients above the age of 6 years who presented to the emergency department with signs and symptoms suggestive of acute abdomen were enrolled in the study.

Inclusion Criteria

- Patients aged >6 years presenting with clinical features of acute abdomen.
- Those who gave informed consent to participate in the study.

Exclusion Criteria

- Patients admitted electively from the outpatient department.
- Patients with obstetric or gynaecologic conditions.
- Patients with a history of prior surgical intervention for acute abdomen at other institutions.
- Patients who were discharged within 24 hours of admission.

Sample Size and Sampling Technique

$$n = \frac{Z^2 \times p \times (1-p)}{E^2}$$

The sample size was calculated using the formula for descriptive studies, assuming:

- Estimated prevalence (p) = 10%,
- Confidence interval = 95% (Z = 1.96),
- Margin of error (E) = 5%.
- n is the sample size

The calculated sample size was 139 patients, who were recruited consecutively.

Data Collection and Parameters Assessed

Statistical Analysis

Data were entered and analysed using SPSS version 24.0. Descriptive statistics such as means, standard deviations, and percentages were used to summarize continuous and categorical variables. Data were presented using tables, pie charts, and bar graphs for clarity. No inferential statistics were applied as the study was primarily descriptive.

Ethical Considerations

The study was approved by the Institutional Ethics Committee of B.R.D. Medical College, Gorakhpur. Written informed consent was obtained from all patients (or guardians in the case of minors).

RESULTS

This study included 139 patients presenting with acute abdomen at a tertiary care centre in Eastern Uttar Pradesh over 18 months. The aim was to assess the epidemiological distribution, clinical features, diagnosis, management approaches, and outcomes in these patients. Data analysis revealed significant trends in age, gender, socioeconomic status, symptomatology, diagnosis, and operative outcomes (Table 1).

Table 1: Demographic and Socioeconomic Characteristics (n = 139)

Variable	Category	Frequency (%)
Age Group	≤20 yrs	28 (20.1%)
	21–40 yrs	38 (27.3%)
	41–60 yrs	37 (26.6%)
	>60 yrs	36 (25.9%)
Gender	Male	103 (74.1%)
	Female	36 (25.9%)
Residence	Urban	86 (61.9%)
	Rural	53 (38.1%)
Socioeconomic Status	Lower Middle Class	66 (47.5%)
	Middle Class	43 (30.9%)
	Lower Class	22 (15.8%)
	Others	8 (5.8%)

The majority of patients were young to middle-aged males, urban residents, and from lower-middle socioeconomic class. This reflects the population dynamics and possibly greater access to emergency care among urban dwellers (Figure 1).

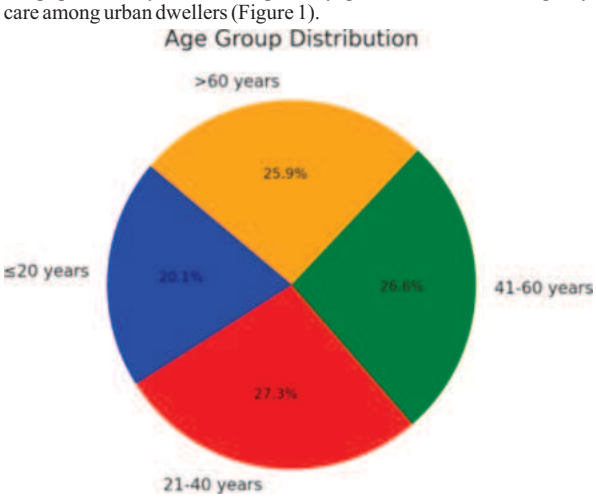

Figure 1: Distribution by Age Group

Table 2: Clinical Presentation of Patients (n = 139)

Symptom	Frequency (%)
Abdominal Pain	139 (100%)
Abdominal Distension	109 (78.4%)
Non-passage of Motion	98 (70.5%)
Vomiting	82 (59.0%)
Non-passage of Flatus	79 (56.8%)
Fever	71 (51.1%)
Tenderness on Palpation	101 (72.7%)
Guarding	137 (98.6%)
Tachycardia	105 (75.5%)
Absent Bowel Sounds	58 (41.7%)

Pain was a universal complaint. Guarding and tachycardia were predominant physical signs, indicating a high proportion of patients with peritonitis or severe pathology (Table 2).

Table 3: Distribution of Study Participants According to Type of Surgery

Surgical Interventions	Frequency
Loop Ileostomy	36 (25.9%)
Modified Graham's Patch Repair	26 (18.7%)
Adhesiolysis	10 (7.2%)
Other Surgeries	37 (26.6%)
Conservative Management	30 (21.6%)

The most common surgical procedure performed was loop ileostomy, followed by modified Graham's patch repair (18.7%) and double barrel ileostomy (Table 3). Other procedures included adhesiolysis, end stoma formation, splenectomy, appendectomy, and specialized repairs for trauma or perforations.

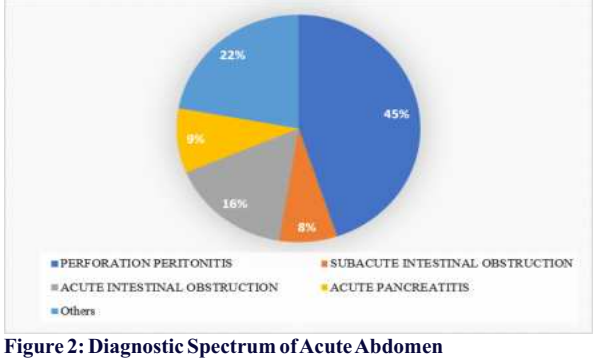

Figure 2: Diagnostic Spectrum of Acute Abdomen

Table 4: Outcomes of Management

Outcome	Frequency (%)
Discharged post-treatment	109 (78.4%)
Mortality	29 (20.9%)
Referred/Left Against Advice	1 (0.7%)

Most patients improved with timely intervention, but mortality remained high (20.9%), particularly among those with delayed presentation, multiple perforations, or sepsis (Table 4).

DISCUSSION

This study examined the clinical and epidemiological profile of acute abdomen in a tertiary care centre in Eastern Uttar Pradesh. Most patients were males (74.1%) aged between 21–60 years, with a predominance of urban residents and lower-middle socioeconomic status. These trends are in line with Shinde et al. (2024)[9] and Chanana et al. (2015)[11], indicating a similar demographic distribution in Indian tertiary settings.

Abdominal pain was a universal symptom, while distension, vomiting, and constipation were common associated complaints. Guarding (98.6%) and tachycardia (75.5%) were prominent signs, suggesting widespread peritonitis or sepsis, as supported by Leung and Sigalet (2003)[6]. The most frequent diagnoses included intestinal obstruction and gastrointestinal perforations, comparable to findings by Rani et al. (2024)[10] and Boukar et al. (2012)[12], who reported similar clinical presentations and surgical emergencies.

Surgically, loop ileostomy was the most common procedure (25.9%), followed by Graham's patch repair (18.7%). The high surgical intervention rate aligns with Shinde et al.'s study[9], which showed 45% of acute abdomen cases required emergency surgery. Conservative treatment was successful in a smaller subset (21.6%).

Although 78.4% of patients recovered, the mortality rate (20.9%) was higher than in other studies, such as Rani et al. (2024)[10], where it was 11.36%. This may reflect delayed presentation, limited peripheral healthcare access, or severe infections. Kelen et al. (2021)[8] emphasized how emergency department overcrowding and diagnostic delays can worsen outcomes, which likely applies here.

CONCLUSION

This study underscores the pressing need for early recognition, improved emergency triage systems, and prompt surgical management of acute abdomen in Eastern Uttar Pradesh. While the clinical patterns mirror those reported in other Indian and global studies, the high mortality rate signals delayed presentation and systemic gaps. Strengthening peripheral referral units, enhancing surgeon availability, and adopting early warning scores could potentially improve outcomes. This study also adds valuable data to the national pool, assisting in the formulation of region-specific emergency surgical protocols.

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