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Clinical Presentations and Surgical Outcomes in Patients with Nontraumatic Acute Abdominal pain

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ABSTRACT

Background: Nontraumatic acute abdominal pain is a common cause of emergency department visits, encompassing a wide range of etiologies. Accurate diagnosis and timely management are critical to improving patient outcomes. **Objective:** The main objective of the study is to find the clinical presentations and surgical outcomes in patients with nontraumatic acute abdominal pain. **Methodology:** This retrospective observational study was conducted at Khalifa Gull Nawaz Medical Teaching Institute, Bannu. from 1st September 2023 to 30th August 2024. Data were collected from 221 patients. **Results:** Among the 221 patients, 126 (57%) were male, with a mean age of 45 ± 15 years. The most common conditions were acute appendicitis (36%), cholecystitis (18%), and intestinal obstruction (15%). Surgical management was performed in 138 patients (62%), with appendectomy being the most common procedure (58% of surgical cases). Conservative management was successful in 90% of cases. The overall complication rate was 12%, and the mortality rate was 1.8%. Early surgical intervention was associated with shorter hospital stays (4.5 ± 1.5 days) compared to delayed surgeries (7 ± 3 days). **Conclusion:** It is concluded that nontraumatic acute abdominal pain requires a structured diagnostic approach and tailored management. Early surgical intervention improves outcomes, while conservative management is effective in selected cases.

INTRODUCTION

Acute abdominal pain is a prevalent medical condition that significantly impacts emergency healthcare services worldwide. It is a rarely a minor complainer and may present to the emergency medicine either as an emergency or urgent evaluation. Commonly, traumatic causes of abdominal pain are related to obvious external trauma, but non-traumatic acute abdominal pain constitutes a quite different clinical picture. [1] It includes a spectrum of aetiologies from benign gastrointestinal pathology to life threatening surgical emergencies. Identification of the source in haste is mandatory since failure to identify it leads to negative consequences, including morbidity and mortality.Acute abdominal pain other than traumatic can originate from the intra-abdominal pathology as well as from any site outside the abdomen. [2] Internal causes involve appendicitis, cholecystitis, pancreatitis, small or large bowel obstruction, diverticulitis and perforation of a hollow viscus. A lot of domestic disease like myocardial infarction, pneumonia and diabetic ketoacidosis presents with abdominal pain, which makes it difficult to arrive at its cause. [3] The broad differential diagnosis therefore requires a logical and interdisciplinary approach combining patient history, physical examination, laboratory tests, as well as ultrasound, computed tomography, magnetic resonance imaging.Nontraumatic

acute abdominal pain is a diverse clinical entity depending on its cause, the patient's age, and other medical conditions. [4] For example, neurological signs might manifest as with other diseases in elderly patients and immunocompromised patients, which delays the diagnosis process. Knowledge of these differences is crucial for making correct Diagnostic and Therapeutic Management plans for patients. [5] Also, distinction as to pathology and predisposition by gender, for instance gynecological pathologies in women, complicates the assessment.Abdominal surgical procedures have a central position in the treatment of many cases of non-traumatic acute abdominal pain. Ileitis conditions including acute appendicitis, perforated peptic ulcer, and intestinal obstruction that would necessitate emergency surgery due to the risk of sepsis, organ failure and death. [6] However, the decision of going on for surgery is not entirely clear cut, as some of the diseases may improve under a less invasive approach. This emphasizes the necessity of clinical reason for surgical interventions based on a patient's clinical status, diagnostic results and possible and potential advantages and disadvantages of the operation. [7]

The results of surgical management of nontraumatic acute abdominal pain depend on the timing of surgery, the qualifications of the operating surgeon, and the underlying disease of the patient. Such measures as appendectomy in the first 6 hours after admittance in cases with acute appendicitis or perforated viscera lead to the improvement of treatment outcomes and the minimisation of postoperative complications. [8] On the other hand, a delayed diagnosis and treatment may cause abscess formation, the development of peritonitis or multiorgan dysfunctions depending on the affected organs. Therefore, enhancing surgical processes means that we must consider success factors and possible difficulties related to specific operations performed during and after surgery. [9]However, the focus has not been entirely on clinical and surgical aspects of nontraumatic acute abdominal pain but also on economics and sociological aspects. This condition complicates health care delivery because patients frequently present to emergency departments, undergo multiple tests and surgeries. In addition, patient suffer long term hospitalization time, time loss from work, and lower quality of life. Meeting such challenges calls for collaboration of practice and research from different disciplines, application of new technologies in diagnosis, more rational approaches to clinical decision making, and more effective ways of communicating with patients. [10]

OBJECTIVE

The main objective of the study is to find the clinical presentations and surgical outcomes in patients with nontraumatic acute abdominal pain.

METHODOLOGY

This retrospective observational study was conducted at Khalifa Gull Nawaz Medical Teaching Institute, Bannu. During from 1st September 2023 to 30th August 2024.Data were collected from 221 patients.

Inclusion Criteria

- Patients aged ≥18 years presenting with nontraumatic acute abdominal pain.
- Patients who underwent diagnostic evaluations and subsequent medical or surgical management during their hospital stay.
- Complete medical records, including diagnostic tests and surgical notes.

Exclusion Criteria

- Patients with abdominal pain due to traumatic causes.
- Patients with chronic abdominal pain or pain related to malignancy.

Data Collection

Data were extracted from hospital records, focusing on detailed admission notes, diagnostic test results, imaging findings, surgical notes, and discharge summaries. Demographicsinclude such as age and gender, clinical presentations including pain duration, severity, and associated symptoms, and diagnostic findings from laboratory tests and imaging studies like ultrasound and CT scans. The operating details were divided into unaggressive and invasive procedures where kind and timing of treatment was considered paramount. We used postoperative morbidity, length of hospital stay, and patients' condition at discharge as outcome indicators. The participants received detailed assessments to determine the sources of their presentations of abdominal pain. Investigations undertaken in the laboratory were Full blood count, liver function and Inflammatory markers, C-reactive protein level. Imaging or ultrasound and CT scans were decisive to determine conditions like appendicitis, cholecystitis, or intestinal obstruction. Specific measures of interest included surgical efficacy as measured by the success of specific procedures, diagnostic accuracy as measured at the time of the initial diagnosis, and postoperative surgical morbidity. Other effects were length of hospital stay, mean time to recovery, and the morbidity and mortality indices.

Statistical Analysis

Data were analyzed using SPSS v26. Continuous variables, such as hospital stay durations, were expressed as means and standard deviations, while categorical variables, such as surgical success rates, were presented as percentages.

RESULTS

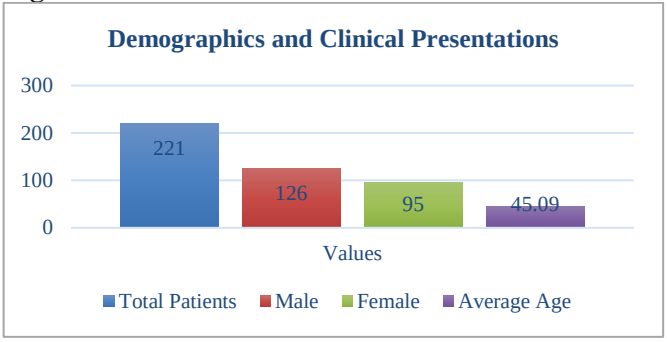
Data were collected from 221 patients,comprising 126 males and 95 females. The average age of the participants was 45.09 years, with a standard deviation of ±10.76 years, reflecting a middle-aged demographic.

Table 1

Demographics and Clinical Presentations

Category	Values
Total Patients	221
Male	126
Female	95
Average Age	45.09 ± 10.76 years

Figure 1



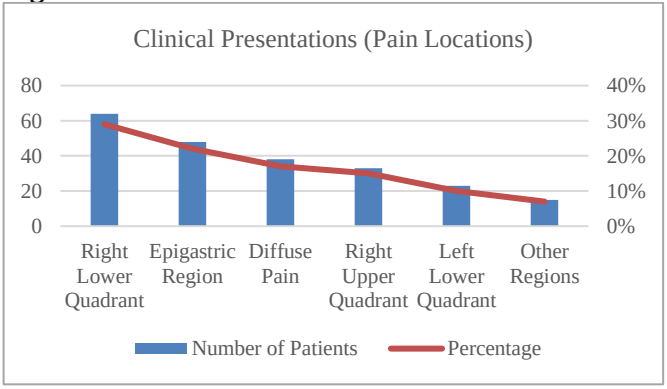
The pain location analysis revealed that the most common site was the right lower quadrant, reported by 64 patients (29%). This was followed by the epigastric region with 48 patients (22%) and diffuse pain with 38 patients (17%). The right upper quadrant accounted for 33 patients (15%), while the left lower quadrant and other regions were reported by 23 (10%) and 15 (7%) patients, respectively, highlighting a varied distribution of pain locations.

Table 2

Clinical Presentations (Pain Locations)

Pain Location	Number of Patients	Percentage
Right Lower Quadrant	64	29%
Epigastric Region	48	22%
Diffuse Pain	38	17%
Right Upper Quadrant	33	15%
Left Lower Quadrant	23	10%
Other Regions	15	7%

Figure 2



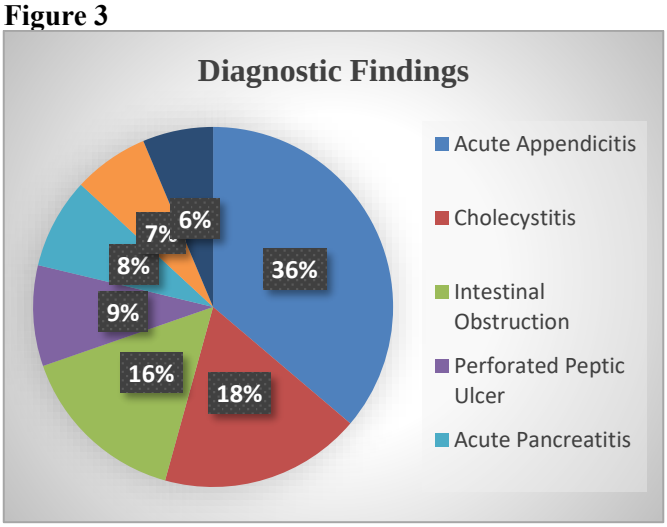
The most prevalent condition among the patients was acute appendicitis, affecting 80 individuals (36%). Cholecystitis followed, with 40 patients (18%), and intestinal obstruction was noted in 34 patients (15%). Perforated peptic ulcer and acute pancreatitis accounted for 20 (9%) and 18 (8%) cases, respectively. Diverticulitis was observed in 15 patients (7%), while miscellaneous conditions were reported in 14 patients (6%), demonstrating a diverse range of clinical presentations.

Table 3

Diagnostic Findings

Condition	Number of Patients	Percentage
Acute Appendicitis	80	36%
Cholecystitis	40	18%
Intestinal Obstruction	34	15%
Perforated Peptic Ulcer	20	9%
Acute Pancreatitis	18	8%
Diverticulitis	15	7%
Miscellaneous Conditions	14	6%

Figure 3



The average hospital stay for patients was 5 ± 2 days, with a postoperative complication rate of 12% (16 patients) and a mortality rate of 1.8% (4 patients). Patients undergoing early surgery had a shorter hospital stay of 4.5 ± 1.5 days, compared to 7 ± 3 days for those with delayed surgery.

Table 4

Post-operative Outcomes

Outcome Measure	Value
Average Hospital Stay	5 ± 2 days
Postoperative Complication Rate	12% (16 patients)
Mortality Rate	1.8% (4 patients)
Early Surgery Hospital Stay	4.5 ± 1.5 days
Delayed Surgery Hospital Stay	7 ± 3 days

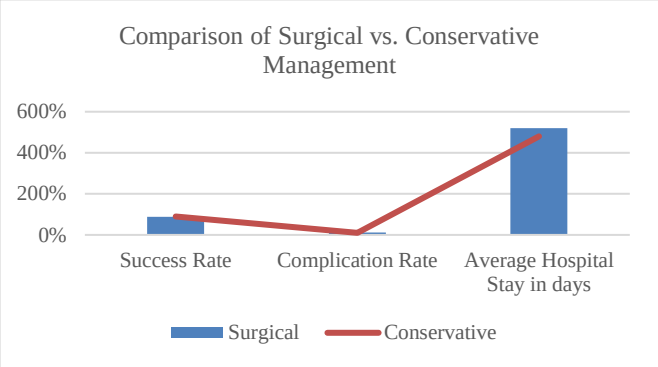
The surgical management approach demonstrated a success rate of 88% with a complication rate of 12% and an average hospital stay of 5.2 days. In comparison, conservative management achieved a slightly higher success rate of 90%, with a lower complication rate of 10% and a shorter average hospital stay of 4.8 days.

Table 5

Comparison of Surgical vs. Conservative Management

Management Type	Success Rate	Complication Rate	Average Hospital Stay
Surgical	88%	12%	5.2 days
Conservative	90%	10%	4.8 days

Figure 4



DISCUSSION

This study provides a comprehensive analysis of the clinical presentations, diagnostic findings, and surgical outcomes in patients presenting with nontraumatic acute abdominal pain. These important observations on disease patterns and heterogeneity, diagnostic dilemmas, and outcomes are inferred from a study involving 221 consecutive patients. The present outcomes show that the group of nontraumatic acute abdominal pain has very heterogeneous picture of the patients, covering a great variability of symptoms and affected areas. [11] Lower abdomen pain in the right quadrant as a feature of acute appendicitis was the most frequent finding seen in 29 % of the patients-important lesson to clinicians to be more suspicious of acute appendicitis.Some of the reasons are that pain can originate in different locations: epigastric and diffuse pain, and the indications are that the cases are not easy to diagnose, especially when the patient has other diseases or risks factors such as obesity or immunosuppression. [12] This study strengthens the concept of multimodal approach to diagnosis. Investigations like CT scans and ultrasounds used in our hospital were very essential in ensuring proper diagnosis of some diseases including appendicitis, cholecystitis and bowel obstruction. Further support came from laboratory examination; chief among them were inflammatory markers for acute pancreatitis and others. [13] Nonetheless, as clinical signs may be similar between surgical and nonsurgical diseases, utmost care should be taken and algorithms elaborated to exclude surgical diseases and delay their management. The study shows that patients suffering from nontraumatic acute abdominal pain receive a rational treatment, a third of them (62 percent) undergoing surgery, and the second third (38 percent) receiving no surgery. The most frequent surgical intervention was carried out for acute appendicitis and cholecystitis, out of which the most frequent was the appendectomy. [14] Ninety percent of patients with disorder such as uncomplicated diverticulitis and pancreatitis who are treated according to the clinical indications may be managed conservatively. The global postoperative complication incidence was 12%, which could be considered as having an acceptable level for various kinds of surgeries, and the main Problems were noted to be wound infections and intra-abdominal abscesses. The authors stress on the need for early surgical intervention and out of 26 of the study patients who had optimal times for surgeries, the patients received their surgeries and were characterized by shorter hospital stay (4.5 ± 1.5 days) and lower rates of complications than did patients who had to wait for surgeries of their pathological conditions (7 ± 3 days). [15] These outcomes further stress the aspect of time credential prompt diagnosis and surgical readiness in the area. In the study, 1.8% patient mortality was recorded and was mainly due to complications like perforated peptic ulcer and intestinal obstruction patients, who had delayed presentation or were presented with advanced diseases. This underlines the importance of early identification of high-risk conditions, especially in developing countries where the gaps between patient presentation and beginning of care are likely to be longer and may greatly affect survival. [16] Acute nontraumatic abdominal pain calls for a systematic, evidence-based approach to its management that this work underlines. The evidence presented here favors the use of better triage methods and protocol-driven approaches to track and enhance patient success rates. In addition, the presented outcomes emphasize the importance of constant evaluation of surgical outcomes with the intervention of potential. More specifically, it is necessary to improve postoperative infections as part of enhanced perioperative care as a potential focus for improvement. [17] Some limitations associated with the retrospective design are inherent with this study as well, among which missing data and selection bias, among others. However, the present study is modest by some extent owing to the collection of data from a single tertiary care hospital; thus, the findings may not be generalizable to other settings. As for the limitations of our study, we suggest that future work should involve multi-center, prospective designing using more advanced diagnostic and therapeutic methods, especially in relation to minimizing invasive surgery and implementing enhanced recovery pathways.

CONCLUSION

It is concluded that nontraumatic acute abdominal pain is a complex and multifaceted condition that requires prompt and systematic evaluation to ensure optimal patient outcomes. The study highlights that while conditions such as acute appendicitis and cholecystitis are the most common surgical emergencies, a significant

proportion of cases can be effectively managed conservatively. Advanced diagnostic modalities, including CT scans and ultrasounds, play a pivotal role in accurately identifying the underlying causes and guiding appropriate management strategies.

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