Section: Miscellaneous

Original Research Article

ACUTE ABDOMINAL EMERGENCIES: CLINICAL PROFILE AND MANAGEMENT OUTCOMES IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: This study evaluates different clinical presentation and management of acute abdomen in patients presenting in emergency department of a tertiary care hospital in Northern India.

Materials and Method: It was an observational study conducted in emergency and other Departments of Rama Medical College Hospital and Research Centre, Hapur, U.P. Study period was from June 2020 to August 2024.108 participants included both genders of aged 18–70 years with acute onset abdominal pain (<72 hrs).

Results: Among 108 participants, the most common causes were acute appendicitis (25%), acute cholecystitis (22%), and duodenal perforation (15%). Obstructed inguinal hernia was the most frequent cause of intestinal obstruction (25%). Males out-numbered females (60:40), with the 31–40 years age group most affected. Overall mortality was 4%, largely attributed to delayed presentation. Open surgery was performed in 45%, conservative management in 47%, and laparoscopic surgery in 8%. Uneventful recovery occurred in 73.6% of participants.

Conclusion: Acute abdomen remains a significant surgical challenge. Appendicitis, cholecystitis, and duodenal perforation are leading causes in surgical emergency. Early diagnosis and prompt intervention resulted in favorable outcomes.

Keywords: Acute abdomen, acute abdominal pain, emergency surgery, clinical outcomes.

INTRODUCTION

Acute abdominal pain is defined as a sudden onset of abdominal discomfort, usually lasting less than 48 hours, and when accompanied by guarding and rigidity, it is termed as an “acute abdomen, often indicating peritonitis and requiring immediate medical intervention.[1] Abdominal pain accounts for 5%-10% of all emergency department (ED) visits, making it one of the most common reasons for such visits. The causes of abdominal pain are diverse, ranging from benign conditions to life-threatening issues, presenting a significant diagnostic challenge for emergency physicians.[2] Although most cases are benign, 10% may involve serious conditions that require surgical intervention.[3] The spectrum of causes ranges from acute inflammatory conditions such as appendicitis, to complex surgical emergencies and associated symptoms such as vomiting, guarding, and tachycardia can be diagnostically helpful. Elderly patients often posing diagnostic difficulties due to atypical presentations and delayed onset of symptoms.[4] In paediatric populations, abdominal pain can stem from both traumatic and non-traumatic causes, with conditions like constipation and appendicitis being common. Advances in diagnostic modalities, particularly radiological imaging, have improved accuracy in identifying specific etiology; however, abdominal pain may still present as the first manifestation of malignancy, an aspect that has received relatively limited research attention.[5]

MATERIALS AND METHODS

It was an observational study conducted in emergency and other departments like Surgery, Medicine and Obs. & Gynae. of Rama Medical College Hospital and Research Centre, Hapur, U.P. Study period was from June 2020-August 2024.108 participants included both genders of aged 18–70 years with acute onset abdominal pain (<72 hrs). Exclusion Criteria were chronic abdominal disorders, history of trauma, neonates and children <18 years, renal/ureteric colic. Initially emergency cases from dept. of Obs. & Gynae. were also included in our study but later on these cases were excluded due to some technical reasons. Criteria for selection included history, clinical and radiological examination. The diagnosis mostly made on clinical examination, with radiology frequently serving as support.

Investigations included routine surgical profile, radiology imaging, plain x-ray abdomen erect and decubitus, ultrasound abdomen. CT scan abdomen to be done in selected cases. Patients requiring surgical intervention will be managed accordingly and were followed up for 2 weeks after surgery in surgical cases and 2 months in case of non-surgical acute abdomen.

RESULTS

All 108 patients presented with abdominal pain (100%), with 72% experiencing vomiting, 42% exhibiting abdominal distension, 40% reporting constipation and 48% showing signs of fever.

Acute appendicitis were 25%, acute calculus cholecystitis 22%, gastrointestinal perforation 15% (duodenal ulcer perforation 58.8% of these), acute intestinal obstruction 20% (obstructed inguinal hernia 25% of these).

Other causes were necrotizing enteritis, hepatic abscess, testicular torsion, pelvic abscess. Examination findings were rigidity (72%), dehydration (32%), obliterated liver dullness (15%).

Out of 108 patients, 57 (53%) underwent surgery, with 9 opting for Laparoscopic procedures and 48 undergoing open surgery. Notably, 3 cases were converted from laparoscopic to open techniques, resulting in a conversion rate of 33 %. Among these cases, one conversion was prompted by cardio-respiratory instability during laparoscopy, while the other two were necessitated by dense adhesions that could not be separated using laparoscopic methods. Among these 57 cases, 38 patients experienced a smooth recovery without complications, 19 developed wound infections, and 3 individuals suffered from burst abdomen.4 patients succumbed to complications arising from infective complications and post-treatment issues.

Conservative treatment was administered to 51 out of 108 cases, making up 47% of the total. The specific cases subjected to conservative management included acute appendicitis (12%), appendicular mass (3%), right lobe hepatic abscess (2%), acute cholecystitis (18%), sub-acute intestinal obstruction (9%), and acute pancreatitis (3%). One patient died in conservative group of acute pancreatitis.

Outcomes were, overall uneventful recovery in 73.6%, wound infections in 24%, burst abdomen in 3%. Mortality was 5% (all >48 hours delayed presentation, causes included perforation, necrotizing enteritis, postoperative complications and septicemia).

DISCUSSION

In the present study of 108 patients with acute abdomen, acute appendicitis was the leading etiology (25%), followed by acute calculus cholecystitis (22%) and acute intestinal obstruction (20%). These findings are consistent with classical literature, where appendicitis continues to dominate as the most common surgical cause of acute abdomen worldwide.[6] Majority of patients were in the 31–40 years age group, but elderly patients also contributed significantly, often with more severe outcomes, which aligns with established data that delayed presentation in older individuals increases morbidity and mortality.[7] In this study, 78% of patients presented within 24 hours, while delayed presentations beyond 48 hours were associated with higher complication and mortality rates, as observed in cases of strangulated hernia with bowel gangrene.[8] Intestinal obstruction in our series was frequently related to postoperative adhesions and obstructed hernias, paralleling earlier reports emphasizing adhesions as a dominant cause of obstruction in developing countries.[9] Laparoscopic interventions were attempted in select patients, but the need for conversion to open procedures due to adhesions or intraoperative instability highlighted the continued importance of surgeon judgment in case selection.

During exploration, cases of acute intestinal obstruction unveiled uncommon causes such as Meckel's diverticulum and necrotizing enteritis. Other contributors to acute abdomen in this study encompassed strangulated /obstructed hernias (5% of total no of cases), hepatic abscess (4%), pelvic abscess (1%), torsion testis (3%) and acute pancreatitis (4%).

In our study, the most prevalent age group experiencing acute abdomen comprised individuals in the 3rd and 4th decades, 53 cases, followed by those in the 41-50 age range. The 6th decade represented the least common age group. Acute abdomen was more frequently observed in males, with a ratio of 60:40. The male-to-female ratio in research by S. Tsegaye et al. was 3.2:1, with 389 (76.2%) of the 511 patients being male and 122 (23.8%) being female. Between the second and fourth decades of life, acute abdomen was frequently seen, with a higher incidence in males

than in girls.[10] Mekonnen Hagos recorded a male-to-female ratio of 4.1:1 and an age range of 15 to 95 years (mean = 31.5 years). Acute abdomen was most common in people between the ages of 20 and 29 (96 cases, or 32.1% of the total), with 74 cases (24.7%) being male.[11]

Abdominal discomfort, vomiting, and distention were the most common symptoms, accounting for 100 (100.0%), 72 (72%), and 42 (42%) instances, respectively. Tenderness, localized guarding, and rebound tenderness were the most frequently detected clinical symptoms in Mekonnen Hagos's study; these signs were present in 287 (96.0%), 269 (90.0%), and 139 (46.4%) of the cases, respectively.[11]

Examining the patients revealed that 100% of them had abdominal discomfort, 72.2% had rigidity, and 15% had obliterated liver dullness. Furthermore,32% of the patients lacked bowel sound and were dehydrated and X-Ray abdomen showed 17% of the cases had air under diaphragm.

Right lobe of the liver is most commonly affected in cases of liver abscess. Males are disproportionately more affected than females, likely due to higher alcohol consumption. The most frequently affected age group falls within the range of 30 to 60 years.[12] In this study, four cases were identified with liver abscess. Among these, three cases presented with right lobe liver abscess and were managed conservatively. One case was treated solely with antibiotics, while the other two cases required percutaneous drainage of the abscess. The remaining case, which presented with a left lobe liver abscess, underwent open drainage.

This study revealed 27 cases were attributed to acute appendicitis. One case, upon histopathological examination, was identified as being caused by carcinoid. Another case, initially presenting as acute appendicitis, was found to be due to parasitic infestation. Approximately 18% of cases (8 cases) were associated with appendicular perforation, with 6 cases manifesting localized peritonitis and 2 cases displaying generalized peritonitis. Appendicular mass was conservatively managed in 2 cases (4.6.5%), and one patient presented with an appendicular abscess (2.3%). Diverse pathological findings pertaining to the appendix were given by Blair et al,[12] without any classifications. Pathological data were categorized into five groups by Gupta et al,[13] inflammatory lesions, tumorous situations, parasitic infestations, tubercular appendicitis, and normal. In an investigation by Hong Yeol Yoo et al,[14] 84.4% of the pathology overall was consistent with acute appendicitis. Unexpected pathological findings comprised 9.6%, 3.3%, 1.2%, and 1.5% of the cases, respectively. These included neoplastic lesions, specific inflammations other than acute appendicitis, and normal histology.

In our study, total cases of intestinal were 20, obstructed/strangulated inguinal hernias emerged as the predominant cause. Five cases of obstructed inguinal hernias (involving small bowel in 2, sigmoid colon in another, and omental fat in the remaining 2) were successfully reduced, and herniorrhaphy procedures were performed. A study by Arlene Muzira Nakanwagi et al,[15] found that intestinal obstruction in Mulago hospital was primarily caused by obstructed hernias, primarily affecting adults. Consistent with the findings of this study, males were found to be the most affected gender, and the most prevalent presenting symptoms were colicky stomach discomfort, abdominal distension, vomiting, and relative constipation. One study by Amit Anand et al,[9] which found that postoperative adhesions were the main cause of intestinal obstruction, followed by obstructed hernia. In this study out of total cases of intestinal obstruction, which constituted 9, obstructed/strangulated inguinal hernias were 2 obstructed inguinal hernias (contents- small bowel in 1 and sigmoid colon in another) were reduced and herniorrhaphy was done. In a case of a strangulated right inguinal hernia, where the bowel had become gangrenous due to delayed presentation, resection and anastomosis were performed. Another case presented with an obstructed incisional hernia, while post-operative adhesions were identified as the cause of intestinal obstruction in a separate case. Subacute intestinal obstruction was observed in one case and managed conservatively. A case involving sigmoid growth presented as acute intestinal obstruction. During emergency laparotomy, sigmoid colectomy was carried out with 5cm free margins proximally and distally, and an end colostomy (Hartmann's procedure) was created. In another case, a 41-year-old male with no comorbidities presented with features of acute intestinal obstruction with possible strangulation. Exploration revealed multiple punctate bluish dots throughout the anti-mesenteric border of the small bowel. An ileostomy was performed, and the wound was closed with the possibility of a second-look exploration on demand. Upon re-exploration on the 7th postoperative day due to peritonitis, multiple perforations with intervening bowel acutely inflamed and patchy necrosis (necrotizing enteritis) were revealed. The entire small bowel was resected, leaving a proximal 10cm of jejunum and distal 10cm of ileum, and bowel continuity was restored. The patient developed an anastomotic leak and burst abdomen, which were managed with total parenteral nutrition (TPN), sump suction drain, and open abdominal management. Unfortunately, the patient succumbed on the 23rd postoperative day, possibly due to sepsis.

Peptic ulcer disease was shown to be the most frequent cause of perforation peritonitis, accounting for 150 cases involving duodenal ulcers and 29 instances associated to stomach ulcers, according to Rajandeep Singh Bali et al.[16] Appendicitis ranked second with 74 cases, after typhoid fever (48 cases), TB (40 cases), and trauma (31 cases). The death rate was 7%. In contrast to Western nations, India

presents a unique spectrum of perforated peritonitis. Peptic ulcer disease was shown to be the primary cause of perforation in 7 cases of duodenal ulcers and 1 case of stomach ulcer in this analysis. Subsequently, six cases of appendicular disease were found, followed by one case each of non-specific cause (ileal perforation) and typhoid fever (jejunal).

In this study, 47% out of 100 cases were managed conservatively. The cases subjected to conservative treatment included acute appendicitis (25.5%), appendicular mass (6.38%), right lobe hepatic abscess (4.25%), acute cholecystitis (38.2%), sub-acute intestinal obstruction (19.24%), and acute pancreatitis (6.38%). Following conservative treatment for their appendicular masses, three patients had interval appendectomy. Interval cholecystectomy was performed in 18 patients of acute cholecystitis.

Among the 108 patients, 4 individuals succumbed to their conditions in operative group. Hollow viscus perforation was the contributing factor in 1 case, while a rare condition presenting as acute abdomen, namely necrotizing enteritis, led to the demise of 1 patient. Surgical site infection (SSI) resulted in the death of another patient, and burst abdomen was identified as the cause of death in a separate case. All these cases presented after 48 hours of their onset of symptoms. All the patients arrived at the hospital in the state of shock. The median age of those who passed away was 40 years. Three of four of the fatalities occurred in males, with 3 patients having co-morbidities. Additionally, 3 patients had a history of smoking.

Tsegaye K et al. evaluated in his series that the presence of three risk factors preoperative shock, surgery delayed for more than 24 hours, and the existence of comorbid conditions increases the fatality rate.[17]

According to a 1992 investigation preoperative shock, delayed surgery (more than 48 hours), and concurrent medical sickness are important risk factors that raise mortality in individuals with perforated duodenal ulcers. When peritoneal infection causes a perforation that lasts longer than 12 hours, the death and morbidity rates rise. When there was extensive contamination and exploration done after 48 hours, the death rate rises to over 50%.

Laparoscopy is regarded as the gold standard for the surgical management of acute gallbladder disease, whether in simple forms or in cases of gangrenous or emphysematous cholecystitis, and this applies to both young and elderly individuals.[18] In this study, we achieved a definitive diagnosis in 100% of cases. Although laparoscopic cholecystectomy is currently considered the gold standard for treating acute cholecystitis, Navez and Navez determined that in cases of more advanced disease, an open technique is still a viable treatment option. In their study, the conversion rate was 10%.[19]

CONCLUSION

Acute abdomen remains a significant surgical challenge. Appendicitis, cholecystitis, and duodenal perforation were the leading causes in this cohort. Early diagnosis and prompt intervention resulted in favourable outcomes, while delays were associated with increased complications and mortality.

Timely surgical decision-making, judicious use of conservative management, and laparoscopic approaches where feasible can optimize patient outcomes in acute abdomen.

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