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Original Research Article

Epidemiology of acute abdominal pain: a cross-sectional study in a tertiary care hospital of Eastern India

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ABSTRACT

Background: Acute abdomen is defined as "a spectrum of surgical, medical and gynecological conditions ranging from trivial to life threatening conditions, which require hospital admission, investigations and treatment. The possible causes of acute abdomen may range from benign and psychogenic pain to life threatening aortic dissection. This study aims to find out the etiological spectrum of surgical acute pain abdomen among patients attending emergency department of a medical college of Eastern India.
Methods: An institution based, cross-sectional study was conducted from January- June 2018, among patients admitted with pain abdomen in IQ City Medical College and Narayna Hospital, Durgapur, West Bengal, India. Data were collected on the day of discharge, with the help of pre-tested, semi structured Schedule.
Results: Total 8688 patients were admitted through emergency during data collection period. 1236 (14.2%) of them were admitted with complains of pain abdomen. Frequency of surgical and non-surgical pain abdomen was 6.0% and 8.2% respectively. Most consistent symptom and sign were pain abdomen and abdominal tenderness respectively. Most common cause of acute abdomen was acute appendicitis. It was present in 38.9% of cases followed by gall bladder pathology, renal/ ureteric colic, perforation peritonitis, intestinal obstruction, bowel ischemia in 21.0%, 14.2%, 13.7%, 7.8%, and 4.4% of cases respectively.
Conclusions: About 15.0% of all emergency hospitalization is due to acute abdominal pain and about 40.0% of all acute abdominal pain was due to surgical causes. Most common cause of surgical acute abdomen was acute appendicitis.

Keywords: Acute abdomen, Appendicitis, Gall bladder pathology, Perforation peritonitis, Surgical emergency

INTRODUCTION

Abdominal pain is a very common complains of patients attending medical emergency room. Pain abdomen accounts for about 5-10% of all emergency department visits.[1] While for majority of patients, symptoms are self-limiting, few patients will develop "Acute abdomen", due to serious intra-abdominal disease requiring emergency intervention.[2] Acute abdomen is defined as "a spectrum of surgical, medical and gynecological conditions ranging from trivial to life threatening conditions, which require hospital admission, investigations and treatment.[3]

Acute abdomen can persist for several hours to days; clinical features are usually overlapping and many times misleading. The possible causes of acute abdomen may range from benign and psychogenic pain to life threatening aortic dissection.

Acute gastroenteritis, acute appendicitis and abdominal trauma are common causes of pain abdomen in children and young adults. Intestinal obstruction, biliary diseases, diverticulitis and appendicitis are common culprits among middle aged and elderly patients. Common non surgical causes include metabolic and cardiac emergencies (e.g. acute inferior wall myocardial infarction).[4,5] This study aims to find out the etiological spectrum of surgical acute pain abdomen among patients attending emergency Department of a Medical College of Eastern India.

METHODS

An institution based cross-sectional study was conducted from January- June 2018, among patients admitted with pain abdomen in IQ City Medical College and Narayna Hospital, Durgapur, West Bengal, India. It is a leading tertiary care hospital of Eastern India.

The study was approved by Institutional Ethics Committee, IQ City Medical College, Durgapur. From January-June 2018, 8688 patients were admitted through emergency, out of which 1236 patients were admitted with pain abdomen. Out of 1236 pain abdomen patients 524 of them were admitted with surgical causes of pain abdomen and 712 were admitted with medical and gynecological causes.

The study period was January to June 2018.

Patients admitted through emergency with surgical acute abdomen were study population in the present study.

Inclusion criteria

- All patients aged ≥18 years,
- Admitted with acute pain abdomen in surgical ward during data collection period.

Exclusion criteria

- Traumatic pain abdomen,
- Non traumatic pain abdomen in pregnant women,
- Non emergency hospitalisation,
- Refusal to give consent.

Sampling Technique and sample size

Non probability, Consecutive sampling technique was used to recruit study subjects. Data were collected from all 524 study subjects who were admitted through emergency with surgical causes of pain abdomen.

Data collection

Data were collected from 524 study subjects after obtaining written informed consent from them. A pre-tested, semi structured Schedule was used to collect data. Data was collected on the discharge day, by individual interview of the study subjects. In cases were study subjects were not able to give interview, responsible family member was interviewed for information. Relevant medical records like discharge certificates and bed head tickets were reviewed for Clinical presentation, final diagnosis and treatment.

Statistical analysis

Data were codified and entered in MS Excel spread sheet. Frequency distribution tables were prepared to show results.

RESULTS

During study period, 8688 patients were admitted through emergency. 1236 (14.2%) of them were admitted with complains of pain abdomen. Out of 1236 pain abdomen patients, 712 were due to non surgical causes and 524 were due to surgical causes. The frequency of surgical pain abdomen requiring emergency hospitalization was 6.0% (Table 1).

Table 1: Frequency of acute pain abdomen among study subjects admitted through emergency, n=8688.

Type of hospitalization	N (%)
Total emergency hospitalization	8688 (100.0%)
Total pain abdomen hospitalization	1236 (14.2%)
Pain abdomen due to non-surgical causes	712 (8.2%)
Pain abdomen due to surgical causes	524 (6.0%)

Table 2: Socio-demographic characteristics of study population (n=524).

Socio-demographic characteristics	N (%)
Gender	
Male	348 (66.4%)
Female	176 (33.6%)
Age group	
<21 years	58 (11.1%)
21-40 years	278 (53.1%)
41-60 years	154 (29.3%)
>60 Years	34 (6.5%)
Residence	
Urban	326 (64.1%)
Rural	188 (35.9%)

Total of 348 (66.4%) of the study population were male and 176 (33.6%) were females. 58 (11.1%) of the study subjects were between 18 years to less than 21 years old. 278 (53.1%) study subjects were in the age group of 21-40 years. 154 (29.3%) study subjects were in the age group 41060 years and rest 34 (6.6%) were in the age group >60 years. 326 (64.1%) of the study subjects were

from urban area and rest 188 (35.9%) were from rural area (Table 2).

Table 3: Distribution of study population according to their clinical presentation.

Clinical presentation	N (%)
Symptoms	
Pain abdomen	524 (100.0%)
Vomiting	394 (75.2%)
Abdominal distention	302 (57.6%)
Constipation	285 (54.5%)
Fever	239 (45.6%)
Diarrhea	11 (2.1%)
Signs	
Abdominal tenderness	524 (100.0%)
Abdominal guarding	334 (63.7%)
Absent bowel sounds	280 (53.4%)
Tachycardia	256 (48.9%)

Table 4: Distribution of study population according to etiology of acute abdomen, n=524.

Etiology	N (%)
Acute appendicitis	204 (38.9%)
Gall bladder pathology	110 (21.0%)
Renal/ ureteric stones	74 (14.2%)
Perforation peritonitis	72 (13.7%)
Intestinal obstruction	41 (7.8%)
Bowel ischemia	23 (4.4%)

The most common symptom was pain abdomen and was present in all 524 (100.0%) of study subjects. Vomiting was present in 394 (75.2%) study subjects. 302 (57.6%) of study subjects reported abdominal distention. Fever was present in 239 (45.6%) of study subjects. Constipation and diarrhea were present in 285 (54.5%) and 11 (2.1%) of the study subjects respectively (Table 3). Most consistent sign was abdominal tenderness, which was present in all 524 (100.0%) of the study subjects. Abdominal guarding was present in 334 (63.7%) of the study subjects. Absent bowel sounds and tachycardia was present in 280 (53.4%) and 256 (48.9%) study population respectively (Table 3). In this study most common cause of surgical acute abdomen was acute appendicitis. Acute appendicitis was present in 204 (38.9%) of study subjects. Gall bladder pathology was the 2nd most common cause of surgical acute abdomen in 110 (21.0%) of the study subjects. Renal/ureteric colic, perforation peritonitis, intestinal obstruction, and bowel ischemia was the cause of surgical acute abdomen in 74 (14.2%), 72 (13.7%), 41(7.8%), and 32 (4.4%) of the study subjects respectively (Table 4).

DISCUSSION

Acute pain abdomen is one of the common presentations in the medical emergency. Acute abdomen has sudden onset and may be due to the surgical as well as non surgical causes. The etiology varies from region to region and is also influenced by various socio-demographic characteristics. Patients with acute pain abdomen presents with vide range of clinical signs and symptoms. Most of the times sign and symptoms are subtle and are often overlapping. Missed and/or error in etiological diagnosis is common among acute abdomen patients. The chances of error are more in the emergent situation and more so if, health infrastructures are poorly equipped and overburdened. Idea about geographical distribution of acute abdomen etiologies may help in quick and more precise diagnosis, especially in emergency situation and may help in rapid revival of patients. This study was conducted to find out the frequency and etiological spectrum of surgical acute abdomen among patients admitted through emergency department of a tertiary care hospital.

In this study the prevalence of acute pain abdomen was found to be 14.2%. Frequency of surgical acute abdomen among emergency hospitalized patients was found to be 6.0%. Few other studies also reported the prevalence of surgical acute abdomen between 5%-10% among emergency admission.[1] Pain abdomen was presenting symptom in all 524 (100.0%) Study subjects. Other associated presenting symptoms were vomiting, abdominal distention, constipation, fever and diarrhea which were present in 394 (75.2%), 302 (57.6%), 285 (54.5%), 239 (45.6%) and 11 (2.1%) of study subjects respectively. Chimkode R et al, also reported pain abdomen as most common presenting symptoms, followed by abdominal distention (78.0%) and vomiting (58.0%).[6] Most consistent presenting sign was abdominal tenderness, it was present in all 524 (100.0%) of study subjects. Other presenting sign was abdominal guarding, absent bowel sounds and tachycardia in 334 (63.7%), 280 (53.4%), 256 (48.9%) of study subjects respectively. In a study done by Chimkode et al, abdominal tenderness was present in 96.0% of study subjects. Abdominal guarding and tachycardia were present in 96.0% and 46.0% of cases respectively.[6] In this study, the most common cause of acute abdomen was acute appendicitis, it was present in 204 (38.9%) of study subjects. 2nd most common cause was gall bladder related pathology and was present in 110 (21.0%) of study subjects. Other causes of acute abdomen were renal/ureteric stones, perforation peritonitis, intestinal obstruction and bowel ischemia which were present in 74 (14.2%), 72 (13.7%), 41 (7.8%) and 23 (4.4%) of study subjects respectively. Tariq et al, from Pakistan also reported acute appendicitis as most common cause of acute abdomen, followed by acute pancreatitis and duodenal ulcer.[7] A study by Ohene-Yeboah M, from Ghana, Africa, also reported acute appendicitis followed by typhoid fever, ileal perforation and acute intestinal obstruction as most common cause of acute abdomen.[8] Caterino S et al, also reported acute appendicitis as most common cause of surgical acute abdomen requiring emergency hospitalization.[9] However, few other studies reported other etiologies as most

common cause of surgical acute abdomen. Jain et al, reported perforation peritonitis (39.7%) followed by acute appendicitis (37.7%) as the leading causes of surgical acute abdomen.[10] This etiological difference may be due to selective referral of high-risk cases to these centers.

Conclusion

About 15.0% of all emergency hospitalization is due to acute abdominal pain and about 40.0% of all acute abdominal pain was due to surgical causes. Most common cause of surgical acute abdomen was acute appendicitis. Adequate health infrastructures at the primary and secondary health care level may be an important step forward to address common causes of acute abdomen.

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