

Pattern of non-traumatic acute abdomen in patients from Ayder Comprehensive Specialized Hospital, northern Ethiopia: A retrospective analysis.

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Abstract

Introduction: - Surgical acute abdomen is one of the commonly encountered emergency conditions in general surgery practice worldwide. However, there is paucity of data on its magnitude and pattern of acute abdomen in Ethiopia in general and in Ayder Comprehensive Specialized Hospital in particular.

Objective: The objective of this study was to assess the magnitude and pattern of non-traumatic acute abdomen in patients from Ayder Comprehensive Specialized Hospital, Northern Ethiopia.

Methods: - This is a 2-year retrospective study conducted on 483 patients who underwent surgery for acute abdomen during the calendar year 2015-2016. Data was collected through a review of all medical records, patients card and from the operative log book for acute abdomen in Ayder Comprehensive Specialized Hospital, Mekelle, Northern Ethiopia. Data was entered into EP-Info and analyzed using SPSS software descriptively.

Result: - During the study period there were 514 emergency surgical operations of which 439 were laparotomies for none-traumatic acute abdomen. The male to female ratio in patients with acute abdomen was 3:1. The mean age of patients was 28.4±19.5 with a range of 30 days – 88 years. Acute appendicitis accounts for 50.3% of the cases and was the leading cause of acute abdomen followed by intestinal obstruction 34.0% and peritonitis 15.7%. Among the appendicitis, 11.6% of them were perforated appendix, and 4.1% Perforated Peptic Ulcer Disease. The causes of large intestinal obstruction were sigmoid volvulus (28%), colonic cancer (6.1%) and ileo sigmoid knotting (3%) and that of small bowel obstruction were small bowel volvulus (20.7%), adhesion (16.5%), hernia (15.2%) and intussusceptions (10.4%). Late presented patients showed a higher frequency of peritonitis.

Conclusion: - Acute abdomen was found to be quite common. The leading cause was acute appendicitis. Besides, higher proportions of patients were with peritonitis due to late presentation. Hence, the emergency management of the hospital should be strengthened to handle the number of patients deserving emergency laparotomy.

Key words: Acute abdomen, laparotomy, appendicitis, peritonitis.

Introduction

Acute abdomen is defined as a life threatening and catastrophic abdominal surgical condition if not treated on time. The causes of acute abdomen are several and their relative incidence varies in different populations and geographic locations. Several factors are described to be responsible for these differences. Socioeconomic factors and diet have mostly been incriminated to be responsible for the observed differences [1, 2, 3].

Intestinal obstruction has been the leading cause of acute abdomen in several African countries whereas acute appendicitis is the commonest cause in the developed world [2 – 6]. The leading causes of intestinal obstruction in Africans have mostly been volvulus and hernias whereas adhesions are most frequent in the developed world [6 – 12]. There are, however, some African studies which are pointing to a change in these established patterns [13, 14].

In Ethiopia different studies done in different areas showed that there are variations in the prevalence of etiologies of acute abdomen. A study done in Tikur Anbesa Hospital (TAH) in Addis Ababa (the capital city of Ethiopia) showed that the commonest causes of acute abdomen is acute appendicitis followed by intestinal obstruction and is more common in males [15]. Another study done in Gonder university hospital which is found in northwestern of Ethiopia serving mainly of rural dwellers showed that the common

cause of acute abdomen was small bowel obstruction followed by appendicitis and large bowel obstruction [16]. A study done In Mekelle Hospital five years back showed acute appendicitis as a leading cause of acute abdomen [17]. The study assessed the leading causes and outcomes of acute abdomen in Ayder Comprehensive Specialized Hospital.

Methodology

Study Area: The study was conducted in Ayder Comprehensive Specialized Hospital. Ayder Comprehensive Specialized Hospital was founded in 2007 to serve about eight million population from the regions of Tigray, Afar and parts of Amhara bordering Tigray.

Study design: A two-year retrospective study was conducted on non-traumatic acute abdomen in patients from Ayder Comprehensive Specialized Hospital, Mekelle, Northern Ethiopia.

Study population: Patients who underwent surgery for acute abdomen during the calendar year 2015-2016 were included in this study.

Data Collection: A pretested data extraction format was used to collect data by trained data collectors. Subjects were identified retrospectively through a review of all medical records, patients' card and from the operative log book. Study variables included gender, age, causes of acute abdomen, intra operative finding and type of surgery.

Data Analysis: Data were entered into the Epi info and exported to SPSS for further cleaning and analysis. Descriptive statistics of frequency and percentage were used to describe categorical variables.

Ethical considerations: Ethical clearance was obtained from the Institutional Review Board of the College of Health Sciences of Mekelle University.

Result

Two-year retrospective study was conducted on pattern of emergency surgical conditions in Ayder Comprehensive Specialized Hospital, Mekelle, Northern Ethiopia. There were a total of 514 surgical emergency

Table 1: Distribution of acute abdomen in patients from Ayder Comprehensive Specialized Hospital, Northern Ethiopia, 2015 – 2016 (n = 483).

Causes of acute abdomen	Number	Percent
Acute appendicitis	243	50.3
Intestinal obstruction	164	34.0
Perforated peptic ulcer disease (PPUD)	20	4.1
Peritonitis (other than PPUD)	56	11.6

A total of 181 (74.48%) cases were found to have non complicated acute appendicitis and were managed by doing simple appendectomy. While 60 patients presented with complicated appendicitis of which 44(18%) of the total developed peritonitis from perforated appendicitis and managed with appendectomy and lavage; sixteen (6.58%) cases developed appendiceal abscess and managed with abscess drainage. This complicated appendicitis was more encountered in males which account 32 (72.7%). Of the total of 60 (24.69%) patients

operations of which 439 cases were laparotomies for none traumatic acute abdomen and 21 emergency laparotomies were done for blunt and penetrating abdominal injuries. The male to female ratio in the patients was 3:1 and the mean age of patients was 28.4 ± 19.5 with a range of 30 days – 88 years. From the total acute appendicitis, 185 (76.13%) were males and 58 (23.6%) were females. The majority of the cases were in the range of 20 -30 years. Of the total cases, acute appendicitis accounted 243 (50.3%) being the leading cause of acute abdomen followed by intestinal obstruction 164 (34.0%) and peritonitis 76(15.7%) (Table 1).

presented with complicated appendicitis 55 (91.67%) visited health facility after more than three days of the onset of their symptoms. only 5 (8.33%) of the patients with complicated appendicitis presented before three days of the onset of their illness. In two of the patients, the intra operative finding was not well documented.

The second cause of acute abdomen was intestinal obstruction of which small bowel obstruction (SBO) accounting for a total of 105 patients. Nearly one in three,

34(32.38%) patients were diagnosed to have primary small bowel volvulus followed by adhesion 27(25.72%) and hernia 25(23.8%). Of the 34 patients with primary volvulus, 29 (85%) were males and 5(15%) females. Twenty-nine cases were having simple twisting for which derotation and milking was done; but 5 patients were found to have gangrenous small bowel volvulus for which resection and anastomosis was done. Of the 27 patients of SBO secondary to adhesion, 16 were males and 11 females. Sixteen patients had viable SBO after adhesion and band for which adhesionolysis and band release done, but 11 patients were found to have gangrenous SBO for which resection and anastomosis was done. Of the 25 patients of SBO secondary to hernia, sixteen

of them were viable incarcerated hernia. Reduction and repair was done as a management of defect. Nine patients were found to develop strangulated hernia and resection and anastomosis was done as a management. The other cause of SBO was intussusceptions and there were 17 cases with ileo-colic intussusceptions. Among these, all developed gangrenous except two cases and thus. resection and ileo-transvers anastomosis was done. Sigmoid volvulus was the leading cases of colonic obstruction (46/56). Twenty-seven had simple volvulus and 19 had gangrenous sigmoid volvulus for which resection and Hartman's colostomy was done. Ten of the patients were found to have colonic mass intraoperatively.

Table 2: Causes of intestinal obstruction among patients with acute abdomen in Ayder Comprehensive Specialized Hospital, (n = 164).

Causes of intestinal obstruction	No. of cases (%)
Large bowel obstruction	56(34.1%)
• Sigmoid volvulus	46 (28%)
• Colonic ca	10 (6.1%)
• Ileo sigmoid knotting	5 (3%)
Small bowel obstruction	108 (65.9%)
• Small bowel volvulus	34 (20.73%)
• Adhesion	27 (16.5%)
• Hernia	25 (15.2%)
• Intussusceptions	17 (10.4%)

Peritonitis was the third most common cause of acute abdomen leading to emergency laparotomy 76(17.13%), of which 44 (57.9%) was following perforated appendicitis, 20(26.31%) was following

perforated peptic ulcer disease of which 17 were males and 3 females. All the patients were operated and simple closure with omental patch was done. There were seven patients diagnosed to have typhoid

perforation intraoperatively, of which 5 were males and 2 were female. Five cases were found to have primary peritonitis.

Discussion

Emergency surgical operation performed for acute abdomen accounted for 85.4% (n=439) of the total emergency surgeries. The majority of patients were in their 2nd and 3rd decades of life, which was similar with previous studies done in Tikur Anbessa Hospital, Ethiopia and other African countries [1 – 3, 5, 15 – 16]. Acute appendicitis was found to be the leading cause of acute abdomen leading to emergency operation in our study similar to the study done in black lion but different to that of Gondar showing that the demography in our setup is changing towards urban dwellers. Study done in Gondar University Hospital, Ethiopia showed intestinal obstruction as the leading cause of acute abdomen. Intestinal obstruction was the next most common cause of acute abdomen in our study. The leading causes of intestinal obstruction in this study was primary small bowel volvulus and sigmoid volvulus each accounting (34/108) and (46/56) respectively. The number of patients with sigmoid volvulus might have been increased if cases of sigmoid volvulus managed as an outpatient by simple rectal tube deflation were included. This is in agreement with studies done in TAH, Addis Abeba and Gondar, which has shown that adhesion was the leading cause of small bowel obstruction [15 – 16].

In this study, there were relatively high

frequency of peritonitis (15.7%) of which 11.6% resulted from perforated appendix; 4.1% from perforated peptic ulcer disease. But study from Sinay hospital showed 14.4% of patients developed peritonitis, among which 4.1% resulted from perforated peptic ulcer disease (PPUD), 3.5% of from perforated appendix [3].

Primary small bowel volvulus was found to be the most frequent cause of small bowel obstruction which is in contrast to other studies from TAH and Gondar in which adhesion was the most frequent cause [15 – 16]. In this study, adhesion and hernia were found to be 2nd and 3rd most common cause of small bowel obstruction. Surprisingly in this study, out of 108 small bowel obstruction cases 48 were found to have non variable small bowel obstruction for which resection and anastomosis was done. This was mostly encountered in patients who presented late, more than 5 days of duration of illness.

There were 17 patients with intussusceptions which was significant in number as compared to study conducted in TAH [15]. Most of them came late and had non-viable bowel, hence resection and anastomosis was done. In agreement with TAH, sigmoid volvulus was found to be the leading cause of large bowel obstruction [15].

Conclusion

In this study, acute appendicitis was found to be the most common surgical emergency operations performed in Ayder comprehensive specialized Hospital. Late presentation of patients to the health facility

was found to complicate the cases. Due to this relatively high frequency of peritonitis cases were found due to late presentation. Thus public awareness related to acute abdomen causes and conditions should be created to increase health seeking behavior of patients for early diagnosis and intervention to avoid complications and reduce mortality.

Conflict of interest

The authors declare that they have no conflict of interest.

Author contributions

GHA and TGM were involved in the conception and design of the study; data collection, analysis and interpretation of the findings and writing the manuscript.

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