

Pattern of Emergency Surgical Operations Performed for Non-Traumatic Acute Abdomen at Ayder Referral Hospital, Mekelle University, Tigray, Ethiopia by the Year 2000-2003 Ec

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Abstract

Background: Acute is defined as a sudden onset abdominal pain which often requires an immediate intervention. The causes of acute abdomen are several and their relative incidence varies in different populations. 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.

Intestinal obstruction has been the leading cause of acute abdomen in several African countries whereas acute appendicitis is the most frequently seen cause in the developed world. The leading causes of intestinal obstruction in Africans have mostly been hernia and volvulus whereas adhesions are most frequent in the developed world. There are, however, some African studies which are pointing to a change in these established patterns. This study was aimed at assessing the magnitude, pattern of acute abdomen in Ayder referral hospital.

Methods: This was a 3 years retrospective study conducted on all patients operated for non-traumatic acute abdomen in Ayder hospital, Mekelle, during the year of September, 2000-2003 E.C.

Results: During the study period there were 514 emergency surgical operations of which 439 were laparotomies for acute abdomen. The male to female ratio 3:1, the age ranged from 30 days-88 years with a mean of 28.4 ± 19.5 years. Two hundred fifty patients (57%) were urban dweller, 189 (43%) cases were from rural area; of which 152 (34.6%) were referred from nearby health centers and affiliated hospitals presented late with duration of illness more than 5 days. Acute appendicitis accounting for 55.35% of cases was the leading cause of acute abdomen followed by intestinal obstruction 37.35% and peritonitis 17.3% among which 10% was resulted from perforated appendix, and 4.6% from PPUD. A higher frequency of peritonitis was observed on patients who presented late.

Conclusion and recommendation: Acute abdomen is a surgical condition with high rate of morbidity and mortality if not managed timely and appropriately. To alleviate this problem creation of health awareness on acute abdomen to the general population in general and to the low and mid-level health care providers in particular is of paramount importance. As most of the complicated cases with delayed presentation are referred cases and most of them can be handled by properly trained MSC in emergency surgery such resources should be available at the most commonly referring health institutions.

Keywords: Acute abdomen; Intestinal obstruction; Laparotomies; Acute appendicitis; Ileo-transvers anastomosis

Introduction

Background

Acute abdomen is defined as a sudden onset abdominal pain which often requires an immediate surgical intervention. The causes of acute abdomen are several and their relative incidence varies in different populations. 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 [1-4].

Intestinal obstruction has been the leading cause of acute abdomen in several African countries whereas acute appendicitis is the most frequently seen cause in the developed world [3-7]. The leading causes

of intestinal obstruction in Africans have mostly been hernia and volvulus whereas adhesions are most frequent in the developed world [7-13]. There are, however, some African studies which are pointing to a change in these established patterns [14,15].

Ayder referral hospital which is the study area of this assessment was founded in 1994ec. Since then it has been providing services as a referral hospital in tigray regional state for a total population of about half of million. It is also collage of health science, Mekelle University, which has been teaching health science students. The study area to be this hospital is selected by convinces method with the title of pattern of emergency surgical operations performed for non-traumatic acute abdomen in this hospital from beginning of September 2000-2003. Retrospective study design was used from the registration book. This study focused on non-traumatic causes of acute abdomen leading to emergency surgical operations.

Statement of the Problem

Surgical acute abdomen is one of the commonly encountered emergencies in the practice of General surgery and for which emergency surgical operation commonly performed. Acute appendicitis, intestinal obstruction and perforated peptic ulcer disease are the leading cause of acute abdomen. Despite of modern surgery is being practiced; the mortality rate following non-traumatic surgical emergencies is still high.

Literature Review

Study conducted in tikur ambessa hospital shows that there were a total of 587 adult surgical emergency operations of which 2149 (36.4%) was laparatomies for acute abdomen. Acute appendicitis was the leading cause of acute abdomen which accounts 52%, of whom 81(67%) was males and 41 (33%) females. The majority of cases were in their 2nd and 3rd decades of life. Small bowel obstruction due to adhesions and volvulus were the leading causes of intestinal obstruction each accounting for 27%. Adhesion were the most frequent cause of small bowel obstruction (17/33).twelve's had previous surgery, four were managed conservatively and 13 were operated out of which four had died. There were 8 patients with primary small bowel volvulus. Sigmoid volvulus was the leading cause of colonic obstruction (17/29) of which 7 had simple volvulus and 10 gangrenous sigmoid volvulus. Perforated PUD was the 3rd most common cause of acute abdomen identified accounting for 21(9%) of cases, for which simple closure with omental patch was done [16].

Four year retrospective study at Gondar university hospital shows that emergency laparotomies for non-traumatic acute abdomen were 511(43.3%) of all laparotomies. The leading operative diagnoses were small bowel obstruction (43.4%), appendicitis (34.6%) and large bowel obstruction (11.5%) [17].

Study in Sina hospital shows that a total of 139 patients diagnosed with acute abdomen underwent emergency laparotomy. Acute appendicitis was the most common cause of acute abdomen (56.8%).Acute appendicitis was the etiology of acute abdomen in 67% of male and 38.8% of female patients. Other common causes of acute abdomen were peritonitis (14.4%) among which 8(5.7%) resulted from PPUD, 5(3.5%) were perforated appendicitis, 2(1.4%) pancreatitis, 10(7.2%) cholecystitis. Bowel obstruction 10(7.2%) of which 3(2.2%) adhesion and volvulus each, 2(1.4%) incarcerated Hernia and only 1(0.7%) case of imagination found. In this study 4(2.9%) ruptured AAA and torsion of an ovarian cyst (24.5%) in female patients diagnosed intraoperatively [18].

Significance of the Study

This study is aimed at assessing the magnitude, to investigate the pattern and burden of non-traumatic acute abdomen in general, factors attributable to the outcome of emergency laparotomy, and to get base line information to design a general management protocol for acute abdomen and further study.

Objective

General objective

To assess the pattern of emergency surgical operations performed for non-traumatic acute abdomen in Ayder referral hospital by the year 2000-2003 EC.

Specific objective

To determine the magnitude of performed emergency surgical operations.To assess incidence of non-traumatic causes of acute abdomen leading to emergency laparotomy.

Methodology

Study area and period

A three years retrospective study was conducted at Ayder hospital, Mekelle, Ethiopia, during the year of september 2000-August 2003 E.C. Mekelle town, which is about 783 Km far from Addis Ababa to North, is a capital of Tigray National and regional state with a total population of about a half of a million. There are five hospitals, four health center 10 higher clinics and more than 30 medium and lower clinics in the town.

Ayder teaching hospital, which is the study area of this assessment, was founded in 1994 E.C. and since then it has been providing services as referral hospital and college of health science, Mekelle University. The hospital also has been serving a population of around 5 million people. It has around 100 beds in surgical ward, 20 bed, in recovery room and 7 operative tables. The hospital has also an onsite blood bank supplies whole blood and packed red blood cells with occasional availability of plasma or platelets.

Subject Identification Data Acquisition and Analysis

All patients who underwent an operation for acute abdomen during the calendar year 2000-2003 were eligible. Subjects were identified retrospectively through a review of all medical records of patients' card and from the operative log book. Data was collected from the medical record and included: gender, age, duration of illness, patient complaint (symptoms), and date of admission, date of surgery, surgical procedure and operative diagnosis. It was then analyzed using SPSS stastical software.

Discussion

In this study emergency surgical operation performed for acute abdomen accounted 439 (85.4%) from all emergency laparotomies [2-6]. The male to female ratio was 3:1 and majority of patients were in their 2nd and 3rd decades of life, which was similar with previous studies done in the country, Tikur Anbessa Hospital and other African countries [16,17].

Acute appendicitis was found to be the leading cause of acute abdomen leading to emergency operation in our study. The majority of the cases with acute appendicitis were in their 2nd and 3rd decades of life with male to female ratio 3:1 which agree with other studies done like in TAH, ZMH, Ethiopia and Sina Hospital. But contrast to study done in Gondar University Hospital which showed that intestinal obstruction was the leading cause of acute abdomen. Intestinal

obstruction was the next most common cause of acute abdomen. 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 which were managed as an outpatient by simple rectal tube deflation were included. This is in argument with studies done in TAH, AA; Gondar [16,17] which has shown that adhesion was the leading cause of small bowel obstruction.

In this study small bowel volvulus were found to be the most frequent causes of small bowel obstruction which is in contrast to other studies like TAH, Gondar [16, 17] in which adhesion was the most frequent cause of SBO. In this study adhesion and hernia were found to be 2nd and 3rd most common cause of SBO. Surprisingly in this study out of 108 SBO 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 primary intussusceptions which was significant in number as compared to study conducted in TAH. Most of them came late and had non-viable bowel, hence resected and anastomosis was done. In agreement with TAH, in this study sigmoid volvulus was found to be the leading cause of colonic obstruction. In this study there was relatively high frequency of peritonitis (17.13%) of which 10% resulted from perforated appendix 4.6% from perforated PUD. But study on sina hospital showed 14.4% of patients developed peritonitis, among which 5.7% resulted from PPUD, 3.5% of from perforated appendix.

Results

Three years retrospective study conducted on pattern of emergency surgical operations performed for non-traumatic acute abdomen in Ayder teaching hospital in Mekelle, Ethiopia. There were a total of 514 surgical emergency operations of which 439 cases were laparotomies for acute abdomen and 21 emergency laparotomies done for blunt and penetrating abdominal injuries. Emergency laparotomies for non-traumatic acute abdomen, 439 cases were retrieved which made the basis of this study. The male to female ratio was 3:1. The age ranged from 30 day to 88 year with a mean of 28.4 ± 19.5 years. Two hundred fifty patients (57%) were urban dweller and 189(43%) cases were from rural area; of which 152 (34.6%) were referred from nearby health centers and affiliated hospitals presented with duration of illness more than 5 days. Acute appendicitis accounting 243 (55.4%) of cases was the leading cause of acute abdomen followed by intestinal obstruction 164 (37.35%) and peritonitis 76 (17.3%). Acute appendicitis accounted for just over half of the cases 243 (55.35%) of whom 185 (76.13%) were males and 58 (23.6%) were females (M: F 3:1). The majority of the cases were in their 2nd and 3rd decades of life. About 181 (74.48%) cases were found to have non complicated acute appendicitis for them simple appendectomy has been done. Forty-four (18%) patients developed peritonitis from perforated appendicitis for which appendectomy and lavage was done. This complicated appendicitis was more encountered in males which account 32 (72.7%). sixteen cases were appendiceal abscess appendiceal abscess drainage has been done.

Primary small bowel volvulus (34/105) was the leading causes of SBO followed by adhesion (27/105), hernia (25/105). Primary volvulus was the most frequent causes of small intestinal obstruction (34/105) of which 29 patents were males and 5 females. Twenty nine cases were

having simple twisting for which derotation and milking was done; but 8 patients were found to have gangrenous small bowel volvulus for which resection and anastomosis had been done. Adhesion was the 2nd leading cause of SBO (27/105), of whom 16 were male 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, resection and anastomosis done. There were 25 patients with incarcerated and strangulated hernia. Sixteen of them were viable incarcerated hernia, reduction and repair of defect done, but 9 Patients were found to develop strangulated hernia; resection and anastomosis done. This case was more encounters in males (18/25). There were 17 cases with ileo-colic intussusceptions; 15 were males and 2 females, except two cases, other were developed ganuenous; resection and ileo-transvers anastomosis was done.

Sigmoid volvulus was the leading cases of colonic obstruction (46/56), 43 were males and 3 were females. Their age ranged from 25-88 years and the mean was 48.2 ± 15.8 years. Twenty seven had simple volvulus and 19 had gangrenous sigmoid volulus for which resection and Hartman's colostomy was done. In this study 10 patients were found to have colonic mass intraoperatively, 6 of them were females.

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, then 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 (Tables 1 and 2).

Causes of acute abdomen	No. of Pt.	Percent
Acute appendicitis	243	55.4%
Intestinal obstruction	164	37.35%
PPUP	20	4.6%
Peritonitis (other than PPUD)	56	12.75%

Table 1: Frequency of the causes of acute abdomen in Ayder referral hospital during the year of September 2000-Aug 2003.

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%)
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Table 2: The frequency and causes of intestinal obstruction in Ayder referral hospital (n=164).

Conclusion and Recommendation

In this study we noticed emergency surgical operation for acute abdomen particularly for acute appendicitis was found to be the most common surgical emergency operations performed in Ayder Hospital, which agree with other studies, were done at TAH, ZMH. relatively high frequency of peritonitis cases were also found which was mostly encountered in patients who came late and referred from nearby health institutions.

Acute abdomen is a surgical condition with high rate of morbidity and mortality if not managed timely and appropriately. To alleviate this problem creation of health awareness on acute abdomen to the general population in general and to the low and mid-level health care providers in particular is of paramount importance. As most of the complicated cases with delayed presentation are referred cases and most of them can be handled by properly trained MSC in emergency surgery such resources should be available at the most commonly referring health institutions.

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