

# Presentation and Outcome of Acute Abdomen in Goba Referral Hospital, Goba, Southeast Ethiopia: Retrospective Study

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## Abstract

**Background:** Surgical acute abdomen is one of the commonly encountered emergencies in the practice of General surgery. However, there was not much study done regarding the presentation and outcome of acute abdomen in Ethiopia, particularly in this study area.

**Objective:** This study was aimed to assess the presentation and outcome of surgically treated acute abdomen patients who were managed operatively at Goba Referral Hospital, southeast Ethiopia.

**Methods:** This was Retrospective study conducted on 299 adult patients admitted with acute abdomen in Goba Referral Hospital from September 1, 2012 to August, 30, 2014. Variables analyzed include demographic data, clinical features, and causes of acute abdomen, immediate complications and outcome of the surgical management of acute abdomen. Data were extracted by trained data collectors using data compilation sheet. The collected data were processed using SPSS version 21 software. Descriptive statistics was done. Chi-square test was calculated to identify associated factors of acute abdomen.

**Results:** There were 299 patients of which 211 (67.2%) were males and 98 (32.8%) were females. About 58.2% of patients visited the hospital after 2 days of onset of symptoms. Abdominal pain (100%) and vomiting (99.3%) were the most common complaints. Acute appendicitis was the most common cause accounting for 49.2% of the patients, followed by acute intestinal obstruction (39.1%). Wound infection (15.7%) and septicemia (8.0%) were the most common postoperative complications. The overall case fatality rate was 16%. Conclusion: Acute appendicitis was the most common cause for acute abdomen. The overall case fatality rate of acute abdomen found was unacceptably high. Wound infection and sepsis were the most common postoperative complications. Early diagnosis, adequate preoperative and postoperative care may help to reduce the observed high mortality.

## Introduction

Acute abdomen is a medical emergency, in which there is onset of sudden and severe pain in the abdomen with accompanying signs and symptoms that involves abdominal area [1]. The causes of the acute abdomen are several and their relative incidence varies in different populations [2]. Worldwide, appendicitis, bowel obstructions, incarcerated or strangulated hernias, volvulus, and acute biliary pathology remain the most common causes of the acute abdomen in adults [3,4]. The most common symptoms are abdominal pain and vomiting whereas tenderness and guarding are the most frequent clinical signs [5]. It is common surgical emergency accompanied with high morbidity and mortality if not managed properly [6]. There was not much study carried concerning the presentation and outcome of acute abdomen surgery in Ethiopia and particularly in the study area. Hence, this study was conducted with the aim of assessing presentation and outcome of surgical management acute abdomen in Goba referral hospital, southeast Ethiopia.

## Materials and Methods

### Study area

The study was conducted at Goba Referral Hospital, which is located in southeast part of Ethiopia; 445 Km from Addis Ababa. The hospital has about 120 beds of which 29 beds are used for surgical patients.

**Table 1:** Demographic distribution of patients with acute abdomen, Goba referral hospital in 2015.

Demographic Variables		Frequency	Percent
Sex	Male	201	67.2
	Female	98	32.8
Age of respondents	10-24	112	37.5
	25-39	88	29.4
	40-54	50	16.7
	55-69	34	11.4
	70-84	15	5.0
Residence	Urban	88	29.4
	Rural	211	70.6

**Study design**

The retrospective cross-sectional study design was used. Data of patients with cases of acute abdomen with surgical intervention in Goba Referral Hospital from September 1, 2012 to August, 30, 2014 were included.

**Participants**

The study participants of this study were all patients who had undergone acute abdominal surgery at Goba Referral Hospital during the stated period.

**Data extraction methods**

Data were extracted from the patient charts using prepared data compilation sheets that included age, sex, and residence, duration of illness, causes of acute abdomen, signs and symptoms of acute abdomen, postoperative complications, and outcome of patients who underwent the operation for acute abdomen. To recruit data collectors, a call for data collectors was posted using poster indicating the requirement for selection. Then those who had experience of data collection and health professionals in educational background were selected and further trained to get the patients chart and extract the necessary data for this study. On completion of data extraction financial reward and certificate was given for the data collectors.

**Statistics**

Data were entered and analyzed by Statistical Package for the Social Sciences (SPSS) version 21 statistical packages [7]. Frequency

**Table 2:** Clinical features of patients with non traumatic acute abdomen, Goba referral hospital in 2015.

Clinical features		Frequency	Percent
Duration of illness	< /=2 days	125	41.8
	> 2 days	174	58.2
Abdominal pain	Yes	299	100.0
Vomiting	Yes	297	99.3
	No	2	0.7
Abdominal distention	Yes	110	36.8
	No	189	63.2
Constipation	Yes	147	49.2
	No	152	50.8
Fever	Yes	151	50.5
	No	148	49.5
Presence of shock	Yes	20	6.7
	No	279	93.3

distribution was done for appropriate variables. Chi-square test was performed to identify factors associated with acute abdomen surgery. Finally, tables and graphs were used to present the data.

**Ethics**

Ethical clearance was obtained from Jimma University, college of Medicine and Health Sciences. Then, official letter was delivered to Goba Referral Hospital administration to get permission for the study. Moreover, brief explanation was given to the hospital manager concerning the purpose of the study and the procedures used to collect the data. After getting permission, patient’s charts that fulfill the criteria were selected. Confidentiality of data extracted/collected was kept and names of the patients were not included during data collection/extraction.

**Results**

**Demographic characteristics**

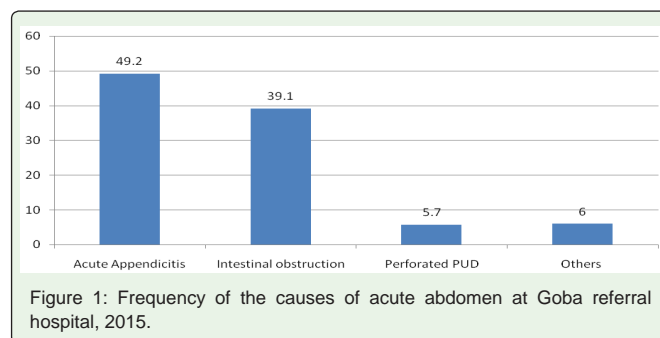
A total of 1006 adult surgical emergency operations were performed during the study period. Of these, 299 patients were admitted with the diagnosis of acute abdomen making about 30% of the adult emergency surgical operation.

Of total 211 (70.6%) patients were from rural and 88 (29.4%) were from urban area of the woreda (meaning districts of Ethiopia). The mean age of the patients was 33.9±17.1 years. High proportion patients were at 10-24 age group; accounting for 112 (37.5%), males dominated comprising 67.2% of the cases. The male to female sex ratio was 2.1: 1. The duration of symptoms on admission ranged from 24 hour to 7 days (mean = 3.0 days). One hundred seventy four (58.2%) of the patients were presented to the hospital after 2 days of the onset of signs and symptoms (Table 1).

All patients had abdominal pain as a presenting symptom followed by vomiting 297 (99.3%) whereas, fever and abdominal distention were the most frequent clinical signs found, 50.5% and 36.8% respectively (Table 2).

As is shown in Figure 1, the most common causes of acute abdomen surgery recorded were acute appendicitis 147 (49.2%), followed by intestinal obstructions 117 (39.1%) and perforated PUD accounting for 17 (5.7 %).

Regarding the sex distribution of the causes of acute abdomen, of total admitted due to acute appendicitis, 97 (66.0%) were male patients while 34 (34.0%) were female patients. Of patients admitted due to intestinal obstruction, 77 (65.8%) were male patients while 40 (34.2%) were female patients (Table 3).



**Table 3:** Sex distribution of acute abdomen causes among Patients admitted in Goba referral hospital in 2015.

Causes of Acute Abdomen	Sex		Total
	Male	Female	
Acute Appendicitis	97(66.0%)	50(34.0%)	147(100.0%)
Intestinal obstruction	77(65.8%)	40(34.2%)	117(100.0%)
Perforated PUD	15(88.2%)	2(11.8%)	17(100.0%)
Others	12(66.7%)	6(33.3%)	18(100.0%)
Total	201(67.2%)	98(32.8%)	299(100.0%)

**Table 4:** Type of appendicitis among patients with acute abdomen in Goba referral hospital in 2015.

Types of Appendicitis	Frequency	Percent
Simple appendicitis	97	66.0
Perforated appendicitis	50	34.0

**Table 5:** Frequency of causes of intestinal obstruction in Goba referral hospital in 2015, (n=117).

Causes of intestinal obstruction	Frequency	Percent
Sigmoid volvulus	30	10.0
Small bowel volvulus	25	8.4
Adhesion	23	7.7
Hernia	16	5.4
Intussusceptions	13	4.3
Colonic carcinoma	6	2.0
Rectal CQA	2	0.7
Abdominal injury	2	7.0

Among Patients admitted with appendicitis as causes of acute abdomen, 97 (32.4%) were diagnosed with simple appendicitis and 51 (17.1%) were diagnosed with perforated (complicated) appendicitis (Table 4).

Sigmoid volvulus and Small bowel obstruction were the leading causes of intestinal obstruction (Table 5).

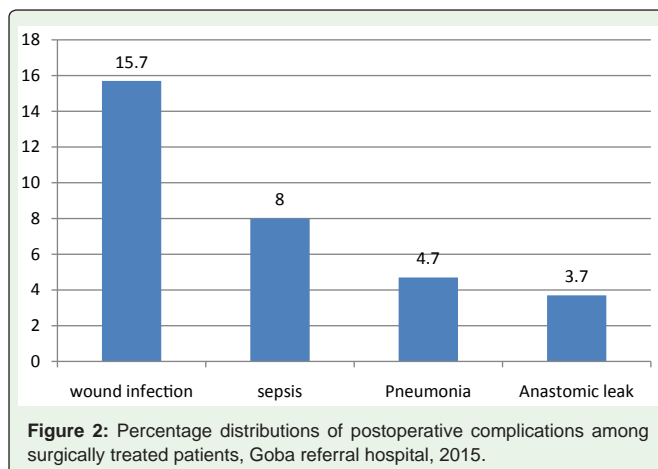
Regarding the outcome of patients who had acute abdominal Surgery, 94 (31.4 %) had developed postoperative complications. Wound infection was the most frequently identified complication in 47 (15.7%) followed by sepsis in 24 (8%) and pneumonia in 14 (4.7 %) (Figure 2). Overall, 16 (5.4 %) of patients admitted with acute abdomen died.

Regarding the outcome of Patient who underwent Surgery for acute abdomen, 281 (94%) were improved, 16 (5.4 %) died (Figure 3). Acute appendicitis, intestinal Obstruction, and perforated PUD were the main causes of death among patients surgically treated for acute abdomen respectively (Table 6).

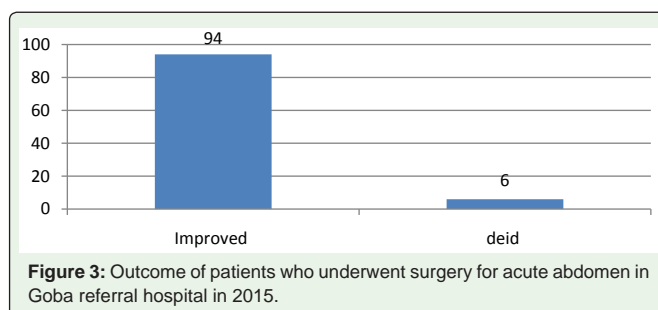
The median duration of illness was 3 days with 125 (41.8 %) of the patients presented with ≤ 2 days complaint. 147 (58.2 %) had >2

**Table 6:** The relationship between duration of illness and mortality of patients surgically treated for acute abdomen in Goba referral hospital in 2015.

Variable	Category	Total patients	Percent	Patients died	% Mortality rate
Duration of illness	≤ 2 days	125	41.8	2	1.6
	>2 days	174	58.2	14	8.0
Total		299		16	5.40



**Figure 2:** Percentage distributions of postoperative complications among surgically treated patients, Goba referral hospital, 2015.



**Figure 3:** Outcome of patients who underwent surgery for acute abdomen in Goba referral hospital in 2015.

days of presenting complaint, The mortality was high 14 (87.5 %) in those with the late presentation as compared to those who came relatively early taking two days as a cutoff point to classify as late or early presentation of patients for treatments.

### Discussion

There were very few studies done on the general pattern of acute abdomen in some parts of Ethiopia but no study was conducted in Goba referral hospital. Hence, this study was focused on assessing the presentation and outcome of acute abdomen in the area using three years back secondary data from the Goba referral hospital, Southeast Ethiopia. In this study, acute abdomen accounted for 30% of surgical emergencies. Male patients were more affected than females and male to female sex ratio was found 2.1:1. The male dominance is similar to what was reported in other studies in Ethiopia [8,9], in Uganda [9] and Kigali University teaching hospital [11], where the male to female sex ratio was 2:1. This study found that 71% of patients with acute abdomen were from rural area of the woreda; this was higher than the finding from Gondar University hospital of Ethiopia [8] and Kigali University teaching hospital of Uganda [11]. That reported 58% of the patients from rural area.

The current study revealed that the average time from onset of symptoms to first medical visit was 24 hours (1day) and the average time from onset of symptoms to hospital admission was 3.0 days. A

study conducted by Nyundo [11], at the Kigali University teaching hospital, found that the average time of admission was 3.6 days and Kotiso [8], in Addis Ababa, found that the average time from onset of symptoms to hospital admission was 4.6 days. This long time of consultation may be due to poor knowledge of the society on the acute abdomen and its complications.

Concerning the clinical presentation of patients with acute abdomen, all of the patients had abdominal pain as a presenting symptom, followed by vomiting (99%), which was in agreement with previous studies done in Tikur Anbesa teaching hospital [9] and Kigali University teaching hospital [11], which reported the abdominal pain as the major presenting symptom. In this study acute appendicitis was found to be the leading cause of acute abdomen. This is in agreement with the study done in Addis Ababa, Tikur Anbesa hospital [9] and in contrast to the study done in India, Christian medical college [12] and Yirgalem hospital, southern Ethiopia [13], Gondar University hospital [8], Mulago hospital [10] in which intestinal obstruction was found the leading cause.

In this study, the second most common cause of the acute abdomen was an intestinal obstruction. The leading cause of intestinal obstruction in this study was sigmoid volvulus (10%). This was in agreement with studies done in Tikur Anbesa hospital, Addis Ababa [9] and Kigali University teaching hospital of Rwanda [11] which had shown that sigmoid volvulus was the leading cause of intestinal obstruction. In this study, the mortality of patients with acute abdomen treated surgically was 15.4%. This is in agreement with studies in Gondar University and Tikur Anbesa hospital of Ethiopia [8,9].

The most frequent postoperative complication was wound infection 15.7% followed by sepsis (8%). Arenal in Spain [14] and Nyundo in Rwanda [11] found that the most frequent complication was wound infection (17%) which correlates with our study. In this study the duration of illness was found to be strongly associated with case fatality rate. Patients who presented within two days of their illness had a Case fatality rate of 1.6% whereas those who presented after two days had a Case fatality rate of 8.0% (statistically significant  $p < 0.005$ ).

As the data used for this study was secondary data/patient record from the Goba referral hospital, it might not include other factors which could put the patients at risk of developing acute abdomen or aggravating factors. Moreover, since the study was conducted in a single hospital the finding couldn't represent the general populations.

## Conclusion

Acute appendicitis was the most common cause for Acute Abdomen. The overall case fatality rate of acute abdomen found was unacceptably high. Wound infection and sepsis were the most common postoperative complications.

Early diagnosis, adequate preoperative and postoperative care would help to reduce the observed high mortality. This could be achieved by increasing the community awareness on clinical features of the acute abdomen for early case detection and treatment. As well as improving the knowledge and skill of health professionals on Infection preventions in Goba referral hospital.

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