PREVALENCE AND MANAGEMENT OUTCOME OF NON- TRAUMATIC EMERGRNCY SURGICAL ACUTE ABDOMEN AT METTU KARL REFERRAL HOSPITAL, ILUABABUR ZONE, ETHIOPIA

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PREVALENCE AND MANAGEMENT OUTCOME OF NON TRAUMATIC EMERGRNCY SURGICAL ACUTE ABDOMEN

A FIVE MONTHS PROSPECTIVE HOSPITAL BASED STUDY AT METTU KARL REFERRAL HOSPITAL, ILUABABUR ZONE, ETHIOPIA

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ABSTRACT

BACKGROUND: Acute abdomen is an acute onset of abdominal disease entities that require immediate surgical intervention in most of the cases. The causes of non-traumatic surgical acute abdomen and their relative incidence vary in different populations. Intestinal obstruction and acute appendicitis are the leading causes of non-traumatic surgical acute abdomen in African countries and developed world respectively. There are only few studies on non-traumatic surgical acute abdomen in oromia region, Ethiopia.

OBJECTIVE: The aim of this study was to assess the prevalence and management outcome of non-traumatic emergency surgical acute abdomen at mettu Karl referral Hospital.

METHODES: The study was conducted at mettu Karl referral Hospital from March, 2017 to August, 2017G.C. Institutional based prospective cross sectional study design that was supported by quantitative data collection method was conducted. All patients admitted with a diagnosis of non-traumatic emergency surgical acute abdomen during study period were included in the study. Interview and checklist data collection technique were used. The data were checked for its completeness. Then it was coded, entered, cleaned and analyzed using SPSS version 22.

RESULTS: Based on the five months prospective study there were 92 non traumatic emergency surgical acute abdomens admitted in surgical ward and the prevalence was 18.5%. 84.8% of cases were managed surgically and 15.2% were managed conservatively. 24(26.1%) were from mettu town and 68(73.9%) out of mettu town. Abdominal pain, vomiting and nausea were the most frequent symptoms whereas abdominal tenderness, distention and tenderness and guarding were the most frequent clinical signs. More than 54.3% of patients came after 3days duration of illness. The three top causes of acute abdomen were appendicitis accounting 39 (42.4%), followed by bowel obstruction 34 (37%) and Peritonitis secondary to perforated appendicitis 8(8.7%), PPUD 5(5.4%), GSBO 3(3.3%), primary peritonitis 2(2.2) and typhoid perforation (1.1%). The total complications after management were 18(19.6%) of which the commonest early postoperative complications other than death were wound infection (5.4%), sepsis (4.3%) and pneumonia (2.3%) and death rate was 5.4% with five patients.

CONCLUSSION: The mortality and morbidity associated with acute abdomen were very high. This higher morbidity and mortality were calls for an integrated effort to decrease its causes.

KEYWORDS: Non-traumatic surgical acute abdomen, complications, outcome.

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TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

List of tables

List of Figures

ACRONYMS

EOPD – Emergency outpatient department

GLBO – Gangrenous large bowel obstruction

GP – General practitioner

GSBO – Gangrenous small bowel obstruction

HMIS – Health management information system

ICU – Intensive care unit

IEOS - Integrated Emergency Obstetrics and Gynecology and Surgery

Km – Kilometer

LBO- Large Bowel Obstruction

MKRH - Mettu Karl Referral Hospital

NICU – Neonatal Intensive Care Unit

NRH - Nekemte referral Hospital

NTAA - Non traumatic acute abdomen

PPUD - Perforated peptic ulcer disease

REEA-Resection and End to End anastomosis

RESA-Resection and End-Side anastomosis

RLQ – Right lower quadrant

SBO- Small Bowel Obstruction

SPSS - Statistical package for social sciences

TAH – Tikur Anbesa Hospital

CHAPTER ONE: INTRODUCTION

1.1 Background

Acute abdomen refers to signs and symptoms of abdominal pain and tenderness, a clinical presentation that often requires emergency surgical therapy. This challenging clinical scenario requires a thorough and expeditious workup to determine the need for operative intervention and to initiate appropriate therapy. Many diseases, some of which are not surgical or intra-abdominal, can produce acute abdominal pain and tenderness. The diagnoses associated with an acute abdomen vary according to age and gender. Appendicitis is more common in the young, whereas biliary disease, bowel obstruction, intestinal ischemia and infarction, and diverticulitis are more common in elderly patients (1)

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. In Ethiopia, especially in Oromia region, very little is known about the general pattern and the relative incidence of the causes of acute abdomen. (2)

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 (2, 3)

Non traumatic acute abdomen (NTAA) is a commonly encountered condition accounting for 36.4% of the surgical emergency, the overall mortality rate of 15.3% and postoperative hospital mortality rate of 14%.wound infection, sepsis and pneumonia are the most common postoperative complication and associated with long hospital stay.(3)

1.2 Statement of the problem

Acute abdomen is often a surgical emergency and a challenge to any surgeon. 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 abdomen is a commonly encountered condition accounting for 36.4% of the surgical emergency procedures done in the department (2, 4).

Acute appendicitis is the most common condition encountered in patients presenting with acute abdomen. Most patients having acute abdomen are relatively young in the 2nd and 3rd decades of life. Lack of health education, improper health care facilities and late presentations are common factors for increased morbidity. The most common pre and postoperative diagnosis of non-traumatic were acute appendicitis. Old age (>55yrs) and duration of illness greater than two days were factors statistically associated with postoperative complication (4-6, 8).

Intestinal obstruction was almost always cited as the major cause of abdominal surgical emergency. Few studies have noted the shift in diagnosis from intestinal obstruction to appendicitis in African populations. This trend of lower rate of intestinal obstruction could likely be due to the Westernization (i.e. diets consisting of lower portions of fiber) in certain regions in Africa. It could also be accounted for by improved hygiene methods, which help to lower parasites and worms in the gut that can cause obstruction (7).

The magnitude of non-traumatic surgical acute abdomen is different in deferent areas due to socioeconomic, demographic factors and diet habit. In addition to this, the incidence of post-operative complications varies in different regions and setups.

There is no literature that indicates the magnitude, causes, postoperative complication and final outcomes of patients who were managed operatively for the diagnosis of non-traumatic surgical acute abdomen in MKRH.

Knowing the magnitude and common causes as well common presentations of non-traumatic acute abdomen has great advantage for early clinically diagnosing and to give more emphasis on diagnosis and management time. Non traumatic surgical acute abdomen is common and relatively non preventable emergency, but if diagnosed and managed early, postoperative complications and final outcome of death can be highly reduced.

CHAPTER TWO: 2.1. Literature Review

A study conducted in government Medical college/ Guru Nanak Governmental Hospital ,Amritsar, India on one hundred cases with no exclusion criteria regarding the age and sex. Based on this study Majority of the patients are male and in the age group of 20-40 years. Etiology of most of the cases is perforation peritonitis which accounts 39(39%) followed by acute cholecystitis accounts 18(18%) and acute appendicitis 14(14%). Intestinal obstruction, pancreatitis, and renal colic contributes, 12(12%), 11(11%), and 6(6%) respectively (9).

Two hundred and seventy-six patients recruited during the study period, constituted 9.6% of total surgical emergency admissions (2,875).The patients' age ranged from 16 to 90 years, 78.3% of the patients were aged 18- 45 years while those aged 16-25yrs constituted the peak age-group. 197(71.4%) patients were male while 79 (28.6%) were female. Most (60.2%) of the patients had secondary or tertiary education. 28.6% were students still in school while a notable portion (39.8%) of the patients had little or no form of formal education. Abdominal pain was the commonest presenting symptom (98.2%), vomiting (68.5%), anorexia (56.9%) and fever (47.8%). 102 (37.0%) were found to be dehydrated on admission while 16 patients (5.8%) were admitted in shock and needed to be resuscitated. Patients with inflammatory lesion comprised 34.1% of all patients with acute abdomen. Perforated viscous (29.7%), obstructive lesion (27.9%), hemorrhagic lesions (2.5%) and biliary colic 1.3%. Hernia was the commonest cause of intestinal obstruction constituting 42.9%. 26(31%) patients had post-operative adhesions, seven (8.7%) had malignant bowel obstruction and the same number of patients (seven) had volvulus. Overall, obstructive lesion was more common between 40 and 65 years (13).

An analytical study conducted on 110 cases of acute abdomen at India, from May 2011 to September 2013, 42(38.38%) were caused by acute appendicitis, of which 29(26.36%) were male and 13(11.81%) were female, Perforated duodenal ulcer 28 (25.45%) in 12(10.90%) of male and 16(14.54%) of female. Other common causes of acute abdomen were Ileal perforation 11 (10%) among which 7.27% were male and 2.72% were female (4).

A study conducted in Tikur Anbesa Specialized Hospital, Ethiopia from July 1, 2010 to June 30, 2012 shows that A total of 328 emergency abdominal surgery with available patients chart. The most common cause of ASE was appendicitis representing 92(28%) of all of the cases of which

simple appendicitis was 59(64%) and complicated was 33(36%). Intestinal obstruction was the second most common cause of ASE with 56 patients (17%).Next to appendicitis and intestinal obstruction penetrated abdominal injury accounts 42(12.8%), perforated peptic ulcer disease accounts 25(7.6%) and blunt abdominal injury accounts 25(7.6%) respectively.

A two years hospital based retrospective descriptive cross-sectional study on 166 patients complaining of non-traumatic acute abdomen from March 2012 to March 2014 who managed surgically at Suhul general hospital, Northwest, Tigray, Ethiopia. Of this 166 patient 94(56.6%) were male and 72(43.4) were female. 65 (39.2%) were urban residents and 101(60.8%) were rural residents. The commonest present compliant was abdominal pain(88.8%) followed by vomiting(8.4%). About 123(68.1%) patient were present to hospital with in 12hr-5day duration from their initial symptom, the rest of patient present <12hr(13.9%) and > 5day(18.1%).Tachycardia , localize tenderness, generalized tenderness, and distention were most frequent physical finding. The most common cause was acute appendicitis 90(54.2%) followed by generalized peritonitis 45(27.1%) and intestinal obstruction 31(18.7%) Acute appendicitis accounts for more than half of whom 38(42.2%) were male and 52(57.8%) were female. About 65 (72.2%) cases were found to have non complicated acute appendicitis for them simple appendectomy was done, 15(16.7%) cases were Appendiceal abscess for them abscess drainage was done and Ten (11.1%) were perforated appendicitis with local peritonitis. Generalized peritonitis was the second cause of laparotomy 45(27.1%), of which 33(73.3%) was due to perforated appendicitis, 9(20%) was secondary to perforated peptic ulcer disease, 2(4.5%) were following primary peritonitis and 1(2.2%) were Typhoid perforation. Simple closure with omental patch was done for all PPUD. 4 of the 45 generalized peritonitis were died which gives case fatality rate 8.9%.Generalizes peritonitis followed by small bowel obstruction which accounts 24(14.5%) of which Adhesion (8/24) was the leading cause, adhesionolysis and band release done for Six patients, but two Patients were found to have gangrenous SBO, resection and anastomosis done. Primary small bowel volvulus was the 2nd leading cause (7/24). 3 Cases were having simple twisting for which derotation and milking was done; but 4 patients were found to have gangrenous small bowel volvulus for which resection and anastomosis was done, also there were 4 patients with strangulated hernia, for whom resection and anastomosis was done. There were 5 cases with ileo-colic intussusceptions; for three of them resection and ileo-

transvers anastomosis was done. Sigmoid volvulus was the leading cases of colonic obstruction (6/7). Two patients had simple volvulus for which derotation was done and four had gangrenous sigmoid volvulus for which resection and Hartman's colostomy was done. In this study 1 patient were found to have colonic mass intra-operatively (6).

The study conducted at Nekemte referral hospital, Southwest Ethiopia: A Cross Sectional Study from January 2011 to December 2013. There were a total of 295 surgical emergency laparotomies for non-traumatic surgical acute abdomen. The three top causes of acute abdomen were acute appendicitis accounting 140 (47.46%), followed by bowel obstruction 118 (40%) and Peritonitis other than gangrenous bowel obstruction and perforated appendicitis 36(12.20%). Among 140 cases of appendicitis, Acute appendicitis accounts 74(52.86%) of appendicitis followed by Appendiceal abscess38 (27.14%) and perforated appendicitis28 (20%).

Appendiceal abscess was high in elder age groups (>60years=50%) where as low in 1st decade and Perforated appendicitis was high in two extreme age groups (42.86% in 1st decade and 33.35% in >6th decades).Out of 118 bowel obstruction Small bowel obstruction was the leading cause of bowel obstruction which accounts 75(63.56%) of bowel obstruction of which 43(57.33%) were primary small bowel volvulus,13(17.33%) were hernia, 12(16%) were adhesion/band and 6(8%) were 16 intussusceptions. 48(44.86%) cases peritonitis were from gangrenous bowel obstructions, 22(20.56%) perforated appendicitis, 14(13.08%) perforated PUD and 11(10.28%) from typhoid perforation while 11(10.28%) were primary peritonitis. Majority of cases of peritonitis were those who came late before operation (8).

Between the years July 8, 2011 to July 8, 2015, two hundred one patients have undergone operative management for a clinical diagnosis of acute appendicitis. Of whom 142 (70.65%) of the patients were male and 59 (29.35%) were female. Majority 165 (82.1%) of the patients arrived the hospital after one days of the onset of their illness, only 50 (24.9%) patients arrived within one day. Nausea was the main presenting complaint of the patients 127(63.18%), followed by vomiting 119 (59.2%) patient. shifting abdominal pain and loss of appetite were 99 (49.3%) and 97 (48.3%) respectively. During the physical examination, 181 (90.0%) of them had tenderness over RLQ of the abdomen followed by psoas sign in 68 (33.8%), obturator sign in 32

(15.9%), and Rovsing's sign in 26 (12.9%). Intra-operative findings of these patients includes, inflamed appendix in 152 (75.6%) patients, gangrenous appendix 14 (7.0%), perforated appendix 16 (8%), appendiceal abscess 10 (4.9%), and appendiceal mass 4 (1.99%). There were two (0.99%) appendix found normal. The type of operative procedure, 85 (92.%) patients have undergone appendectomy, 4(1.88%) patients abscess was drain for appendicial abscess and 2(1%) patients have undergone peritoneal lavage for perforated appendix. postoperative complication(s) including 1(0.5%) of death, wound infection 6(3%) and hernia 2(0.9%) (12).

The prevalence of IO was 21.8 % among patients admitted with the acute abdomen conditions, and 4.8 % among total surgical admission patients based on the study; prevalence, cause and management outcome of intestinal obstruction conducted at Adama hospital. In this study, most small bowel obstruction was found to be secondary to intussusceptions (in 30.9 % of the cases), volvulus (in 30.3 % of the cases), Adhesion (27.1%) or Hernia (5.8%). Large bowel obstruction was mainly caused by sigmoid volvulus (69.0 %), colonic tumor (13 %), Intussusceptions (9.2%) and Iliosigmoidal knotting (5.7%). As expected, the main intra-operative finding was intussusceptions, which accounted for 21 % followed by adhesion and bands in 18.4 %. The most common intra-operative procedure was resection and anastomosis, which accounted for 40.5 %, followed by manual reduction and adhesion release, each accounting for 17.4 %. Nearly 94.2 % of IO cases were managed by surgical procedure, whereas simple conservative management alone (i.e., naso-gastric tube insertion, intravenous antibiotics and intravenous fluid resuscitation) were applied in 5.8 % of cases. Males in 65.8 % of the cases and females in 20.2 % were managed by operation. Of the patients that underwent laparotomy, 56 patients (24.6 %) developed an unfavorable outcome. Among these, 22 patients (39.3 %) developed wound infection, 10 (17.8 %) had facial dehiscence, 7 (12.5 %) had anastomotic leakage, 5 (8.9 %) developed septic shock and 6 (10.7 %) developed other complications like pelvic collection or pneumonia. The minimum duration of illness before arrival is 2 h and the maximum is 78 h. One hundred nineteen patients (49.2 %) presented within 24 h, whereas 50.8 % presented after 48 h. The minimum duration of hospital stay was 2 days and the maximum duration was 30 days with an average of 9.54 days. Out of the 242 patients with IO, 234 (96.7 %) improved and discharged; 6 (2.5 %) died (11).

2.2. Significance of the study

Acute abdomen is one of the surgical emergency cases that cause major mortality & morbidity if not managed early and appropriately. Thus, having enough knowledge about its pattern, mortality and morbidity has advantage in decreasing complications associated with acute abdomen by appropriate early interventions.

It is important to know which common causes of acute abdomen and outcome in mettu Karl referral hospital. Knowing which causes and outcome with various types of acute abdomen will help to know the most frequent causes of acute abdomen and its complication in MKRH also helps on how to approach patients presenting with acute abdomen and its prevention of complication.

The result of this study will help as for understanding prevalence of acute abdomen and its outcome, and will also add epidemiological and clinical information that will serve as an essential input for policy makers for planning to improve health services.

2.3. Conceptual framework

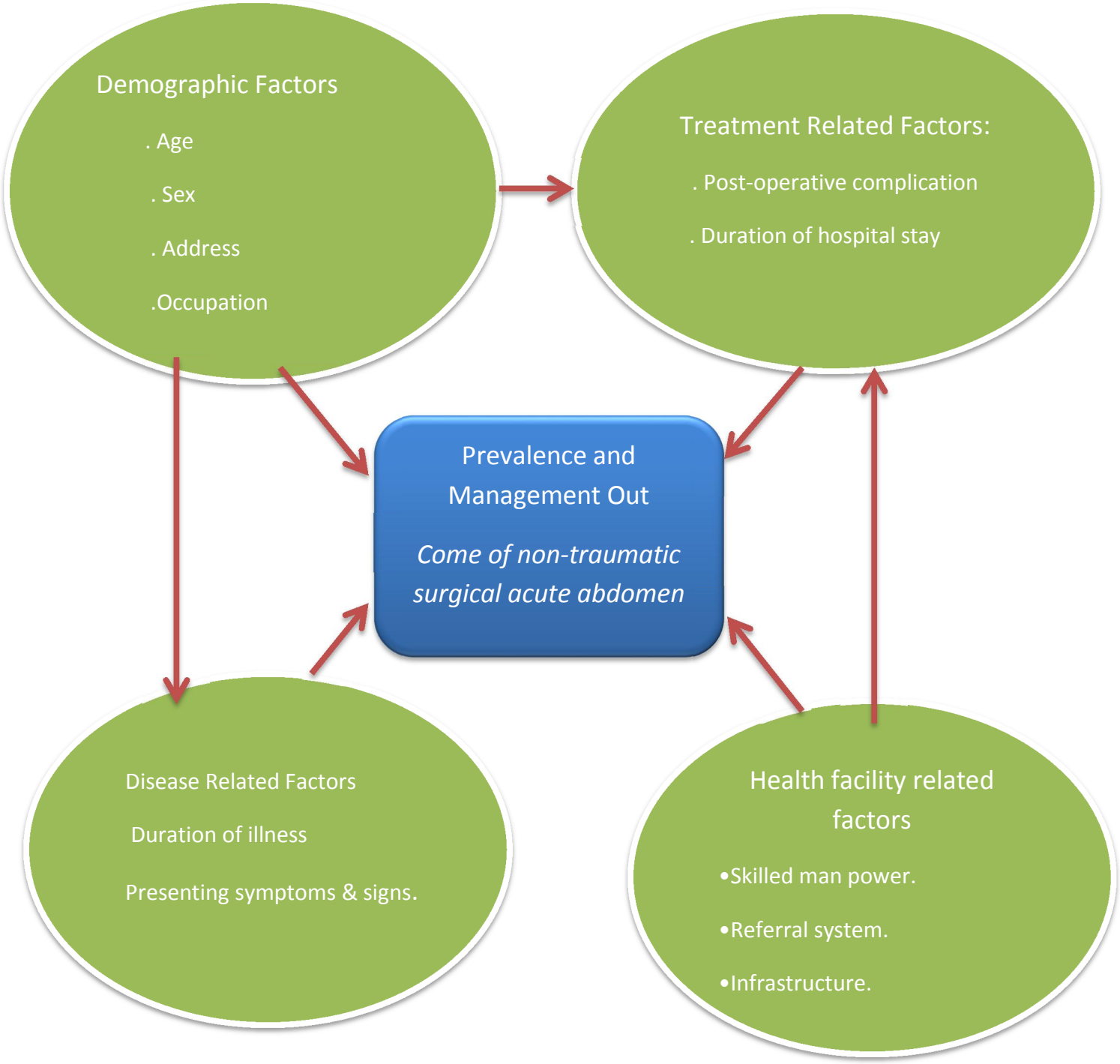


Figure 1.Conceptual framework for non-traumatic acute abdomen

CHAPTER THREE: OBJECTIVES

3.1 General objectives

To assess the prevalence and management outcome of non-traumatic emergency surgical acute abdomen from March 2017 - August 2017 at MKRH.

3.2 Specific objectives

To determine the prevalence of emergency non-traumatic surgical acute abdomen.

To identify the prognostic factors of management outcome of emergency non-traumatic surgical acute abdomen.

To describe the common presenting features of emergency non-traumatic surgical acute abdomen.

To determine the outcome of non-traumatic surgical acute abdomen.

CHAPTER FOUR: METHODS AND MATERIALS

4.1 Study area and study period

The study was conducted in Mettu Karl Referral Hospital which is located in Oromia regional state, south west Ethiopia, and is 595kms away from Addis Ababa.

The hospital established in 1964G.C. During that time, the name of the Hospital was Mettu Hospital. In 2001 G.C the name of the hospital changed to Mettu Karl Hospital and in 2012 to Mettu Karl Referral Hospital. Currently the hospital had been providing full heath care service for the population of Illuababor Zone and surrounding estimated to be about 1,633,668 people, from which male accounts 828,877 & female accounts 804,791(source-from Hospital – based Health Sector Annual Plan). The total number of staff of the hospital is 316, of this 170 are health professionals including: Two general surgeons, two gynecologist-obstetrician, two emergency surgeons, sixteen general practitioners, 6 anesthetists, 1 dentist, 78 nurses, 2 optometrist, 9 laboratory technologists and 3 laboratory technicians, 3 Radiographer, 8 pharmacists and 3 druggist. There are a total of 214 beds in the surgical, medical, gynecology-obstetrics, pediatrics ward, ICU, NICU and EOPD of the hospital. The hospital had two major operation theatres with full equipment and share the same operation theatres with gynecology/obstetric and surgery department. Apart from these, the hospital is a teaching center for Mizan tepi, Mettu and Jimma University. (Source: HMIS department of the Hospital). The surgical department is one of the actively serving departments giving emergency and elective services among the services given by the Hospital. There are about 65 beds in the surgical wards. This study will conduct from (March 15 –August 15, 2017 G.C).

4.2 Study Design

Cross sectional study was conducted.

4.3 Source Population

All acute abdomen patients at MKRH surgical ward with in the study period.

4.4 Study Population

All non-traumatic emergency surgical acute abdomen patients at MKRH surgical ward with in the study period.

4.5 Study Unit

Individual patients

4.6 Sample size determinations

All non-traumatic emergency surgical acute abdomen patients at MKRH surgical ward with in the study period.

4.7 Inclusion and Exclusion criteria

4.7.1 Inclusion criteria

All cases for which conservative and surgical management were performed for the diagnosis of non-traumatic emergency surgical acute abdomen during the study period.

4.7.2Exclusion criteria

Traumatic, gynecological and medical acute abdomen.

4.8 Variables

4.8.1 Dependent Variables

Management outcome of non-traumatic surgical acute abdomen.

4.8.2. Independent Variable

Age

Sex

Place of residence

Type of procedure

Duration of illness before management

Clinical features

Occupation

Duration of hospital stay

4.9. Data collection methods

4.9.1. Data collectors and supervisor

For data collection nine integrated emergency obstetrics/gynecology and surgery students practicing at mettu Karl referral hospital and one GP were recruited. The Principal investigator gave training for data collectors on how to fill the prepared checklist, the importance of data quality and the relevance of the study. One last year IEOS student has been supervising the daily activity, consistency and completeness of the checklist and appropriate support was given during the data collection process. The Principal Investigator had checked the daily activities of data collectors and supervisor. A check list was developing by English language to extract relevant information.

4.9.2. Data collection techniques

Patients that were admit to surgical wards of MKRH with the diagnosis of non-traumatic surgical acute abdomen and management with in the study periods were identified by taking history, physical examination, intra operative findings and post-operative results were used to collect important information about patients admitted with the diagnosis of acute abdomen.

4.9.3. Data processing, analysis, interpretation and presentation

After data collected, it was coded, entered and cleaned using computer software SPSS windows version 22 and was analyzed by using descriptive statistics like Percentages, mean and SD for data analysis. Data was present by frequency tables and figures. Association between dependent and independent variables were checked by using binary and multiple logistic regression. A 95% confidence interval was used to check the association between outcome variables and certain independent variables.

4.9.4 Data quality management

Before data collection, the prepared checklists in English were assessed and comment by research advisors. The facilitators and Supervisor were trained for two days. During data collection in order to avoid the interpersonal variation between data collectors, data was collected by the same data collectors throughout the data collection. Regular daily supervision was done for checking the consistency and completeness of checklist by the principal

investigator. After data collection before starting data analysis completeness was rechecked again.

4.10. Operational definition

Acute abdomen - any sudden condition with chief manifestation of pain of recent onset in the abdominal area which may require urgent surgical intervention.

Non traumatic acute abdomen - acute abdomen which is not secondary to trauma.

Surgical acute abdomen **-** acute abdomen secondary to surgical cases

Appendicitis - Inflammation of appendix.

Appendectomy - Removal of appendix.

Cholecystitis - Inflammation of gallbladder.

Colostomy - Connecting the colon to the abdominal wall for stool drainage.

Intussusceptions - Invagination of one part of bowel lumen in to the other.

Laparotomy - Incision through the abdominal wall

Peritonitis - Inflammation of peritoneum

Intestinal obstruction (IO) - Intestinal obstruction is prevention of passage intestinal contents.

Wound dehiscence **-** is facial disruption due to abdominal wall tension overcoming tissue or suture strength, or knot security.

Clinical manifestation **-** sign and symptom of the case.

Anastomosis - the surgical union of two hollow organs, e.g. parts of the intestine, to ensure continuity of the passageway and anastomosis leak refers to leakage through surgical union site.

Intraoperative procedure - The procedure that can be done after laparotomy was done which can be resection & anastomosis or colostomy or etc. depending on the causes& intraoperative finding of obstruction.

Intraoperative finding - The finding after abdomen is opened which can be gangrenous bowel or viable bowel and etc.

Non operative management (conservative) - means management of patients with appendicial mass, partial bowel obstruction, recurrent adhesive obstruction, or during the early postoperative period with NGT suction, IV fluids and frequent clinical reassessment to rule out bowel strangulation which may need operative management.

Operative management- means surgical exploration of the abdomen.

Favorable outcome - Patients with a clinical diagnosis and managed for acute abdomen improved and discharged from the hospital and developed no post management complication.

Unfavorable outcome - Patients with a clinical diagnosis and managed for acute abdomen who improved but developed one or more postoperative complications (including death).

4.11. Ethical Considerations

Ethical clearance obtained from institutional Health Research Ethics Review Committee of College of Health and Medical Science (COHMS). A formal letter was written from the coordinator of Integrated Emergency Obstetrics/Gynecology and surgery to the hospital administrator office. The Hospital medical director permitted us to conduct the study. All information was obtained using client interview by structured questionnaire and observing the procedure by filling the prepared checklist. The filled checklists will destroy after the study has finished. Issues of risks, benefits and rights will also consider.

4.12. Dissemination plan of the study findings

After complete the result of the study will present to JU community as part of IEOS thesis; and it will disseminate to JU College of public health and medical science, department of INTEDRATED EMERGENCY OBS/GNY AND SURGERY, Regional health bureau, zone and district health offices, to the targeted health facility and to NGOs working on this area. Further attempt will made to publish it on national and international scientific journals

CHAPTER 5: RESULT

During the five months study period the number of patients admitted with the diagnosis of acute abdomen in surgical ward were 109 of whom 92 patients were admitted for non-traumatic surgical acute abdomen and were retrieved which made the basis of this study. Seventy-eight (84.8%) of these were managed surgically, fourteen (15.2%) were managed conservatively (cases of appendicular mass, adhesion and simple sigmoid volvulus). There were 64(69.6%) male and 28(30.4%) female (Table 1) with a male to female ratio of 2.3:1. The age ranged from one to 86 years with a mean age of 28.74±19.46 years. Of those whose addresses were identified by a distance from mettu Karl referral hospital, 24(26.1%) were in mettu town, i.e. within four km distance from the hospital and 68(73.9%) were out of mettu town, i.e. 37(40.2%) within 4-50km, 24(26.1%) of them within 50-100km and 7(7.6%) were from a distance > 100km. Thirty two(34.8%) patients were students, farmer(26.1%) and employee(12%).The duration of illness at presentation ranged from 01 day to 30days (mean = 3.39). Abdominal pain, vomiting and nausea were the most frequent symptoms (23.9%), abdominal pain and vomiting (19.6%), abdominal pain, vomiting and difficulty of passing faces and flatus (9.8%) whereas abdominal tenderness, distention and tenderness and guarding were the most frequent clinical signs found (31.5%, 22.8% and 20.7% respectively). 81.5% of patients had blood pressure of >=90/60mmhg and 17% were in shock (bp<90/60mmhg). Pulse rate of 44.6%, 31.5% and 23.9% of the patients were >= 100b/m, <100b/m and 100-110b/m respectively. The temperature of 60.9% of patients were <= 37.5c and 39.1% were >37.5c (*Table1*). The three top causes of acute abdomen were appendicitis accounting 39 (30.4%), followed by bowel obstruction 34 (37%) and Peritonitis secondary to perforated appendicitis (8.7%), PPUD %), GSBO (3.3%) and other causes of peritonitis (3.3%)(*Figure 2*).

Table 1: Demographic characteristics and clinical features in 92 patients with surgical acute abdomen in Mettu Karl Referral Hospital, from (March 15, 2017-Augest 15,2017G.C).

Variable	**Frequency**	**Percent**
Age		
0-10	17	18.5
11-20	22	23.9

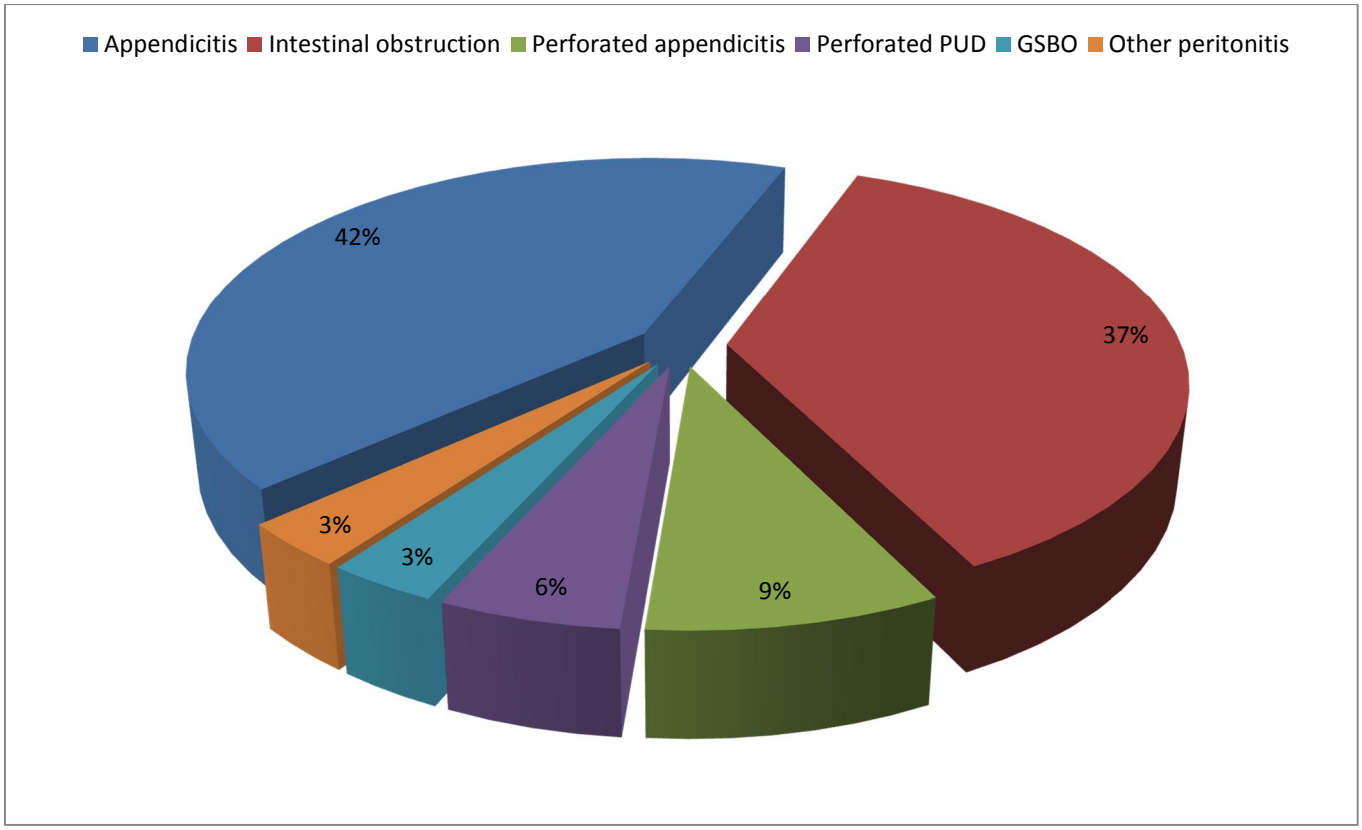
21-30		19	20.7
31-40		14	15.2
41-50		5	5.4
>50		15	16.3
Total		92	100.0
Sex			
Male		64	69.6
Female		28	30.4
Total		92	100.0
Residence	**Mettu**	24	26.1(%)
	Out of mettu	68	73.9(%)
<4km		24	26.1
4-50km		37	40.2
50-100km		24	26.1
>100km		7	7.6
Total		92	100.0
Occupation			
Day worker		4	4.3
Employee		11	12.0
Farmer		24	26.1
Housewife		7	7.6
Merchant		5	5.4
Student		32	9.8
Others		9	34.8

Total		92	100.0
Symptom			
Abdominal pain		89	96.74
Vomiting		74	80.4
Nausea		46	50
Obstipation		38	41.3
Signs			
Blood pressure	<90/60mmhg	17	18.5
	>=90/60mmhg	75	81.5
Pulse rate	<100b/m	29	31.5
	100-110b/m	22	23.9
	>=110b/m	41	44.6
Respiratory rate	<=20b/m	7	7.6
	>20b/m	85	92.4
Temperature	<=37.5c	56	60.9
	>37.5c	36	39.1
Tenderness		68	74
Distended abdomen		43	46.74
Guarding/Rigidity		26	28.26
Duration of illness			
1 day		19	20.7
1-3 days		41	44.6
3-7 days		29	31.5
>7 days		3	3.3
Total		92	100.0

Table 2: Frequency of the causes of non-traumatic surgical acute abdomen in MKRH, (March, 2017 - August 15, 2017 G C).

Cause		**No. of patients**	**Percentage (%)**
Appendicitis		39	42.4
Intestinal obstruction		34	37.0
Peritonitis	Perforated appendicitis	8	8.7
	Perforated PUD	5	5.4
	Gangrenous SBO	3	3.3
	Primary peritonitis	2	2.2
	Typhoid perforation	1	1.1
Total		92	100.0

Figure 2: Frequency of causes of non-traumatic surgical acute abdomen



Appendicitis is the leading causes of acute abdomen, among 92 cases of appendicitis 24 (61.54%) were males and 15 (38.5%) were female.41% of patients come from a distance less than four km and within 4-50km from the hospital (for each) .Appendicitis was high in prevalence in 2nd (38.5%) and 3rd (30.77%) decades from treated non traumatic surgical acute abdomen and low in both extreme age groups. Students accounts 48.72% of appendicitis and employee (15.4%).Abdominal pain 39(100%), vomiting 29(74.4%) and nausea 19(48.7%) were the main complaints of appendicitis. Most of patients had a body temperature of <37.5c (61.54%) and the rest >=37.5^{o}c (38.46%).Acute appendicitis(simple) contributes 71.8% and high in second decade, Appendicial abscess/mass(15.4%) and perforated accounts 12.8% and high in low extreme age(40%),totally with male(60.7%,83.33%,40%) and female(39.3%,16.67%,60%) respectively. Among all appendicitis admitted to ward 37(94.9%) was managed surgically of which 89.2% was appendectomy, appendectomy with abscess sucked out (8.1%), drainage tube

(2.7%) and 5.1% was managed conservatively. Surgical site infection was the only post-operative complication of appendicitis 2(5.4%) and no death (*Table 3*). The complication was with in third and fourth decades and who comes within 4-7 days duration of illness.

Table 3: Prevalence and management outcome of appendicitis in MKRH in the year of March – August 2017GC.

Types of management			**Appendicitis**				
			Acute appendicitis(simple)	Appendicial abscess/mass	Perforated appendicitis	Total	
						No	%
Surgical management	Patients on discharge	Improved	28	4	5	37	94.9
		Referred	0	0	0	0	0
		Dead	0	0	0	0	0
		Unknown	0	0	0	0	0
	Total		28	4	5	37	94.9
Conservative management	Patients on discharge	Improved		2		2	5.1
	Total			2		2	5.1
Total	Patients on discharge	Improved	28	6	5	39	100
		Referred	0	0	0	0	0
		Dead	0	0	0	0	0
		Unknown	0	0	0	0	0
	Total		28	6	5	39	100

As shown on table 4 intestinal obstruction (37%) were second cause of acute abdomen. 26.5% of obstruction occupied by those age greater than fifty years and 41.2% were farmers, of which the leading causes of intestinal obstruction was small bowel obstruction (58.8%) secondary to adhesion/band (45%) of which 55.6% had history of abdomino-pelvic operation and 22.2% was

band , hernia and intussusception each contributes 20%. male were 65% and female were 35% with mean age and male female ratio was 28.4 and 1.8:1 respectively. Most of the patients are out of mettu town and their residences were less than fifty km far from the hospital (50%). Abdominal pain was the common presentation accounts 90%, vomiting (80%) and abdominal distension (70%). 20% of patients was in hypotension, tachycardic (80%) where as 20% was febrile T^{o}>=37.5c. Abdominal tenderness was the second commonest physical finding (45%) next to distension (90%).50% of them comes within 2^{nd} and 3^{rd} days and 45% within 4-7 days of illness with mean duration of presentation=3.9 days. Adhesion was the commonest cause, of which 44.44% was managed surgically and the rest was managed conservatively by keeping nothing oral feed, maintenance fluid and NGT, whereas the second and third cause was managed surgically. Patients who was managed surgically for small bowel obstruction were 65%, of which four laparotomy and reduction was done for 50% of each hernia and intussusception, three laparotomy and adhesion release done for 33.33% of adhesion, two laparotomy and end to end anastomosis was done for 50% of intussusception, two reduction and herniorhaphy was don for 50% of hernia, one end to side anastomosis and one enterotomy was done for adhesion and ascaris bolos respectively. There were three complications (entero-cutaneous fistula, surgical site infection and post op bowel obstruction) which accounts 15% and managed by wound care for fistula and infection and by keeping nothing by oral, NGT and MF for obstruction. Majority of patients was discharged within 4-7^{th} post management days and mean of hospital stay after management was 7.2 days. All patients had improved.

Large bowel obstruction contributes 15.2% from total acute abdomen. The leading causes of large bowel obstruction were sigmoid volvulus (64.3%), colo-rectal cancer (28.6%) and there was one imperforated anus. Male were 92.9% and female were 7.1% with mean age and male female ratio was 46.07 and 13:1 respectively. Most of the patients are out of mettu town and their residences were within fifty and hundred km far from the hospital (57.1%). Vomiting was the third complaint accounts 50% secondary to abdominal distension (85.7%) and abdominal pain (85.7%). Only 20% of patients was in hypotension, tachycardic (28.6%) where as 14.3% were febrile (To >=37.5c). Abdominal tenderness was the second commonest physical finding (21.4%) next to distension (100%).The mean duration of illness presentation was 6 days. Sigmoid volvulus was the commonest cause, of which 64.3% was managed surgically and the rest was managed conservatively by deflation using rectal tube, whereas the second and third

cause were managed surgically. Patients who was managed surgically for large bowel obstruction were 64.3%, of which three end colostomy was done for 50% of colo-rectal cancer and imperforated anus, three end to end anastomosis for 33.33% of sigmoid volvulus, two hemi colectomy for colo-rectal cancer (one right and one left) and one derotation was done. There were four complications (pneumonia, sepsis, wound dehiscence and Post operation bowel obstruction) which accounts 28.6%.The mean of hospital stay after management was 6.29 days. Three out of the 14 patients with large bowel obstruction had died giving a mortality rate of 21.4%.

Table 4: Frequency, Causes and management outcome of intestinal obstruction in MKRH, from March 15, 2017 – Augest15, 2017G.C.

Types of management			Intestinal obstruction									
			small bowel obstruction					large bowel obstruction				
			Adhesion/band	Hernia	Intussception/ilio-colic	Bolos	Other causes	Sigmoid volvulus	Colo-rectal cancer	Other cause	Total	
											No	%
Surgical management	Patients on discharge	Improved	4	4	4	1	0	3	1	0	17	50
		Referred	0	0	0	0	0	0	2	0	2	5.9
		Dead	0	0	0	0	0	1	1	1	3	8.8
	Total		4	4	4	1	0	4	4	1	22	64.7
Conservative management	Patients on discharge	Improved	5	0	0	1	1	5	0	0	12	35.3
	Total		5	0	0	1	1	5	0	0	12	35.3
Total	Patients on	Improved	9	4	4	2	1	8	1	0	29	85.3

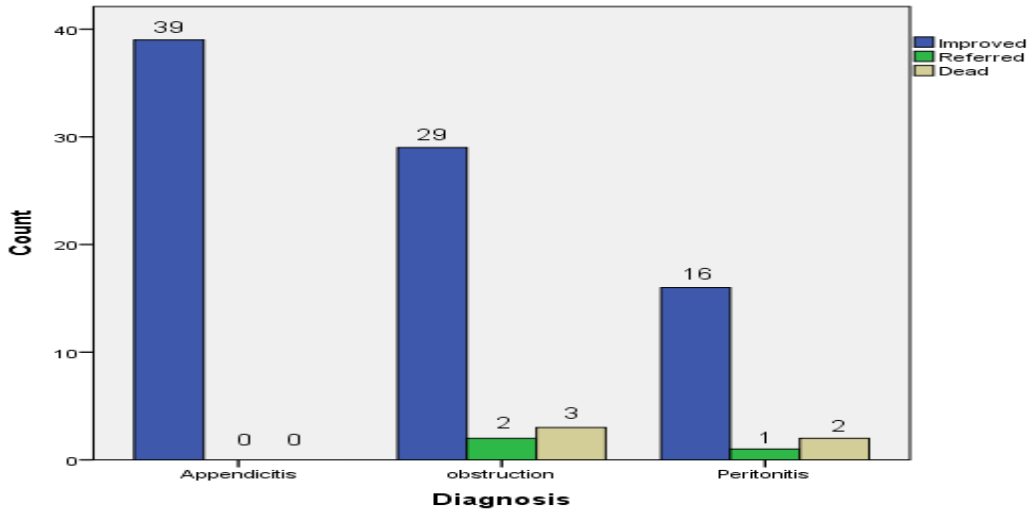
	discharge	Referred	0	0	0	0	0	0	2	0	2	5.9
		Dead	0	0	0	0	0	1	1	1	3	8.8
	Total		9(26.5 %)	4(11.8 %)	4(11.8 %)	2(5.9 %)	1(2.9 %)	9(26.5 %)	4(11.8 %)	1(2.9 %)	34	100 %

Peritonitis secondary to perforated appendicitis was the leading cause of peritonitis. As shown on figure 2 peritonitis was the third cause of non-traumatic surgical acute abdomen which accounts 20.7%. Perforated peptic ulcer disease was the second cause of peritonitis (26.3%) secondary to perforated appendicitis 8(42.1%) whereas gangrenous small bowel and primary peritonitis were the third and fourth cause (15.8% and 10.5%) respectively. Out of perforated appendicitis, students were 75%. 73.7% of peritonitis was covered by male with male female ratio 2.8:1, associated with age it was common in lower extreme age i.e. less than 20 years contribute 52.6%, of which 60% was below 10 years age group. 89.5% were out of mettu town and 52.6% of total peritonitis patients were from a distance greater than 50km.Students were the leader (47.4%) and farmers (31.6%).Abdominal pain was the common symptom (100%) then vomiting (79%) and on examination 52.6% of them were in hypotension of which 50% was peritonitis due to perforated appendicitis, 79% was tachycardic, tachypinic (68.4%)and 68.4% was febrile, of which 61.5% of patients was febrile secondary to perforated appendicitis. Abdominal tenderness (94.7%) and vomiting (63.2%). Majority of cases of peritonitis were those who came late before management (63.2%) and 31.6% came within two days. All are managed surgically, eight appendectomy and lavage, five omental patch, two lavage, two end to end anastomosis and one end to side anastomosis and one repair was done for peritonitis secondary to perforated appendicitis, perforated peptic ulcer disease, primary peritonitis, gangrenous small bowel obstruction and typhoid perforation respectively. There were nine complications, of which the three was sepsis, two surgical site infection, one pneumonia, one anastomosis leak, one collection and one wound dehiscence. There were two deaths due to sepsis after they managed for gangrenous small bowel obstruction and primary peritonitis. Mean of post management hospital stay was 10 days. Death rate from total non-traumatic surgical acute abdomen was 3.3.

Table 5- Peritonitis verses duration of illness in MKRH from (March 2017 – August 2017).

Duration of illness	Peritonitis					Total	
	Perforated appendicitis	Gangrenous small bowel obstruction	Perforated peptic ulcer disease	Typhoid perforation	Primary peritonitis	No	%
1 day	1	0	1	1	1	4	21.1
2-3 Days	2	2	2	0	1	7	36.8
4-7 Days	5	1	2	0	0	8	42.1
>7 days	0	0	0	0	0	0	0
Total	8	3	5	1	2	19	100

Figure 3: non traumatic surgical acute abdomen and its outcome in MKRH, March, 2017-August, 2017.



Figer 3 : Non traumatic surgical acute abdomen and its out come

5.1. Prognostic factors associated with management outcome of non-traumatic surgical acute abdomen In MKRH

As shown in table 6, twenty-five variables were analyzed using binary logistic regression to get which prognostic factors associated with management outcome. Out of these ages, address, occupation appendicitis, large bowel obstruction, peritonitis and & duration of hospital stay are candidates for multivariate analysis.

Table 6- Bivariate logistic regression analysis management outcomes in MKRH March 2017-August 2017.

Variables	Management outcome		COR(95%CI)	P-value
	Un favorable	favorable		
Age				
0-10 years	12	5	.625(0.14-2.71)	.530
11-20 years	21	1	.071(.007-0.68)	.022*
21-30 years	18	1	.083(0.009-0.80)	.031*
31-40 years	9	5	.833(0.18-3.75)	.812
41-50 years	3	2	1.000(0.13-7.89)	1.000
>50 years	9	6	.	.
Occupation				
Day work	4	0	.000	.999
Employee	8	3	2.625(0.48-14.24)	.263
Farmer	16	8	3.500(0.91-13.48)	.069*
Housewife	6	1	1.167(0.11-42.38)	.898
Merchant	4	1	1.750(0.15-19.85)	.652

Other	6	3	3.500(0.62-19.89)	.158
Student	28	4	.000	.999
Diagnose				
Appendicitis	37	2	.105(0.02-0.48)	.004*
Small bowel obstruction	17	3	.571(0.15-2.18)	.413
Large bowel obstruction	8	6	3.429(1.03-11.45)	.045*
Peritonitis	10	9	5.073(1.68-15.32)	.004*
Length of hospital stay				
<=5 Days	47	25	.094(0.03-0.35)	.000*
>5 Days	3	17	.	.

Table 7: Binary & Multiple logistic regression analysis management outcomes in MKRH March 2017-August 2017.

Variables	Management outcome		COR(95%CI	AOR(95%CI)
	Un favorable	Favorable		
Diagnose				
Large bowel obstruction	8	6	3.429(1.03-11.45)*	10.239 (1.06-99.09) *
Peritonitis	10	9	5.073(1.68-15.32)*	10.680 (1.19-95.80) *
Length of hospital stay				
<=5 Days	47	25	.094(.025-.351)*	.077 (.013-.462) *

5.2. Prognostic factors of management outcomes of non-Traumatic acute abdomen

Multiple associations were found to be significant in the bivariate analysis. Multivariable approach was applied to determine which factors best explained and predict management outcome of patient.

Patient who had large bowel obstruction has 10.2 times higher more likely bad management outcome as compared to patients with other than large bowel obstruction (AOR=.098,95% CI; .010-.945, P=.045).

Patient who had peritonitis has 10.7 times higher more likely Un favorable management outcome as compared to patients other than peritonitis (AOR.010-.840, 95% CI.094.010-.840, P=.034).

Length of hospital stay (AOR=12.947, 95%CI: 2.167-77.366, P=.005), patients who stayed for less than and equal to 5 days had 92.3 times less likely to have un favorable outcome as compared with patients stayed for greater than 5 days.

CHAPTER 6: DISCUSSION

Within five month prospective study from March up to August, 2017GC there were 92 non-traumatic surgical acute abdomen patients admitted in MKRH surgical ward. Even if very few studies had done on the general pattern of non-traumatic surgical acute abdomen in Oromia, Ethiopia, was tried to discuss with them. 64(69.6%) were male and 28(30.4%) female with male to female ratio 2.3:1. seventy four percent of all were out of mettu town, of which 7.6% claimed to have traveled more than 100km to the hospital and the rest were from mettu town. Majority of patients were in their 2nd and 3rd decades of life, which was similar with the studies done Suhul General Hospital, Nekemte Referral Hospital and other countries and institutions (3, 5, 7, and 9).

A study done in Nigeria Teaching Hospital (Agboola,JO.Olatoke,SA. And Rahman,GA. Pattern and Presentation of Acute Abdomen in Nigeria Teaching Hospital, Niger, Niger Med J 2014;55(3):266-70) and other studies(2, 3, 5, 7) abdominal pain(98.2%) and vomiting(68.5%) were the commonest complains similar with this study. Abdominal tenderness (74%) was common in this study similar with study done in mekele hospital and other studies (2, 3, 4, 10) and 18.5% of patients were in shock the same with study done in Niger (11).

Appendicitis was found to be the leading cause of acute abdomen (42.2%). This agrees with study done in different Ethiopian countries and in niger (2, 3, 4, 5, 6, 7, 11), this is in contrast to the study done in India (Kapoor,S. Singh,H.Dhanada,S. and Sharma,A. A clinical Study of Acute Abdomen and Management) which showed that perforation peritonitis was the leading cause and. This may be explained by due to diet and socio-economic factors that may or may not differ in different areas.

The analysis has shown that majority of patients with a clinical diagnosis of acute appendicitis were found to be in the second decades of life (38.5%). This age pattern is in line with both histological nature of the vermiform appendix .The peak incidence of appendicitis in childhood, adolescent and early adulthood coincides with the period of maximal lymphoid development the time in which an acute appendicitis supervene. This finding is consistent with different literatures (Kotiso,Y and Abdurahman,Z. April 2007 ;12(1):47-52, Ayenew,Z.Gizaw,AT.Workneh,D. and Fentahun,N. Outcome of Non-Traumatic Surgical Acute Abdomen in Nekemte Referral

Hospital, Southwest, Ethiopia and Hailu,T.Gobena,T. Easter Ethiopia, 2016:18-74).Thirty nine causes of appendicitis, of which 41% of the patients in this study were from mettu town, which might be a reason for the high incidence of appendicitis as appendicitis has been reported to more in urban dwellers but true increment in its incidence is Socioeconomic factors and diet have mostly been incriminated to be responsible for the observed differences which agrees study done by (Berhane,Y.Girmay,K. and Gebresilassie,A. 2016;3(4):106-111, Kotiso B, Abdurrahman Z. 2007:47-52). In the study done at nekemte hospital Southwest, Ethiopia, Wound infection was the commonest post-operative complication of appendicitis 14(10%) followed by pneumonia 3 (2.14%) and sepsis 1 (0.74%) and from total appendicitis cases there were 3(2.22%) deaths, in contrast to this in our study there was only two complication which is surgical site infection and there was no death.

Intestinal obstruction was the next most common cause of non-traumatic surgical acute abdomen with 40%, of which 20(58.8%) small bowel obstruction followed by large bowel obstruction 14(41.2%), similar with the study done at India, mekele and nekemte (Kapoor,S. Singh,H.Dhanada,S.andSharma,A.Amristar,India,2016;15(2):20-23.Berhane,Y.Girma,K. and Gebresilassie,A.Tigray,Ethiopia,2016;3(4):106-111 and Ayenew,Z.Gizaw,AT.Workneh,D. and Fentahun,N. Southwest, Ethiopia respectively). The leading causes of small bowel obstruction in this series were adhesion/band accounts 45%. This is in agreement with other studies done at tikur anbesa specialized hospital and shire (Kotiso,Y and Abdurahman,Z. Addis Ababa, Ethiopia, April 2007; and Gebre,S.Shire,NorthwestTigray,Ethiopia,2016;16(2):74-89), It is explained by that since adhesion is a secondary problem, occurs in patients who has history of previous surgery and there may be high operation rate before our study period in catchment, but contradicted with studies done at adama and nekemte (7 and 9) which has shown that intussusceptions (in 30.9 % of the cases) and Primary small bowel volvulus(in 57.33% of small bowel obstruction).

Almost similarly with study in adama hospital, Ethiopia (Soressa,U.Mamo,A.Hiko,D. and Fentahun,N, 2016: 16:38.) Large bowel obstruction was mainly caused by sigmoid volvulus (64.3 %) but colonic tumor is somewhat high in our study (28.6 %).also it agrees the study done at tikur anbesa specialized hospital (2) which has shown sigmoid volvulus accounts 58.6% and

Colonic carcinoma accounts 13.8%.All colonic tumors managed surgically and 75% of them were in the age group of greater than Fourteen.

Peritonitis was the third cause of non-traumatic surgical acute abdomen in this series (20.7%), of which perforated appendicitis was the leading accounts 42.1% and 5(26.3%) were following perforated peptic ulcer disease. This is in agreement with the study done in suhul general hospital (Gebre,S. Northwest Tigray, Ethiopia, 2016;16(2):74-89). But contrarily, study on nekemte referral Hospital, showed that, 12.2% of patients developed peritonitis, among which 42.59% resulted from gangrenous bowel obstruction, 20.37% from perforated appendix and 12.96% from perforated peptic ulcer disease(7). This may be due to late presentation of patients because of different reasons like lack of health awareness, misdiagnosis and mismanagement of the case, inaccessibility of health institutions where operation is performed and no trained health staffs. Like the study done in Nekemte referral hospital (7), peritonitis was highly seen in patient who came late (63.2% in > 2days) and in those come from out of mettu town (89.5%).

In this series from total non-traumatic surgical acute abdomen, 78(84.8%) were managed surgically and 14(15.2%) managed conservatively. The total complications after management were 18(19.6%), which was higher than the study done in Mekele and Nekemte Hospital with a complication rate of 16.9% and 16.10% (3, 7) respectively. In contrary, the study done in Tikur anbesa specialized hospital and Suhul general hospital shows complication was higher than our study, 28% and 20.5% respectively. This may be due to better service of the MKRH after patients arrive at hospital. The commonest early postoperative complications other than death were wound infection (5.4%), sepsis (4.3%) and pneumonia (2.3%) which is low when compared with study done in Tikur anbesa specialized hospital and Nekemte referral hospital, except sepsis was lower in Nekemte hospital study which was 2.37%(2, 7).

The overall mortality rate of non-traumatic surgical acute abdomen was 5.4% which is lower than the study done in Tikur anbesa specialized hospital (25%), but higher than the study done in Mekele hospital and Nekemte referral hospital, which has shown 2.4% and 3.05% respectively (3, 7). 60% of death was secondary to sepsis complication and in extreme age group with mean age of the expired patients (32.2 years). In this study the mean hospital stay of expired patients was 6.4 days. Also sixty present of the patients who died were managed for large bowel

obstruction. Eighteen percent of all deaths were those patients who came from out of mettu town, of which 75% came from greater than sixteen km distance which was similar to the study done in Nekemte hospital (7). The remaining death was secondary to peritonitis (gangrenous small bowel obstruction) and primary peritonitis accounts 20 % each.

Limitation

It might not representative for mettu population because it is institution based study and due to short study period there may be assemblage of same cases.

CHAPTER SEVEN: CONCLUSION AND RECOMMENDATION

Non-traumatic surgical acute abdomen is a commonly encountered condition accounting high prevalence of all cases admitted in surgical ward .The common cause of acute abdomen were acute appendicitis found followed by intestinal obstructions and peritonitis. Peritonitis and large bowel obstruction were the commonest cause of patients to have bad outcome. Most patients having acute abdomen are relatively young in the 2nd and 3rd decades of life. The overall mortality rate of 5.4% found in this study and it is relatively high compared with some studies in Ethiopia.

Create public awareness especially in remote area (out of mettu town). Improving knowledge of health professionals doing in the community (community health extensions), health centers and hospitals especially those doing in emergency department, these will increases early detecting, diagnosing and decreases medical management or mismanagement of the case. The responsible body, hospital staffs should develop resuscitation of surgical patients and early consultation of seniors, oromia regional health bureau prepare common management protocol for all hospitals and make a distribution of surgeons in hospitals with full equipment , will improve the health status before getting complications.

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ANNEX 2

QUESTIONNAIRE

This checklist is prepared to asses magnitude & management outcome of non-traumatic surgical acute abdomen in MKRH with in five months (from March 17 - August 17 E.C). This will be filled by the data collectors from primary data. Clients have the right not to be included on the study if they are not comfortable or voluntary.

Date of interview…….Time: Start …… End……..Interviewer's name ……Signature……

Part I. Socio demographic characters

1. Age -----in Years

2. Sex Male____1 Female__2

3. Address(km) 1.Urban -----2.Rural----

4. Occupation ----------

Part II. Presenting complaints

*Symptom*s: Yes-1 No-2

1. Abdominal pain 2.Vomiting

3. Nausea 4.Abdominal distension

5. Constipation 6.previous abdominal surgery 7.Others----------

Sign: Yes-1 No-2

A. Vital signs;
BP.___PR.___RR.___Temp.__

B. Abdominal tenderness C. Guarding
D. Abdominal distension F. Others--------

Part III. Duration of illness in days before operation (in days) _____

Part (P) IV. Diagnosis

1. Appendicitis

2. Intestinal obstruction

3. Peritonitis

PIV1: If Appendicitis,

1. Acute appendicitis

2. Appendicial abscess/mass

3. Perforated appendicitis

PIV2: If Intestinal Obstruction

1. Large bowel

2. Small bowel

3. Others

PIV2.1: If large bowel

1. Sigmoid volvulus Obstruction

a. Viable b. Nonviable

2. Colorectal cancer

a. Viable b. Nonviable

3. Ilieo-sigmoid knotting

a. Viable b. Nonviable

4 .Colo-colonic intussusceptions

a. Viable b. Nonviable

5. Others

a. Viable b. Nonviable

PIV 2.2: If small bowel

1. Primary volvulus Obstruction

a. Viable b. Nonviable

2. Adhesion/band

a. Viable b. Nonviable

3. Hernia

a. Viable b. Nonviable

4. Intussusceptions (ilieocolic)

a. Viable b. Nonviable

5. Bolos a. Viable b. Nonviable

6. Others

a. Viable b. Nonviable

PV3: If peritonitis, what is the primary cause

1 .Perforated appendicitis

2. Gangrenous large bowel obstruction

3 .Gangrenous small bowel obstruction

4. Typhoid perforation

5. Primary peritonitis

6. Perforated PUD

7. Others (if there mention) ----------

Part VI. Type of surgical procedure done (write in short) ----------
---

Part VII: Conservative management (write in short)……..

Part VIII: What was the complication?

Yes-1 No-2

1. Anastomotic leak 2.Bleeding

3. Collection 4.Pneumonia

5. Sepsis 6.Surgical site infection

7. Wound dehiscence 8.Others……..

PVIII-1: If yes in Part VII (what is done (write in short) ----------
---

Part IX. Postoperative hospital Stay (in days) ----------

Part X. Condition of the patient on discharge

(1).Improved (2).Worsened

(3).Referred (4) Dead

(5).unknown