COLLEGE OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF MEDICINE

Magnitude of adult Intestinal Obstruction and Associated Factors in Wolkite University Specialized Teaching Hospital

A THESIS REPORT SUBMITTED TO WOLKITE UNIVERSITY COLLEGE OF MEDICINE AND HEALTH SCEIENCE SCHOOL OF MEDICINE IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF DOCTRATE OF MEDICINE.

ADVISORS:

- ✓ Dr. Minower (Surgeon and Ass professor of surgery).
- ✓ Ms. Sara T/wold (MPH)

OCT/2024

WOLKITE ,

CENTRAL ETHIOPIA

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Declaration (Assurance of Investigators)

We, the undersigned students, declare that this research report is our original work in partial fulfillment of the requirement for the degree of Doctor of Medicine.

By **Signature**

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Date of Submission: December 6, 2024

This research report has been submitted for examination with our approval as Advisors.

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We would also like to thank Wolkite University specialized and teaching hospital for their full cooperation to take our study in their institutions, facilitating the study setting and for the unreserved offer of their medical equipment required for the data collection.

Acronyms

WKUSTH: - Wolkite University Specialized Teaching Hospital
WKU: - Wolkite University
C.I: - Confidence Interval
OR: - Odds ratio
AOR: - Adjusted odds ratio
COR: Crude odds ratio
GC: - Gregorian calendar
SEOPD: - Surgical emergency OPD
OPD: - Outpatient department
IO: - Intestinal Obstruction
SBO: Small bowel obstruction
LBO: Large bowel obstruction
SPSS: - Statistical package for social science

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Abstract

Introduction:

Intestinal obstruction (IO) is defined as a blockage or partial blockage of the passage of the intestinal contents.
Based on the anatomical location, the intestinal obstruction could be classified as small bowel obstruction (SBO), large bowel obstruction (LBO). Also it can be either mechanical or functional depending on the underlying pathophysiology of obstruction. In 80% of cases, intestinal obstruction occurs in the small bowel. The cause of intestinal obstruction has varied geographically. In developed countries, adhesion is the main cause of intestinal obstruction since hernias and volvulus are the common reasons for intestinal obstruction across Africa. It is one of the most common acute abdominal disorders which require emergency surgical admission and is commonly related to high mortality of 3%–30% across the globe.

Objective: To assess magnitude of intestinal obstruction and its associated factors.

Methodology: An institution based cross sectional study will be conducted at Wolkite University Specialized Teaching Hospital and Medical records of 278 cases of non-traumatic acute abdomen were retrieved from patient surgical registration logbook. Data was collected by using checklist and subsequently entered into SPSS VERSION OF 27. A logistic regression model was employed to determine associated factors and the result were presented in the form of figures, tables and texts.

Result: This study included 278 non traumatic surgical acute abdomen cases and of which 73.4% were males and 26.6% were females. Among the patients who are admitted with the diagnosis of non -traumatic acute abdomen about 221(79.5%), 46(16.5%) and 11(4%) fall in the age category of 15-49, 50-65 and above 65 years of age respectively. Sixty six (23.7%) of patients were from Wolkite town while 212(76.2%) of patients were from outside Wolkite Town. From study subjects 92(33.1%) cases were intestinal obstruction. From the total cases of obstruction 72(78.3%) were small bowel obstruction and 20(21.7%) were large bowel obstruction. Age, history of constipation and previous history of intestinal obstruction were found to have statistically significant association with intestinal obstruction.

Conclusion

Intestinal obstruction remains a major cause of morbidity in our environment. Intestinal obstruction is the second common cause for non-traumatic acute abdominal admission accounting 33.1% in the study area.

Small bowel obstruction is relatively more common than large bowel obstruction in Wolkite University Specialized Teaching Hospital.

Patient in the age of 15-49 are more affected by Small bowel obstruction. Aged patients, patients from rural areas, those with previous history of intestinal obstruction and previous history of operation are at increased risk of having intestinal obstruction.

1. Introduction

1.1. Background

Intestinal obstruction occurs when the normal flow of intestinal contents is interrupted. Intestinal obstruction is one of the most common causes of acute abdomen worldwide. It was recognized, described, and treated by Hippocrates (460-370 Before Christ). At that time, it was believed that leaving for God than for man is better if patients with intestinal obstruction have reached stage of bowel perforation. At that time had ileus developed in consequence of intestinal obstruction, the mortality rate reached 100%. Both surgical and conservative treatment options were tried since 350 B.C, but success rate of both treatments was minimal until the 20th century. Surgical and conservative (reposition of incarcerated hernias, analgesic like opium, ingestion of heavy metals like mercury or lead and leeches to remove toxic agents from the blood) were among documented treatment options at that time [1].

The second chief therapeutic principle, suction by nasogastric or intestinal tubes was gradually introduced into clinical practice in the 1920's. Antibiotics began to represent a standard part of therapy algorithms of intestinal obstruction in the 1940' and 1950's. The introduction of this management options reduced mortality rate from 50% in 1930s to about 10% in 1960s [2].

The pessimism of leaving for God, if the patient presents with perforated intestine, has now gradually disappeared as safe techniques evolved for intestinal suturing and anastomosis. Infusion therapy, intestinal suction, antibiotics, somatostatin, new imaging methods like ultrasonography and computed tomography scanning, together with improved surgical and anesthetic techniques has substantially reduced the mortality rate [3].

The most common cause of Intestinal obstruction is adhesion in developed countries but is either volvulus or hernia in most African countries. It is common to see patients with huge groin hernias which grows down to their scrotum or thigh and presents late after they developed intestinal obstruction which is of course gangrenous in majority of cases and hence carries high risk of morbidity and mortality in Ethiopia . It is also common to see an old man with grossly distended abdomen from sigmoid volvulus seeking tube decompression or coming so late after intestinal ischemia has occurred needing colostomy (artificial intestinal opening through the abdomen) [4].

Acute bowel obstruction is an ever increasing clinical problem. Successful management depends on comprehensive knowledge of the etiology and pathophysiology of the obstruction, familiarity with imaging methods, good clinical judgment, and meticulous surgical technique. The mortality of intestinal obstruction depends on the presence of associated comorbid disease and presence of strangulation which increase it by five folds [5].

1.2 Statement of the problem

Intestinal obstruction (IO) is defined as a blockage or partial blockage of the passage of the intestinal contents.

It is a potentially risky surgical emergency associated with high morbidity and mortality [6]. It is a frequently encountered surgical emergency that requires prompt diagnosis as well as immediate, rational and effective therapy [7]. It constitutes a major cause of death and financial expense in hospitals around the world and a major cause of admissions to emergency surgical units [8, 9].

In a global based report of the World Health Organization, about 3.2 million cases of bowel obstruction occurred in 2015 which resulted in 264,000 deaths [10).

Both sexes are equally affected and the condition can occur at any age [11]. In most of the countries of Africa, it accounts for a significant proportion of morbidity and mortality which varies from region to region. For example, in Southwestern Nigeria, obstructed hernia [12], in Kenya, sigmoid volvulus [13], in Benin, mechanical bowel obstruction [14] and strangulated hernia (particularly inguinal hernia) remain the most common cause of intestinal obstruction in tropical African population. In Nigeria, Intestinal obstruction accounts for 15% of emergency visits of acute abdominal pain and mortality ranges from 3%for simple obstruction to 30% when there is perforation. [15].

Studies conducted in Ethiopia showed that the death rate after the management of intestinal obstruction cases were 13.6%, 9.2%, and 2.5% in South, East and Central Ethiopia respectively [16–18]. In studies conducted in Debre Birhan [19], in Gondar [20] and Mekelle [21] showed that the magnitude of intestinal obstruction was higher than other non-traumatic acute abdominal surgical cases.

Analysis of cases based on the specific causes of the acute abdomen has great value for early diagnosis and understanding of the disease burden in the community [22]. Despite the high prevalence of intestinal obstruction, there is a paucity of data concerning the magnitude and its associated factors in Ethiopia [17, 10, 23].

1.3 Significance of the Study

Intestinal Obstruction (IO) continues to be a major problem for human being since it was first recognized and treated in 350 B.C. Different treatment options were developed since then with only minimal reduction in morbidity and mortality. It occurs when the normal flow of intestinal content is interrupted. Intestinal obstruction is the most common cause of emergency surgical admission throughout the world. It is also one of the major causes of morbidity and mortalities associated with acute abdomen. The proportion and etiologies of intestinal obstruction differ not only from country to country but also with in the different regions of the same country. Knowing proportion of obstruction is very important to manage patients accordingly. Only very few data concerning proportion of intestinal obstruction is found in Ethiopia and none in Wolkite University Specialized Teaching Hospital.

Knowing the magnitude and commoncauses of intestinal obstruction as well as its associated factors has great advantage for understanding the disease burden in community and planning possible prevention. Intestinal obstruction is common and relatively non preventable emergency, but if diagnosed and managed early, postoperative complications and outcome of death can be highly reduced.

This study fills a gap of information on the magnitude and causes of intestinal obstructions. It serves as an essential input for policymakers, surgeons, physicians and other health professionals to properly address intestinal obstruction.

Furthermore, this will be used as baseline data for other investigators who are going to work on related issues, particularly in Wolkite University Specialized Hospital and its catchment area.

2. Literature Review

2.1 Overview of intestinal Obstruction

Intestinal obstruction is a partial or total blockage of the passage of fluids and digested food through the intestines (24) It is one of the most common acute abdominal disorders which require emergency surgical admission and is commonly related to high mortality of 3%–30% across the globe (20,25).

Based on the anatomical location, the intestinal obstruction could be classified as small bowel obstruction (SBO), large bowel obstruction (LBO) (24). Also it can be either mechanical or functional depending on the underlying pathophysiology of obstruction. In 80% of cases, intestinal obstruction occurs in the small bowel (26). The cause of intestinal obstruction has varied geographically (27). In developed countries, adhesion is the main cause of intestinal obstruction since hernias and volvulus are the common reasons for intestinal obstruction across Africa (28,29).

2.2 Prevalence of intestinal obstruction

The reported prevalence of intestinal obstruction in Ethiopia ranges from 18.6% to 50.7% among patients with acute abdomen (30, 31). However, the prevalence varies from 4.3% to 34.6% among total surgical admissions (32, 33). The highest prevalence of intestinal obstruction, 50.7%, was reported from the Debre Berhan Referral Hospital, Amhara Region (34) and the lowest prevalence, 18.6%, was reported from Suhul General Hospital, Tigray Region (30) among patients with acute abdomen. According to the administrative regions and cities, in Addis Ababa, the reported prevalence of intestinal obstruction among total surgical admission ranges from 4.3% (32) to 17.1% (35). Moreover, only one study reported the prevalence of intestinal obstruction, 26%, among patients with acute abdomen in Addis Ababa (36. Accordingly, in the Oromia Region, it ranges from 21.8% to 40% (17, 37), 28% to 49.3% in the Southern Nation, Nationalities, and People Region (38) 18.6% to 37.3% in the Tigray Region (30,39,40). In the Amhara Region, only one study reported the prevalence of intestinal obstruction of 50.7% among patients with the acute abdomen (19) , 37.8% in the Dire Dawa city administration (41).

2.3 Causes of Intestinal Obstruction

2.3.1 Small bowel obstruction

It was classified according to the site of obstruction as small and large intestine obstruction.

Small bowel volvulus is a rare cause of surgical emergency in high-income countries, while it is common in Africa (42). According to systematic review conducted in (2022) it signifies that the first leading cause of small intestinal obstruction in Ethiopia is volvulus. However, this differs from the findings of studies conducted in TAH and Gondar University where adhesion is the leading cause of small bowel obstruction.

Intussusception was reported by several studies as the second most common cause of SBO (17,18, 31,36, 39,40). The third most common cause of small intestine obstruction was adhesion which was reported in the above studies. Among these studies, two of them reported tuberculous adhesions from Adama Hospital (17) and Yirgalem General Hospital (18).

Moreover, there is a case report of a 50-years old female patient who was intraoperatively diagnosed with Ileo-ileal knotting (4). Similarly, one case report was presented with appendiculo-ileal knotting from St. Paul Hospital(43).One study reported a case of a 25-years old female patient who had a caesarean section 5months before being diagnosed with gossypiboma(44).A cross-sectional study illustrated five cases of small intestine obstruction due to ascariasis lumbricoides among 297 patients. Among them, four cases were managed operatively, while one case was managed conservatively (45).

2.3.2 Large bowel obstruction

Sigmoid volvulus is the commonest cause of colon obstruction in Africa (6). In Ethiopia, several studies reported the sigmoid volvulus as the cause of large intestine obstruction (16,18,38,42).

Sigmoid volvulus is the initial and most common cause of colon obstructions in Ethiopia, according to the systematic review conducted in 2022. In agreement with these finding, it is the most common cause of LBO in numerous regions of the world, with 1%–7% in the United States (46) and it is also the leading cause of colon obstruction in most African countries (47,48).

Colonic cancer related causes of large intestine obstruction reported as second common cause of LBO (17, 30,31,36). Moreover, colorectal cancer was reported by two studies from Wolaita Sodo teaching and referral hospital, SNNP region (31) and from Nekemte referral hospital, Oromia region (37).

Globally, colon cancer is the third most commonly diagnosed cancer in males and the second among females (49).In Ethiopia, it is the most common type of cancer diagnosed among males and the fourth among females . It is the second most common cause of LBO in Ethiopia (50).

2.4 Factors associated with Intestinal Obstruction

2.4.1 Sociodemographic factors

Age is one of the most significantly associated factor among patients operated for intestinal obstruction. In study conducted in Debre Birhan Generalized Hospital (34), Patient in the age of 15-39 are more affected by Small bowel obstruction while age greater than 40 is highly affected by large bowel obstruction, which is similar to other studies conducted in Ghana [28] with large bowel obstruction commonly occurring in age above 60 while small bowel cases are more common in the second and third decades of life. Moreover, age is another important factor related to management outcome of intestinal obstruction who are operated. In a study conducted in ATAT Primary Hospital, mortality rate is higher in patients who are in higher extremes of age with mean age of the expired patients 43.5 years (38).

2.4.2 Gender

Male sex has statistically significant association with intestinal obstruction than females with odd of having intestinal obstruction being 3 times more common in males than females. Also a finding from a study done in Gondar, Addis Ababa, Nigeria and other western countries strengthens this association [2, 4, 36].

2.4.3 Residence

In study conducted in Debre Birhan Referral Hospital, one hundred thirty-two (37%) of patients were from Debre Birhan town while 225 (63%) of patients were from outside Debre Birhan Town, rural areas (34). Another study conducted in Tibebe Ghion Specialized Hospital revealed that rural residence is also significantly associated with intestinal obstruction with AOR=12.53 and 95% CI [10.61, 17.41].

2.4.4 History of constipation

Having chronic constipation has statistically significant association with intestinal obstruction than lacking it with odd of having intestinal obstruction is 13.7 times more common in those who had chronic constipation than who lacked it. It accounts for about 33.7% of intestinal obstruction cases in study conducted in Debre birhan Hospital. Also another study done in black lion hospital, Constipation comprises 33.9% but different from finding at study done in Nigeria in which constipation comprises 65% [36].

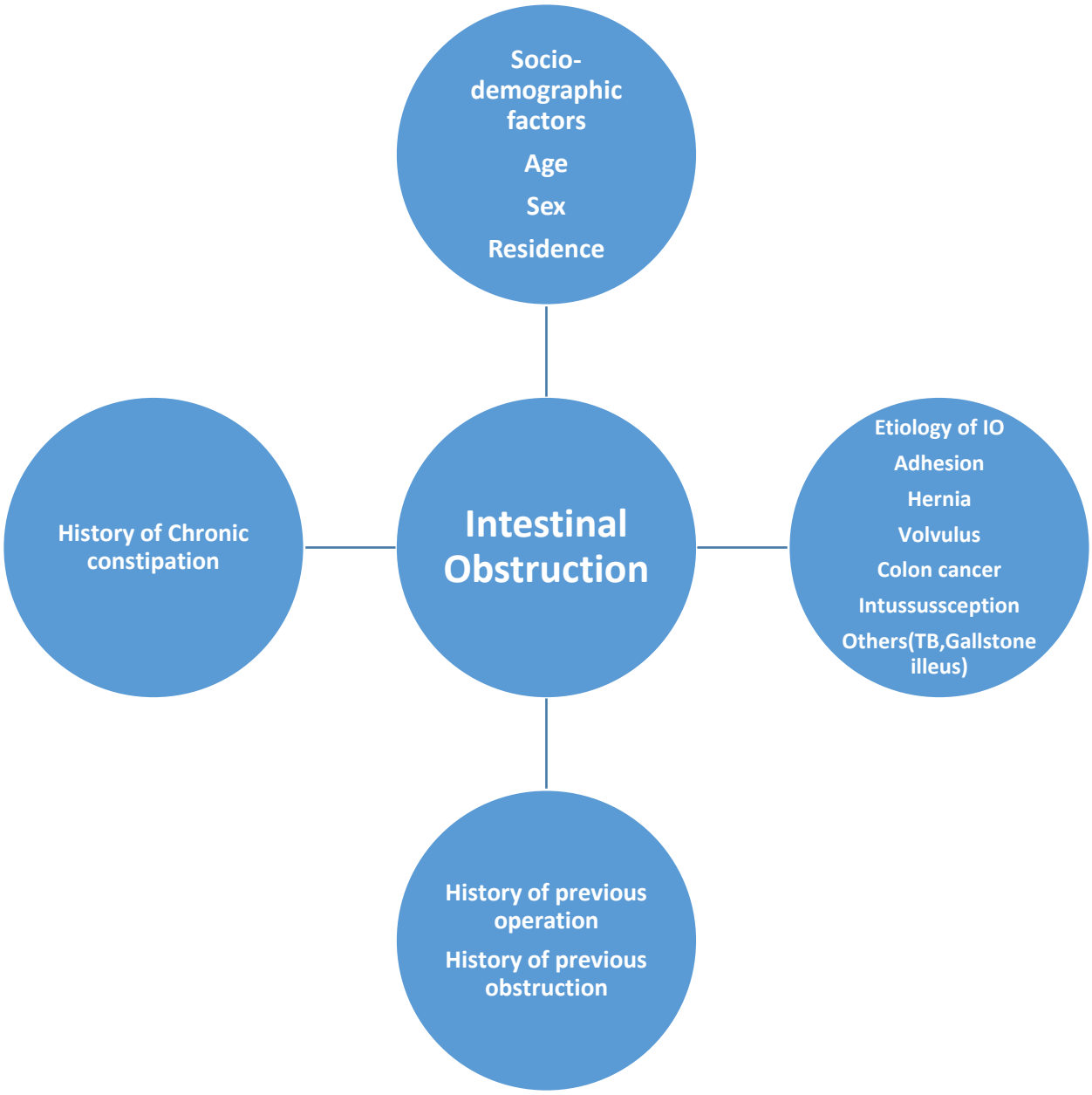

Figure 1: Conceptual framework of Intestinal Obstruction and its associated factors

3. Objectives

3.1 General objective

To determine the magnitude of intestinal obstruction and associated factors among non-traumatic acute abdomen admissions in Wolikte University Specialized Teaching Hospital during the study period.

3.2 Specific objective

1. To assess the magnitude of intestinal obstruction among patients admitted to WKUSTH Surgical ward from September 1 2023-August 30 2024.

2. To identify associated factors of intestinal Obstruction at Wolikte University Specialized Teaching Hospital.

4. Methods and Materials

4.1 Study area and study period

4.1.1 Study area

The study was conducted in Wolkite University Specialized Hospital which found in Wolkite town at Gubriye-sub city in Gurage zone, Central Ethiopia regional state. Wolkite town is a second administrative center of central Ethiopia regional state and Gurage zone which has a latitude and longitude of 8 degree17'N37degree47'E and an elevation between 1910 and 1935 meter above sea level. These Hospital is found in south west direction 166km far from Addis Ababa (capital City of Ethiopia).

Wolkite specialized hospital contains a medical, surgical, pediatric, gynecological and obstetric and psychiatric ward. In addition, it has an ICU, NICU, OPD at each respective departments.

4.1.2 Study period

This study was conducted from September 1, 2023 to Aug 30, 2024.

4.2 Study Design

An institution based cross sectional study design was employed in WKUSTH, drawing upon medical records dated from September 1, 2023 to Aug 30, 2024.

4.3Population

4.3.1 Source population

The source population included all patients that are admitted to Surgical ward with diagnosis of non-traumatic acute abdomen at Wolikte University Specialized Teaching Hospital from Sept1, 2023-Aug30, 2024

4.3.2 Study Population

All 278 cases of non-traumatic acute abdomen admitted to surgical ward during the study period

4.3.3 Study Unit

Individual patient medical card in which patient's medical history registered for whom operation done for the diagnosis of non-traumatic surgical acute abdomen from September1, 2013 to August30, 2024.

4.3.4 Sampling technique

The study population was selected by using convenience of time technique from list of surgical admission registration book and the sample size was all patients (278) who are admitted with a diagnosis of non-traumatic surgical acute abdomen during September1, 2023 to August30, 2024

4.4 Inclusion and Exclusion Criteria

4.4.1 Inclusion Criteria

- Patients aged 15 years and older.

- Patients diagnosed with intestinal obstruction based on clinical and radiological findings.

- Patients whose records are complete and organized

4.4.2 Exclusion Criteria

- Patients whose records were missing, or incomplete were not included in the analysis.

4.5 Sample Size Determination

A study conducted in ATAT Primary Hospital showed that the proportion of patients with intestinal obstruction among all non-traumatic cases of acute abdomen is 28%.

- Confidence level of 95% is specified.
- Margin of error was 5%.

Therefore:-

$$n = \frac{(Z_{\infty/2})^2 \times P \times (1-P)}{d^2}$$

n = sample size

Z∞/2 = Z value at (∞ = 0.05) = 1.96

P =0.28 (Proportion of intestinal obstruction)

D = Margin of error (Precision),

n = (1.96)*(1.96)*0.28(1-0.72)/0.05*0.05 =309

Adding 10% non- response rate:

n+10% n=383 + 0.1*383 =309+30 =339

However, only about 278 cases of surgical admissions with the diagnosis of non-traumatic acute abdomen were found in the surgical register during the study period.

4.6 Sampling Technique

Medical records of all 278 cases were taken as a study unit and analysed accordingly.

4.7 Variables

4.7.1 Dependent Variable

- ✓ Intestinal obstruction

4.7.2 Independent Variables

- ✓ Age
- ✓ Gender
- ✓ Residence
- ✓ History of previous operation (Bowel decompression, Resection and anastomosis, Ileostomy, Colostomy, Adhesion lysis, Band release, Hernia repair) and
- ✓ Previous history of IO.
- ✓ Etiology of IO (Volvulus, Hernia, Adhesion, Intussusceptions, Tumor and fecal impaction)
- ✓ History chronic constipation

4.8. Data collection methods.

The data was collected by reviewing the registration books using semi-structured checklists. A check list adapted from another literature (Gebrie T, Handiso T and Hagisso S.Management outcome and associated factors of surgically treated non traumatic acute abdomen at Attat hospital, Gurage Zone, Ethiopia. Int J Surg Res Pract 2019) which is developed in the English language to collect important information such as sociodemographic data: age, gender and residence, causes of obstruction, history of constipation and previous history of abdominopelvic operation.

4.9. Data Quality Control

In order to assure quality of the data prior to the actual data collection, checklist was pretested for its clarity, understandability, and completeness. The data was cleared for inconsistencies and missing values. Data collectors and supervisors (all group members) trained for two days on the study instrument and data collection procedure. During the actual data collection process, supervisors (one group member) cross checked the data collectors for checklist consistency and completeness before transferring into computer software. **.**

4.10. Data processing and analysis

The collected data entered using Epi-Data version 3.1 software packages and then analyzed by using computer software program running (SPSS) version 27. Results were presented using

frequency tables, graphs and percentage. Adjusted Odds ratio with confidence interval of 95% and p-value were used as a measure of association. Bivariate logistic regression analysis was done to determine crude statistical associations between independent variables and dependent variables (intestinal obstruction). Variables with a p-value of less than 0.25 in binary logistic regression analysis were considered as a candidate to be entered into multivariate logistic regression. Multivariable analysis was used to isolate the independent predictor of bowel obstruction. Statistical significance was based on a p-value of < 0.05 with a confidence interval (CI) of 95 %.

5. Operational definition

Bowel obstruction: inability to pass flatus or feaces due to mechanical or other reason

Constipation: inability to pass at least 3 stools per week.

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

Rural: study subjects who live outside wolkite town and it subcity.

Previous history of operation; any abdominopelvic surgery done ever in life.

Fecal impaction: a stony hard stool which patient unable to pass by himself

6. Ethical Considerations

The steps in the study were in accordance with ethical standards. Letter of permission was written from Wolkite University College of medicine and health science, School of medicine to Wolkite University Specialized Hospital Administrative Body and to the head of surgical department. After informing the objective of the research, and information obtained from patients chart were never disclosed to third party.

7. Dissemination of results

Formal report for the research finding was given to Wolkite university college of Medicine and health science, School of medicine and Department of public health, and to Wolkite University Specialized Hospital.

8. Result

8.1 Socio-demographic characteristics

Among the patients who are admitted with the diagnosis of non -traumatic acute abdomen about 221(79.5%), 46(16.5%) and 11(4%) fall in the age category of 15-49, 50-65 and above 65 years of age respectively. 204(73.4%) were males and 66(23.7%) of patients were from Wolkite.

Table 1 socio-demographic characteristics of non-traumatic acute abdomen admissions in Wolkite University Specialized Teaching Hospital from September 1, 2023--August30, 2024

Socio-demographic variables(n=278)	Frequency	Percent
Age		
15-49	221	76.5
50-65	46	16.5
>65	11	4
Sex		
Male	204	73.4
Female	74	26.6
Residence		
Wolkite	65	23.4
Outside	213	76.6

8.2 Etiological factors for Intestinal Obstruction

From study subjects the cases of acute abdomen were due to 133(48%) acute appendicitis, 92(33.1%) were intestinal obstruction, 39(14.1%) were cholecystitis and 13(4.7%) were other cases due to (acute pancreatitis, perforated PUD and viscous perforation).

From the total cases of obstruction 72(78.3%) were small bowel obstruction and 20(21.7%) were large bowel obstruction.

The most common cause of small bowel obstruction is small bowel volvulus 37(51.4%) adhesion 18(25%), hernia 6(8.3%), intussusception 6(8.3%) and ilieosigmoid knotting 5(7%) are second, third, fourth and fifth causes of small bowel obstruction respectively. Out of the total Small bowel Obstruction 47(65.3%) cases were males and 25(34.7%) were females with male to female ratio of 1.88:1 .Majority of Small bowel Obstruction cases 60(83.3%) were from outside Wolkite town and the rest 12(16.7%) were from Wolkite (urban dwellers).Out of 37 Small bowel volvulus obstructions, 24(64.8%) were males and 13(35.2%) were females and majority of cases(32) were in 18-49 years age group .

Table 2: The frequency and causes of small bowel obstruction in Wolkite University Specialized Teaching Hospital, 2023/2024.

		Frequency	Percent
Small bowel obstruction	Adhesion	18	25.0
	SBV	37	51.4
	Hernia	6	8.3
	Intussussception	6	8.3
	Ilieosigmoid knotting	5	6.9
	Total	72	100.0

Sigmoid volvulus was the leading cause of large bowel obstruction 12(60%).Colorectal cancer 3(15%), ilieosigmoid knotting 2(10%) and others (fecal impaction and cecal volvulus,) 3(15%) are second, third and fourth causes of large bowel obstruction respectively.

Among 20 cases of Large bowel obstruction, 16(80) were males and 4(20%) were females and 4(20%) were from Wolkite town and the rest 16(80%) were from outside Wolkite town.

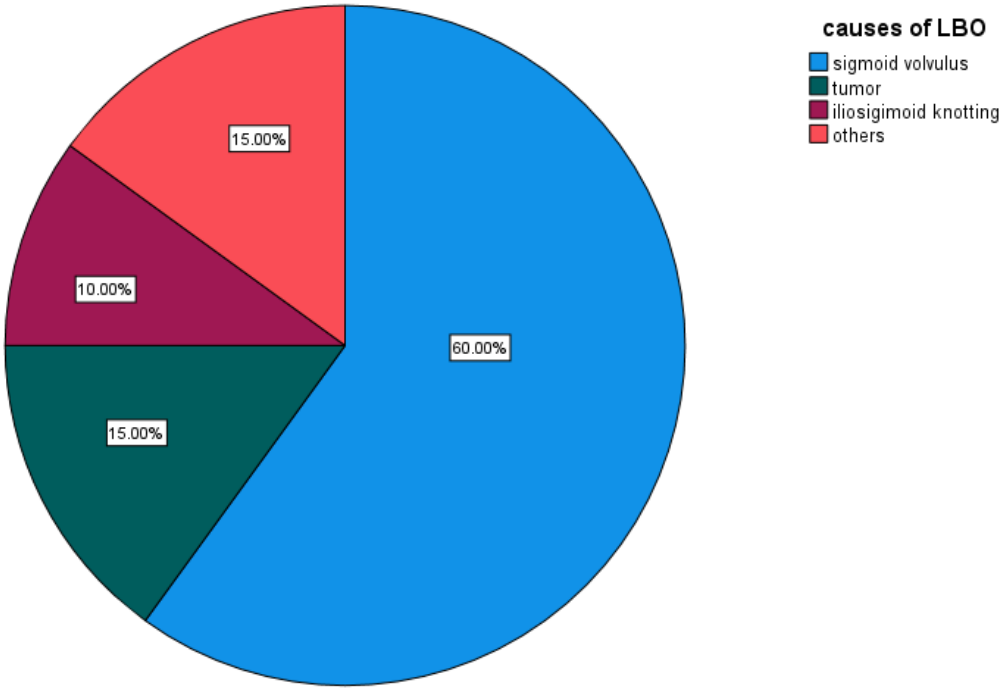

Figure 2:the frequency of causes of Large bowel obstruction at WKUSTH from Sept1,2023-Aug30,2024.

Figure 2: Pie chart of the frequency and causes of Large bowel obstruction in WKUSTH from sept1, 2023-aug30, 2024

8.3 Bivariate And Multivariate Analysis

From the independent variables age, previous history intestinal obstruction and history of chronic constipation are significantly associated with intestinal obstruction. After checking for the presence of association ($p<0.25$) in binary logistic regression, this variables were re-entered into multivariate logistic regression to assess the strength of association between this variables and intestinal obstruction.

Age is one of the risk factor with intestinal obstruction. Being in the age range of 15-49 is 8.26% lower than being age above 65 years (91.74%) to have intestinal obstruction $p<0.003$, AOR(0.090) and confidence interval [0.018-0.442].

		intestinal obstruction		
		yes	No	Total
age of the patient	15-49	64	157	221
	49-65	19	27	46
	>65	9	2	11
Total		92	186	278

History of chronic constipation is also a risk for intestinal obstruction ($p<0.00$), AOR=2.989) and CI [1.312-6.797].From this statement it is clear that having constipation is 2.9 times more likely to develop intestinal obstruction

		intestinal obstruction		
		yes	No	Total
History of constipation	yes	19	12	31
	NO	73	174	247
Total		92	186	278

Previous history of intestinal obstruction which was managed conservatively has statistically significant association with intestinal obstruction with odd of having intestinal obstruction is 3.5 times more common in those who have history of intestinal obstruction than those who do not(p<002,AOR(3.537)and CI[1.58-7.87]

		intestinal obstruction		
		yes	No	Total
Previous history intestinal obstruction	yes	21	12	33
	no	71	174	245
Total		92	186	278

Table 3: Bivariate and multivariate analysis of patients with intestinal obstruction at Wolkite University Specialized Teaching Hospital 2023/2024.

Variable		Intestinal obstruction		COR(95%CI)	AOR(95%CI)	p-value
		Yes	No			
Age of patient	15-49	64	221	11.039(2.32-52.507)	0.090(0.018-0.44)	<0.003
	50-65	19	46	6.39(1.24-32.990)	0.14(0.26-0.751)	
	>65	9	11	1	1	
History of Constipation	Yes	19	12	0.265(0.122-0.574)	2.989(1.312-6.797)	<0.009
	No	73	174	1	1	
History of obstruction	Yes	21	12	0.233(0.109-0.499)	3.537(1.58-7.87)	<0.002
	No	71	174	1	1	

9. Discussion

This study included 278 non traumatic surgical acute abdomen cases and of which 73.4% were males and 26.6% were females.

This may be due to the flatus theory that males pass their time in outhome duties that restricts them to pass flatus and feces for long time and loaded feeding habit per cycle of meal of males. But the opposite is true for females. Out of total study population 213 (76.6%) were rural residents (outside Wolkite town). Majority of male patients 160(78.4%) and 37(18.1%) were in the age group of 15-49years,50-65years respectively, which was similar with previous studies conducted in Black lion Hospital and Gondar University Hospital (36,20).

The leading causes of acute abdomen in this study are acute appendicitis 133(47.8%). The prevalence of intestinal obstruction in this study is 92(33.1%) which is consistent with the study done in southern nation, nationalities, and people region (38). Majority of intestinal obstruction cases 72(78.3%) are small bowel obstruction. This findings are also consistent with the studies done in Black Lion Hospital which has shown that the most common cause of acute abdomen is acute appendicitis and the most common cause of intestinal obstruction is small bowel obstruction (4, 36).

Age is one of highly associated factor with intestinal obstruction. Being in the age range of 15-49 associated with less chance of having intestinal obstruction than being age above 65 years

Having chronic constipation has statistically significant association with intestinal obstruction than lacking it with odd of having intestinal obstruction is 2.9 times more common in those who had chronic constipation than who lacked it. It accounts about 20.6% of intestinal obstruction cases in this study. This may be due to habit of khat use commonly seen in the catchment area, however it needs population based study to infer the finding of this finding.

History of previous intestinal obstruction has statistically significant association with intestinal obstruction than who lacked it with odd of having intestinal obstruction is 3 .53times more common in those who have history of intestinal obstruction. This might be due to the premise that some patients are managed conservatively with one or two week window of observation though the surgical intervention is the definitive route treatment.

The primary small bowel volvulus was the leading cause of small bowel obstruction accounting 37(51.4%).This differs from the findings of studies conducted in Black Lion Hospital and Gondar university Hospital where adhesion is the leading cause small bowel obstruction (20, 36). Since adhesion occurs in patients who has history of previous surgery, this might be due to high operation rate in Black Lion Hospital and Gondar university Hospital. Adhesion and hernia and intussusception are the second and third causes of small bowel obstruction accounting 18(25%) and 6(8.3%) respectively.

The most commonly identified cause of intestinal obstruction is small bowel volvulus which accounts 37(40.2%) which differs from the findings of study conducted in DebreBirhan referral Hospital (19). This might be due to socioeconomic factor and different dietary consumptions.

Sigmoid volvulus is the leading cause of large bowel obstruction 12(60%) which is in line with the study done in DebreBirhan referral Hospital and Black Lion Hospital (19, 36).The second most common cause of large bowel obstruction is colorectal cancer 3(15%) followed by iliosigmoid knotting 2(10%).

Strength of the study

This study will have advantage by providing baseline information about non-traumatic surgical acute abdomen cases magnitude, causes and its associated factors to improve early diagnosis and interventions before complications occur. The result of this study will also add epidemiological and clinical information for planning makers to design proper strategies and also helps as reference for those who want to undertake researches in the study area.

LIMITATION

The limitation of this study was that being an institutional study, it might not representative for Wolkite University Catchment population. Since secondary data had been dealt, there were difficulties during data collection like tracing some medical records, incomplete and unorganized patients history on patients' medical card and unreadable hand writing.

10. Conclusions

Intestinal obstruction remains a major cause of morbidity in our environment. Intestinal obstruction is the most common cause for non-traumatic acute abdominal admission accounting 33.1% in the study area.

Small bowel obstruction is relatively more common than large bowel obstruction in Wolkite University Specialized Teaching Hospital. Postoperative adhesion and sigmoid volvulus were found to be the commonest causes for intestinal obstruction next to Small bowel Volvulus, but ilieo-sigmoid knotting was the rare cause of small bowel obstruction in the study area.

Patient in the age of 18-49 are more affected by Small bowel obstruction. Aged patients, patients from rural areas, those with previous history of intestinal obstruction and previous history of operation are at increased risk of having intestinal obstruction.

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12.ANNEX 1

Checklist

This checklist was prepared to assess prevalence and its associated factors in Wolkite University Specialized Hospital. This was filled by the data collectors from primary data.

MRN……..Date……

1. Socio demographic characters

Q1	Age(in years)	1.15-49 2.50-65 3.>65
Q2	Sex	1. Male 2. Female
Q3	Residence	1. Wolkite and its sub-city 2. Outside Wolkite town

2. Intestinal Obstruction (classification)

Q4.Types of intestinal obstruction	1. Large bowel 2. Small bowel

Q5.If the answer is small bowel Obstruction for the aboveQ4, what is the cause of obstruction?	1. Primary volvulus 2. Adhesion/band 3. Hernia 4. Intussusceptions (ileocolic)

	5. Others
Q6.If the answer is large bowel obstruction for the Q4, what is the cause of obstruction?	1. Sigmoid volvulus 2. Colorectal cancer 3. Ilieosigmoid knotting 4. colo-colic Intussusceptions 5. Others
Q7. Is there any documented previous history of Intestinal Obstruction	1.Yes 2.No
Q8.Is there documented history of constipation	1.Yes 2.No
Q9.Is there any history of abdominopelvic operation documented in the chart	1.Yes 2.No