WOLKITE UNIVERSITY

THE PATTERN AND MAGNITUDE OF PEDIATRICS SURGICAL ADMISSIONS AT WOLKITE UNIVERSITY SPECIALIZED HOSPITAL, WOLKITE, ETHIOPIA: A TWO-YEAR REVIEW (Aug 20, 2021-Aug 20, 2023 G.C)

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A RESEARCH THESIS SUBMITTED TO COLLEGE OF MEDICINE AND HEALTH SCIENCE; PRESENTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF MEDICINE

Wolkite, Ethiopia

August 2023 G.C.

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ACKNOWLEDGMENT

First, we would like to acknowledge our Advisors Mr. Dereje Mesfin (MPH, Lecturer) and Dr. Tilahun Temesgen (MD, Associate Professor of surgery) for their valuable advice, encouragement and guidance to develop and write this research thesis. We would like to acknowledge the WUSH for giving us this chance to conduct the study. Our respect and acknowledgement also forwarded to our colleagues who have helped us in commenting this research thesis during the write up and giving us valuable suggestions.

ABSRACT

Background: Pediatric surgery is one of the demanding surgical disciplines and surgical cares for pediatric patients in developing countries is said to be too expensive to deliver mainly due to economic constraints and burden of non-surgical illness. Pediatric surgical admissions dramatically increased throughout the world because of increased trauma, emergency diseases and survival of congenital diseases and surgical diseases are inadequately addressed globally. There is growing evidence that childhood surgical conditions are common in developing countries and that poor care result in significant number of deaths and disability**.** Unfortunately, pediatric surgical care is not considered as an essential component of most child health programmers.

Objective: The aim of this study was to assess the pattern and determine the magnitude of pediatric surgical patient's admission to Wolkite University specialized hospital.

Methods: A Facility-based, descriptive study was conducted. Pediatrics surgical patients who were admitted to Wolkite university specialized hospital (WUSH) from August 20, 2021 to August 20, 2023 G.C were included in the study. Data was collected from patient's medical record; registration and operation room logbooks by organized data collection tool retrieved from different literature and was organized according to the study objectives. The collected data was entered, cleaned and analyzed using SPSS version 25 statistical software and descriptive analysis was done.

Results: This study showed that there were 432 pediatric surgical admissions (i.e 26.8% of total admissions) to WUSH from Aug. 20, 2021 G.C up to Aug. 20, 2023 G.C. 143 pediatrics surgical patients were selected randomly. From these 99(69.2%) were male and 44(30.8%) were females. Of this most of the patients was from rural area 81.8% and only 18.2% were from urban areas. The commonest mode of admission was on Emergency basis 135(94.4%) and Elective cases were only 8 (5.6%). The commonest case were trauma 53(37.1%) followed by Gastrointestinal conditions 45 (31.5%), surgical infections 27(18.9%), congenital anomaly 10(7%) and genitourinary conditions 8 (5.6%) respectively.

Conclusion: pediatrics surgical conditions are common in the hospital. Mostly trauma cases are significant followed by gastrointestinal conditions.

Key words: congenital disorders, Emergency cases, diagnosis

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LIST OF ACRONYMS AND ABBREVIATIONS

GI: Gastrointestinal system

GUS: Genitourinary system

IHPS: Idiopathic hypertrophic pyloric stenosis

OR: operation room

SSA: Sub-Saharan Africa

SNNPR: south nation nationality and people region

SPSS: statistical package for social science

UN: United Nations

WKS: weeks

WHO: World health organization

WUSH: Wolkite University specialized hospital

1. INTRODUCTION

1.1. Background information

Pediatric surgery is one of the demanding surgical disciplines. Surgical cares for pediatric patients in developing countries is said to be too expensive to deliver mainly due to economic constraints and burden of non-surgical illness. (1)

Pediatric surgical admissions dramatically increased throughout the world because of increased trauma, emergency diseases and survival of congenital diseases and surgical diseases are inadequately addressed globally. Both emergency and non-emergency surgical conditions contribute substantially to the global burden of mortality and morbidity rates; this is even worse in low-income countries (1)

There is growing evidence that childhood surgical conditions are common in developing countries and that poor care result in significant number of deaths and disability**.** Unfortunately, pediatric surgical care is not considered as an essential component of most child health programmers. Even if prevention of diseases has many roles in protecting directly or indirectly acquiring congenital or non-congenital disease, surgically curable disease of pediatrics also need great emphasis(1)

Information about the magnitude and burden helps to proper health care planning as well as adequate budget provision which is more applicable on teaching hospitals.(2)

1.2. Statement of the problem

Health care planner and implementers did not give an emphasis on pediatrics surgery even if it is a global health problem in which recently pediatrics surgical condition recognized as it has significant burden, which is identified by global health community. (7)
Surgical intervention plays a major role in preventing death and further chronic disability for those suffering from injuries, emergency abdominal and non-abdominal conditions. (8)

Globally, approximately 28% of global burden of diseases were amenable to surgical interventions; around half of them were pediatric surgical pathologies. (9)
In the Sub-Saharan Africa, the annual presentation rate for all surgical conditions was 543 per 10000 children age 0 -14 years. The estimated cumulative risk for all surgical conditions was 85.4% by the age of 15 years. (10)

About the patterns and magnitude of patient flow in pediatrics in general and in the pediatric surgical admission in particular is vital for understanding the context for future planning. However, there is no any research conducted to assess the patterns of pediatric surgical admissions in this health facility. Evident to this fact, availing information related to the magnitude and patterns of pediatric surgical admissions in Wolkite University Specialized Hospital for the past two-year period. Therefore, this research assess the magnitude and the patterns of pediatric surgical admission in Wolkite University Specialized Hospital from Aug 20, 2021 –Aug 20, 2023 G.C.

1.3. Significance of the study

There is no study done about the magnitude and pattern pediatric surgical disease in WUSH. Hence, our study will determine major causes of pediatric surgical admissions and will be an input by providing epidemiological and clinical information for further studies and clinical policy makers. It also helps to have insights about the current disease burden.

2. LITERATURE REVIEW

Pediatric surgery is one of the demanding surgical disciplines nowadays**,** pediatric surgery has not only become an independent specialty but has evolved into a multidisciplinary field of medicine, in developing countries pediatric surgery should be well organized, having its own wards, manpower facilities and handles specific aspect of pediatric surgical pathology (1)

Available evidence shows that Sub-Saharan Africa has the highest unmet need for surgical care, constituting 41 million cases per year, 29% of the world's unmet need. It is estimated that 2.6 million children are born with a congenital anomaly in Sub-Saharan Africa each year. To date there has been limited data published on pediatrics surgery from this region. In Ethiopia, there is insufficient data on pediatrics surgical conditions (1)

2.1. Burden and Type of surgical cases

In study done at tertiary referral hospital in Egypt Total, admissions of children at the first decade of life to pediatric surgical wards were 2575 during the study. Emergency cases were presented in 1195 patients (46.5%) while elective and outpatient cases were 1380 (53.5%) (2).

In a New Tertiary Hospital in Northwestern Nigeria There were 191 pediatric surgical admissions representing 12.5% (191/1,528) of the total pediatric admissions. The age range was 1 day – 15 years with a mean age of 71 months (5.9 yrs). Male to female ratio of 1.2:1 (M 105: F 86). (3)

In study done at Somalia recorded was 163 patients. Of patients 47 were female (28.8%) and 116 were male (71.2%). The mean age of the patients was 6.4 ± 4.8 years (1 months-17 year). The age range of the patients was < 1 year (12.9%), 1-4 years (30.1%), 5-9 years (27.6%) and 10-17 years (29.4%).(4)

In Black lion specialized hospital, Ethiopia (2006) pediatrics surgical admission accounts for 33% of all pediatric admissions to the hospital The patients were predominantly male (M:F ratio of 2:1) with a mean age of 68 months. (1)

In Yirgalem Hospital Southern, Ethiopia, 1389 children admitted to the hospital from Sep 2004 - Aug 2005. Out of which 144 (10.36 %) were admitted with surgical illnesses. sex ratio showed there were 99 (73.9%) males and the Females were 35 (26.1%), M: F 2.8:1. The average age is 48 months. (5)

At Adama hospital medical college Eighty-two percent of the admissions were on the emergency bases and the remaining 18 percent on elective bases.(6)

2.2. Magnitude and disease category

In study done at tertiary referral hospital in Egypt from the emergency cases, the commonest reason for emergency visit was trauma accounting of 42% of all admission and Head trauma is the leading trauma case followed by burn and abdominal injury. In addition, the common non-traumatic emergency case was intestinal obstruction, which is 3.6% of all admission (2).

In a New Tertiary Hospital in Northwestern Nigeria The most common diagnostic categories were congenital anomalies 35.1%, trauma 30.9% and surgical infections 29.8%. (3)

In study done at Somalia the main diagnoses were congenital malformation (34.4%), acute abdomen (25.8%), traumatic injury (23.3%), infection (9.8%) and neoplasm (6.7%). (4)

In Black lion specialized hospital, Ethiopia (2006) The gastrointestinal system was most commonly affected (41.8%) followed by the musculoskeletal system (23%). (1)

The study In Yirgalem Hospital Southern, Ethiopia showed emergency cases were predominating 73.13% (98) and elective cases were less common 36 (26.26%). Acute abdomen was found the leading causes of death (6 children). Delay in presentation one factor that increases the mortality rate (5)

At Adama hospital medical college, The commonest causes of surgical admissions were gastrointestinal conditions (33.8%, N=130), trauma (25.5%, N=98) and congenital anomalies (19%, N=73). From gastrointestinal conditions, appendicitis (54%,N=70) and intestinal obstruction (30%, N=39) were the commonest diagnoses observed(6)

3. OBJECTIVES OF THE STUDY

3.1. General objective

- To assess the magnitude and pattern of pediatrics surgical admission at WUSH from Aug 20, 2021 G.C - Aug 20, 2023 G.C.

3.2. Specific objectives

- To determine the magnitude of pediatric surgical patient admission at WUSH from Aug 20, 2021 G.C - Aug 20, 2023 G.C.
- To assess the pattern of pediatric surgical admission at WUSH from Aug 20, 2021 G.C - Aug 20, 2023 G.C.

4. METHODOLOGY

4.1. Study area

This study was conducted in WUSH, which is located in Gurage zone, SNNPR, Ethiopia from August 22 to August 23, 2023 G.C. WUSH is located 170 km far from the capital city Addis Ababa. Gurage Zone is one of the zone, which belongs to SNNPR, Ethiopia. The total population of this zone are 1,727,522 among this 846,486 are men and 881,076 are women; with an area of 5,893.40 square kilometers & it has a population density of 217.13.

Wolkite is the administrative center of the Gurage zone. This town has a total population of 92, 517 and the climatic condition of the Wolkite town is warm and temperate with a daily temperature ranges from 18^0c-20^0c & annual rain fall of 1244mm^3. The catchment population of WUSH is expected to be 800,000 people according to the information from hospital administration.

The hospital has four major department: Medicine, Surgery, Paediatrics and gynaecology and obstetrics. In the hospital there are more than 150 beds for inpatients from this the department of paediatrics and child health has 25 bed in NICU, 25 bed in the ward. In addition to this there is two major and one minor OR (operation room).

The hospital, apart from giving daily medical service and referral center, it also uses as a teaching center for students coming from government and private institutions.

4.2. Study design

Facility-based Retrospective, descriptive study was done.

4.3. Source population

Source population was all pediatric patients admitted to pediatrics ward at WUSH from August 20, 2021 G.C to August 20, 2023 G.C.

4.4. Study population and sample size

The study population was all pediatric surgical patients admitted to pediatrics ward at WUSH from August 20, 2021 G.C to August 20, 2023 G.C.

The sample size was determined using single population proportion formula with 95% confidence interval and marginal error (d) of 5%.From Similar study done in Ethiopia Yirgalem hospital the prevalence of pediatric surgical cases were 10.36%.

$n = (Z\ 1-\alpha/2)2\ P\ (1-P) / d2$

Where, n – minimum optimum sample size

Z1- α/2 – is standard normal value at 95% C.I which is 1.96

P – The prevalence pediatric surgical case

d – Possible margin of sampling error tolerated which is 5%

$n = (1.96)2(0.1036)\ (0.89)/\ (0.05)2 = 143$

Accordingly, the calculated sample size was 143. The study subjects was selected randomly until adequate sample size is obtained.

4.5. Inclusion and exclusion criteria

4.5.1. Inclusion criteria

Pediatric patients with confirmed and proven surgical diagnosis who have been in the study period in pediatrics ward at WUSH, with complete chart documentation will be included in the study. The diagnosis could be established either pre-operative or intraoperative or post operatively with relevant clinical, biochemical, radiological and histopathological findings described in standard textbooks.

4.5.2. Exclusion criteria

Neonatal surgical patients was excluded. Pediatric patients with suspected surgical illnesses with no established or unproven surgical diagnosis either by clinical or histopathological methods was excluded from the study.

4.6. Variable

- Socio-demographic data
  - Age
  - Sex
  - Address
- Possible etiologic causes
  - congenital
  - acquired
- Died
- Improved
- Number of admission

4.7. Data collection tool

Data collection tool was recorded checklists, which was adapted from different literatures and patient's medical record, pediatrics ward and OR logbooks was used according to the study objectives.

4.8. Data collection method

Data was recorded using the structured checklist from patient medical files of pediatric surgical patients managed in the pediatric ward at WUSH from August 20, 2021 G.C to August 20, 2023 G.C. Operation logbook, pediatrics ward logbooks was reviewed to collect the necessary information and patient medical record number to retrieve individual patient card from record room.

4.9. Quality control

Prior to starting data collection, check list was pretested and necessary modification was made based on objectives and training was given for 4 data collectors (interns) about the data collection materials and on how to fill the checklists and close supervision was carried out during data collection period by principal investigator. Finally, principal investigator has crosschecked the collected data by formed quality checklist.

4.10. Data processing, collection and analysis

The collected data was edited, coded, classified transcribed to SPSS version 25 and Data will be analyzed using descriptive statistics. The analyzed data will be presented with tables and pie charts. Finally, discussion and conclusion was be made and publication of findings will be considered.

4.11. Operational definition

Admission - the patient spent in the hospital for more than 24 hours.
Pediatric age group - Group of people with in age of 14 years and below

4.12. Ethical clearance

Ethical clearance letter was obtained from School of medicine, pediatrics department and research directorate office before conducting the research. Institutional consent was obtained from Wolkite University specialized hospital administrative office There was no any patients' personal identifier included in the data collection form. We declare there was no conflict of interest.

4.13. Dissemination of the results

The final report of this study was prepared in both soft and hard copies and will be submitted to WUSH, pediatrics department, research directorate offices and WUSH library. The result will also be disseminated to any concerned body who participate in the development of guidelines and protocols for pediatric surgical conditions.

5. RESULTS

5.1. Socio-demographic information

A total 143 pediatrics surgical cases were selected from 988 cases of total pediatrics admission to WUSH from Aug. 2021 G.C up to Aug. 2023 G.C. of these 99(69.2%) were male and 44(30.8%) were females.

Of these most of the patients was from rural area 81.8% and only 18.2% were from urban areas.

The mean age of the pediatrics surgical patients was 2 year and 4 month and the median 3-year.

Table 1: Socio-demographic characteristics of pediatric surgical patients visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Variable	Category	Frequency	Percent
Age	Day 29 – 11 months	15	10.5
	1 year – 5 year	49	34.3
	6 year – 14 year	79	55.2
Sex	Male	99	69.2
	Female	44	30.8
Place of residence	Urban	26	18.2
	Rural	117	81.8

5.2. Condition during admission

The commonest mode of admission was on Emergency basis 135(94.4%) and Elective cases were only 8 (5.6%).

Table 2: condition during admission of pediatrics surgical patients, WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Variable	Category	Frequency	Percent
Condition during admission	Emergency	135	94.4
	Elective	8	5.6

5.3. Patterns of pediatric surgical conditions

The commonest case for admission were trauma 53(37%) followed by GI conditions 45 (31%), infections 27(19%), congenital anomaly 10(7%) and GU 8(6%) respectively.

Table 3: Patterns of pediatrics surgical conditions at WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Disease category	Frequency	Percent
Congenital anomaly	10	7
Trauma	53	37
Infection	27	19
GI condition	45	31
GU condition	8	6

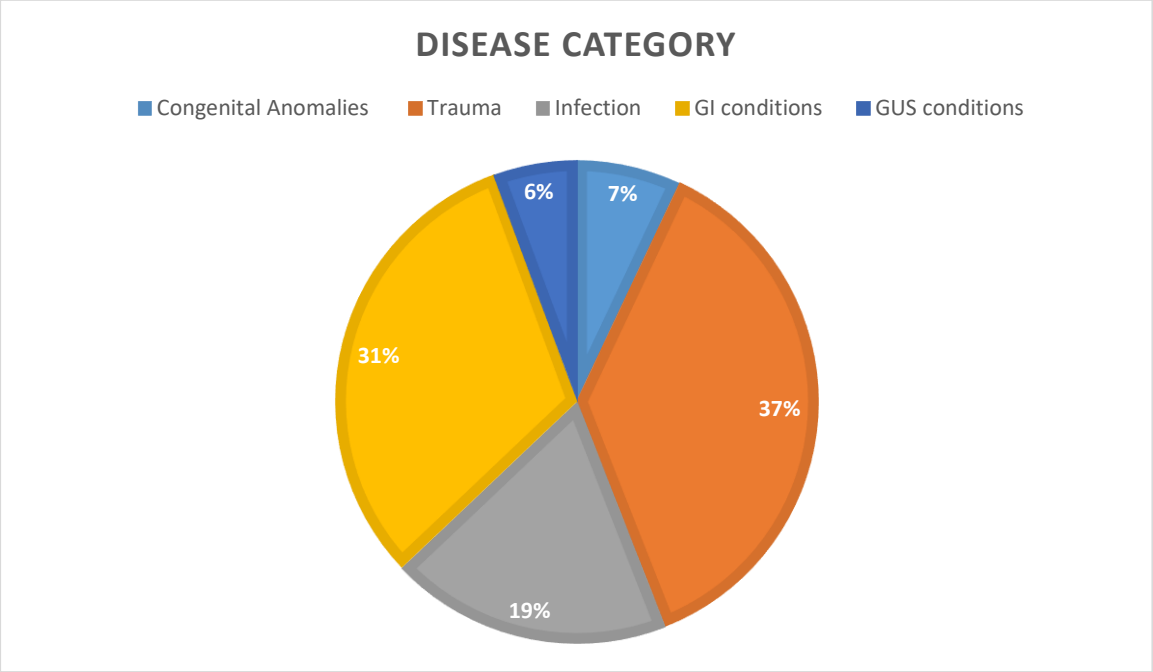


Figure 1: Patterns of pediatrics surgical conditions at WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

5.4. Pattern of pediatric surgical patients with congenital anomaly

Congenital anomaly accounts 7% all pediatrics surgical admission, inguinal hernia (60%) followed by thyroglossal duct cyst (20%).

Table 4: patient distribution with congenital anomaly visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Congenital anomaly	Frequency	Percent
Inguinal hernia	6	60
Undescended testis	1	10
Thyroglossal duct cyst	2	20
Other*	1	10

*hypospadiasis,

5.5. Pattern of pediatric surgical patients with surgical infectious diseases

The leading cause of infections requiring surgical intervention was pyomyositis and submandibular abscess (34.6% each) followed by osteomyelitis (19.2%).

Table 5: patient distribution with surgical infectious diseases visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Infection	**Frequency**	**Percent**
Osteomyelitis	5	19.2
Pyomyositis	9	34.6
Submandibular Abscess	9	34.6
Septic Arthritis	3	11.5

5.6. Pattern of pediatric surgical patients with trauma cases

Of the trauma cases, burn accounts for 50% that is followed by fracture (18.5%)

Table 6: patient distribution with trauma cases visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Trauma	**Frequency**	**Percent**
Fracture	10	18.5
Burn	27	50
Chest Injury	2	3.7
Abdominal Injury	2	3.7
Soft Tissue injury	5	9.2
Tendon Injury	2	3.7
Other	6	11.1

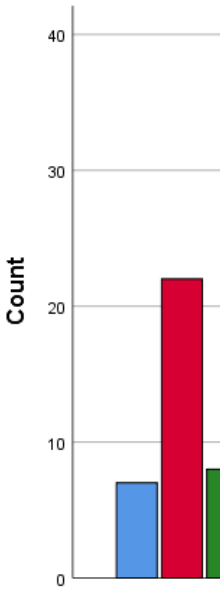


Figure 2: patient sex distribution with trauma cases visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

5.7. Pattern of pediatric surgical patients with burn cases

Burn is the leading cause of trauma from the study. Scald burn (92.5%) is the most common type of burn followed by electrical burn (7.4%).

Table 7: patient distribution with burn cases visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Types of burn	**Frequency**	**Percent**
Scald burn	25	92.5
Electrical burn	2	7.4
Flame burn	0	0

5.8. Pattern of pediatric surgical patients with fracture

The most common cause of fracture in pediatrics patients is from fall down accident (70%).

Table 8: patient distribution with fracture cases visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

Fracture	**Frequency**	**Percent**
Road traffic accident	3	30
Fall down	7	70

5.9. Pattern of pediatric surgical patients with GI condition

The commonest gastrointestinal condition among pediatrics surgical condition is Appendicitis (55.5%) followed by obstruction and intussusception (20% each).

Table 9: patient distribution with gastrointestinal condition visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

GI* condition	Frequency	Percent
Appendicitis	25	55.5
Obstruction	9	20
Intussusception	9	20
IHPS**	2	4.4

* GI condition – Gastrointestinal condition

**IHPS – Idiopathic hypertrophic pyloric stenosis

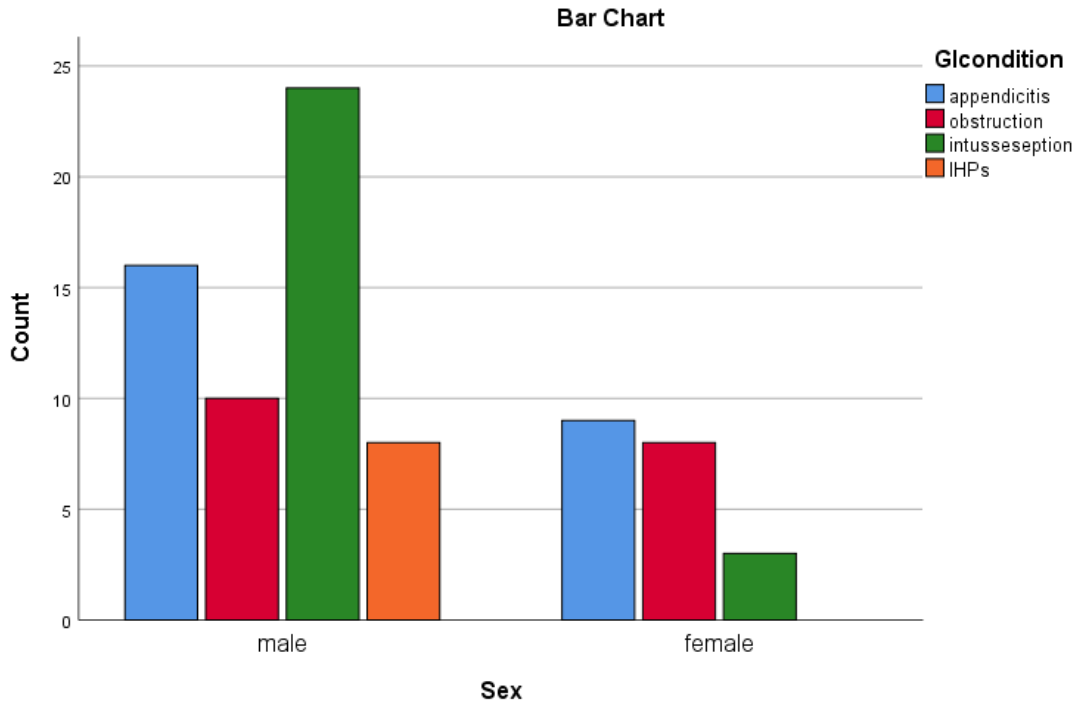


Figure 3: patient sex distribution with gastrointestinal cases visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

5.10. Pattern of pediatric surgical patients with genitourinary condition

The most common genitourinary system requiring surgical intervention were inginal hernia (43.7) followed by phimosis (18.7%).

Table 10: patient distribution with genitourinary system cases visiting WUSH, Wolkite, Aug. 2021 G.C up to Aug. 2023 G.C.

GUS* condition	**Frequency**	**Percent**
Meatal stenosis	1	6.25
Testicular torsion	2	12.5
Inguinal hernia	7	43.75
Phimosis	3	18.75
Hydrocele	1	6.25
Undescended testis	2	12.5

*GUS – Genitourinary system

5.11. Clinical manifestations

The most common clinical presentation among pediatric surgical admission with GI condition is abdominal pain (22.3%)

Table 11: Clinical manifestations of pediatric surgical patients visiting WUSH, Wolkite, Aug. 2021 up to Aug. 2023.

Clinical Manifestation	**Frequency**	**Percent**
Failure to pass faeces	9	6.29
Abdominal distension	6	4.19
Abdominal pain	32	22.3
Swelling	30	20.9
Musculoskeletal deformity	16	11.8
Other*	50	34.9

*burn accident, failure to urinate, accidental lodging of foreign body

5.12. Type of surgical management

The most common type of surgery was done on emergency bases(95%)

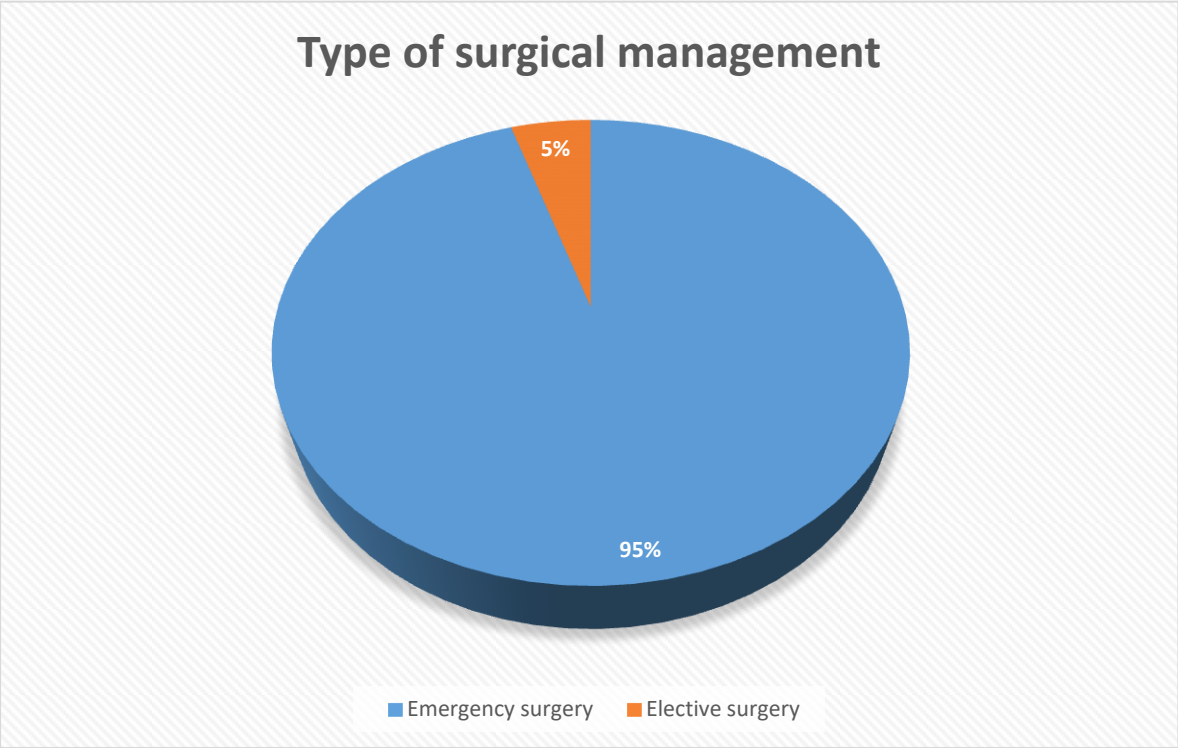


Figure 4 patient with the type of surgery

6. DISCUSSION

This study aimed to elucidate the pattern of pediatric surgical admissions at Wolkite University Specialized Hospital in Ethiopia over a 2-year period. The findings provide important insights into the epidemiology of pediatric surgical conditions in this region of the country.

The study shows the prevalence of pediatrics surgical admission accounts for 26.8%, which is comparable to study done in Tikur anbessa hospital (1)

From our study, Male preponderance was demonstrated in keeping with findings in other reports. (1)(3)(4).

In our study, emergency cases represented (94.4%) of all cases while elective cases represented (5.6%) of all cases and this results was similar to result of Tekle TT and Mollalegne TM, (5) as in their study, emergency cases were predominating (73.1%) and elective cases were less common (26.2%).

Over all in our result the most common diagnostic categories were trauma (37.1%), gastrointestinal problems (31.5%), surgical infection (18.9%) and congenital anomalies (7%) this result was matched with that of Stephen W and Sanno-Duanda B, 2000 (11) recorded that, the most common diagnostic categories were injuries (46.9%), surgical infection (24.3%) and congenital anomalies (14.5%). However, Tekle TT and Mollalegne TM, (5) were different from our results because in their studies shows congenital anomalies were the most common cause of admissions (37.8%) followed by trauma (28.4%).

Burn and fracture cases constitute the leading causes of trauma. Scald burn is the commonest types (92.5%) of burn cases while fall down constitute the major 70% causes of fracture. This is different from the study done by Simmons D. where 27% and 32% of accidents were caused by scald burns and fractures respectively. The common cause of fracture in Simmons's study was fall accident similar to our study.

Gastrointestinal conditions were the second most common reason for surgical admission overall. Appendicitis accounted for over half of GI cases, in agreement with findings in Nigeria (3).

Infections requiring surgical intervention made up 18.9% of admissions, with pyomyositis and abscesses being prevalent. This likely reflects the considerable burden of skin and soft tissue infections among African children (4, 7).

Congenital anomalies were a less common reason for admission compared to other studies in Ethiopia (5). Nevertheless, addressing high-prevalence congenital conditions like inguinal hernias through elective surgery remains important.

7. STRENGTHES AND LIMITATIONS

Strengths

- The study used a comprehensive and well organized data collection tool which allowed to gather various information regarding pediatric surgical patients
- This study can be input for further study.

Limitations

- It was not possible to retrieve all the cards whose numbers were identified from the logbook because of the poor handling of the patient records or unsuitability of the card room

8. CONCLUSIONS

This study aimed to assess the pattern of pediatric surgical admissions at Wolkite University Specialized Hospital in Ethiopia over a 2-year period from August 20, 2021 G.C to August20, 2023 G.C. The results showed that there were 432 pediatric surgical admissions, representing 26.8% of total pediatric admissions during the study period. Out of 143 records reviewed, males constituted 69.2%. The mean age was 2 years 4 months. Most admissions (94.4%) were emergency cases rather than elective.

Trauma was the most common reason for admission, accounting for 37.1% of surgical cases. Among trauma cases, burns were the leading cause (50%) followed by fractures (18.5%). Gastrointestinal conditions were the second most common reason for admission (31.5%), with appendicitis being the most prevalent GI diagnosis (55.5%). Surgical infections accounted for 18.9% of admissions, with pyomyositis and submandibular abscess being equally common. Congenital anomalies and genitourinary conditions were less frequent reasons for admission.

In conclusion, this study provides important epidemiologic data on the burden and spectrum of pediatric surgical conditions at a major teaching hospital in Ethiopia. Trauma, gastrointestinal conditions, and infections accounted for the large majority of surgical admissions. The results can inform resource allocation and training for providers to optimally manage the most prevalent conditions. The findings also highlight the need for preventive strategies targeting pediatric injuries and infections in particular.

9. RECOMMENDATIONS

- Prevention of childhood injuries and better trauma management, especially at the primary and secondary health care levels, should be the priorities for improving pediatrics surgical care in Wolkite. Surgical care of children should be considered an essential component of child health programme in developing countries.
- Implement community-based injury and burn prevention initiatives, focusing on road safety for vehicles, safe play areas for children, and kitchen safety in households. This could help reduce the burden of pediatric trauma cases requiring hospital admission.

- Strengthen trauma management training for healthcare workers at primary health centers and district hospitals. Many cases could potentially be stabilized closer to home rather than requiring referral to tertiary centers.

- Establish its own department with staffs in the hospital.

- Increase health education regarding prevention and prompt care-seeking for pediatric infections. Community health workers can play a key role.

- Conduct further research exploring risk factors for common conditions like burns and appendicitis in order to better understand regional trends and inform prevention approaches.

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ANNEX I: DATA COLLECTION TOOLS

WOLKITE UNIVERSITY SPECIALIZED AND TEACHING HOSPITAL

SCHOOL OF MEDICINE

Data collection checklist prepared to assess the pattern, clinical presentation of pediatric surgical patients at Wolkite University Specialized Hospital.

Part I: Identifications

1.1.MRN (medical record no.)_____
1.2.Age From 1) Day 29- 11 months 2) 1 Year- 5 Year 3) 6 Year -14 Year
1.3.Sex 1) Male 2) Female
1.4.Place Of Residence 1) Urban 2) Rural

Part II: Types of Disease

1. **Condition at admission**

1.1.Emergency 1.2.Elective

2. **Diagnosis**

2.1.Congenital 2.4. GI condition
2.2.Trauma 2.5. GUS condition
2.3.Infection

3. **Congenital anomaly**

3.1.Inguinal hernia 3.3.Thyroglosal cyst duct
3.2.Undescended testis 3.4.Other_____

4. **Infection**

4.1.Osteomyelities 4.3.Cellulitis
4.2.Pyomyositis 4.4.Abscess

5. **Trauma**

5.1.Fracture 5.3.Head injury
5.2.Burn 5.4.Chest injury
5.2.1. Scald 5.5.Abdominal injury
5.2.2. Flame 5.6.Soft tissue injury
5.2.3. Electrical 5.7.Tendon injury

6. **Fracture**

6.1.Road traffic accident 6.2.Fall down

7. GI condition

7.1.Appendicitis

7.2.Obstruction

7.3.Intussusception

7.4.IHPS

8. Genitourinary System

8.1.Meatal stenosis

8.2.Testicular torsion

8.3. Inginal hernia

8.4.Phimosis

Part III: Clinical Presentation

1. Clinical manifestations

1.1.Failure To Pass feces

1.2.Abdominal Distention

1.3.Abdominal pain

1.4.Swelling

1.5.Musculo skeletal Deformity

1.6.Others

Part VI: Surgical Management

1. **Types of Surgical Management**
   1.1.Emergency surgery
   1.2.Elective surgery