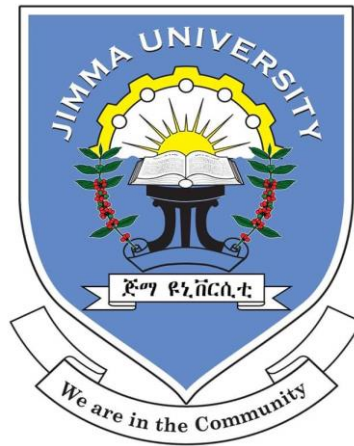


**PATTERN, ASSOCIATED RISK FACTORS AND MANAGEMENT
OUTCOME OF PEDIATRIC PATIENTS WITH FOREIGN BODY
VISITING JIMMA MEDICAL CENTER, JIMMA ZONE, SOUTH-
WESTERN ETHIOPIA, JANUARY, 2022**



BY: NETSANET SOLOMON (MD, GENERAL SURGERY RESIDENT)

**A THESIS SUBMITTED TO SCHOOL OF MEDICINE, COLLEGE OF
PUBLIC HEALTH AND MEDICAL SCIENCES, JIMMA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENT OF
SPECIALTY CERTIFICATE IN SURGERY**

January 2022

Jimma, Ethiopia

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January 2022

Jimma, Ethiopia

Abstract

Background A foreign body (FB) is common and serious health problems affecting the world. It is the childhood inclination for exploration that results in the aspiration, insertion, and ingestion of foreign bodies (FBs) which make this clinical event to remain a problem as long as children remain naturally curious and are still common.

Objective: To analyze the clinical spectrum of FBs, associated risk factors and management methods of pediatric patients with foreign body visiting JMC for a period of one year (January to December 2021)

Methods: Methods: Institutional based cross-sectional study was conducted for a period of one year (January to December 2021) in pediatric age group with any type of FBs. Data was collected by evaluating the patient, reviewing patient folder and operation log book by a pre structured data collection format. The data was analyzed by the statistical package for social science (SPSS) version 23. Descriptive statistical methods were used to summarize data on socio-demographic and clinical characteristics. The chi-square (χ^2) test was used for statistical analyzing the relation between location of FB and other factors. A 'P' value less than 0.05 was considered as statistically significant.

Result and discussion: A total of 84 patients with FB were approached for enrolment in the study. The overall age of the sample ranged from 1 to 12 years with the average age of 3.66 years. Majority of the patients (64.3%: n=54) were in the age of 1-4 years and the majority (52.4%; n = 44) of the participants were females and male participants accounts for n=40 (47.6%). The commonest location was in the ear and nose contributes for n=38(45.25%). The Commonest foreign body found was seeds (34.5%: n=29), followed by the any homemade metal or plastic material (n=17:20.2%) and food particles (n=16:19%) There is a significant association between location of FB with age (χ^2 -19.95 and P-value <0.01).the clinical presentation (χ^2 -18.6 and P-value <0.01) type of FB (χ^2 -19.48 and P-value <0.01).and complications due to FB (χ^2 -6.45 and P-value <0.01).

Conclusion and recommendation: Foreign bodies (FB) are common pediatrics emergency cases visiting JMC The timely diagnosis of foreign body in pediatrics relies heavily on high index clinical suspicion, but the diagnosis can be delayed. The proper recognition, study, and management of FBs are required to prevent complications.

Keywords: pediatrics, foreign body, management outcome

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List of abbreviation

- ★ CDC-center of disease control
- ★ Dx- Diagnosis
- ★ ED -emergency department
- ★ FB-foreign body
- ★ JMC: Jimma medical center
- ★ MD-medical doctor
- ★ Mnx - management
- ★ US-united states
- ★ UK-United Kingdom
- ★ WHO- World Health Organization

Chapter One: Introduction

1.1 Background

A foreign body (FB) is any object in a region it is not meant to be, where it can cause harm by its mere presence if immediate medical attention is not sought(1)They are common and serious health problems affecting the world (2)also, they are common in developing countries (3)(4)

Infants and young children are naturally curious about their environment. It is this childhood inclination that makes them to place toys, foodstuff and household articles in the ear, nose or oral cavity for exploration that results in the serious problems of aspiration, insertion, and ingestion of foreign bodies (FBs).(5)(6)(7)

The most vulnerable age is between six months and four years(8); the highest incidence of foreign body ingestion occurs in children aged between six months and four years Aspiration and ingestion of foreign body (FB) are a life-threatening emergency which predominantly occurs in children aged 6 months to 3 years Iran. (9)The risk of injury is highest in children between 1 and 3 years of age(10)

In the 2007 CDC annual report, 60% of choking episodes treated in emergency departments were due to food substances, with 30% due to a nonfood substance(5)

The severity of the presenting symptoms is dependent on the position of the object in the aerodigestive tract, the size and type of the object, the length of time the object has been ingested or inhaled, and the age and size of the child. Symptoms can be caused by either acute occlusion of airways or intestinal lumens, or complications resulting from the action of the object on the body tissue and fluids. The symptoms can often be non-specific or difficult to elucidate precisely. For this reason, if the event was not witnessed or the child is not able to communicate the event, the diagnosis can be delayed significantly. Foreign body ingestion and aspiration can also present in a subacute manner as a result of complications. Because of the variety of potential presentations and symptom severity, the child's condition must be determined by a thorough clinical assessment. (8)

The diagnosis of an FB in the aerodigestive tract may be challenging because of the difficulty in obtaining a reliable history from the child. The timely recognition of aspiration or ingestion relies heavily on clinical suspicion. (5)

To increase the likelihood of identifying foreign body ingestion and aspiration, healthcare professionals should maintain a high index of suspicion, be aware of the variation in presentations and include it as a differential diagnosis in children presenting with non-specific symptoms, such as fever, cough, drooling, dysphagia and abdominal pain.(8)

Despite significant advances in prevention, first aid, and intervention, FBs in the pediatric patient will remain a problem as long as children remain naturally curious (5)Despite all interventions in their prevention, foreign body injuries are still common in children(10)

This study aims to reduce the incidence of serious complications resulting from foreign body in pediatric age group by emphasizing the necessity for rapid identification and proper management

1.2 Statement of the Problem

A foreign body (FB) is any object in a region it is not meant to be, where it can cause harm by its mere presence if immediate medical attention is not sought (1).They are common and serious health problems affecting the world (2)..also, they are common in developing countries. (3) (4)

They comprise about 7% of all visits to pediatric trauma units (10). According to US statistics, 30 children per 100,000 people visit the emergency department (ED) with alimentary or respiratory FB injuries every year(6) In 2002, there were an estimated 128,023 incidents of foreign body ingestion and aspiration in hospitals in the UK (8).According to the literature foreign bodies are responsible, on average, for 11% of otorhinolaryngological emergencies; complications ensue in 22% of cases.(11)

Symptoms are mild or even absent in 40% to 60% of patients. Eighty percent of the asymptomatic patients have normal findings on physical examination. Twenty to 25 percent of FB events are not witnessed. In one report, 15% of children evaluated by an emergency medicine physician for choking were not recognized as FB victims. FBs persisted undetected in these children for 7 or more days, not suspected by caretakers, parents, or the physician. The clinician has a limited amount of data available when evaluating these patients. Therefore, a high index of suspicion for FB ingestion and aspiration must always be maintained(5)

Early recognition is crucial to successful management of foreign body ingestion and aspiration, including a prompt referral for medical assessment.(8)

Similar study on foreign body were conducted in other parts of the world including Ethiopia but this study differ in that it is intended to assess the patterns of foreign body among children visited JMC.

1.3 Significance of the Study

There are geographical differences in the spectrum of objects and diets commonly found in different regions; this variation can affect the type and frequency of foreign bodies in pediatric age group. Despite the clinical significance of FBs, there are no published reports on FBs in children in our region. This study was designed to identify the spectrum of FBs, associated symptoms and management of children with foreign body aspiration, ingestion or foreign body in in the ear and nose in pediatric patients visiting JMC, from January to December 2021

This study provides basic information on the patterns of foreign body among children that have a valuable contribution for the academic community, service providers, and health care professionals and above all children patients who is suffering from foreign body. Thus, it provides a basic clue for the prevention and early detection which would lower the morbidity and mortality due to this life threatening, preventable and manageable emergency case among the future generation, children.

Chapter Two: Literature Review

The complications of FBs in the upper and lower airway, the gastrointestinal tract, and the ears carry a significant morbidity and mortality. Although many of these events are benign, significant complications arise from FB entrapment, including but not limited to infection, obstruction, corrosion, fistula formation, hemorrhage, and nerve injury. FBs may be a secondary sign of underlying disorders such as pica, otalgia, rhinitis, neurologic dysfunction, and even child abuse. (5)

The most vulnerable age is between six months and four years, when children tend to explore new objects with their mouths. (2) The mean age of the patients was 4.6 years (range, 5 months-16 years). The age and sex distribution revealed that male patients between 1 and 3 years of age were predominant. in the age range of 28 days to 18 years (mean age of 3.61 ± 3.21 years) (9) The majority (60.5%) of the patients were boys and 39.5% were girls. (10) There were 674 cases (49.70%) in females and 682 cases (51.30%) in males. (11) Over the five-year study period, 369 children (boys 215, girls 154) (9)

Contributing factors include the male gender, immature coordination of swallowing, lack of molars before age 4 years, neurologic impairment, seizure disorders, anatomic or functional esophageal disorders, immature laryngeal sphincter control, and an unsafe environment Children who are neglected or abused have been found to have an increased risk for FB indigestion or aspiration. The suspicion of child abuse should be raised if a very young child has a history of multiple previous episodes or is found to have multiple FBs on evaluation. (5)

The most common site of a foreign object was in the nose (28.9%, n =44). The second most common location was esophagus (20.4%, n =31), followed by the eye as the third most common location (11.2%, n=17) (10) Among these confirmed patients, 96 (9%) objects were found in the esophagus, 142 (14%) were found in the tracheobronchial tree, and 611 (60%) were located in the external auditory canals, nasopharyngeal passage, tonsils, auricles, or lips. (2). OF 1,356 FB cases, 753 (55.53%) were in the ear, 420 (30.97%) were nasal, 179 (13.21%) were pharyngeal, and 4 (0.29%) were laryngeal FBs. (11) In this series, the most common location of foreign bodies in victim children was in the ears accounting for 45 (62.5%) followed by foreign body in the esophagus accounting for 17 (23.6%) and the least observed insertion FBS was in the nose accounting for 10 (13.9%), (12). Of the FBs, 67 (62.6%) were found in the esophagus, 17 (15.9%) in the respiratory system, 14 (13%) in the intestinal tract and 9 (8.4%) in the oral cavity. (3)

In the 2007 CDC annual report, 60% of choking episodes treated in emergency departments were due to food substances, with 30% due to a nonfood substance.³ Sixty-five percent of food-based choking episodes were due to candy or gum. The list of foods causing choking injury was similar in many published reports: hot dogs, nuts, seeds, and vegetable or fruit pieces. Coins account for a significant portion of nonfood substances causing choking events in children.⁽⁵⁾ One in five of the foreign bodies in children were a small toy or a part of a toy (22.4%, n = 34). A piece of food caused 14.5% (n = 22) of the injuries and the same number was caused also by coins (14.5%, n = 22). (10)

The FBs included food, insects, toys, buttons, pieces of crayon, clay, beads and small button-shaped batteries, coins, pieces of jewelry, and tools.⁽²⁾ The commonest FBs removed were coins (n=77, 71.9%), followed by batteries (n=6, 5.6%), plastic toys (n=5, 4.7%), buttons (n=5, 4.7%), (3)

The severity of the presenting symptoms is dependent on the position of the object in the aerodigestive tract, the size and type of the object, the length of time the object has been ingested or inhaled, and the age and size of the child. Symptoms can be caused by either acute occlusion of airways or intestinal lumens, or complications resulting from the action of the object on the body tissue and fluids. The symptoms can often be non-specific or difficult to elucidate precisely. For this reason, if the event was not witnessed or the child is not able to communicate the event, the diagnosis can be delayed significantly. Foreign body ingestion and aspiration can also present in a subacute manner as a result of complications. Because of the variety of potential presentations and symptom severity, the child's condition must be determined by a thorough clinical assessment..⁽⁸⁾

To increase the likelihood of identifying foreign body ingestion and aspiration, healthcare professionals should maintain a high index of suspicion, be aware of the variation in presentations and include it as a differential diagnosis in children presenting with non-specific symptoms, such as fever, cough, drooling, dysphagia and abdominal pain.

The diagnosis of an FB in the aerodigestive tract may be challenging because of the difficulty in obtaining a reliable history from the child. The timely recognition of aspiration or ingestion relies heavily on clinical suspicion. Symptoms are mild or even absent in 40% to 60% of patients. Eighty percent of the asymptomatic patients have normal findings on physical examination. Twenty to 25 percent of FB events are not witnessed In one report, 15% of children evaluated by an emergency medicine physician for choking were not

recognized as FB victims. FBs persisted undetected in these children for 7 or more days, not suspected by caretakers, parents, or the physician. The clinician has a limited amount of data available when evaluating these patients. Therefore, a high index of suspicion for FB ingestion and aspiration must always be maintained(5)

Early recognition is crucial to successful management of foreign body ingestion and aspiration, including a prompt referral for medical assessment. The history should include gathering as much information as possible about the type of object ingested or aspirated and how long ago this occurred. The requirement for a detailed history is often compounded by the lack of specific signs of ingestion or aspiration on examination. Examination is usually normal unless there are signs of complications present, such as abdominal obstruction. Plain radiographs of the neck, chest and upper abdomen are recommended if foreign body ingestion or aspiration is suspected. Although most objects can be identified from the frontal view, the lateral view will determine the position of the foreign body in the trachea or esophagus. It should be noted that in one study of 325 children with confirmed foreign body ingestion, only 64% (n=208) of the objects were radiopaque (Arana et al 2001). If the object ingested or aspirated could be radiolucent, then laryngoscopy or endoscopy should be considered. Practitioners should remain alert to the symptoms of aspiration and ingestion, even when radiographs are negative(8)

2.1 Conceptual Framework

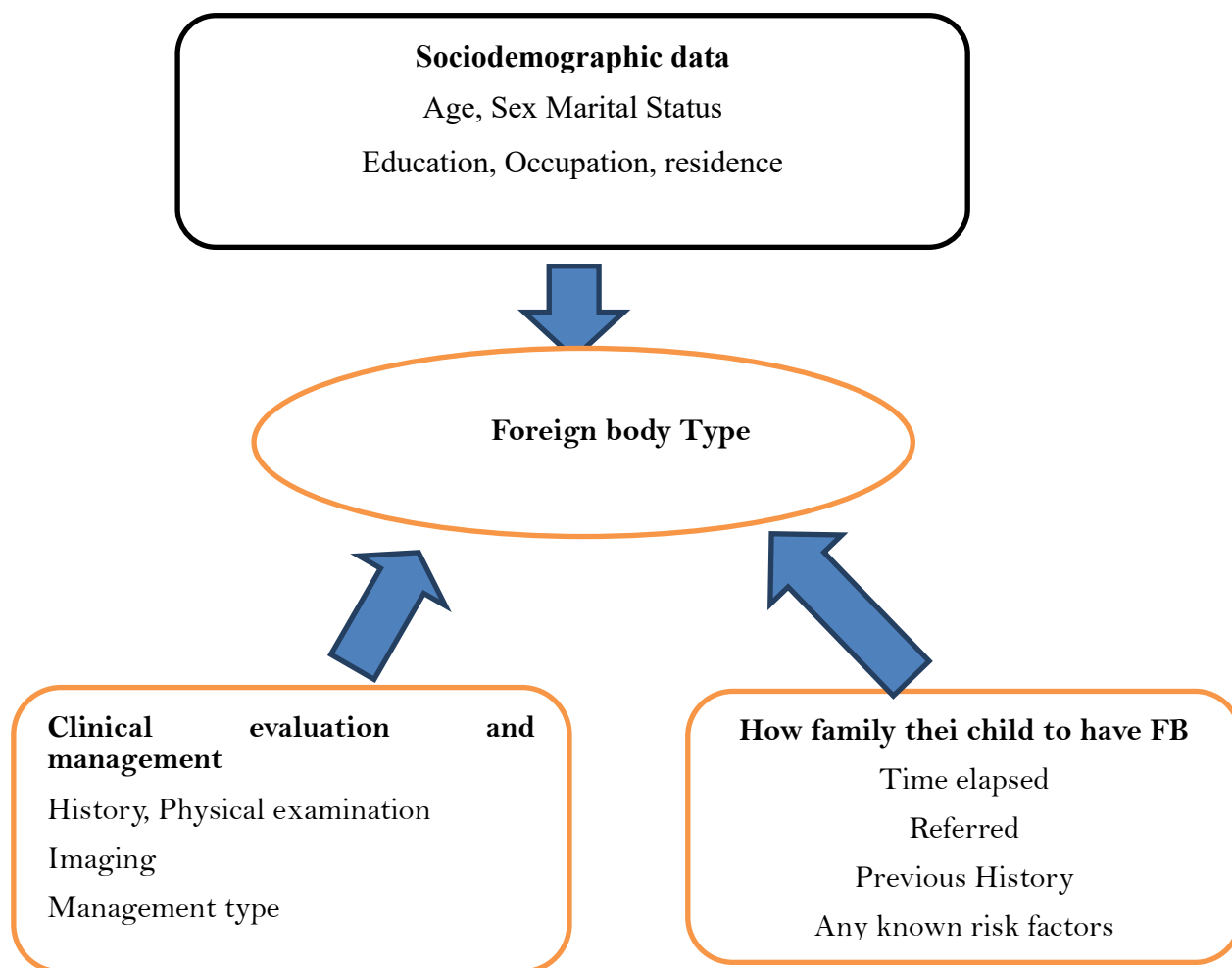


Figure 1 conceptual framework for pattern, associated factor and management outcome of pediatrics patients with foreign body visiting JMC jimma zone southwestern Ethiopia 2022(developed by reviewing different kinds of literature

Chapter Three; Objectives

3.1 General Objective

To analyze the Pattern, associated risk factors and management outcome of pediatric patients with foreign body visiting JMC January - December 30, 2021

3.2 Specific Objectives

- ★ Describe the sociodemographic characteristics of pediatric patients with FB visiting pediatric surgery unit of JMC in the period January 1,2021 - December 30, 2021, Jimma zone, Oromia region, Ethiopia
- ★ To analyze the clinical Pattern of pediatric patients with FB visiting pediatric surgery unit of JMC in the period of January 1,2021 - December 30, 2021, Jimma zone, Oromia region, Ethiopia
- ★ To evaluate the Management and management outcome of pediatric patients with FB visiting pediatric surgery unit of JMC in the period January 1.2021 - December 30, 2021, Jimma zone, Oromia region, Ethiopia
- ★ Determine risk factor associated with location of FB of in pediatric patients with FB visiting pediatric surgery unit of JMC in the period January 1,2021- December 30, 2021, Jimma zone, Oromia region, Ethiopia

Chapter Four: Methods and Materials

4.1 Study Area and Period

This study was carried among all pediatric age group patient visiting JMC with suspected foreign body during the study period which starts from may1 2021, Jimma zone, Oromia region, Ethiopia.

JMC is located in Jimma town in southwest of Ethiopia and 357km from Addis Ababa. It is the only government health facility providing specialized orthopedic and trauma management in the western and south western part of Ethiopia.it has a population (catchment area) of about 20 million and receives referred patients from western, south western Ethiopia and even south sudan. There are two pediatric surgeons and with general surgery residents, pediatric surgery side is established. The pediatric surgery unit ward has 32 beds, and the unit holds a follow-up clinic 1 day each week and operation are conducted on four days of a week

4.2 Study Design

The study a hospital based cross sectional study which was carried out among all pediatric age group patient visiting JMC with suspected foreign body during the study period which started from January - December 30, 2021, Jimma zone, Oromia region, Ethiopia.

4.3 Population

4.3.1 Source Population

All pediatric age group patient visiting JMC with suspected foreign body during the study period which starts from January 1, 2021- December 30, 2021, Jimma zone, Oromia region, Ethiopia

4.3.2 Study Population

All pediatric age group patient visiting JMC with suspected foreign body during the study period which starts from January 1, 2021- December 30, 2021, Jimma zone, Oromia region, Ethiopia

4.4 Eligibility Criteria

4.4.1 Inclusion Criteria

- All patients under 15 years old with foreign body aspiration, ingestion or in nose and ear who are evaluated and managed in JMC in the study period

4.4.2 Exclusion Criteria

- children whose age is more than 15 years
- Participants who are not volunteer to give response

4.5 Sample Size Determination and Sampling procedure

All pediatric age group patient visiting JMC with suspected foreign body during the study period from January 1, 2021- December 30, 2021, Jimma zone, Oromia region, Ethiopia

4.5.1 Sample Size Determination

all pediatric age group patient visiting JMC with suspected foreign body during the study period. from January 1, 2021- December 30, 2021, Jimma zone, Oromia region, Ethiopia will be included in the study

4.5.2 Sampling Procedure

all pediatric age group patient visiting JMC with suspected foreign body during the study period from January 1, 2021- December 30, 2021, Jimma zone, Oromia region, Ethiopia will be included in the study

4.6 Study variable

4.6.1 Dependent Variable

- Foreign body location

4.6.2 Independent Variable

- Socio-demographic variables (sex, age)
- Clinical variables (Sign and symptoms, materials used, Findings during physical examination, Health status, home based care/intervention).

4.7 Data collection Tools and procedures

4.7.1 Data collection instrument

Data was collected using a structured questionnaire on age, sex, address of the patient; time elapsed before presenting to the hospital, type and location of the FBs, diagnostic tests, treatment techniques utilized and outcome of the treatments. Complications developing during and after procedures were also recorded. The FBs locations were recorded as airway, GIT and nose and ear depending on the radiological or treating physician impression finding

At our institution, most esophageal FB extraction was performed by senior general surgery residents using either McGill forceps or Foley's catheter method. Paediatric surgeon or pediatric surgery fellow were consulted for sharp objects, radiolucent objects, long stay coins or failed McGill or Foley catheter procedure for endoscopic evaluation and removal

The survey questionnaire was constructed in English but the interview part was interpreted to the local language of the participant by the data collector

The survey questionnaire has two parts

- **Part one** -contain sociodemographic characteristic of the child
- **Part two** -contain clinical evaluation and management based on the location (aspiration, ingestion and ear and nose)

4.7.2 Data collection procedures

A two days training was given for all surgical residents and nurses in orthopedic ward of JUMC who are going to be involved in the study on the importance of the research and on interviewing, data collection, follow-up and reporting. .

After having consent, a patient had a unique ID number that will be used to identify him/her throughout the study time. Data collection was conducted while the patient presented to pediatric surgery side with suspected foreign body by surgical residents attaching on pediatric surgery side by interviewing, evaluating the patient and reviewing patient's folder. Each questionnaire was given to the principal investigator while complete and finally, the questionnaire was compiled based on the id number of the patient.

4.8 Data Quality Control Measures

Data quality was controlled through continuous supervision during data collection. All completed data collection forms were examined for completeness and consistency during data management, storage and analysis. The data was entered and cleaned by principal investigator before analysis.

4.9 Data Processing and Analysis

The data was be coded, entered, cleaned, and analyzed using SPSS® Statistics, version 23 for Windows. Descriptive statistics was conducted using frequencies and proportions. Results obtained were presented in tables. Descriptive statistical methods were used to summarize data on socio-

demographic and clinical characteristics. The chi-square (χ^2) test was used for statistical analyzing the relation between location of FB and other factors. A 'P' value less than 0.05 was considered as statistically significant.

4.10 Ethical Consideration

Ethical clearance was obtained from Institutional Review Board (IRB), Institute of Health Science, Jimma University. After a brief explanation of the research, verbal consent was obtained from each study client. The name of the patient was not entered into the questioners and all information obtained was kept confidential. While approaching the respondents, necessary personal protective measures (wearing masks, using sanitizer, and keeping social distancing) were taken to reduce the risk of transmission of COVID19.

4.11 Dissemination of Findings

The finding of this research will be submitted in hard and soft copy to Jimma University, Institute of Health, Faculty of Public Health Department of Health Policy and Management, Research and publication office, Library catalog. It will be disseminated to local authorities after the approval of the department and effort will be made to publish the results in relevant peer-reviewed journals.

4.12 Operational definition

- ★ **Foreign body (FB)** : A foreign body (FB) is any object in a region it is not meant to be, where it can cause harm by its mere presence if immediate medical attention is not sought
- ★ Pediatrics whose age is less than or equal to 14 years Children were aged 12 years or under.
- ★ **Hospitalization or admission** is defined as patients stayed in hospital beds and received treatment for more than 12 hours.
- ★ **Natural orifice** including airway, GIT, ear and nose
- ★ **respiratory tract** was defined as extending from the trachea to the bronchioles of the lungs,
- ★ **digestive tract** as extending from the oesophagus to the rectum
- ★ **A bezoar** is a tight collection of undigested material that may often present as a gastric outlet or intestinal obstruction. These can include lactobezoars, phytobezoars, or trichobezoars

Chapter Five: Results

5.1 Participant Socio-demographic Characteristics

A total of 84 patients with FB were approached for enrolment in the study. The overall age of the sample ranged from 1 to 12 years with the average age of 3.66 years. Majority of the patients (64.3%: n=54) were in the age of 1-4 years, followed by the age >4 years (n=22:26.2%). Only n=8 (9.5%) patients were below the age of 1 year. From the study population, majority (52.4%; n = 44) of the participants were females and male participants accounts for n=40 (47.6%) (Table 1)

Of the children with FB, (n=70; 83.3%) of them are living with the family and (n=13; 15.5%) live with their relatives. Off the family of study population, (n=73; 86.9%) are married and (n=11; 13.1%) are divorced. Based on the number of siblings in the family (n=44; 52.4%) have children from 3-6 and (n=39; 46.4%) have children less than 3 (Table 1)

Of the family of study population, farmers cover the majority (n=33; 39.3%) followed by government employee (n=24; 28.6%) and merchants (n=15; 17.9%). (Table 1). twenty six percent (n=22) of the care giver have no formal education and 20.2 % (n=17) attended until elementary school while 19 %: (n=16) had educational level above high school. (Table 1)

Based on the address where the children come from Jimma town contributes for (n=30; 35.7%) followed by Jimma zone (n=28; 33.3%) and out of Jimma zone contributes (n=26; 31%) (Table 1)

Table 1 socio demographic characteristics of all pediatric patient with FB visiting pediatric surgery unit of JMC jimma zone, Oromia Region, Ethiopia (n=84)

variables		N%
Gender	male	40(47.6%)
	female	44(52.4%)
age	<1 year	8(9.5%)
	1-4 year	54(64.3%)
	>4 year	22(26.2%)
child is living with	Family	70(83.3%)
	Relative	13(15.5%)
	other	1(1.2%)
Number of siblings	<3	39(46.4%)
	3-6	44(52.4%)
	>6	1(1.2%)
Family Marital status	Married	73(86.9%)
	Divorced	11(13.1%)
family Occupation	housewife	9(10.7%)
	Farmer	33(39.3%)
	Merchant	15(17.9%)
	Government employee	24(28.6%)
	Other	3(3.6%)
Attendant Educational level	No formal education	22(26.2%)
	Can read and write	15(17.9%)
	Elementary (1-8)	17(20.2%)
	High school (9-12)	14(16.7%)
	Above high school	16(19.0%)
address	Jimma town	30(35.7%)
	Jimma zone	28(33.3%)
	Out of Jimma zone	26(31.0%)

5.2 Pattern of the location of all FB cases based on Age

The Commonest age affected was **1-4 years (64.3%: n=54)**, followed by the age >4 years (n=22:26.2%). In the age of 1-4 years, the commonest FB based on location was **FB in the ear and nose** which is n=32(59.3%). In the age of **>4years old** majority of the FB was in respiratory system n=11(50%) followed by FB ingestion n=10(45.5%) (Figure 2)

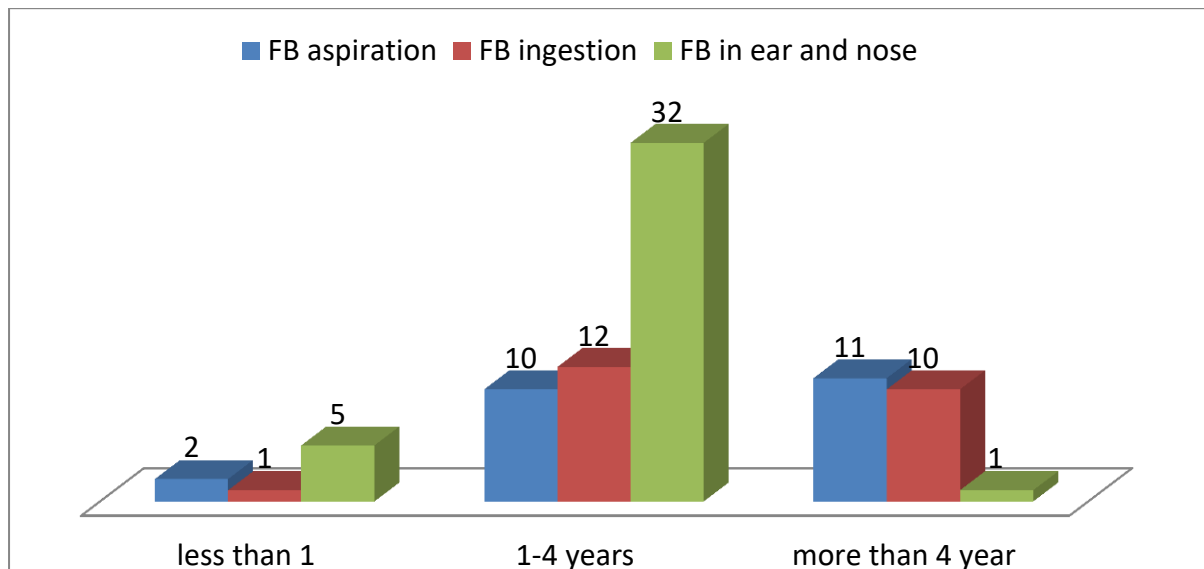


Figure 2 Age distribution of All pediatric with FB based on location of FB

5.3 Pattern of the location of all FB cases based on Sex

From the study population, based on the gender of the participant, the commonest affected were females n=44(52.4%) and **in both gender** the commonest FB reported was FB in the ear and nose n=18(40.9) in females n=20(50%) in males. (Figure 3)

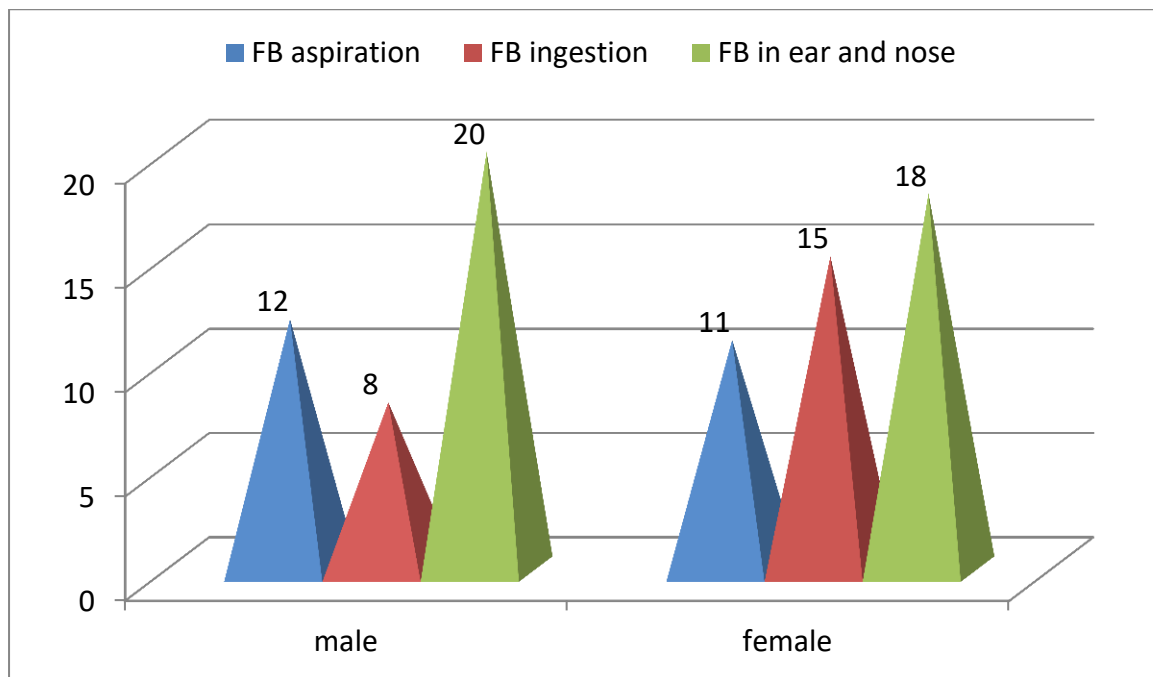


Figure 3 Pattern of location of FB based on Gender

5.4 Clinical characteristics of all FB cases based on location

From the total of 84 patients with FB the family knows the child to have FB when child told them n=29 (34.5%) followed by witnessed by family n =27 (32.1%) and n=8 (9.5%) participants developed illness that makes them to visit health institution. From this cases foreign body in the aerodigestive tract contributes the majority n=6(75%)..Before visiting health facilities, n=39(46.5%) participants reported that they tried homemade possible solutions to remove the FB (Table 2)

From the total of 84 patients with FB approached for enrolment in the study,. majority of the patients: n=53 (63.1%) were referred from another health institution and from the referred cases, FB in aerodigestive tract contributes the majority (n=36:67.9%).(Table 2)

Based on the time elapsed to reach to JMC n=40(47.6%) participants took less than 24 hours and n=26 (30.9%) cases presented to JMC after 3 days. Based on the time elapsed to reach to JMC, FB in the ear and nose contribute the majority n=26 (65%) to reach within 24 hours and FB in the aerodigestive tract contribute the majority of cases n=17 (65.4%) to reach after 3 days(Table 2)

From the study population n=14 (16.5%) participant reported a previous history of FB in the family members, but no cases were identified to have possible risk factor for FB (Table 2)

Table 2 clinical characteristics of all FB cases based on location of Pediatrics patients with FB visiting pediatric surgery unit of JMC January 2022 Jimma Zone, Oromia Region, Ethiopia (N=84)

Clinical characteristics		Total n(%)	Aerodigestive n(%)	Ear and nose n(%)
how family know their child got FB	attendant witnessed	27(32.1%)	14(51.9%)	13(48.1%)
	child told the family	29(34.5%)	18(62.1%)	11(37.9%)
	Someone told the family	20(23.8%)	8(40%)	12(60%)
	the Child become sick	8(9.5%)	6(7.5%)	2(25%)
sick any kind of solution before coming to the hospital	no	45(53.5%)	25(55.6%)	20(44.4%)
	yes	39(46.5%)	21(53.8%)	18(46.2%)
is the patient referred	yes	53(63.1%)	36(67.9%)	17(32.1%)
	no	31(36.9%)	10(32.3%)	21(67.7%)
Time elapsed until presentation to hospital	Less than 24 hours	40(47.6%)	14(35.14%)	26(65%)
	24-48 hours	18(21.4%)	15(83.3%)	3(16.7%)
	More than 48 hours	26(30.9%)	17(65.4%)	9(34.6%)
Family with FB	No	70(83.3%)	38(54.3%)	32(45.4%)
	yes	14(16.6%)	8(57.1%)	6(42.9%)

5.4 Clinical evaluation and management based on location

From n=84 FB cases enrolled in the study period The commonest location was in the ear and nose contributes for n=38(45.25%) followed by equal proportion of FB aspiration and ingestion contributing n=23(27.4%) and FB (Table 3)

5.4.1 Clinical evaluation and management for FB aspiration

All of 23 patients on the study period were symptomatic and imaging was done. Based on imaging finding n=9(39.1%) of the imaging was normal and the commonest radiologic abnormality reported include FB opacity n=6(26%), followed by lung collapse n=5(21.7%),(Table 3)

In relation to the management type broncoscopic removal was the commonest done n=20(86.9%) followed by laryngoscopy evaluation with McGill forceps removal n=2(8.7%).Surgical removal with thoracotomy was done for 1 patient, all of the management were success but in 1 case FB not found.(Table 3)

From the, aspirated FB, the commonest location was on right main bronchus n=12(52.1%) followed by left main bronchus n=6(26%), and laregeotracheal n=5(21.7%).The commonest type of FB aspirated was seeds n=9(39.1%) followed by food particles and any metal or plastic contributing n=6(26%) each (Table 3)

From 23 patients with FB aspiration n=9(39.1%), reported to have complication and the commonest reported complication was aspiration pneumonia which occurred in n=8(34.7%), and 1 patient developed .ARDS from those patients reported to have complications, 4 n=4(17.4%) were admitted to ICU (Table 3)

5.4.2 Clinical evaluation and management for FB ingestion

From 23 patients with FB ingestion cases on the study period n=7(30.4%), were asymptomatic and imaging wasn't done for n=5(21.7%).For those participants who had imaging n=3(13%), was normal and the commonest radiologic abnormality reported was FB opacity n=15(65.2%)(Table 3)

In relation to the management type of the cases, the commonest procedure done was laryngoscopic evaluation with McGill forceps removal n=12(52.1%) followed by folley

ballon extraction n= 9(39.1%) All n=22(95%) of the management were success but in 1 case FB not found (Table 3)

From the ingested FB, the commonest location was on upper esophagus n=19(82.6%), followed by mid esophagus n=4(17.4%) The commonest type of FB found was coin n=14(16.9%) followed by other particles n=4(17.4%) which include leech and charcoal (Table 3)

5.4.3. Clinical evaluation and management for FB ear and nose FB

From 38 patients with FB in the ear and nose cases on the study period n=23(60.5%), were asymptomatic In relation to the management type of the cases, the commonest procedure was done with the help of OR materials including artery and pickup forceps n=18(47.4%) followed by modification of non-OR materials n= 17(44.7%).Otoscope was used in n=3(7.9%). (Table 4)

The commonest type of FB found was seeds n=20(52%) followed by food particles and any metal or plastic contributing n=8(21%) each (Table 3)

From 38 patients with FB in the ear and nose n=3(7.9%), reported to have complication and the commonest reported complication was Tympanic membrane rupture in two patients and otitis media in one patient (Table 3)

Table 3 Clinical evaluation and management of all FB cases based on location among pediatric patient with FB visiting surgery unit of JMC January 2022 Jimma Zone, Oromia Region, Ethiopia

Clinical variables		Aspiration(n=23)	Ingestion(n=23)	Ear & nose(n=38)
clinical presentation	asymptomatic	0	7(30.4%)	23(60.5%)
	symptomatic	23(100%)	16(69.6)	15(31.25%)
Imaging	Not done	0	5(21.7%)	-
	normal	9(39.1%)	3(13%)	-
	Atelectasis and lung collapse	5((21.7%)	-	-
	FB opacity	6(26.0%)	15(65.2%)	-
	hyperinflation	3(13%)	-	-
Management type	rigid bronchoscopy	20((86.9%)	2(8.7%)	-
	McGill forceps.	2(8.7%)	12(52.1%)	-
	Surgical thoracotomy	1(4.3%)	-	-
	Foley ballon extraction	--	9(39.1%)	
	OR materials(artery and forceps)	-	-	18(47.4%)
	Modified non OR instruments	-	-	17(44.7%)
	Otoscope	-	-	3(7.9%)
location	Larengotracheal	5(21.7%)	-	-
	Rt main bronhus	12(52.1%)	-	-
	Left main bronhus	6(26%)	-	-
	Upper esophagous	-	19(82.6%)	-
	Mid esophagous	-	4(17.4%)	
Type of material	seed	9(39.1%)		20(52. %)
	Food particle	6(26%)	2(8.7%)	8(21%)
	coin	-	14(60.9%)	-
	Any metal or plastic	6(26%)	3(13%)	8(21%)
	other	2(8.7%)	4(17.4%)	2(5.2%)
Management outcome	successful	22(95%)	22(95%)	38(100%)
	foreign body not found	1(5%)	1(5%)	-
complication	no	14(60.8%)	23(100%)	35(92.1%)
	yes	9(39.1%)	0	3(7.9%)

Others include leech, cockroach, stone

5.5 Factors associated with the location of FB

There is a significant association between age and the location of FB (χ^2 -19.95 and P-value <0.01).The age group of 1-4 year is the commonest age affected and the commonest FB in this age group is FB in the ear and nose n=32(59.3%).Also in the age group of >4 years aerodigestive FB is more common n=21(95.5%) than FB in the ear and nose n=1(4.5%) (Table 4)

There is a significant association between the time elapsed to reach to JMC and the location of FB (χ^2 -13.4 and P-value <0.01).Most of the patients arrived to JMC in 24 hours (FB in the ear and nose n=26(65%) and aerodigestive FB n=14(35.5%).From those who arrived to JMC after 48 hours aerodigestive FB is more common n=17(65.4%) than FB in the ear and nose n=9(34.6%) (Table 4)

There is a significant association between the clinical presentation of the study cases and the location of FB (χ^2 -18.6 and P-value <0.01).Most of the patients were symptomatic (FB in aerodigestive n=39(72.2%) and ear and nose n=15(27.8%).FB in the ear and nose were the commonest to be asymptomatic n=23(76.7%) (Table 4)

There is a significant association between type of FB and the location of FB (χ^2 -19.48 and P-value <0.01).Seed is the commonest FB affecting ear and nose n=20(69%) and aerodigestive n=9(31%).Also food particles is the second commonest FB material affecting both locations equally n=8(50%) for each. (Table 4)

There is a significant association between complications due to FB and the location of FB (χ^2 -6.45 and P-value <0.01).most of the complication occur in aerodigestive FB n=12(85.7%).(Table 4)

Table 4 Factor associated with the location of FB among pediatric patients with FB visiting pediatric surgery unit of JMC January 2022 Jimma Zone, Oromia Region, Ethiopia

Variables		Location of FB		X ²	P-value
		Aerodigestive FB	Ear and nose FB		
		N (%)	N (%)		
age	Less than 1 year	3(37.5%)	5(62.5%)	19.95	<0.01
	1-4 year	22(40.7%)	32(59.3%)		
	More than 4 years	21(95.5%)	1(4.5%)		
Time elapsed to reach JMC	Less than 24hours	14(35.5%)	26(65%)	13.421	<0.01
	24-48 hours	15(83.5%)	3(16.7%)		
	More than 48 hour	17(65.4%)	9(34.6%)		
Clinical presentation				18.6	<0.01
	symptomatic	39(72.2%)	15(27.8%)		
	asymptomatic	7(23.3%)	23(76.7%)		
Type of FB	seed	9(31. %)	20(69%)	19.48	<0.01
	Food particles	8(50%)	8%(50%)		
	coin	14(100%)	0		
	Any plastic or metal	9(52.9%)	8(47.1%)		
	other	6(75%)	2(25%)		
complication	no	34(48.6%)	36(51.4%)	6.497	<0.011
	yes	12(85.7%)	2(14.3%)		

Others include leech, cockroach, stone

Chapter Six: Discussion

6.1 General consideration

A foreign body (FB) is any object in a region it is not meant to be, where it can cause harm by its mere presence if immediate medical attention is not sought(1)They are common and serious health problems affecting the world (2)also, they are common in developing countries (3)(4)

Most studies reported that the most vulnerable age is between six months and four years(2)(9)Our finding is consistent with the above finding where majority of the patients (64.3%: n=54) were in the age of 1-4 years,. Also, in study performed in Poland and Iran the mean age of the patients was 4.6 and 3.61 years respectively which is comparable with our study in which the average age of 3.66 years(2)(9)

From our study population, majority (52.4%; n = 44) of the participants were females and male participants accounts for n=40 (47.6%).our finding is different from findings of several studies, for instance, in Finland and South Africa studies reported 60.5% and 51.30% of the patients to be boys. (10)(3)

The commonest location affected by FB in our study population are ear and nose contribute for n=38(45.25%) followed by equal proportion of FB aspiration and ingestion contributing n=23(27.4%) for each. This finding is comparable with study done in Mekelle, where ear and nose contribute for n=55(76%) and followed by FB in esophagus n=17(23.6%)(12) Additionally few studies with a larger sample size showed similar findings, like a study done in Poland showed of n=849 confirmed foreign bodies cases, n=611(71.9%) were located in the external auditory canals followed by n=142(16.7 %) in the esophagus and n=96(11.3%) in the tracheobronchial tree,(2)

Geographical differences have been noted on the type of FB. For aerodigestive foreign bodies, In the 2007 CDC annual report, 60% of choking episodes treated were due to food substances, with 30% due to a nonfood substance. In our study, n=45(53.5%) was due to food substances. Sunflower seeds are the most common aspirated in the USA, yet watermelon seeds are much more common internationally(5) which is comparable with our finding in which seeds of any type contribute for the majority of FB (34.5%: n=29), but unlike our finding a study done in Finland reported various household items were the most common foreign bodies (33.6%, N=51) (10)

6.2 Foreign body aspiration

Many studies reported that most of patient with FB aspiration present after being symptomatic with sudden onset of cough and stridor. (5)(11) this report is consistent with our finding in which all of 23 patients on the study period were symptomatic at presentation Based on imaging finding of our study cases, n=9(39.1%) of the imaging was normal which is comparable with several studies finding which reported 56%,45.3% 41% of cases to have normal x ray finding. (5)(11)(13).from the 23 cases with FB aspiration, N=14(60.86%) had abnormal finding and the commonest radiologic abnormality reported include FB opacity n=6(26%),followed by lung collapse n=5(21.7%),study done on FB aspiration in AAU showed that, n=53(35.4%) have abnormal finding. n=6(4%) Of children have collapsed lung finding(11)

Rigid bronchoscopy is the gold standard and the most commonly used tool for retrieval of foreign bodies..(14)For the management of our study population broncoscopic removal was the commonest done n=20(86.9%) which is comparable with the management done in AAU in which bronchospcic management contribute for 93.3% of the cases (11)

Based on our study finding, the commonest location of aspirated FB was main bronchus contribute for the majority n=18.(78%){rt main bronchus n=12(52.1%),left main bronchus n=6(26%0},followed by laregeotracheal n=5(21.7%).Also, other articles showed similar finding including study done in AAU (bronchus n=25(16.3%) and trachea n=17(11.3%) and study done in united states of America showed the right main bronchus to be the most common location (n = 32, 46%), followed by the left main bronchus (n = 22, 32%).(11)(13)

In our study, the commonest type of FB aspirated was seeds n=9(39.1%) followed by food particles and any metal or plastic contributing n=6(26%) each. This finding is similar with study done in AAU(crops / seeds which accounted n=54(36.0%) and Plastic and metallic materials n=44(29.3%) & n=28(18.7%) respectively.(11) Also, study done in Iran found that the most common aspirated FBs were seeds in n=44 (44.9%) and food particles in n=9 (8.6%)..(9)

From 23 patients with FB aspiration n=9(39.1%), were found to have complication and the commonest complication was aspiration pneumonia which occurred in n=8(34.7%), in study done in Iran complications related to FB aspiration were detected in n=30 (30.6%) and

Inflammation of the respiratory tract is the commonest complication reported n=25 (25.2%) which is comparable with our study (9)

6.3 Foreign body Ingestion

The symptoms of foreign body ingestion are highly variable and largely dependent on the size and shape of the object, its location, and the duration of time that it has been retained. Up to 50% of children with known foreign body ingestion are asymptomatic. (8) From 23 patients with FB ingestion cases on the study period n=16(69.6%) were symptomatic while n=7(30.4%), were asymptomatic. The finding of a study done in AAU and Iran found less asymptomatic cases compared to our finding (1.2%,8.4%)respectively (15)(9).But more asymptomatic cases were reported in other studies done in south Africa and Thailand (52%,44.3%) respectively. (16)(17).

From 23 patients with FB ingestion cases on the study period imaging wasn't done for n=5(21.7%) For those participants who had imaging n=3(13%), were normal and the commonest radiologic abnormality reported was FB opacity n=15(65.2%)In a study done in AUU all patients were x-rayed and n=80(94.1%) of them were radio opaque.(15)

The vast majority of FBs that are ingested by children are not retained in the esophagus. In one study, 60% of patients found to have the FB in their stomach.(5) Unlike the above finding, in our study all of the FB were in esophagus. Also, our finding is different from several findings those reported esophagus to be the commonest location but other location having significant contribution. For instance, in a study done in Iran, most common site was the esophagus(48.8%) followed by the stomach 15.5%(9) and another study reported most objects found in the esophagus (37%) and stomach (29.2%),(17)

in our study finding all of FB ingestion, the commonest location in esophagus in upper esophagus n=19(82.6%), followed by mid esophagus n=4(17.4%)our finding is comparable with other finding reporting upper esophageal sphincter in 60% to 75% and 10% to 20% in the mid-esophagus,.(18).(19). In the study done in AAU n= 67 (78.8%) FBs were lodged in the proximal esophagus, n=11 (12.9%) in middle esophagus, n=1(1.2%) (15) while a study done in Benin reported , ingested FB to be located in cervical esophagus in 75.68%. (20)

The most common type of FB varies by geographic region. In the USA and Europe, coins are the most common. However, in areas of the world where fish contributes a significant portion of the diet, such as in Asia, a fish bone may be the most common FB ingested in

children.(19)while a range of objects ingested have been reported, most literature reviews conclude Coins are the most common esophageal foreign bodies, comprising up to 80%of items retained in the esophagus. (14)In our study population, the commonest type of FB found was coin n=14(60.9%) followed by other particles n=4(17.4%) which include leech and charcoal. Similarly other studies done in Mekelle and AAU found that coin is the most common material contributing for 88.2% and 84.7% of ingested materials respectively (12)(15)

The treatment of an esophageal foreign body depends on what the object is, where it is located, and what symptoms the child is having. Approximately 10-20% of foreign body ingestions require endoscopic removal and less than 1% will need surgery(8)In relation to the management type of our study cases, the commonest procedure done was laryngoscopic evaluation with McGill forceps removal n=12(52.1%) followed by folley ballon extraction n= 9(39.1%).in a study done in AAU, McGill forceps was used in 53(62.4%), Foley catheter method in 15(17.6%) and rigid oesophagoscopy in 9(10.6%) which is comparable with our management types.(15)

6.4 FB Ear and Nose FB

FB in the ear and nose should be removed by careful but different techniques depending on the type and the clinical condition at time of intervention. A study done in Mekelle reported successful removal of all FB using Agraff, malleable wires, artery forceps and irrigation for foreign bodies in ears.(12)this study is similar with ours in which the commonest procedure was done with the help of OR materials including artery and pickup forceps and by modification of non-OR materials

The commonest type of FB found was seeds n=20(52%) followed by food particles and any metal or plastic contributing n=8(21%)each which is consistent with the finding of study done in Mekelle. (12)

Strength And Limitation of The Study

Strength

- Considering the time range in which the study was conducted, it was done for relatively extended period-one year
- data collection was by surgical residents which make the data standard and clinically reliable
- Data collected is a primary data because it was collected at the time of patient evaluation and management so good to get detail and extensive information
- The study was done for all possible types of FB so it will help to compare and analyze the difference
- To the best of our knowledge, such study is the first in its type in the nation and also in this institution so it will be a reliable baseline for decision making and future studies

Limitations of the study

- ?? Relatively small sample size make result challenging for extensive analysis

Chapter Seven: Conclusion and recommendation

7.1 Conclusion

- Based on the findings of our study, from the total of n=84 pediatrics cases with FB visiting JMC majority of the patients were in the age of 1-4 years and females The commonest location was in the ear and nose and the commonest foreign body found was seeds
- Also, our finding elucidates important factors associated with location of FB showing a significant association between the location of FB with age, clinical presentation, type of FB and complications due to FB

7.2 Recommendation

- A foreign body (FB) is common and serious health problems affecting the world and are common pediatrics emergency cases visiting JMC. It will remain a problem as long as children remain naturally curious.

★ FOR SURGEONS AND PEDIATRICIANS

- We need to keep in mind that the timely diagnosis of foreignbody in pediatrics relies **heavily on high index clinical suspicion**
- We must be aware of the **variation in presentations** and include it as a **differential diagnosis in children presenting with non-specific symptoms**, such as fever, cough, drooling, dysphagia and abdominal pain.
- **Guidelines for management of FB** should be prepared and implemented to avoid misdiagnosis and management

★ FOR THE HOSPITAL ADMINISTRATOR

- **It** is important to raise awareness in the public about the **burden of the case and possible ways prevention** through educational campaigns

- **FOR THE GOVERNMENT** -To find possible modification on common materials at risk to be FB. for instance, **the size of coin can be increased or decreased**

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Annexes

QUESTIONNAIRE

Pattern, associated risk factors and management outcome in pediatric patients with foreign body visiting JMC, April 2021

❑ Information Sheet and Oral Consent Form

We are interviewing attendants of pediatric patients who have suspected foreign body and visited JMC. It is aimed to find out the pattern and associate risk factors for foreign body in paediatric age groups. We would like to assure you that your child name will not be mentioned in the questionnaire and the information that you give us will be kept confidential and only used for research purposes. You have a full right to refuse to take part or to interrupt the interview at any time.

But the information that you will give us is quite useful to achieve the objective of the study and to find out the pattern and associate risk factors for foreign body in pediatric age groups who visit JMC pediatrics surgery side, in Jimma zone-Oromia region. We hope it will be an important adjunct to identify areas of development to enhance effective health care, policy formulation and implementation. It may also serve as a baseline data for other study of similar kind.

- a. Are you willing to participate in the study? 1) Yes____ 2)No_____
- (If yes, thank the patient and put your signature. Then conduct the interview. Otherwise, the patient is not forced to participate)

❖ I [.....] confirm that I have fully explained the purpose of the study to the study participant who is consenting.

Name of Data Collector _____ .Signature _____ Date:_____

❖ Contact Person:Dr. Netsanet S, PI, , Tel: +251923484893 email-netsanetmilena@gmail.com

Any remark

Name and signature of the data collectors_____

Part one - sociodemographic and patient characteristics

I. Patient identification

- Date of arrival_____
- Date of interview_____
- ID number_____
- Card number_____
- phone number_____
- Adress(woreda)_____

II. Socio demographic data

- ❖ Age _____
- ❖ Sex a) M____ b) F____
- ❖ With whom is the child is leaving
 - Family
 - Relative
 - neighbor
 - other ,please specify
- ❖ **Number of siblings in the family.....**
- ❖ **Family Marital status**
 - a. Single
 - b. Married
 - c. Divorced
 - d. widowed
- ❖ **family Occupation**
 - a. housewife
 - b. Farmer_____
 - c. Merchant_____
 - d. Government employee_____
 - e. Other_____
- ❖ **Educational level of the mother(attendant)**
 - a. No formal education_____
 - b. Can read and write_____
 - c. Elementary (1-8)_____
 - d. High school (9-12)_____
 - e. Above high school_____
 - f.
- ❖ **Time elapsed between(if <3days please state by hours)**
 - After how many days come to the hospital.....
 - Reaching hospital and removal.....
- ❖ **Did they sick any kind of solution before coming to the hospital**
 - No

- **yes** ,If yes
 - Another health institute
 - traditional healer
 - they tried to remove the FB at home
 - Any other, please specify.....
- ❖ **is the patient referred from another health institute a no b yes**
 - **if yes**
 - a) what is the reason for referral_____
 - b) how many days he stayed there_____
- ❖ **how did the family know that the child got FB**
 - the attendant witnessed it
 - The child told the family
 - Someone other than the family told me
 - The doctor told them
 - he developed symptom of FB or complication
 - Any other, please specify.....
- ❖ **Pervious history of any kind FB of the patient a no b yes**
 - **if yes**
 - where was the location.....
 - what was the Material.....
- ❖ **Is there any family member with FB history a yes b no**
- ❖ **if yes**
 - what is the relation with the patient.....
 - where was the location.....
 - what was the material.....
- ❖ **Any historically identified risk factors for FB**
 - Any feature of growth retardation
 - Any kind of disability or neurologic impairment
 - if yes mention.....
 - seizure disorders
 - Any other, please specify.....

Part II (A) foreign body aspiration

❖ History

★ Chief complaint (please state with the attendants word)

-

★ Presentation symptom of the child

- asymptomatic
- choking episode...yes no
- Cough, ,
- Dyspnea, ,
- Chest pain,
- Blood in sputum,
- Dysphonia or change in voice or cry

❖ Physical examination finding

- normal
- respiratory distress,
- Fever
- wheezing
- reduced breath sounds/air entry

❖ Radiology

- No
- yes, if yes
- neck x ray Finding
 - normal,
 - abnormal please write the finding

.....

➤ CXR

- type (AP or lateral,erect or decubitus inspiration and expiration)
 -
- Finding
 - normal,
 - mediastinal shift,
 - consolidation,
 - pneumonia
 - atelectasis
 - Any other finding please write the finding

.....

...

❖ **Diagnosis**

❖ **Any Dx considered before the Dx of FB**

- No
- Yes if yes what is it.....

❖ **Any complication found**

- **No**
- **Yes** if yes what is that complications
 - persistent cough and atelectasis,
 - Recurrent pneumonia
 - Bronchiectasis.
 - Any other finding please write the finding
-

❖ **Management**

★ **Technique of retrieval**

- Revealed with Careful laryngoscopy and retrieved with McGill forceps.
- flexible bronchoscope to diagnose a FB followed by a rigid bronchoscopy
- rigid bronchoscopy
- Any other finding please write the finding
 -

❖ **Finding**

★ **Location**

- Not specified just said airway
- Laregeotracheal
- Bronchial
- Any other finding please write the finding

★ **Materials...use local terms**

-

★ **Management out come**

- successful
- unsuccessful
- foreign body not found
- dead
- Any other outcome, please specify.....

★ **Any periop complication**

- No
- Yes, if yes what was it.....
- Any ICU admission.....

Part II (B) foreign body ingestion

❖ **History**

❖ **Chief complaint** (please state with the attendants word)

-

❖ **Presenting symptom of the child**

- asymptomatic
- sudden onset of acute and severe coughing
- drooling
- neck and throat pain
- dysphagia
- emesis, vomiting
- Abdominal pain or distention.
- poor feeding
- sensation of something being stuck in the throat
- odynophagia
- Any other finding please write the finding
 -

❖ **any historically identified associated risk factors**

- no
- yes,if yes what was it
 - psychological problems
 - anatomical pathology in the GI tract
 - esophageal pathology (e.g.,strictures),
 - tracheoesophageal malformation
 - Previous abdominal or esophageal surgery (i.e., esophageal atresia)
 - Any other finding please write the finding
 -

❖ **Physical examination,**

- normal physical exam
- respiratory distress,
- wheezing
- crepitus
- Signs of peritonitis.
- Any other finding please write the finding
 -

❖ **Imaging**

❖ **Plain radiographs**

- ❖ no
- ❖ Yes,If yes

❖ **What was the location of the imaging taken**

- neck,
- chest
- abdomen

❖ **What was the finding**

- Type of FB.....
- Location
- Relevant findings.....
- Any complications found.....
 -

❖ **A rigid endoscopic examination(hypopharyngoscopy/ esophagoscopy) done**

- No
- Yes,If yes
 - **what was the reason**
 - the FB was not visible in the X-ray or is radiolucent
 - to determine its site of impaction,
 - to remove FB.
 - **Finding**
 - Type of FB.....
 - Location
 - Relevant endoscopic findings ,.....
 - Any complications found.....

❖ **Diagnosis** _____

—

❖ **Any identified complication**

- No
- Yes if yes what is that complications
 -

❖ **Management**

a) technique of retrieval

- spontaneous passage,

- endoscopic removal(non emergent endoscopy (rigid or flexible)
- Foley balloon extraction with fluoroscopy.
- surgical removal

b) Finding

- **Anatomical Location of the foreign body.....**
 - Esophagus
 - Stomach
 - Small intestine
 - Colon
 - Rectum
 - Any other,please specify

c) Materials (with the local language).....

➤ **Type of FB**

- sharp,
- battery,
- magnet,
- bezoars
- any other,please specify

d) Management out come

- successful
- unsuccessful
- foreign body not found
- dead
- any other outcome, please specify
 -

e) Any periop complication

- **No**
- **Yes,if yes what was the complication.....**
- Any ICU admission a No\ b yes

Part II (C) FB in the nose or ear

❖ **History**

❖ **Chief complaint** (please state with the attendants word)

○

❖ **Presenting symptom of the child**

- No clinical symptom or sign
- If pertinent clinical symptom and sign please mark from the below mentioned

❖ **Presenting signs and symptoms with Ear FBs**

- Pain/discomfort
- difficulty of hearing
- discharges
- bleeding
- Fullness sensation
- If any other, mention it.....

● **Presenting signs and symptoms with nasal FBs**

- Nasal discharge
- Pain
- irritation(tearing)
- air flow obstruction,
- rhinitis, sinusitis,
- lymphadenopathy,
- epistaxis,
- if other mention it

❖ **Diagnosis**

❖ **Any complication found**

- No...
- Yes if yes what is that complications.
 -
 - ..

❖ **Management**

★ **Technique of retrieval.....**

★ **Material(please write it by local language**

-

★ **Management out come**

- successful
- unsuccessful
- foreign body not found
- any other outcome, please specify.....

የፍቃደኝነት መጠየቂያ ቅጽ

እኔ (ዶ/ር ነጻነት ሰለሞን) በጅም ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ የቀዶ ህክምና ትምህርት ክፍል ተመራቂ ተማሪ ስሆን፣ የምሰራው ጥናት የሚያተኩረው በህጻናት ላይ የባለድ ነገር ወደ ሰውነታቸው መግባትን በተመለከተ ማለትም (የጉዳት ዘዴዎች፣ ለጉዳት ሚዳረጉ አካል

ክፍሎች፣ እንዲሁም ተያያዥ የሆኑ አጋላጭ ምክንያቶችን) ሲሆን፣ ይህንም የጥናት ናሙና መሰብሰቡ ለወደፊት የተሻሻሉ ስልቶችን በመቀየስ የዚህን ጉዳት ለመቆጣጠርና የጉዳቱን የከፋ ችግሮች ለመከላከል ይመች ዘንድ ነው።

ስለዚህ እርስዎ በዚህ የጥናት ቃለ መጠይቅ ላይ እንዲሳተፉ የተመረጡት ልጅዎ የዚህ ጉዳት ተጠቂ ስለሆነ ሲሆን በዚህ ቃለ መጠይቅ ላይ የተሰበሰበው የጥናት መረጃ በቂ ህክምና ከማግኘት አያግደዎትም። እንዲሁም በልጅዎ የህክምና መዝገብ ላይ አይሰፍርም። ስለዚህ በፈቃደኝነት ላይ የተመሰረተ ከ15- 20 ደቂቃ የሚሆን ቃለ መጠይቅ ስለማድረግ የእናንተን ፈቃደኝነትና ቀና ትብብር እፈልጋለሁ።

ለመጠይቁ መልስ የመስጠትም ሆነ ያለመስጠት መብት የእርስዎ ነው።

።አጠቃላይ ጥያቄው ከ 15 ደቂቃ በላይ አይወስድም ለዚህ ቃለ መጠይቅ በመሳተፍህወ/ሽ ክፍያ የለውም። በፈለገህ/ሽ ጊዜ ማቆረጥ ወይም ሙሉ ለሙሉ አለማሳትፍ መብቱ ያንተ/ኛ ነው። ግልፅ ነው? (ግልፅ ካልሆነ በመረጃ ላይ የተደገፈ ስምምነቱን ድገም/ሚ)

ለመሳተፍ ተስማምተህል/ሻል? 1. አዎ [] 2. አልተስማማሁም []

የተሳታፊው/ዋ መልስ አልተስማማሁም ከሆነ ውሳኔውን/ዋን አክብረህ/ሽ አመስግነህ/ሽ ሸኝ/ኝ።

ምላሹ/ሷ አዎ ከሆነ ቃለመጠይቁን ቀጥል/ይ።

የጠያቂ ስም _____ ቀን ___ / ___ / ___ ፊርማ _____

Foormii odeeffannoo fi waliigaltee

Hunka walii galtee qorannoo kana keessatti hirmaachuuf guutamu.

Qorannoon kun kan geggeessamuu Giddugala fayyaa jimmaa yuunivarsiitiitti, muummee wal'aansa baqaqsanii yaaluutti barataa ispeeshalayizeeshinii kan ta'an DrNatsaanat Salamon

Qorannoon kun waa'ee ijoollee daa'immaniirratti,wantoonni qaamasaaniitif alagaata'an gara qama isaanii keessa seenuu qorachuu ta'a.(akkaataa miidhaan kun itti dhufuu danda'u,qaamolee miidhaa kanaaf saaxilamoo ta'an,akkasumas wantoota miidhaa kanaaf isaan saaxilan) qorachuu ta,a..

Odeeffannoo nuuf kennitanin qorrannoon kana galmaan gahuuf haalaan nugargaara.Qorannoo kana keessatti maqaa fii fakkiwan eenyumma keessan ibsan tokkoyyuu hinfayadamnu Ichittin dhukkuba keessanii qama biraatiif dabarsamee hin kennamuu

Bu'aan qorannoo kanaa qamolee mootummaa poolisii faayyaa baasaniifi namoota gara fulduratti mataduree kana irratti qorannoo dabalata gagessaniif akka bu'uuratti tajajila akkasumas, namoota gara fuula duraatti rakkoon akkasii isan mudatuuf faayidaa guddaa qaba

Anis barbaachisummaan qorannoo kanaa erga sirriitti natti himamee fi hubadheen booda, qooda akka fudhachuu danda'u fedhii kootiin walii galuu kiyyaa mallattoo kiyyaan arman gaditti nimirkanessa

Hubbannoo: qorannoo kana yoo siif hin mijanne ykn yoon fedhii dhabde, haalduree tokko malee addaan kutuuf mirga keeti. Kunis wallaansa siif kennamurratti dhiibbaa tokkoollee hin uumu.

Mallattoo qooda fudhataa_____

Maqaa dataa sasabduu_____Mallattoo_____

Qorataa:Dr Natsaanat Salamon

Lakk.bilbilaa 0923484893

