



Esophageal Foreign Bodies in Children: A Case Series Study at Nangarhar University Teaching Hospital

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Esophageal Foreign bodies (EFB) constitute a common emergency of otorhinolaryngology practice in children, causing substantial morbidity. A diverse range of objects have been reported as EFBs, with coins representing the most common type in pediatric population, which can cause daring complications, if left untreated. This retrospective study aimed to review the cases of EFBs in children admitted to Nangarhar University Teaching Hospital (NUTH), the sole public sector healthcare facility dealing with such cases in eastern zone of the country, from Sep 2022 to Dec 2024. The children aged less than 18 years, admitted and treated for EFBs, were included. The patients who had spontaneously passed the EFB into the stomach prior to esophagoscopy were excluded. Data collected included demographics, symptoms, type of foreign body, location of foreign body impaction, duration of impaction, hospital stay, outcomes and complications. Data analysis was performed through IBM SPSS statistics 21. A total of 46 children were diagnosed and treated for EFBs during study period, representing a prevalence of 4.67%% among all admitted children. All of them underwent rigid esophagoscopy. The study comprised 26 males (56.5%) and 20 females (43.5%). The median of age was 4.5 years ranging from 1.5 to 16 years. Forty-one patients (89.1%) presented with different symptoms whereas the remaining 5 (10.9%) were asymptomatic. According to type of foreign body 37 (80.4%) patients presented with coins, 4 (8.7%) with batteries and remaining 5 (10.9%) with miscellaneous foreign bodies. The median duration of foreign body impaction and hospitalization time were one day (range: 1- 45days) and 24 hours (range: 10- 48 hours), respectively. Although, this study delivers valuable insights regarding EFBs in a Zone level teaching hospital, further research is needed to explore hidden aspects of the problem.

Keywords: Esophagus, Foreign Bodies, Ingestion

Introduction

Esophageal Foreign body (EFB) is a common emergency of otorhinolaryngology practice, mostly occurred in children under five years of age [1, 2].

The clinical features associated with EFBs include difficulty in swallowing, vomiting, neck pain, food refusal, chest pain and even respiratory distress in case of large foreign objects [3].



Coins are the most common form of EFBs in children⁴ while battery is the dangerous one due to its electrochemical characteristics that can cause esophageal perforation as well as development of esophageal strictures [5, 6].

Endoscopic removal is the treatment of choice for EFBs, while other strategies can also be applied in specific cases. The incidence rate of EFBs in patients treated in US emergency departments was reported as 18 in 10000 children in 2015, with more reported cases in boys [7].

Information about the incidence of EFBs in Afghanistan is seriously lacking, however in a country with more children population as per population pyramid, poor health indicators, and accessibility of children to coins and low level of awareness, the number of cases may be higher as compared to other countries.

The Nangarhar University Teaching Hospital (NUTH) is the only public health facility which provides services in regards to EFBs for children in eastern zone of the country for the last three years. This study aims to review the cases of EFBs in children admitted to NUTH with a diagnosis of EFBs to explore the basic descriptive information about the problem.

Materials and Methods

Research Design

The study employed a descriptive case series design, conducted in the ENT Department of NUTH over a 27-month period (September 2022 to December 2024). It involved clinical observation and documentation of pediatric patients fulfilling the diagnostic and procedural criteria for esophageal foreign bodies, without comparison groups or intervention testing.

Sampling Method

A descriptive case series design was used in which children under 18 years admitted to the ENT Department of NUTH between September 2022 and December 2024 were included based on predefined clinical criteria. Eligible participants were those admitted with a diagnosis of esophageal foreign bodies (EFBs), either symptomatic (absolute or relative dysphagia, vomiting, throat discomfort, respiratory symptoms) or asymptomatic children with radiopaque foreign bodies, and who underwent rigid esophagoscopy under general anesthesia. Children who had spontaneously passed the foreign body into the stomach prior to the procedure were excluded. This indicates a purposive/criteria-based sampling approach.

Data Collection Method

Data were collected through a structured review of cases and included: demographic information, presenting symptoms, type and location of the foreign body, duration of impaction, length of hospital stay, outcomes, and complications. Additionally, the inpatient prevalence of pediatric EFB cases was recorded among all cases in the ENT department.

Data Interpretation Method

Continuous variables such as age, duration of foreign body impaction, and hospital stay were summarized using median and interquartile range (IQR). Categorical variables were analyzed using frequency and percentage. Inpatient prevalence was calculated to quantify the proportion of pediatric EFB cases among all

departmental admissions. The study was approved by the research ethics committee of Herat University and recorded under protocol (13) 241202-13.

Results

Overall, 46 children were diagnosed and treated for EFBs in ENT Department of NUTH from Sep 2022 to Dec 2024, while the number of admitted pediatric patients was 985. The prevalence of pediatric EFBs among all admitted pediatric patients of the department during study period was 4.6%. Of all cases, 26 (56.5%) were male and 20 (43.5%) were female. (Figure 1)

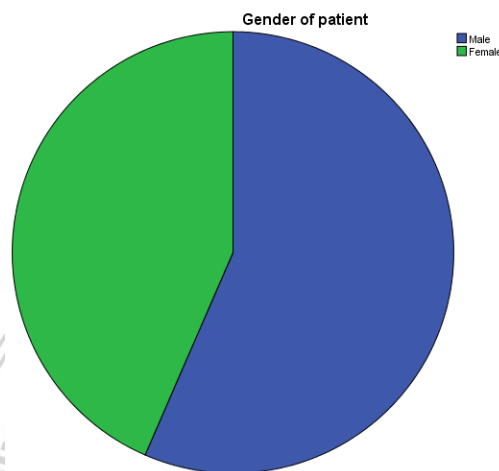


Figure 1: Gender of patients

The median of age was 4.5 years ranging from 1.5 to 16 years. Of all cases, 5 (10.9%) aged <3 years while 41 (89.1%) aged ≥ 3 years. According to clinical features, all patients 46 (100%) presented with a history of foreign body ingestion, of whom, 41 (89.1%) presented with clinical symptoms while the remaining 5 (10.9%) were asymptomatic. The clinical features are summarized in Table 1.

Clinical Features		N	%
Dysphagia	Absolute	30	65.2
	Relative	11	23.9
	No	5	10.9
Vomiting (preoperative)	Yes	29	63
	No	17	37
Throat pain	Yes	26	56.5
	No	8	17.4
	Cannot explain	12	6.1
Cough	Yes	6	13
	No	40	87
Foreign body location in esophagus	Upper	45	97.8
	Middle	1	2.2
	Lower	0	0

Table 1: Clinical features of esophageal foreign bodies

The patients presented with different types of foreign bodies (Table 2).

Type	Frequency	Percent
Coin	37	80.4
Battery	4	8.7
Plastic Toy	1	2.2
Stone	1	2.2
Pin	2	4.3
Metallic toy	1	2.2
Total	46	100.0

Table 2: Types of esophageal foreign bodies

All foreign bodies, except 1 (2.2%) case, were found at the upper part of esophagus; and all the patients presented with a single foreign body, except 1 (2.2%) case with two coins just below the upper esophageal sphincter. Furthermore, all foreign bodies, except 1 (2.2%) case, were radio-opaque. Figure 2 shows a coin in the upper part of esophagus and Figure 3 shows a radio-opaque foreign body on anteroposterior and lateral neck x-ray film.

Figure 2: Endoscopic view of Foreign body (Coin) in upper esophageal sphincter with 45 days history of impaction

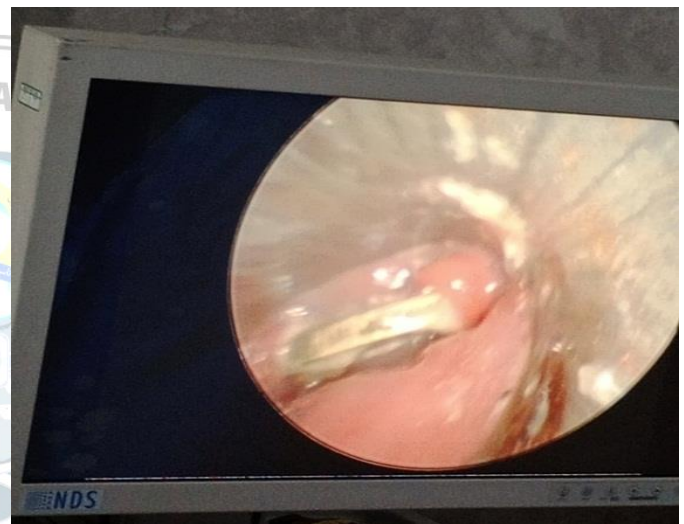
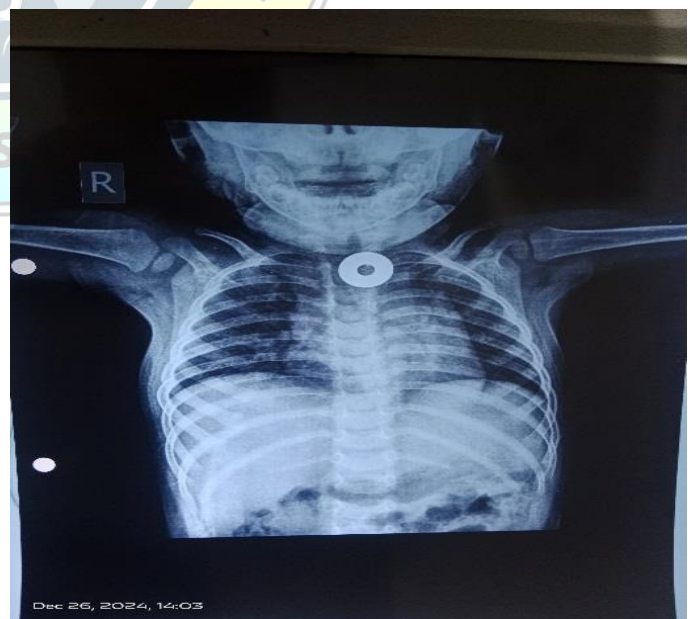


Figure 3: Radiographic view of a metallic ring in upper part of esophagus

The median duration of foreign body impaction was one day, (range: 1-45 days); while the median hospitalization time was 24 hours (range: 10-48 hours). All patients underwent rigid esophagoscopy under general anesthesia. Only 1 (2.2%) patient had mucosal tear while esophagoscopy and 6 (13.0%) patients developed post-operative vomiting with no aspiration. There was no major complication and death.





Discussion

This study reviewed the cases of EFBs in children admitted to the Department of ENT, NUTH. During 27 months of the study, among 985 admitted pediatric patients, 46 (4.6%) were treated for EBDs. The frequency of EFB varies among the settings which may be due to their diverse scopes, specialties, facilities and clients. For example, the cases of EFB were reported as 18 in 10000 children in patients treated in US emergency departments in 2015 [7], which is much lower than our case.

In our study, most patients were ≥ 3 years old children, therefore the age data of our patients differ from other studies reported the more number of cases below three years of age [3]. The cause might be accessibility of children to coins to buy the toys and food in nearby shops, as per common habit of Afghan children.

The clinical features varied among different papers. Osman et.al. (2022) reported 50.4% of their patients asymptomatic and remaining with different symptoms like hyper-salivation, unable to feed, dyspnea, retrosternal pain and odynophagia [8]. According to Guo Xu et al. (2022), most of the patients (94.3%) were symptomatic, presented with various clinical features like drooling, dysphagia, pain, vomiting, unexplained crying, cough, fever and hematemesis in descending order [2]. As per our findings, only 10.9% of children were asymptomatic, while others presented with symptoms such as absolute dysphagia (65.2%), relative dysphagia (23.9%), vomiting (63%), throat pain (65.5%) and cough (13%). So there is enough variation of clinical features in published studies. This variation might be due to different classifications of symptoms by authors as well as different characteristics of study population.

The type of foreign body in our patients followed the same order as many other studies, with coin as the most common reported foreign body [4, 7].

Although most patients presented on the first day of foreign body impaction, some cases were too late. One such case was presented after 45 days of foreign body impaction with a dirty look of upper esophageal sphincter with the development of papilloma like mucosal tag.

The previous studies suggested that 80% or more cases of EFBs pass into the stomach naturally [9], but the data collected through our study is only for the patients presented to the hospital and underwent esophagoscopy, so there would be many patients who had spontaneously passed the foreign object into stomach before presenting to the hospital, but we don't have the evidences in this regard.

Although the button battery has been attributed as a dangerous foreign body due to its electrochemical characteristics [5, 6], it may be due to early presentation of our patients, no complication was seen in these patients. The parents of patients who were late to be presented justified their late presentation due to economic issues and poor access to health facilities, but lack of public awareness and health education may also play a role.

Some previous studies recommended the Foley's Cather method for removal of EBSs [10, 11], but as per our protocol, we performed rigid esophagoscopy under general anesthesia for all patients, in order to remove the foreign bodies under endoscopic vision.

It is worth mentioned that the patients with EFBs may necessitate open surgical procedures [12], but fortunately we didn't face to such cases in our study. The possible causes may, again, include early presentation of the patients and smooth surface of foreign bodies.



Although, some additional information was provided in some files; still there are many other aspects of EFBs which could not highlighted due to limited cases as well as lack of information regarding some important variables i.e. previous history of corrosive intake, congenital disease, and mental disorders. Therefore, more detailed investigations with a robust study design are needed for further exploration.

Conclusion

The prevalence of EFB was 4.67% among admitted pediatric patients, (Sep 2022 - Dec 2024), in NUTH, Jalalabad, Afghanistan. Patients presented with different types of foreign bodies such as coins, batteries, pins, etc. The presenting symptoms varied among the cases and some of them were asymptomatic. All foreign bodies were removed through rigid esophagoscopy. Most patients presented within first 24 hours and most patients were discharged on first post-operative day. No major complication was seen. Further researches are needed to explore hidden aspects of the problem.

Recommendations

1. Parents are requested to understand their children not to put objects into the mouth. Public awareness program through media may further help regarding prevention of the problem.
2. The coins and other potential objects should be kept away from reach of children. It's advised to use the banknotes instead of coins when possible, in order to minimize the risk. Special attention should be paid for batteries and other chemical containing objects.
3. In case of foreign body ingestion, it is advised to avoid unskilled manipulation by parents and local health care providers. The patients should be referred to proper Otorhinolaryngology center as early as possible in order to prevent complications.

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