

Foreign Body Ingestion in Children: A Descriptive Study

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Abstract

Foreign body ingestion is the accidental or intentional swallowing of an object that can affect the oesophagus. The clinical presentation depends on the foreign body's location, size, and nature. Common clinical presentations include coughing, difficulty breathing, nausea, vomiting, chest pain, and fever.

Objective

To study the demographic data, presentation, and disposition of foreign body ingestion patients.

Material and Methodology

This research was a retrospective study conducted within a Security Forces Hospital setting.

The study protocol involved the inclusion of all patients aged 0 to 14 who visited the Paediatric emergency department and reported foreign body ingestion.

Result

The total study population was 45 patients; males were 24 (53.3%). 88.2% of our patients had no symptoms at presentation. Coins ingestion occurs in 18 (40%) patients.

Conclusion

Our study findings are similar to the literature description for foreign body ingestion.

Keywords: Foreign body; FB Ingestion; Children.

Introduction

Foreign body (FB) ingestion is defined as the accidental or intentional swallowing of an object that can affect the oesophagus [1]. The clinical presentation depends on the foreign body's location, size, and nature. Still, the common symptoms at presentation are coughing, difficulty breathing, nausea, vomiting, chest pain, and fever [2].

In 2000, the American Association of Poison Control Centers reported that 75% of the patients presented with foreign body ingestions were children aged ≤5 years [3].

The initial assessment of patients with foreign body ingestion is history-taking and physical examination. The history-taking component should include symptoms, type of foreign body, timing of presentation, and associated conditions. At the same time in the physical examination, you

should record and assess the patient's status, vital signs, airway evaluation, signs of inability to manage their secretions, or emergency conditions, such as peritonitis or subcutaneous emphysema [4, 5].

Plain radiography is the first choice recommended in children after foreign body ingestion, but the primary physician can continue observation without doing plain radiography if the patient is asymptomatic and has swallowed a low-risk foreign body at presentation [6].

Management of foreign body ingestion depends on the nature and location of swallowed foreign bodies, and the risk of complication should guide the decisions. Children at low risk of future complications may be discharged with instructions, red flag symptoms, and signs when to return for re-evaluation. Higher-risk patients require hospital admission for observation or

consultation with a specialist, such as a pediatric surgeon, otolaryngologist, or gastroenterologist [7].

Symptomatic patients require immediate intervention to prevent complications associated with foreign body ingestion. Glucagon-inducing vomiting can be used in mid-oesophageal coins [8]. Our aim is to study the presentation and outcomes of patients attending our Emergency Department with foreign body ingestion.

Methods

This research was a retrospective study conducted within a Security Forces Hospital setting.

The study protocol involved the inclusion of all patients aged 0 to 14 who visited the Paediatric emergency department and reported foreign body ingestion. The data for this study was collected from the hospital database, spanning from October 1st, 2023, to March 31st, 2024.

Demographic data of patients showed that two to five years old were 25 patients (55.6%) and more than five years old were 14 patients (31.1%). Males were 24 patients (53.3%). In forty patients (88.9%) foreign body ingestion was witnessed Table 1.

Table 1: Demographic Data and Witness

Variables		Number	%
Age	Less than 2 years old	6	13.3
	2 to 5 years old	25	55.6
	more than 5 years old	14	31.1
Gender	Male	24	53.3
	Female	21	46.7
Witness of the event	Yes	40	88.9
	No	5	11.1

At the presentation to the Pediatric Emergency Department, 37 patients (88.2%) were free of symptoms, five patients (11.1%) had Gastrointestinal symptoms, and three patients (6.7%) were presented with respiratory symptoms. The foreign body was not detected in 14 patients (31.1%), in the large bowel in 15 patients (33.3%), in the small bowel in 10 patients (22.2%), in the Stomach in four patients (8.9%), and in the esophagus in two patients (4.4%). Table 2

Table 2: Symptoms at Presentation and Location of Foreign Body

Variables		Number	%
Symptoms at presentation to Pediatric Emergency Department	Free of symptoms	37	88.2
	Respiratory symptoms	3	6.7
	Gastro-intestinal Symptoms	5	11.1

Location of foreign body after abdominal x-Ray	Not detected	14	31.1
	Oesophagus	2	4.4
	Stomach	4	8.9
	Small Bowel	10	22.2
	Large Bowel	15	33.3

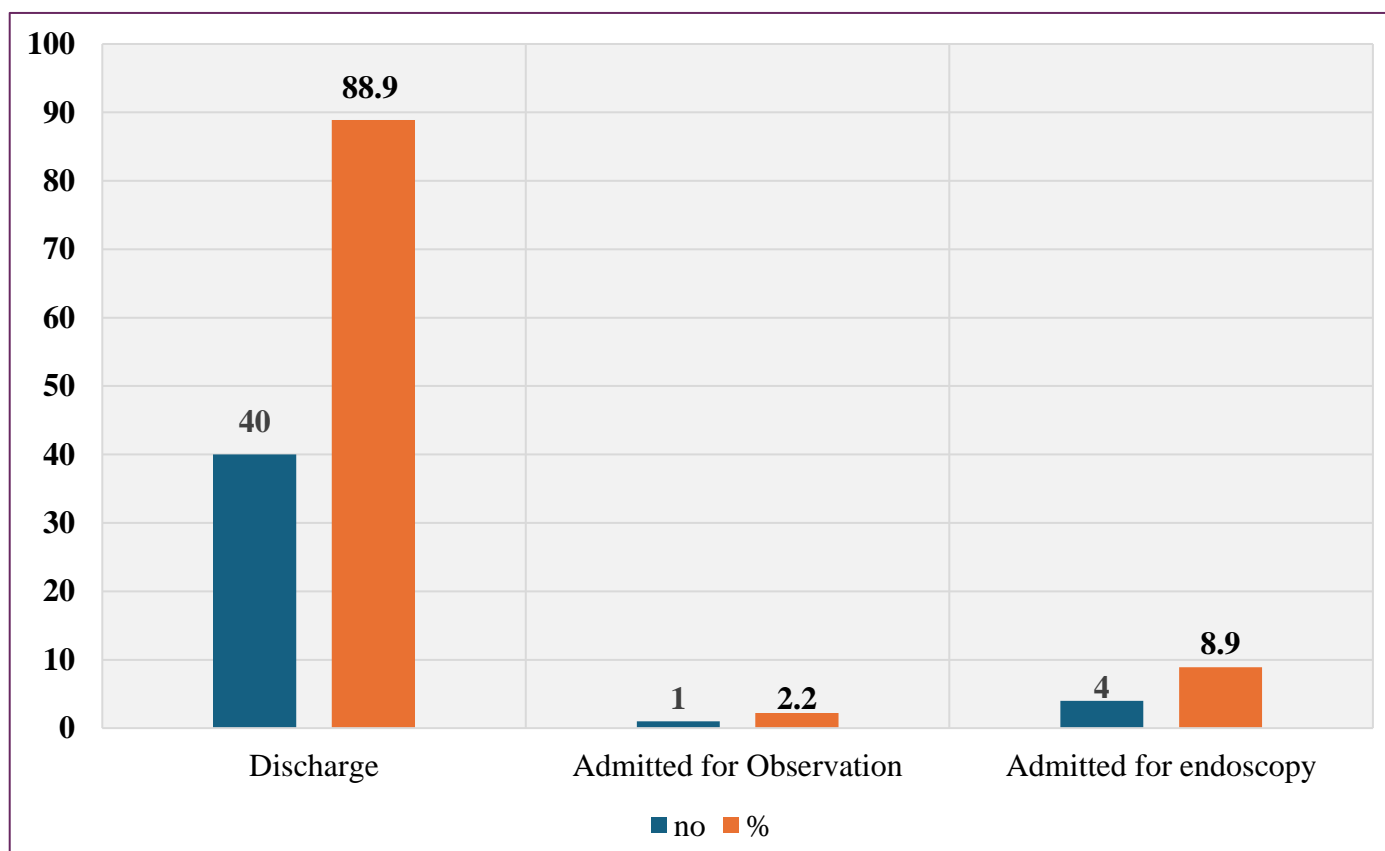
Regarding the type of foreign body ingested, 18 patients (40%) are Coin, five patients (11.1%) are Screws, Three patients (6.7%) Magnetic, three patients (6.7%) Battery-table 3.

Table 3: Types of Foreign Body

Variables	Number	%
Plastic	1	2.2
Coin	18	40
Magnetic	3	6.7
Screw	5	11.1
Battery	3	6.7
Bone	1	2.2
Unknown	4	8.9
Others	10	22.2

Disposition from the Pediatric Emergency Department showed that 40 patients (88.9%) were discharged, four patients (8.9%) were admitted for endoscopy, and one patient was admitted for observation-figure 1.

Figure 1: Disposition of Patients from Pediatric Emergency Department



Discussion

Foreign body ingestion is a public health problem as it has a high frequency among the population, particularly in children and older patients.[9] Accidental ingestion of foreign bodies by children because they inadvertently place foreign bodies in their mouths [10-12].

In our study, males were more frequent, similar to previous studies, as males were more active in and outdoors [13, 14, 18]. Males predominate, which is explained by their hyperactivity in comparison to females [19].

We found that the mean age at foreign body ingestion was 4.6778 ± 3.2 years, and most were preschool children.[20] and other studies [17, 21] had similar age groups.

Most of our patients had no symptoms at presentation to the emergency department. Our study is similar to those of [22, 23] study, most of their patients presented to the emergency department asymptomatic.

Gastrointestinal symptoms occur in 5% of our patients. Symptoms in foreign body ingestions are alarming for complications, but absences or asymptomatic patients are not at low risk of complications [24].

In our study, in most patients, the presentation of foreign bodies was located in the large bowel, small bowel, stomach, and oesophagus, respectively, and was explained by the delayed presentation of our patients to the Emergency Department. In 14% of patients seen in the Emergency Department, no foreign body was detected by X-ray [22]. Study foreign body was found mainly in the oesophagus at presentation, and in 18% of patients, no foreign body was detected [25] in their study, and 22% of the foreign body was not visualized Undetected foreign bodies in patients suspected of foreign body ingestion is due to a radiological investigation done on them, even if they were asymptomatic [26].

Coin is the frequent foreign body ingested in our study. We had three patients ingested Magnetic. In the last few years, the incidence of magnet ingestion has increased as it has become the main part of children's toys.[27] of most patients discharged without intervention, 8.9% needed endoscopic intervention. In literature, in 80-90% of patients seen with foreign body ingestions, the foreign body passes without complications and is evacuated with feces within a few days. Endoscopic intervention is done in 10-20% of cases because of impaction or its potential harm, and surgical intervention is needed in less than 1% of cases [28].

In Turkey, patients presented with a blunt object or coin in the stomach and asymptomatic will be discharged without intervention, and only follow-up will be given [29]. Single magnetic and not too large is expected to pass spontaneously, and intervention is unnecessary [30].

The frequency of button battery ingestion has been increasing as they are widely used in electronic devices.[31] In our study, 6.7% of patients presented with battery ingestion and were treated in the conservatory.

Conclusion

In conclusion, our study mirrors other research in terms of demographic distribution and types of foreign bodies ingested. This finding has significant

implications for healthcare professionals and parents alike, emphasizing the need for effective education and prevention strategies.

Limitations of our study: It's a single-center study, which may limit the generalizability of our findings.

References

1. Abualenain TJ, Jawa HA, Baintaleb YY, Abulkalam MM, Aldini MA, Dafterdar AK. (2018). Emergency Department experience of foreign body ingestion: An analysis of 69 cases in an academic hospital in Saudi Arabia. *Eurasian J Emerg Med.* 17(1): 3-8.
2. AlShakhs F, AlYahya K, AlSaeed A, AlSultan M. (2018). Parental awareness regarding aerodigestive pediatric foreign bodies: Eastern province, Saudi Arabia. *Egypt J Hosp Med.* 70(9): 1511-1517.
3. Litovitz TL, Klein-Schwartz W, White S. (2001). 2000 annual report of the American association of poison control centers toxic exposure surveillance system. *Am J Emerg Med.* 19:337-395.
4. Ikenberry, S.O, Jue, T.L, Anderson, M.A, Appalaneni, V, Banerjee, S, Ben-Menachem, T, Decker, G.A, Fanelli, R.D, Fisher, L.R, Fukami, N. (2011). Management of ingested foreign bodies and food impactions. *Gastrointest. Endosc.* 73(6):1085–1091.
5. Thomson, M, Tringali, A, Dumonceau, J.M, Tavares, M, Tabbers, M.M, Furlano, R, Spaander, M, Hassan, C, Tzvinikos, C, Ijsselstijn, H. (2017). Paediatric Gastrointestinal Endoscopy: European Society for Paediatric Gastroenterology Hepatology and Nutrition and European Society of Gastrointestinal Endoscopy Guidelines. *J. Pediatric Gastroenterol. Nutr.* 64(1):133–153.
6. Joseph, P.R. (1990). Management of coin ingestion. *Arch. Pediatr. Adolesc. Med.* 144(4): 449–450.
7. Connors GP. (2022). Pediatric Foreign Body Ingestion: Complications and Patient and Foreign Body Factors. *4(2):20.*
8. Yousif A, Alwulayi HH, Bazie EA. (2023). Case Report: Glucagon-Inducing Vomiting for a Mid-Esophageal Coin Ingestion. *Clin Case Rep Open Access.* 6(2):254.
9. Cevik M, Gökdemir MT, Boleken ME, Sogut O, Kurkcuoglu C. (2013). The characteristics and outcomes of foreign body ingestion and aspiration in children due to lodged foreign body in the aerodigestive tract. *Pediatr Emerg Care.* 29(1):53-57.
10. Dorterler ME, Günendi T. (2020). Foreign body and caustic substance ingestion in childhood. *Open Access Emerg Med.* 12:341-352.
11. Al Lawati TT, Al Marhoobi R. (2018). Patterns and complications of ingested foreign bodies in Omani children. *Oman Med J.* 33:463-467.
12. Diaconescu S, Gimiga N, Sarbu I, Stefanescu G, Olaru C, Ioniuc I. (2016). Foreign bodies ingestion in children: Experience of 61 cases in a pediatric gastroenterology unit from Romania. *Gastroenterol Res Pract.* 1982567.
13. Dorterler ME, Günendi T. (2020). Foreign body and caustic substance ingestion in childhood. *Open Access Emerg Med.* 12:341-352.
14. Al Lawati TT, Al Marhoobi R. (2018). Patterns and complications of ingested foreign bodies in Omani children. *Oman Med J.* 33(6):463-467.

15. Diaconescu S, Gimiga N, Sarbu I, Stefanescu G, Olaru C, Ioniuc I. (2016). Foreign bodies ingestion in children: Experience of 61 cases in a pediatric gastroenterology unit from Romania. *Gastroenterol Res Pract.* 1982567.
16. Kalra V, Yadav S, Ranga R, Moudgil H, Mangla A. (2021). Epidemiological, clinical and radiological profile of patients with foreign body oesophagus: A prospective study. *Indian J Otolaryngol Head Neck Surg.* 1-6.
17. Besharah, B. O, Simsim, R. F, Natto, L. Y, Khiyami, A. J, Aqeel, A. A. (2023). Pediatric foreign body ingestion in Makkah, Saudi Arabia: a retrospective epidemiological study. *Saudi Medical Journal.* 44(6): 594-600.
18. Al Lawati TT, Al Marhoobi R. (2018). Patterns and complications of ingested foreign bodies in Omani children. *Oman Med J.* 33(6): 463-467.
19. Yan S, Jiang P, Chen G, Chen Y, Pan H, Li L, Zeng N. (2022). Characteristics and treatment of pediatric tracheobronchial foreign bodies: a retrospective analysis of 715 cases. *Med Sci Monit.* 28:937928.
20. AlKhatib. (2022). Esophageal foreign body ingestion in children. *Saudi Journal of Otorhinolaryngology Head and Neck Surgery.* 24(3).
21. Russell R, Lucas A, Johnson J, Yannam G, Griffin R, Beierle E. (2014). Extraction of esophageal foreign bodies in children: Rigid versus flexible endoscopy. *Pediatr Surg Int.* 30(4):417-422.
22. Ibrahim. (2021). What Do Saudi Children Ingest? A 10-Year Retrospective Analysis of Ingested Foreign Bodies From a Tertiary Care Center. *Pediatr Emer Care.* 37(12):1044-1050.
23. Gatto A, Capossela L, Ferretti S, Orlandi M, Pansini V, Curatola A, Chiaretti A. (2021). Foreign Body Ingestion in Children: Epidemiological, Clinical Features and Outcome in a Third Level Emergency Department. *Children.* 8(12):1182.
24. Arana, A, Hauser, B, Hachimi-Idrissi, S, Vandenplas, Y. (2001). Management of ingested foreign bodies in childhood and review of the literature. *Eur. J. Pediatr.* 160(8): 468–472.
25. Antonio Gatto. (2021). Foreign Body Ingestion in Children: Epidemiological, Clinical Features and Outcome in a Third Level Emergency Department. *Children.* 8(12):1182.
26. Hegde, S.V, Hui, P, Lee, E.Y. (2015). Tracheobronchial foreign bodies in children: Imaging assessment. *Semin. Ultrasound CT MR.* 36(1): 8-20.
27. Hussain SZ, Bousvaros A, Gilger M. (2012). Management of ingested magnets in children. *J Pediatr Gastroenterol Nutr.* 55(3):239-242.
28. Tringali A, Thomson M, Dumonceau JM. (2017). Pediatric Gastrointestinal Endoscopy: European Society of Gastrointestinal Endoscopy (ESGE) and European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) Guideline Executive Summary. *Endoscopy.* 49(1):83-91.
29. Demiroren K. (2023). Management of gastrointestinal foreign bodies with brief review of the guidelines. *Pediatr Gastroenterol Hepatol Nutr.* 26(1):1-14.
30. Lee JH, Lee JS, Kim MJ, Choe YH. (2011). Initial location determines spontaneous passage of foreign bodies from the gastrointestinal tract in children. *Pediatr Emerg Care.* 27(4):284-289.
31. Litovitz T, Whitaker N, Clark L, White NC, Marsolek M. (2010). Emerging battery-ingestion hazard: clinical implications. *Pediatrics.* 125:1168-1177.