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Case report

Delayed presentation of foreign body ingestion in resource-limited setting managed with endoscopy: Case report and literature review

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ABSTRACT

Introduction and importance: Foreign body (FB) ingestion is a common pediatric gastrointestinal emergency, frequently involving coins, batteries, and magnets in children aged 6 months to 5 years, with boys affected more often. The 2021 poison control data reports ~55,000 cases annually in children <5.

Case presentation: A 4-year-old girl presented to the pediatric emergency unit four months after ingesting a one Ethiopian birr coin. One week prior to her hospital presentation, she developed a dry cough, stridor, tachypnea, nausea, vomiting, and dysphagia. Evaluation revealed tachypnea, tachycardia, and oxygen desaturation to 87 % on room air. A chest X-ray showed a radio-opaque, circular foreign body at the T2-T3 level. The foreign body was successfully removed endoscopically, and the patient's condition improved after the procedure.

Case discussion: Foreign body ingestion is a frequent concern in pediatrics. The risk is elevated in children with congenital or acquired neuromuscular disorders and those with psychosocial risk factors. Clinical presentation varies, with most cases presenting acutely with respiratory or gastrointestinal symptoms, but delayed presentations can also occur. Effective management, including appropriate evaluation, endoscopic removal, and prevention strategies, is essential for optimizing patient outcomes.

Conclusion: Foreign body ingestion, while typically presenting acutely, can have delayed presentations, especially in resource-limited settings, potentially leading to complications. Endoscopic management is often successful, underscoring the importance of considering foreign body ingestion in the differential diagnosis, even in cases with a long or unclear history, to ensure optimal patient outcomes.

1. Introduction

Foreign body (FB) ingestion is a common gastrointestinal emergency in the pediatric age group, often leading to various complications. Most cases of FB ingestion occur in children between 6 months and 5 years of age, while the most commonly identified foreign bodies are coins, button batteries, magnets, toys, jewelry, and less commonly, sharp objects that have been reported in the literature [1] [2]. Based on the 2021 Annual American Association of Poison Control Center report, FB ingestion in children <5 years accounted for approximately 55,000 cases, with higher rates observed in boys [3]. The narrowest area within the GI tract is the esophagus, making it the commonest site for foreign body impaction. Once the object passes into the stomach, the chance of lodgment and impaction is very unlikely. Clinical presentation of patients with FB ingestion varies depending on the type and location of the FB ingested. However, common symptoms may include drooling, vomiting, dysphagia, throat and or chest pain [4]. Since the scenario may go unnoticed, the child may present late.

While we expect most ingested materials to pass through the gastrointestinal tract without incident, some can present with complications, causing significant morbidity and mortality. We present a 4-year-old girl who experienced respiratory symptoms four months after swallowing an Ethiopian one birr coin. This case illustrates the potential for delayed presentation and the importance of considering foreign body

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ingestion in the differential diagnosis of respiratory symptoms in children. This case report was prepared in accordance with the revised Surgical Case Report (SCARE) 2025 guidelines [5].

2. Case presentation

A 4-year-old girl four months after ingesting a one Ethiopian birr coin. Although the incident was immediately reported to her parents by her elder brother, she did not receive immediate medical attention. Initially, her parents chose conservative management, hoping the coin would pass spontaneously in her stool. However, one week prior to presentation, she developed persistent cough, stridor, and tachypnea with associated nausea, vomiting of ingested matter, and dysphagia.

On emergency assessment, the patient presented with marked respiratory distress. Her vital signs included tachypnea (respiratory rate of 52 breaths per minute), hypoxemia (oxygen saturation of 87 % on room air), and tachycardia (pulse rate of 126 beats per minute). A low-grade fever of 37.5 °C was also noted. Examination of the respiratory system revealed mild subcostal retractions, stridor, and bilateral transmission of breath sounds.

Laboratory investigations revealed thrombocytosis; the complete blood count (CBC) was otherwise unremarkable. Serum creatinine, bilirubin, liver enzymes, potassium, and sodium levels were all within normal limits. A chest X-ray showed a radio-opaque, circular foreign body at the level of the T2-T3 vertebrae (Fig. 1A and 1B).

Following evaluation in the pediatric emergency department, the Gastroenterology unit of the Internal Medicine department was consulted after the patient was put on intranasal oxygen and maintenance fluid. The patient was promptly transferred to the endoscopy suite, and underwent a diagnostic and therapeutic flexible esophagogastroduodenoscopy (EGD) under general anesthesia after informed consent was obtained from the patient's legal guardians. General anesthesia was administered via intravenous propofol, with standard monitoring maintained throughout the procedure. A pediatric flexible video endoscope was utilized to visualize the upper esophagus, where a metallic Ethiopian one birr coin was discovered lodged approximately 16 cm from the incisors (Fig. 2A and 2B). The coin was carefully grasped with thumb forceps, which had rat-toothed tips and removed to prevent injury. Following the extraction, the esophageal mucosa was examined, revealing a localized pressure ulcer at the impaction site with superficial erosion, but no bleeding or other complications were observed (Fig. 3). The procedure was well tolerated by the patient, with no complications noted. Post-procedure monitoring remained stable, and appropriate follow-up care was arranged.

Upon discharge, the patient was started on long-term oral omeprazole for total of six weeks. At follow-up examinations one, three, and six weeks post-procedure, the patient was asymptomatic and reported feeling well. The family was advised to prevent the child from accessing ingestible materials and to seek prompt medical attention for any future foreign body ingestion.

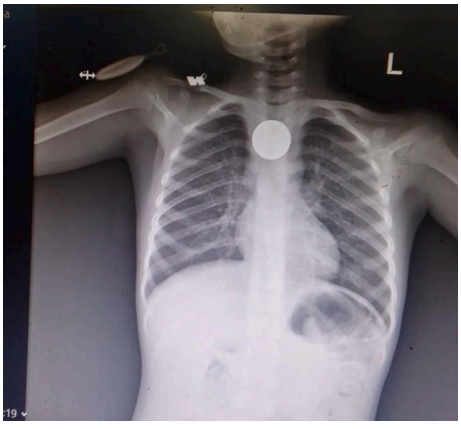


Fig. 1A. CXR done at initial presentation, revealing a circular radiopaque object seen at the level of T2-T3 vertebrae.

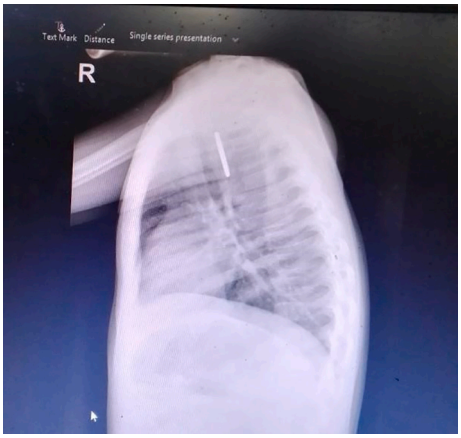


Fig. 1B. Lateral CXR demonstrating the foreign body (1B).



Fig. 2A. Upper gastrointestinal endoscopy showing a metallic circular foreign body.



Fig. 2B. Picture of the foreign body after retrieval.

3. Discussion

Foreign body (FB) ingestion represents a significant challenge in pediatrics due to its high prevalence and the potential for diverse and serious health consequences [6]. While most patients with foreign body ingestion or aspiration present acutely, some, like our patient, may experience delayed presentation, ranging from months to years, with



Fig. 3. Image taken after the removal of the coin; pressure ulcer on the esophagus.

varying symptoms or complications [7].

In France, around 1000 foreign body ingestion cases are documented annually, with the majority occurring in children aged 1 to 3 years [8]. From May 2001 to April 2005, Ethiopia reported a total of 71 boys (65.1 %) and 38 girls (34.9 %) with incidents of foreign body aspiration or ingestion according study conducted in Tikur Anbessa Hospital in pediatric patients [9].

The risk factors associated with foreign body ingestion are diverse, encompassing congenital disorders like developmental delay and genetic conditions that result in neuromuscular impairments [10]. Acquired conditions such as post-traumatic stenosis, malignancy, achalasia, and esophageal rings can also increase the risk [10]. Psychosocial factors, including inadequate supervision, further contribute to this issue [11]. However, in this particular case, our patient did not exhibit any of these established risk factors.

The clinical presentation of foreign body ingestion varies based on several factors, including whether the ingestion was witnessed, the timing (acute vs. chronic), and the nature of the foreign body (dissolvable or not) [12]. Acute symptoms include nonspecific gastrointestinal complaints such as nausea, vomiting, pain upon swallowing (odynophagia), or difficulty swallowing [7,12]. If aspiration occurs, patients may also manifest respiratory symptoms like cough, stridor, or shortness of breath [12]. Although foreign body ingestion typically presents acutely, retained foreign bodies can persist for months, either asymptomatically, leading to incidental discovery, or with chronic symptoms [13]. Our patient's presentation is consistent with this delayed pattern, characterized by throat pain, hypersalivation, dysphagia, retrosternal fullness, and respiratory symptoms [13]. However, especially in resource-constrained environments, families may not be aware of the ingestion, resulting in delayed presentation.

In cases of foreign body ingestion, radiological findings typically reveal a radio-opaque foreign body in the esophagus, as demonstrated by our patient in Fig. 1 [9].

Delayed foreign body ingestion can lead to serious complications, including tracheoesophageal fistula, aortoesophageal fistula, ulceration, perforation, esophageal diverticulum, or respiratory symptoms [14]. Fortunately, in our patient's case, the only complication was a pressure ulcer in the esophagus, and chronic sequelae were avoided.

The management of chronic, delayed foreign body ingestion is guided by the presence or absence of complications and the nature of the ingested object, particularly its stiffness or rigidity [15]. In uncomplicated cases, endoscopic removal is typically a safe and effective treatment strategy, as it was for our patient [16]. However, esophagotomy, an open surgical procedure, may be required in cases complicated by perforation, fistula formation, or other severe sequelae [16].

In addition to this, providing education to parents regarding prevention, signs, and symptoms of FB ingestion is important to prevent complications from acute and delayed presentation of FB ingestion [17].

4. Conclusion

Prevention remains the cornerstone of management for foreign body ingestion. While most patients present acutely, delayed presentations, especially in resource-limited settings, can occur, potentially leading to various complications. Endoscopic management can be successful in these cases, and patients generally respond well after foreign body removal, resuming normal lives. Therefore, even with a long or unclear history, foreign body ingestion or aspiration should be considered in the differential diagnosis, necessitating appropriate evaluation and management to ensure excellent patient outcomes.

Abbreviations

CBC	Complete Blood Count
FB	Foreign Body
GI	Gastrointestinal

Strengths and weaknesses

Our case report documents an unusual delayed presentation (4 months) with a clear diagnostic pathway and a successful endoscopic management. However, the long term impact of the condition can't be predicted.

Consent

Written informed consent was obtained from the patient's parents/legal guardian for publication and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Ethical approval

Our institution, the College of Medicine and Health Sciences, Bahir Dar University, provided ethical approval for this study. However, a written Institutional Review Board approval is not needed for case reports.

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Author contribution

All authors contributed individually to authorship. W.M.A. prepared the initial draft. A.A., Z.M., A.Z., B.G., and G.A. revised the manuscript. All the authors are involved in the management of the patient. All authors reviewed and approved the final draft of the manuscript.

Guarantor

Wudassie Melak Asmare and Gebeyaw Addis Bezie accept full responsibility for this work.

Research registration number

Not applicable.

Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the author(s) used AI language modelling tools to improve of English language. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

Conflict of interest statement

No conflict of interest.

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