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Esophageal foreign body retrieved by cervical esophagotomy four years after ingestion

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A B S T R A C T

Background: Foreign body ingestion is common pediatric population with more than 55% from ingestion of coins. Over 80% pass spontaneously through the digestive tract, but substantial amount lodge in the UES causing esophageal perforation. Failure to recognize and treat as an emergency can cause significant complications and mortality aggravated by longer duration of impaction. Impacted FB can be retrieved by endoscopy with over 95% success rate. In the event of failed endoscopic retrieval, surgery offers safe alternative. The latter usually indicated in perforation, stricture, esophago-aortic and trachea-esophageal fistulas.

Clinical case: A 12-year old female patient with a coin impaction in the cervical esophagus for over four years managed for recurrent respiratory infection.

Conclusion: Foreign body – coins ingestion is common in pediatric population. Timely recognition and treatment is required to prevent severe complications and mortality. Diagnosis involves a triad of clinical history, X-ray appearances and esophagoscopy.

1. Introduction

There are four narrowings in the esophagus that can cause lodging of foreign bodies (FB) namely 1) the cricopharyngeus of the upper esophageal sphincter (UES); 2) the aortic arch; 3) the left main stem bronchus; and 4) the lower esophageal sphincter (LES). Of foreign body entrapments,10–20% [1]may cause esophageal perforation [2]. FB ingestion is common in pediatric population with more than 55% caused by ingestion of coins [3–5]. Over 80% pass spontaneously through the digestive tract [6], but a substantial amount lodge in the UES [7], with 1.9% causing an esophageal perforation [8]. All patients with a history of suspected FB ingestion requires urgent endoscopic evaluation – failed detection necessities radiographic assessment for a possible intra- or extra-luminal infiltration [3]. Failure to recognize and treat emergently can cause significant complications and mortality [6]. The risk of morbidity and mortality are increased by longer duration of impaction [8] and requiring endoscopic or surgical treatment. In the event of failed endoscopic retrieval, surgical removal can offer a safe alternative [6].

We report a case of a 12-year old female patient with a coin impaction in the cervical esophagus for over four years that was misdiagnosed and managed as recurrent respiratory infection. This case illustrates the health disparities, unmet needs, and lack of access of care in Uganda and most low-income countries (LICs) [9–13].

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Table 1
Blood work-up

Test	Results	Reference range
Complete blood count	White blood cell count - 9.7	4.00–12.00 10^3/uL
	Hemoglobin - 13.5	12.0–16.0 g/dL
	Platelets - 275	150-450 10^3/uL
Electrolytes (mmol/L)	Potassium (K^+) 4.13	3.5–5.5
	Sodium (Na^+) 140.1	135–145
	Chloride (Cl^-) 100.3	98–108

2. Case presentation

A 12-year female healthy without past surgical history presented with chest pain and dysphagia for four years. She presented four years earlier at a peripheral hospital with history of having swallowed a foreign body – with shortness of breath (SOB and cough which was managed without any radiological investigations and she was discharged after a week of observation. She presented several times to the same hospital with recurrent fever, cough and DIB. Each time she was managed for recurrent respiratory infections without significant improvement.

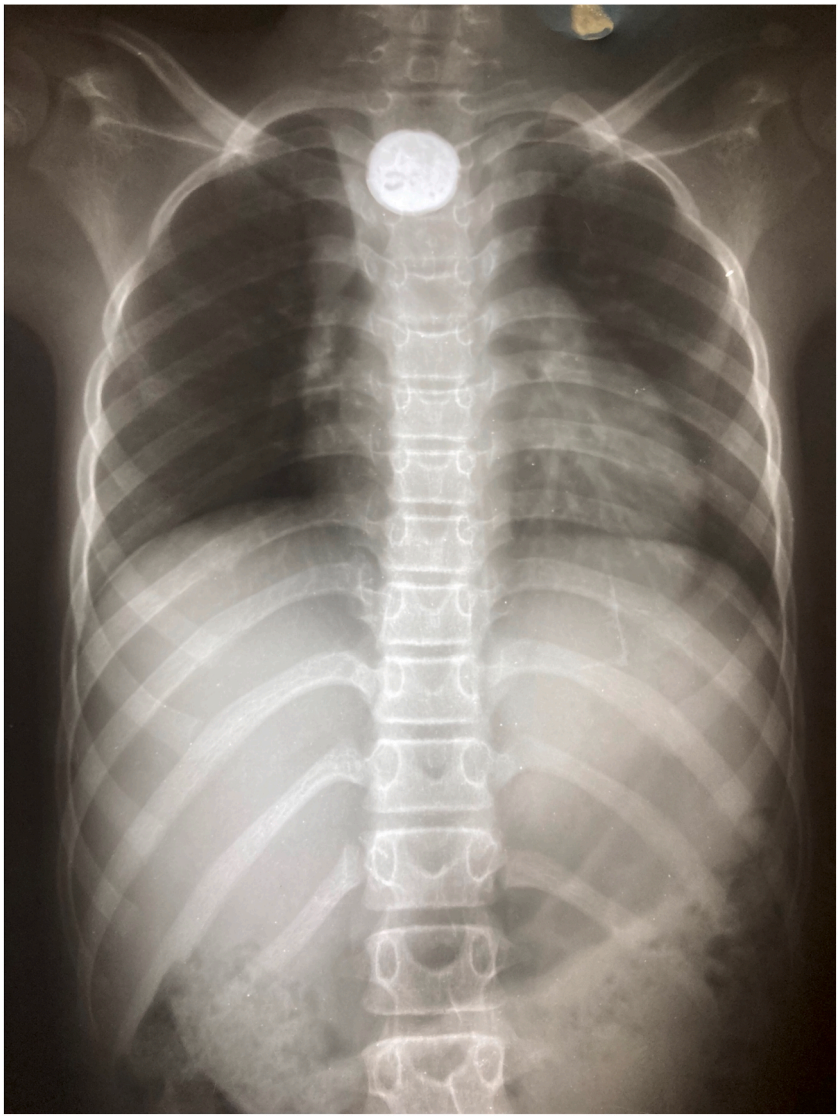


Fig. 1. Chest Xray showing foreign body.

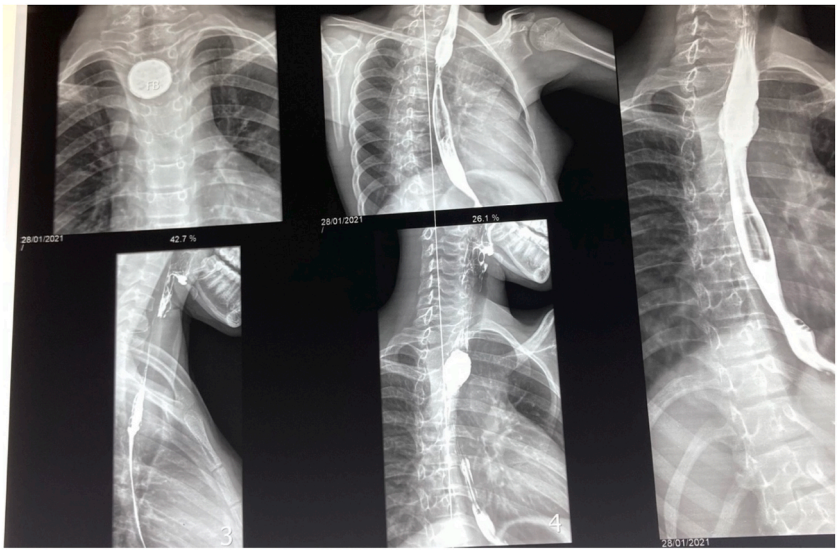


Fig. 2. Barium swallow showing foreign body.



Fig. 3. Intraoperative photo of foreign body removal.

She presented to our institution after significant weight loss and desire for a second opinion. On review she was noticed to have chest pain, failure to thrive, and dysphagia. She was a cachectic female, weighing 25 kg. Her physical exam and blood work were unremarkable (Table 1). She was suspected to have FB in the esophagus by Otorhinolaryngologist review, so a chest X-ray (CXR) was requested. This did indeed show a FB in the esophagus (Fig. 1). A barium swallow was requested and showed coin impacted in the cervical esophagus (Fig. 2). Esophagoscopy was performed, which showed FB infiltrating into the esophageal wall and surrounding structures but was unable to remove the FB. A cardiothoracic review recommended surgery, which was performed by the pediatric surgery team via a cervical approach.

Surgery commenced through right cervical incision. The sternal head of the sternocleidomastoid muscle was transected. The esophagus was approached medial to the carotid artery and jugular vein taking care not to injure the recurrent laryngeal nerve on either side, and intraoperative finding demonstrated a FB as depicted in Figs. 3 and 4. The FB infiltrated into esophageal wall, retrieved and esophageal perforation repaired transversely, single layer interrupted using PDS 5/0. Her recovery was uneventful. Repeat contrast on day 7 postoperative showed esophageal patency without leak (Fig. 5), her diet was progressed from liquids to solids and left

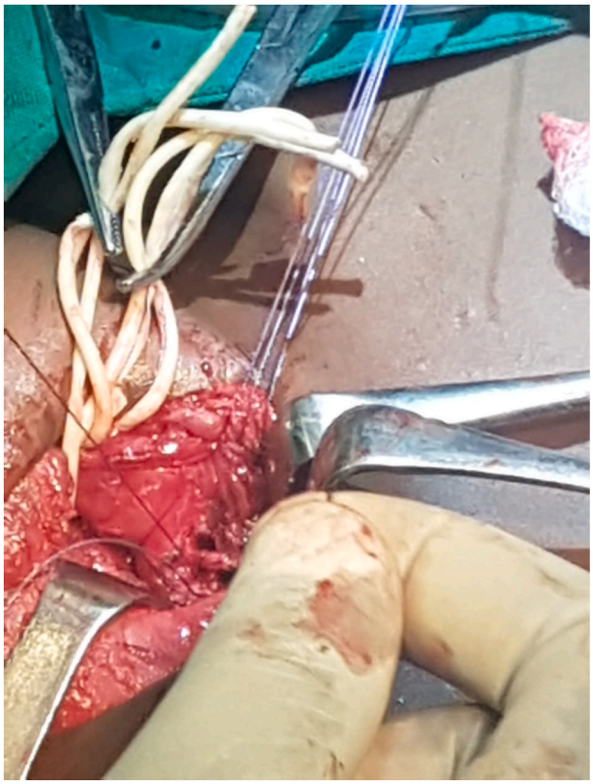


Fig. 4. Esophageal perforation caused by foreign body being primarily repaired.

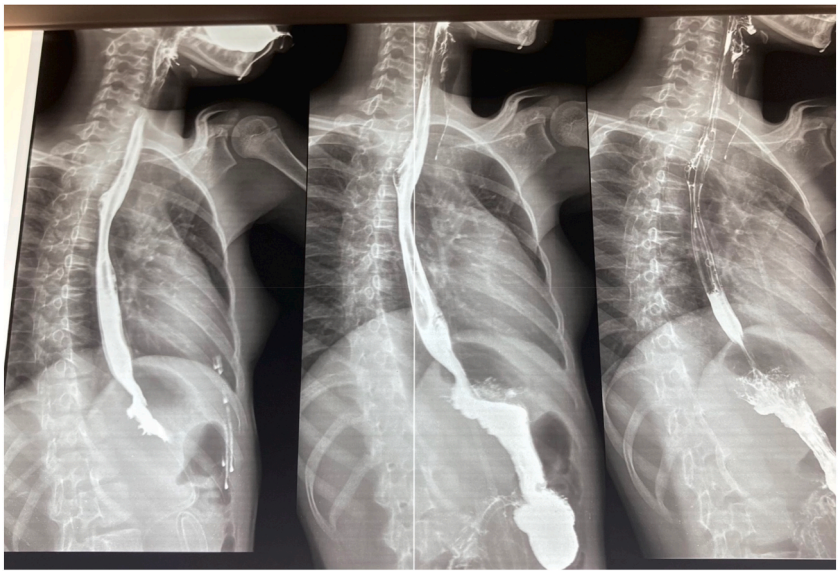


Fig. 5. Repeat contrast study post-operative day-7 after foreign body removal.

the hospital on full diet. She was followed-up at the clinic at 2 weeks, 1, month, 3 months, recently 6 months weighing 43kg with complete resolution of symptoms.

Ethical approval wasn't necessary from our ethical review committee for the case report.

3. Discussion

Foreign body (FB) ingestion is common pediatric population with more than 55% from ingestion of coins [3]. Over 80% pass spontaneously through the digestive tract [6], but a substantial amount lodge in the UES [7], with 1.9% causing esophageal perforation [8] strictures, esophago-aortic and trachea-esophageal fistulas.

Diagnosis involves a triad of clinical history, X-ray appearances and esophagoscopy, the latter being both therapeutic and diagnostic. The most common complaints in the pediatric population include refusal to take oral feeds, increased salivation, pain or discomfort with swallowing, and vomiting [14], as seen in this patient. X-rays should include the neck and chest, with both the anteroposterior and lateral views. Barium swallow can be used to locate the site of impaction of the FB and presence or absence of perforation [14]. Unfortunately, this patient was not able to get an X-ray during the initial presentation to the nearest health facility. Additionally, the patient did X-ray in a private facility after several visits to the public hospital which had a nonfunctional x-ray machine.

Impacted FB can be retrieved by endoscopic or surgical treatment. Our preference is to begin with endoscopic approach since success rate of over 95% can be achieved [15]. In the event of failed endoscopic retrieval, surgery offers safe alternative [6]. Surgery is also indicated in the setting of esophageal perforation [5], strictures, esophago-aortic and trachea-esophageal fistulas. Our patient presented with FB impaction on the esophageal wall and perforation on retrieval.

This case illustrates the out-of-pocket expenditure (OOPE) experienced by our patients causing catastrophic-health-expenditure [16–19] in what is otherwise meant to be a public hospital where services are free. Xray, esophagram and esophagogastroduodenoscopy (EGD) services are not readily available in peripheral health facilities, patients have to pay for them in privately owned facilities which often is costly. Additionally, the cost of searching for appropriate care in multiple places with scarce specialists throws patients in OOPE. All these factors contribute to delays which cause many patients to present late in our setting with complications often requiring surgical intervention.

4. Conclusion

Foreign body ingestion is common in the pediatric population. Timely recognition and treatment is required to prevent severe complications and mortality. surgery offers safe option in the setting of complication such as esophageal perforation.

Authorship contributing statement

Conception and design - Felix Oyania, Charles Newton odongo, Martin Situma.

Acquisition of data or analysis and interpretation of data - Felix Oyania, Charles Newton odongo, Martin Situma.

Drafting the article or revising it critically for important intellectual content - Felix Oyania, Robert Mugarura, Sarah Jane Commander, Martin Situma.

Final approval of the version published - Felix Oyania, Robert Mugarura, Sarah Jane Commander, Martin Situma.

Agreement to be accountable for the article and to ensure that all questions regarding the accuracy or integrity of the article are investigated and resolved - Felix Oyania, Sarah Jane Commander, Martin Situma.

Declaration

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] Holcomb G.W, Murphy J.P. Ashcraft’s pediatric surgery. 2010.

[2] Raval M v, Campbell B.T, Phillips J.D. Case of the missing penny: thoracoscopic removal of a mediastinal coin. J Pediat Surg 2004;39(12):1758–60. Available from: https://www.sciencedirect.com/science/article/pii/S0022346804005573 [Internet].

[3] Al-Qudah A, Daradkeh S, Abu- Khalaf M. Esophageal foreign bodies1. Eur J Cardio-Thoracic Surg 1998;13(5):494–8. https://doi.org/10.1016/S1010-7940(98)00068-2. Available from: [Internet].

[4] Crysdale W.S, Sendi K.S, Yoo J. Esophageal foreign bodies in children 15-year review of 484 cases. Ann Otol, Rhinol Laryngol 1991;100(4):320–4. https://doi.org/10.1177/000348949110000410. Available from:

[5] Emara M.H, Darwiesh E.M, Refaey M.M, Galal S.M. Endoscopic removal of foreign bodies from the upper gastrointestinal tract: 5-year experience. Clin Exp Gastroenterol 2014;7. 249–53. Available from: https://pubmed.ncbi.nlm.nih.gov/25053889 [Internet].
[6] Cianci P, Tartaglia N, Altamura A, di Lascia A, Fersini A, Neri V, et al. Cervical esophagotomy for foreign body extraction: a case report and extensive literature review of the last 20 years. Am J Case Rep 2018;19:400.
[7] Smith M.T, Wong R.K.H. Esophageal foreign bodies: types and techniques for removal. Curr Treat Options Gastroenterol 2006;9(1):75–84.
[8] Sung S.H, Jeon S.W, Son H.S, Kim S.K, Jung M.K, Cho C.M, et al. Factors predictive of risk for complications in patients with oesophageal foreign bodies. Dig Liver Dis 2011;43(8):632–5.
[9] Ozgediz D, Poenaru D. The burden of pediatric surgical conditions in low and middle income countries: a call to action. J Pediatr Surg 2012;47(12):2305–11.
[10] Linden A.F, Sekidde F.S, Galukande M, Knowlton L.M, Chackungal S, McQueen K.A.K. Challenges of surgery in developing countries: a survey of surgical and anesthesia capacity in Uganda's public hospitals. World J Surg 2012;36(5):1056–65.
[11] Smith J.D, Poenaru D, Thompson D, Phillips J.D. Surgical residency training in the mission setting: current status and future directions. Christian J Global Health 2016;3(2):160–7.
[12] Yousef Y, Lee A, Ayele F, Poenaru D. Delayed access to care and unmet burden of pediatric surgical disease in resource-constrained African countries. J Pediatr Surg 2019;54(4):845–53.
[13] Meara J.G, Leather A.J.M, Hagander L, Alkire B.C, Alonso N, Ameh E.A, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. The Lancet 2015.
[14] Nandi P, Ong G.B. Foreign body in the oesophagus: review of 2394 cases. J British Surg 1978;65(1):5–9.
[15] Yuan J, Ma M, Guo Y, He B, Cai Z, Ye B, et al. Delayed endoscopic removal of sharp foreign body in the esophagus increased clinical complications: an experience from multiple centers in China. Medicine 2019;98(26). e16146–e16146. Available from: https://pubmed.ncbi.nlm.nih.gov/31261541 [Internet].
[16] Kastor A, Mohanty S.K. Disease-specific out-of-pocket and catastrophic health expenditure on hospitalization in India: do Indian households face distress health financing? PLoS One 2018;13(5):e0196106.
[17] Ghosh S. Catastrophic payments and impoverishment due to out-of-pocket health spending. Econ Polit Wkly 2011;46(47):63–70.
[18] Su T.T, Kouyaté B, Flessa S. Catastrophic household expenditure for health care in a low-income society: a study from Nouna District, Burkina Faso. Bull World Health Organ; 2006.
[19] Xu K, Evans D.B, Kawabata K, Zeramdini R, Klavus J, Murray C.J.L. Household catastrophic health expenditure: a multicountry analysis. Lancet 2003;362 (9378):111–7.

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