

Case Report: Glucagon-Inducing Vomiting for a Mid-Esophageal Coin Ingestion

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Abstract

Foreign body (FB) ingestion is a commonly encountered problem by pediatricians and emergency physicians. We presented a nine-year-old boy with mid-esophageal coin ingestion who vomited the coin after glucagon injection.

Keywords: *Coin; Esophageal; Glucagon; Vomiting*

1. Introduction

Foreign body (FB) ingestion is commonly encountered by paediatricians and emergency physicians. In 2000, the American Association of Poison Control Centers documented more than 107 000 incidents of FB ingestion by children and adolescents [1]. Children make up 80% of the patients seeking medical care after ingesting FBs, with the peak occurrence being between 6 months and 3 years of age [2].

As far back as 1936, Chevalier Jackson attributed the swallowing or aspiration of 'carelessness' [3]. Unfortunately, even the most conscientious parents are unable, at times, to prevent their children from placing objects into their mouths, either because the child moves too quickly, or the parents are unaware of the ingestion (which can make the diagnosis more difficult) [4].

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Coins are the commonly encountered ingested FBs leading to paediatric consultations, with 92 166 cases reported to poison centres 2003 [5].

Although FBs cause severe morbidity in less than 1% of all patients, approximately 1500 deaths annually in the USA are attributed to ingested FBs [6].

Patients with retained oesophageal coins-whether symptomatic or asymptomatic-are at risk of complications. Symptomatic patients often complain of pain, difficulty breathing, or difficulty swallowing. These patients are often agitated and should undergo immediate removal. The complications associated with symptomatic oesophageal coins include focal mucosal necrosis, oedema, and agitation that can lead to airway compromise. Asymptomatic patients with oesophageal coins should undergo emergency or urgent evaluation for complications associated with the retained coin. These complications vary in severity and frequency. They include oesophageal stricture formation [7], perforation [8], oesophageal-aortic fistula formation [9], tracheoesophageal fistula formation [10], as well as the development of life-threatening respiratory distress with or without cyanosis [11].

2. Case Presentation

A healthy 9-year-old boy presented to our emergency department 4 hours after ingesting a coin. The chief complaints were difficulty swallowing and neck pain. There was no drooling, shortness of breath, or cough. He was alert, well-perfused, and had normal vital signs on examination. Chest auscultation revealed equal bilateral air entry and no added sounds. The findings of the cardiovascular, abdominal, and neurological examinations were all normal. His anterior posterior and lateral chest x-rays (FIG. 1&2) revealed mid-oesophageal lodging of a coin and normal chest findings. The patient was put on vital signs monitor, and 1 mg of intravenous glucagon was administered. After this, he vomited the coin and was kept for 2 hours for observation of oral intake and vital signs. He was then discharged in good condition.

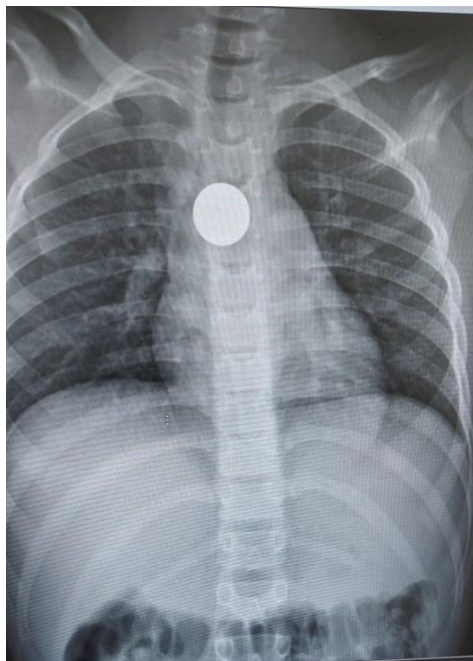


FIG. 1. Anteroposterior chest x ray showing a mid-oesophageal coin.

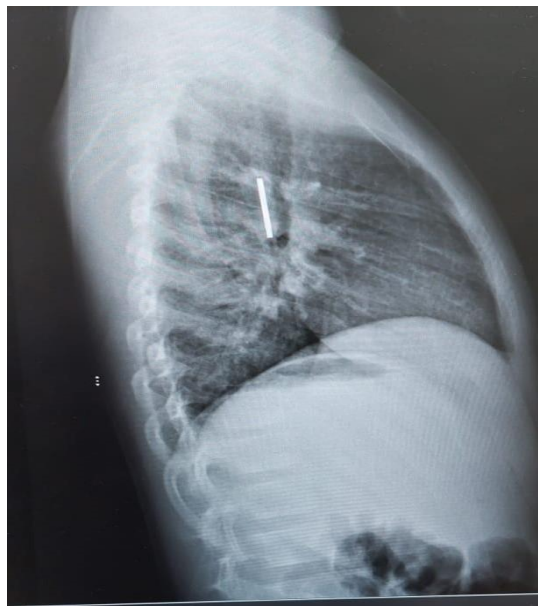


FIG. 2. Lateral chest x ray showing a mid-oesophageal coin.

3. Discussion

In Saudi Arabia, coins are the most ingested FBs [12]. The first step of witnessed or suspected coin ingestion is a series of radiographs to identify the presence and location of any coins, with a concentration on the edges of the coin to exclude the double halo sign of a button battery, which may easily be mistaken for a coin [13].

The use of metal detectors has been recommended in asymptomatic patients [14-17].

Endoscopic retrieval is the most widely used retrieval method. Less-expensive alternative procedures include Foley catheter extraction and bougienage [18-22]. Pharmacologic options, such as muscle relaxants, especially glucagon and benzodiazepines, have been used sporadically [23,24]. *Glucagon* safe to administer to induce immediate and short-lived relaxation of enteric smooth muscle [25]. Glucagon administration could increase the spontaneous passage of coins into the stomach and reduce the need for invasive retrieval [12]. It also causes only nausea and vomiting in some patients and is contraindicated in patients with glucagon hypersensitivity, insulinoma, and pheochromocytoma [26].

In their 10-year retrospective study, Ibrahim et al [27], found coins to be the most ingested type of FB, followed by button batteries. Most of the swallowed coins were passed spontaneously, and those that necessitated intervention were managed using upper endoscopy.

Assiri et al. [28] reported a case of a coin that was retained in the oesophagus for 4 years.

A double-blind placebo-controlled trial conducted by Mehta et al. [29] demonstrated a lack of efficacy of glucagon in dislodging oesophageal coins.

Our patient regurgitated the coin after he was given the glucagon getting the benefit from glucagon inducing vomiting.

4. Conclusion

Coins are the most encountered retained FBs in children. Symptomatic patients require immediate intervention to prevent complications associated. More data and studies are needed regarding glucagon's emetogenic effect as a treatment option for retained oesophageal FBs.

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