

# Double Coin Mimicking a Button Battery: a Rare Radiological Entity of an Esophageal Foreign Body

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## ABSTRACT

Ingestion of foreign bodies is a common entity in emergency clinical practice, especially in the pediatric population. Personal history is rather challenging in these patients, while it is important to accurately define the ingested foreign body. Therefore, the history of a caregiver/eyewitness, physical examination and radiographic findings are taken under consideration. Coins – in various places and alignments – are among the most common foreign bodies of the upper digestive tract, while a history or radiological findings of button batteries are indicating the need for immediate removal. We report a rare case of a seven-year-old boy with an esophageal foreign body, whose radiographic findings were intriguing, as they were suggesting a button battery digestion, while urgent esophagoscopy revealed a double coin ingestion perfectly aligned in the same place, opposing each other.

**Keywords:** double coin, button battery, foreign body, esophagus.

## INTRODUCTION

Swallowing of foreign bodies is a common situation, especially in children, and thus, a common case in emergency departments. Although intake of foreign bodies can be met at any age, it is more regularly found in young children aged six months to five years, due to their tendency to acknowledge their environment and surrounding objects by placing them in their mouths, as a part of the exploratory development (1, 2). Amongst a variety of swallowed foreign bodies, coins are the commonest, with the upper part of the esophagus being the most frequent site of the digestive

tract where they can be found (1). The most prevailing symptoms in children with lodged coins in the upper esophageal region appear to be drooling, dysphagia, pain or foreign body sensation. However, a vast minority appears to be asymptomatic, which may lead to major or even life-threatening complications gradually if they remain unidentified (3). In order to validate the presence of an ingested object, radiographic imaging is necessary. X-ray is used for further exclusion and differentiation of the swallowed object and to remove any further suspicion for a button battery presence, which is a life threatening situation (4). The purpose of this report is to present a rare case of a seven-year-old boy with

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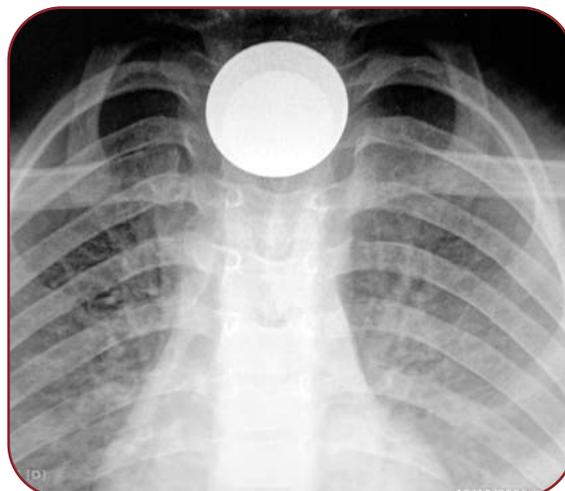
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Article received on the 14<sup>th</sup> of July 2022 and accepted for publication on the 15<sup>th</sup> of September 2022

an esophageal foreign body, whose X-ray was intriguing, since it was suggesting a button battery digestion, while urgent esophagoscopy revealed two coins perfectly aligned in the same place, opposing each other. □

**CASE PRESENTATION**

A seven-year-old boy referred to our emergency department for a foreign body ingestion, approximately eight hours before. Clinically, the child was normopnoic and without salivation or cough with normal vital signs. The history given by the family members was unclear about the type of the foreign body and whether it was a coin or not. Chest X-rays were obtained, in both anteroposterior and lateral view. Anteroposterior view showed a coin sized round shadow at the level below the cricopharyngeal region, with an internal similar but smaller and more dense rounded shadow inside its perimeter simulating a halo sign. Those findings were suggestive of the possibility of a button battery or multiple coins (Figure 1). On the lateral view we were able to locate the foreign body (with a bulge on one side) in the upper esophageal region with the trachea seen anteriorly. On closer view, a double thick line and a step-off sign arouse the suspicion of the presence of two foreign bodies (Figure 2). Since the possibility of a button battery was set and imaging was not conclusive, the patient subsequently underwent an urgent esophagoscopy, so that the nature of



**FIGURE 2.** Anteroposterior chest X-ray of lodged double coin imitating a button battery



**FIGURE 3.** Coins after removal, identified as drachmas



**FIGURE 1.** Lateral chest X-ray of lodged coin in the upper esophageal sphincter

this entity should be further evaluated. Rigid esophagoscopy under general anesthesia revealed the presence of two coins lodged at the same level of the upper esophagus, which were gently removed, while the patient was discharged the next day (Figure 3). □

**DISCUSSION**

Although coin ingestion is a common entity, the esophageal impaction of multiple coins is rare, accounting for 5-7% of all impactions. The usual entrapment place is the upper

esophageal sphincter just below the cricopharyngeal muscle (5, 6). On the other hand, button battery ingestions are associated with an increased risk of major effects due to esophageal injury. As a result, esophageal button batteries have emerged as the most critical indication for emergent endoscopy in children (7). Furthermore, the presence of a double coin, as in our case, imitating a button battery is rather rare (5, 6).

Radiographic imaging of a button battery appears to be with a double layer presentation from a lateral point of view or a circle within a circle from an anteroposterior point of view and as a result, the corresponding shape causes the 'halo sign' on X-ray films (8, 9). Intriguingly, as in our case, a double coin may imitate this appearance, when the coins lay against each other at the same level, which may lead to 'halo sign' and to button battery management and emergency removal (8). The importance of this situation, when two coins align, lies both in the imitating shape of a battery and the difficulty in recognizing the number of coins on X-ray and the subsequent conundrums upon removal (5).

In conclusion, comparing of radiographic density findings of lodged multiple coins with button batteries are not trustworthy to lead in a definite sequence management in cases of unwitnessed

foreign body swallowing and further distinguishing the button battery from the less harmful double coins (8). We believe that in such cases urgent endoscopy is the preferred approach in order to rule out the possibility of an impacted button battery. Nevertheless, lodged coins in the upper esophagus should also be removed in an emergency manner, usually within 24 hours, in order to avoid a mass esophageal harness or mediastinum erosion (10). □

## CONCLUSION

Otolaryngologists play an important role in such emergency cases, which are part of their daily practice. It is important that the physician is always alerted regarding the nature of the lodged item, especially in children, because in pediatric patients anamnesis is obtained from parents/caregivers and it may be therefore vague and unspecific, in contrast to adult population. Harmful ingested items need immediate extraction as further damage may occur to adjacent tissues, and for this reason the patient should be immediately taken to the operation room. □

*Conflicts of interest: none declared.*

*Financial support: none declared.*

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