CASE REPORT

An ingested foreign body: two sides of the same coin?

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SUMMARY

A 2-year-old child presented to the emergency department with an acute onset of dysphagia and stertor. A plain anteroposterior chest X-ray revealed a single circular opacity in the middle third of the oesophagus consistent with an ingested coin. The child was taken to the theatre for rigid pharyngo-oesophagoscopy and removal of the coin. After the first coin was removed subsequent endoscopic examination revealed a second coin at the same location. This extremely rare case of two ingested coins becoming impacted with perfect radiological alignment emphasises the importance of thorough examination on endoscopy and the potential limitations of an X-ray in initial assessment of an ingested foreign body.

BACKGROUND

The ingestion of foreign bodies in the paediatric population presents a great challenge for surgeons. Commonly these events can be unwitnessed by parents, leading to an even greater diagnostic conundrum. Coins remain the most commonly ingested foreign body in children; particularly in children under the age of 3.¹ Cases of children swallowing more than one coin remain rare with very few cases reported in the literature. A case of multiple coin ingestion with perfect radiological alignment is phenomenally rare with only two other cases reported in the literature.^{2 3}

This case highlights the importance of careful examination during endoscopy and removal of foreign bodies in the paediatric population. It also emphasises the importance of re-examination after the main perceived foreign body is removed, especially in unwitnessed cases where both the object and number of objects cannot be determined accurately.

CASE PRESENTATION

A previously fit and well 2-year-old child presented to the emergency department with an acute onset of complete dysphagia, odynophagia and stertor. The child was sitting forward and drooling; however, there was no airway compromise and the child was otherwise systemically well. There was no significant medical, social or family history.

Given the child's age group and symptoms, ingestion of a foreign body was suspected. The child was assigned a nil by mouth status and started on intravenous fluids.

INVESTIGATIONS

An anteroposterior X-ray was obtained that revealed a foreign body at the level of the cricopharyngeus (figure 1), consistent with a single coin.

DIFFERENTIAL DIAGNOSIS

The diagnosis of foreign body in the oesophagus was clear from the X-ray and clinical picture, with the most likely sources being:

- ▶ A coin;
- ▶ Metal disc or other circular metallic object (eg, a battery).

TREATMENT

The child was taken to the operating theatre urgently for rigid pharyngo-oesophagoscopy and removal of foreign body. Examination revealed a one-pence coin (diameter 20.3 mm) at the level of the cricopharyngeus. After this was removed a second look revealed a 5-cent Euro coin (diameter 21.25 mm) at the same level. This was also removed. During endoscopy the two coins were not simultaneously evident and the second coin was only visualised on a second inspection. Figure 2 demonstrates the two coins side-by-side after removal.

OUTCOME AND FOLLOW-UP

Postoperative chest and abdominal X-rays were unremarkable and did not demonstrate any further foreign bodies. The child had an uneventful post-operative recovery and was initially started on sips of water, with gradual progression to formal liquids and then soft diet. The child was discharged on the

Figure 1 Anteroposterior chest X-ray showing single foreign body.

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Figure 2 Two coins removed from oesophagus.

same day, eating and drinking comfortably. There were no long-term complications.

DISCUSSION

Foreign body ingestion by children is a very common problem presenting to emergency departments. While some foreign bodies can be passed naturally through the gastrointestinal tract asymptotically, objects impacted within the oesophagus commonly cause symptoms and therefore should be managed expectantly. Coins remain the most commonly ingested foreign body in children, accounting for as many as 60% of such cases.⁴ Typically, coins become impacted in the proximal oesophagus at the level of the cricopharyngeus⁵ and removal within 24–48 h is generally recommended.⁶ The ingestion of multiple coins by children is rare; moreover only two other cases of multiple coin ingestion with perfect alignment on X-ray have been reported.^{2 3}

Young children presenting with an acute onset of dysphagia, odynophagia and stertor should be suspected as having ingested a foreign body. The presence of stridor or breathing difficulties raises the possibility of a foreign body in the laryngotracheobronchial region. These scenarios are potential airway emergencies that necessitate urgent removal of the foreign body in question.

A variety of techniques have been described to retrieve foreign bodies in the upper oesophagus including endoscopy,⁷ Foley catheter extraction,⁸ the utilisation of a bougienage⁹ and Magill forceps.¹⁰ Rigid pharyngo-oesophagoscopy remains the gold standard for the removal of coins in the upper oesophagus in children and this method of removal remains first line within our centre. Recently however there has been evidence to suggest that flexible endoscopy has equal success with fewer complications.¹¹

Acute complications of an impacted coin include oesophageal perforation,^{12–14} respiratory distress and even death.¹⁵ Long-term sequelae include formation of an oesophageal stricture¹⁶ or tracheo-oesophageal fistula.¹⁷ Early intervention is therefore paramount in preventing these life-threatening complications, and identification of multiple coins is therefore paramount to avoid unnecessary complications that may arise from assuming the foreign body has been removed.

The impaction of multiple coins with perfect radiological alignment presents a major diagnostic challenge. The importance of investigations and a further look after initial

pharyngo-oesophagoscopy in these unique scenarios is emphasised by the two other reported cases.^{2 3} This has proved to be especially important when ingestion events are unwitnessed and no accurate history can be obtained from the child or parent. We would therefore advocate having a low threshold for performing a 'second look' endoscopy after removal of the first foreign body with postoperative X-rays.

Learning points

- ▶ An ingested foreign body should always be suspected in young children presenting with acute dysphagia and odynophagia.
- ▶ In young children coins are the most commonly ingested foreign body.
- ▶ An X-ray is key in identifying a foreign body. However the findings should not be used as the sole guide during removal, emphasised by rare cases such as this with multiple coin impaction with perfect radiological alignment.
- ▶ Meticulous examination of the alimentary tract is key even after removal of the suspected foreign body to ensure that no further foreign bodies are retained.

Competing interests None.

Patient consent Obtained.

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REFERENCES

- 1 Suita S, Ohgami H, Nagasaki A, *et al.* Management of pediatric patients who have swallowed foreign objects. *Am Surg* 1989;55:585–90.
- 2 Upadhyaya EV, Srivastava P, Upadhyaya VD, *et al.* Double coin in esophagus at same location and same alignment—a rare occurrence: a case report. *Cases J* 2009;2:7758.
- 3 Cutajar J, Astl J, Borg C. Radiologically aligned triple coin impaction in the upper oesophagus: the value of second-look oesophagoscopy. *Int J Pediatr Otorhinolaryngol Extra* 2011;6:92–194.
- 4 Jackson RM, Hawkins DB. Coins in the esophagus. What is the best management? *Int J Pediatr Otorhinolaryngol* 1986;12:127–35.
- 5 Amin MR, Buchinsky FJ, Gaughan JP, *et al.* Predicting outcome in pediatric coin ingestion. *Int J Pediatr Otorhinolaryngol* 2001;59:201–6.
- 6 Alrazzak BA, Al-Subu A, Elitsur Y. Etiology and management of esophageal impaction in children: a review of 11 years. *Avicenna J Med* 2013;3:33–6.
- 7 Berggreen PJ, Harrison E, Sanowski RA, *et al.* Techniques and complications of esophageal foreign body extraction in children and adults. *Gastrointest Endosc* 1993;39:626–30.
- 8 Schunk JE, Harrison AM, Corneli HM, *et al.* Fluoroscopic foley catheter removal of esophageal foreign bodies in children: experience with 415 episodes. *Pediatrics* 1994;94:709–14.
- 9 Emslander HC, Bonadio W, Klatzo M. Efficacy of esophageal bougienage by emergency physicians in pediatric coin ingestion. *Ann Emerg Med* 1996;27:726–9.
- 10 Mahafza TM. Extracting coins from the upper end of the esophagus using a Magill forceps technique. *Int J Pediatr Otorhinolaryngol* 2002;62:37–9.
- 11 Waltzman M. Management of esophageal coins. *Pediatr Emerg Care* 2006;22:367–70; quiz 371–3. Review.
- 12 Janik JS, Bailey WC, Burrington JD. Occult coin perforation of the esophagus. *J Pediatr Surg* 1986;21:794–7.
- 13 Nahman B, Meuller C. Asymptomatic esophageal perforation by a coin in a child. *Ann Emerg Med* 1984;13:627–9.
- 14 Tucker JG, Kim HH, Lucas GW. Esophageal perforation caused by coin ingestion. *South Med J* 1972;87:269–72.
- 15 Byard RW, Moore L, Bourne AJ. Sudden and unexpected death—a late effect of occult intraesophageal foreign body. *Pediatr Pathol* 1990;10:837–41.
- 16 Doolin EJ. Esophageal stricture: an uncommon complication of foreign bodies. *Ann Otol Rhinol Laryngol* 1993;102:863–6.
- 17 Obiako MN. Tracheoesophageal fistula: a complication of foreign body. *Ann Otol Rhinol Laryngol* 1982;91:325–7.

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