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Pharyngeal coin removal in children

S M Mason

Abstract

Two cases of coin extraction from the upper third of the oesophagus are described, using a Foley catheter in the accident and emergency department without complication. Although previously reported, the method is not widely used; indeed many junior doctors appear unaware of it. Coins can be removed from this proximal position provided the operator is confident and swift. This appears to be a safe and useful technique, avoiding the need for hospital admission and anaesthesia. It is worth trying before resorting to endoscopy.

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Keywords: Foley catheter; oesophagus; impacted coin

This is a review of a method of oesophageal coin removal that is a cheap, convenient, and quick way of removing coins lodged in the upper oesophagus. Children commonly ingest foreign bodies, most of which enter the stomach and pass through the digestive system without any complications. Occasionally they become lodged in the oesophagus and require removal to prevent complications. There are three main points at which a coin can lodge: the cricopharyngeus, the level of the aortic arch, and the gastro-oesophageal junction. This article presents two reports of children with coins lodged at the level of cricopharyngeus, and their subsequent management.

Case reports

On separate occasions, a girl aged 18 months and a two year old boy each attended the accident and emergency department with a history of having swallowed a coin while playing. Since ingestion, although undistressed, both children repeatedly vomited when they tried to take any food or fluids. A chest x ray revealed the coins lodged at the cricopharyngeal level in the upper oesophagus. Discussion with the children's parents outlined the options for removal, and a decision was made to try and remove the

coin in the accident and emergency department. The following technique was successfully used in both children.

The technique

The procedure should be performed in a calm setting with the child attached to a pulse oximeter with suction and intubation equipment close at hand. We also advocate the presence of a clinician in the department familiar with paediatric airway management who would be available to deal with any untoward complications. No sedation is required, just a little encouragement. The child should be wrapped in a blanket to reduce movement and held sitting upright. A size 14 Foley catheter is fed into the child's mouth in a positive fashion, while encouraging the child to swallow and using each swallow to advance the catheter further. Once the catheter has been introduced up to the hilt and care has been taken to ensure it is not coiled in the back of the mouth, the balloon can be inflated with up to 10 ml of air and gentle traction on the catheter begun while tilting the child slightly forwards. The first attempt to dislodge the coin may be unsuccessful, but children will tolerate a repeat procedure and the coin should be ejected out of the mouth ahead of the catheter. The child should remain in the department until fully recovered and tolerating fluids. They may then be allowed home with instructions to return should any problems arise. It should be noted that some children will not tolerate the procedure at all and alternative methods should be employed in this situation.

Discussion

Coins lodged in the upper two thirds of the oesophagus are unlikely to pass spontaneously into the stomach and therefore require a safe method of removal.¹ If left in situ, complications may develop after 24 hours, with mucosal inflammation initially causing localised swelling and later leading to tissue necrosis and longer term complications. Previous reports have described respiratory complications from local obstruction due to external pressure.² In

**Accident and
Emergency
Department, Northern
General Hospital,
Herries Road,
Sheffield S5 7AU**
S M Mason

Correspondence to:
Suzanne Mason, Research
Fellow in Accident and
Emergency Medicine.

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addition, the foreign body reaction can lead to oesophageal strictures. For these reasons and also for the comfort of the patient prompt removal of the coin is advised.

Different methods have been described for removing coins and other blunt foreign bodies,³⁻⁶ the most commonly reported being the use of a rigid endoscope for extraction. The patient requires sedation or a general anaesthetic and therefore a short inpatient stay. Flexible endoscopy can also be used, and for coins lodged in the distal third of the oesophagus, some clinicians advocate the use of bougies to push the coin past the diaphragmatic narrowing and into the stomach. There have been no complications documented once the coin has reached the stomach.

Use of a Foley catheter to extract blunt foreign bodies such as coins, buttons, and cylindrical objects has been well documented since the 1960s.⁷ The method can be performed under fluoroscopic control or blind as we have described above. The advantages are that it avoids the use of any anaesthetic agents and there is no need for hospital admission. Provided that the patient has no respiratory or oesophageal disease, the success rates of catheter extraction and endoscopic extraction are similar for coins ingested within 24 hours.⁸ However, risks of Foley catheter extraction have been highlighted; these include compromising the airway, missing underlying oesophageal disease, and leaving behind a second undetected foreign body.⁹ However, a survey of 1512 cases of Foley catheter extraction involved no deaths and only one case of laryngospasm.⁹ The use of fluoroscopic guidance is suggested if attempting this procedure.⁹ The small risks outlined above highlight the need for caution when attempting the procedure in the accident and emergency depart-

ment and for this reason we advocate the presence of a clinician familiar with paediatric airway management.

Reports on Foley catheter extraction of foreign bodies vary slightly in their methods. Some clinicians have described feeding the catheter through the nose with varying amounts of air introduced into the balloon.^{5,7,10,11} Our own practice has been to introduce the catheter orally, which reduces the risk of obstructing the nasopharynx with the foreign body and also reduces the risk of localised trauma leading to epistaxis. There appears to be no consensus about the volume of air necessary to inflate the balloon, and in most reports trial and error is suggested, since the aim is to dilate the oesophagus and thus release the foreign body so it falls onto the balloon and can be lifted out without causing trauma. Occasionally the coin may be dislodged into the stomach in this way.

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