

Case Report

Safety pin in an unsafe position: Retrieved by cystoscopy - A novel technique

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ABSTRACT

Foreign body ingestion in children is a common clinical problem. They are often asymptomatic and passed out spontaneously. Oesophageal foreign bodies are prone to complications such as perforation, mucosal ischaemia and necrosis due to pressure. We present a case of a 10 month-old girl child with an open safety pin lodged in the lower oesophagus. The safety pin was retrieved by a cystoscope through a small incision in the stomach. It is a safe and easy procedure to perform, which has not been published previously in the literature. Hence, we are reporting this case.

Keywords: Cystoscope, lower oesophagus, novel technique, open safety pin

INTRODUCTION

Sharp foreign bodies are prone to complications both in children and adults. However, in children the difficulty is the small size of the lumen and non-availability of pediatric instruments. This prompted us to use a "mini-gastrotomy approach" to remove an impacted lower esophageal foreign body in an infant.

CASE REPORT

A 10 month-old infant, was brought to the emergency department with a history of incessant crying and feeding difficulty. Mother gave a history of having felt a metallic foreign body on inserting her finger in the baby's mouth. An urgent chest X-ray showed a safety pin at an open position at T10 vertebra level [Figure 1]. A diagnosis of a sharp foreign body (safety pin) lodged in the lower end of the oesophagus was made. The child was admitted and kept on nil per oral, intravenous

fluids and antibiotics. An attempt was made to retrieve the foreign body by endoscopy, which was not possible due to the infant's small size, open safety pin and fear of injuring the oesophagus. Hence, surgical retrieval was contemplated. After seeking the opinion of both a gastroenterologist and a radiologist, it was decided to remove the foreign body via a gastrotomy using a cystoscope. In view of avoiding mucosal injury to the oesophagus and its complications, this procedure was adopted. Under esophageal gastric tube airway, through an upper midline laparotomy, the stomach was identified and stays were placed. An incision was made in the anterior wall of the stomach in-between the stay sutures. A 9.5 French sheath cystoscope was introduced into the stomach and the gastroesophageal (GE) junction was visualised. Using saline irrigation, the GE junction was mildly distended and the cystoscope was introduced into the lower oesophagus. The cuffed endotracheal tube, which was used for anaesthesia, prevented aspiration and its complications. The fulguration hook at the tip of the cystoscope was used to hold the reverse end of the safety pin to successfully remove it through the gastrotomy incision, which was later closed [Figure 2]. A rigid oesophagoscopy was done to ensure the mucosal integrity. The laparotomy

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Access this article online

Quick Response Code:



Website:

www.thejhs.org

DOI:

10.4103/1658-600X.166495

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How to cite this article: Jagannathan M, Krishnan N, Anirudhan A. Safety pin in an unsafe position: Retrieved by cystoscopy - A novel technique. J Health Spec 2015;3:232-4.



Figure 1: X-ray abdomen showing impacted open safety pin in the lower oesophagus

incision was closed in layers. The postoperative period was uneventful with the baby tolerating milk on the 3rd postoperative day and discharged home, the next day

DISCUSSION

Foreign body ingestion in children is usually accidental in contrast to that in adults where it is due to other causes such as intentional consumption, substance intoxication or psychiatric illness. Infants and toddlers, between the age group of 6 months and 3 years, are commonly afflicted, and coins are the most commonly ingested foreign bodies. Sharp foreign body, more so, open safety pins are rare.^[1]

Roughly, 90% of the foreign bodies in the digestive tract pass out spontaneously. Only 10% require endoscopic retrieval and <1% amongst them need surgical removal.^[2]

Children ingest a variety of foreign bodies such as coins, button batteries, jewel parts, water jellies, hooks, pins and needles. Oesophageal foreign bodies are considered as an emergency as even blunt objects in the oesophagus, impacted for more than 24 h, can cause complication such as pressure necrosis.^[3] There are three anatomical narrowing points in the oesophagus where the foreign bodies may get impacted, namely: The cricopharyngeal sphincter, arch of aorta crossing region and lower oesophageal sphincter.^[4] The symptoms range from stridor, drooling of saliva, respiratory distress and dysphagia. Older children can complain of retrosternal chest pain, which is suggestive of mucosal ulceration.

Routine investigation includes a chest X-ray, both AP and lateral views. The foreign bodies usually orient in a sagittal plane when lodged in the trachea and coronal plane when lodged in the oesophagus. If there is a time delay, contrast-enhanced computed tomography

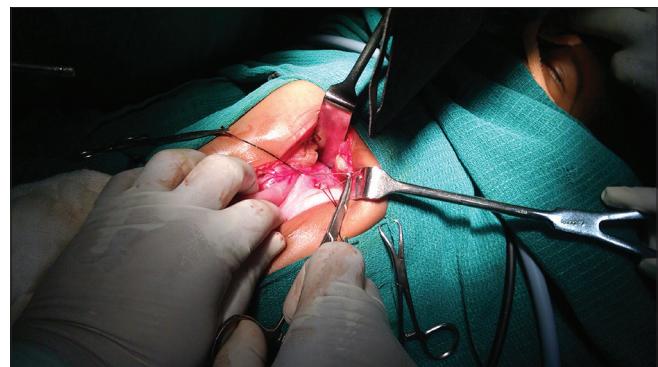


Figure 2: Intra operative picture showing retrieval of safety pin through the gastrotomy incision

chest should be done to rule out complications such as mediastinitis due to perforation and leak. Upper oesophageal foreign body is removed by a rigid oesophagoscope and lower oesophageal objects are removed using a flexible endoscope. However, there is a risk of mucosal perforation, great vessels injury and pseudoaneurysm formation following an endoscopic removal.^[5] In refractory cases, surgical removal is indicated.

The advantages of using a cystoscope for retrieval include the following:

1. Following a laparotomy, a mini 0.5 cm gastrotomy is enough for entering the stomach
2. Very good visualisation during retrieval
3. Saline irrigation used in the cystoscope helps in dilating the lower oesophagus
4. The hook at the end of the instrument can be used to engage the safety pin
5. Impinged open safety pin removed without mucosal damage
6. Rapid procedure (roughly 20 - 30 min) – easily reproducible technique.

A laparoscopic attempt would have been a time-consuming, difficult procedure requiring multiple ports and at least two gastrotomy incisions for retrieval of this foreign body.

There are published series in the literature reporting use of cystoscope in surgery for choledochal cysts.^[6] Similarly, in this case, due to the non-availability of paediatric endoscopes, cystoscope was used as an alternative procedure to retrieve the safety pin without any risk of oesophageal tear or mediastinitis.

CONCLUSION

Impacted open safety pin in the lower end of the oesophagus in an infant is rare. Endoscopic retrieval should be attempted in all cases. When non-invasive

methods are not possible, surgical removal is mandatory. Retrieval through a mini gastrotomy using a cystoscope is a novel, easier, safe and easily reproducible alternate procedure in the absence of a paediatric endoscope.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Wyllie R. Foreign bodies in the gastrointestinal tract. Curr Opin Pediatr 2006;18:563-4.
2. Uyemura MC. Foreign body ingestion in children. Am Fam Physician 2005;72:287-91.
3. Baser M, Arslantürk H, Kisli E, Arslan M, Oztürk T, Uygan I, *et al.* Primary aortoduodenal fistula due to a swallowed sewing needle: A rare cause of gastrointestinal bleeding. Ulus Travma Acil Cerrahi Derg 2007;13:154-7.
4. Louie JP, Alpern ER, Windreich RM. Witnessed and unwitnessed esophageal foreign bodies in children. Pediatr Emerg Care 2005;21:582-5.
5. Roffman E, Jalisi S, Hybels R, Catalano P. Failed extraction of a sharp esophageal foreign body with a flexible endoscope: A case report and review of the literature. Arch Otolaryngol Head Neck Surg 2002;128:1096-8.
6. Mukhopadhyay B, Shukla RM, Mukhopadhyay M, Mandal KC, Mukherjee PP, Roy D, *et al.* Choledochal cyst: A review of 79 cases and the role of hepaticodochoduodenostomy. J Indian Assoc Pediatr Surg 2011;16:54-7.

