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Peg pin in the duodenum of a four year old child: A Case report

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Abstract: Ingestion of foreign body occurs commonly in the paediatric age group particularly between 6 months and 5 years of age.¹ Most ingested foreign objects pass smoothly through the oesophagus, into the stomach and are expelled from the body without complications. However, 10%–20% will require endoscopic

removal to avoid complications^{2,3} We present the endoscopic removal of a peg pin in the duodenum of a four-year-old child.

Key words: Child, Foreign body, Peg pin, Endoscopic removal, Duodenum.

Introduction

Children are in the habit of putting objects in to their mouths and these objects are inadvertently swallowed during play. Ingested foreign body seen in medical and surgical practice include pins, needles, springs, coins, batteries, and liquids, particularly corrosive agents which can produce severe oesophageal and gastric mucosal burns. Ingestion of foreign body occurs commonly in paediatric age group between 6 months and 5 years of age.¹ Most ingested foreign objects pass smoothly through the oesophagus, into the stomach and are expelled from the body without complications. Up to 80%–90% of foreign body (FB) in the gastrointestinal tract are passed spontaneously without complications, 10%–20% are removed endoscopically, while 1% require open surgery because of complications.^{2,3} Complications may arise in the form of impaction, bowel obstruction when the object is large, or bowel perforation with sharp objects. Endoscopic removal or surgical intervention becomes necessary for foreign objects causing distressing symptoms, or when these objects fail to progress through the gastrointestinal tract, or when there is anxiety or insistence on the part of the parent.

It is estimated that 40 % of foreign body ingestion in children is not witnessed, and in any case they hardly develop symptoms.⁴ Symptoms may range from vomiting, dyspnoea, wheezing, restlessness, abdominal swelling and abdominal pain. Foreign bodies can be obstructed at the cricopharyngeal area, middle third of the oesophagus, lower oesophageal sphincter, at the pylorus, or at the ileocaecal valve.¹

Various endoscopic retrieval devices are available for the endoscopic removal of foreign bodies. Availability of these retrieval devices, and expertise on the part of the endoscopist are the hallmark of successful foreign body removal and the absence of either may pose a great challenge for the successful removal of the FB.

We therefore present a case of a cloth peg pin found in the duodenal bulb of a four year old boy.

Case report

An anxious parent presented a 4 year old boy to the Emergency Room with complaint that his child had swallowed a cloth peg pin while playing with it in school about four hours prior to presentation. The child had history of a few bouts of vomiting, refusal of feeds and pain in the throat immediately after the FB ingestion, but all of those resolved after a while. There was mild difficulty in breathing, and restlessness, shortly after the incidence, but no haematemesis, abdominal pain, or abdominal swelling.

At presentation the child was restless, but was not in respiratory, or painful distress. He was neither pale nor dehydrated. The respiratory rate was 18 cycles/min, with resonant percussion notes in all lung fields and vesicular breath sounds, SpO₂ was 99% in room air. Abdominal and cardiovascular examinations were unremarkable. Routine laboratory tests such as Complete Blood Count, and Urea/Electrolyte/Creatinine yielded normal results. Plain radiograph of the chest showed a radio-opaque object in the stomach with its open pointed tip pointing superolaterally (Figure 1).

He was referred by the attending Emergency Room team to the gastroenterologist for endoscopic removal. On review we found that the child had been fed after the initial bout of vomiting before leaving for hospital, which subsequently delayed the procedure by a few hours to allow for six hour fast.

Informed parental consent for endoscopy was obtained. The mode of anaesthesia preferred by the anaesthetist and endoscopist was: intravenous (IV) midazolam 0.5mg/kg with ketamine 1 mg/kg and Pentazocin 0.5mg/

region is the most common site for intestinal perforation but perforations have been reported also in the oesophagus, pylorus, at the junction between the first and second parts of the duodenum and also in the colon.⁷ Endoscopy guidelines of the European Society of Gastrointestinal Endoscopy (ESGE) revealed that sharp pointed objects in the stomach may pass without incident, however the risk of complication is as high as 35%. The North American Society for Paediatric Gastroenterology, Hepatology and Nutrition (NASPGHAN) and the European Society of Gastrointestinal Endoscopy (ESGE) and European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN)^[9-11] therefore advise immediate endoscopic removal of sharp foreign bodies in the oesophagus, the stomach and intestines in symptomatic patients, and urgent (within 24 hours) removal if located in the stomach and intestines in asymptomatic patients.

The most appropriate retrieval devices to be used are a retrieval forceps; such as a rat-tooth, or an alligator forceps, because of their large jaws and firm grip, together with a latex rubber hood or an over tube to protect the oesophageal and pharyngeal mucosa from injury. These devices were not available for use in the index case, so we resorted to the use of a simple biopsy forceps which was the only available device that was theoretically a poor choice because of its small opening width and poor grasping ability. However, extra care was taken to hold firmly to the peg pin at its middle, with the sharp pointed ends trailing. This was to satisfy the recommendation of the ESGE that sharp foreign body should be grasped in such a position that the sharp or pointed end

trails distally to the endoscope. After the extraction, we repeated the endoscopy to evaluate mucosal injury during the extraction but none was found aside the previously mentioned erosions caused by the FB on its way down.

No complication was recorded during follow-up visits, in consonance with a high success rate reported in a retrospective study by Yu-Hui Chiu et al.¹² The authors who found that endoscopic FB extraction was successful in 96.9% of cases, while surgery was required in only 3.1% of the 159 patients: the complication rate was 6.9%, in the form of mucosal laceration and suspected perforation, all of which were successfully managed conservatively.¹²

Conclusion

Endoscopic retrieval of ingested foreign body is generally reliable and safe and rarely associated with complications. In resource constraint countries, improvised accessories can safely be used to retrieve foreign bodies in safe hands instead of subjecting both child and parent to the anxiety of possible impaction and its consequence while expectantly waiting for expulsion of the foreign body, as well as the financial and psychological stress of open surgery if it does impact or perforates.

Conflicts of Interest: None

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