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Case Report

Asymptomatic spontaneous expulsion of a long foreign body through the gastrointestinal tract – a curious case report ☆☆☆

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ABSTRACT

Foreign body ingestion and its natural elimination are common in children. However, this is uncommon for long foreign bodies. Here, we report the spontaneous removal of an ingested pencil in an asymptomatic child. To our knowledge, this is the first case report of asymptomatic spontaneous elimination of a normally-sized ingested pencil. A 7-year-old male child presented with a history of ingestion of a pencil 4 hours back, without any complaints. Immediate abdominal radiography revealed a pencil in the stomach with an estimated length of approximately 10 cm and no signs of complications. He was conservatively treated under a semi-solid diet, presumably due to lack of available endoscopic option. Subsequently, he passed the pencil in stool within 24 hours of ingestion. He was asymptomatic and playful during the course and at discharge. Conservative management of a quickly moving long foreign body initially located below the esophagus in an asymptomatic child is possible with the help of imaging guidance, particularly in settings lacking an endoscopy. Although, this should not be considered a norm. However, this suggests that the treatment

Abbreviations: CT, Computed Tomography.

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of ingested foreign bodies must be individualized. Thus, multiple factors related to the child and the foreign body must be assessed before committing to invasive procedures like laparotomy. Similarly, plain X-rays can be helpful even for radiolucent foreign bodies, for diagnosis and ruling out complications. All of these are vital in underdeveloped countries, where endoscopy and computed tomography facilities might be either lacking or unaffordable by patients.

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Introduction

Foreign bodies are one of the most common gastrointestinal problems encountered in emergency department [1]. It mostly occurs accidentally in both children and adults; however, it is much more common in the pediatric population than in adults [2,3]. The most common foreign bodies ingested by children are coins and food-related, while common symptoms include globus sensation, chest pain, and dysphagia [4].

A gastrointestinal foreign body is diagnosed by correlating the history and clinical presentations with radiological findings, the first choice among which is radiography; however, a failed definitive diagnosis usually requires endoscopy or abdominal computed tomography (CT) [5]. Similarly, radiography has demonstrated to be largely inferior to CT because of its 2-dimensional nature [6]. A wooden foreign body in particular is difficult to identify even on CT, especially when it's hypodense [7]. In contrast, therapeutic abilities of endoscopy make it versatile; and is a requirement for long and sharp foreign bodies [8]. Other diagnostic modality includes magnetic resonance imaging (MRI), however, it is considered conventional particularly for foreign bodies related to head and neck surgery [9].

Surgical interventions are rare, and are required particularly in cases of failed endoscopy and complications [3]. The major complications include impaction causing dysphagia or intestinal obstruction, mucosal erosion, bleeding, and perforation with subsequent mediastinitis or peritonitis [10].

Case presentation

A 7-year-old male child presented to the pediatric emergency with an alleged history of accidental ingestion of a pencil 4 hours back while playing with it, and with no presenting complaints. There was no history of vomiting, abdominal pain, or distension, fever, hematemesis, or hematochezia. The child passed stool and flatus normally, and the bladder habits were normal. On examination, the child was active and playful with fairly stable vitals. The general examination results were normal. The abdomen was soft, nontender, nondistended, without any organomegaly, and had normal bowel sounds. All the other systemic examination results were normal. The laboratory results were unremarkable.

Immediate radiographs of the neck, chest, and abdomen (both erect and supine) revealed a long pencil in the stomach (Fig. 1). No evidence of complications was noted, and the length of the pencil was estimated to be approximately 10



Fig. 1 – Plain radiograph (chest + abdomen + pelvis) taken immediately at patient's presentation revealing the foreign body of pencil in the stomach, oriented almost vertically.

cm, considering its length on the radiograph and the scales on the X-ray machine. Pediatric surgery and radiology consultations were performed immediately, and due to the lack of pediatric endoscopy, it was decided to keep the child in the emergency under critical observation for 8 hours when a repeat X-ray of the abdomen was scheduled. Following a further lack of laparoscopy, an urgent exploratory laparotomy was on the line for the removal of the pencil if any signs of exacerbation was to appear. The child was orally allowed and advised to consume bananas and plenty of water. The patient was classified as high-risk, and the patient party was counselled about the same. On repeat radiography, the pencil was



Fig. 2 – Plain radiograph (abdomen + pelvis) taken after 8 hours of presentation revealing the foreign body of pencil near the ileo-caecal junction, oriented obliquely.

seen near the ileocecal junction with no visible complications (Fig. 2). No danger signs of potential obstruction, perforation, or peritonitis were found on continuous monitoring, and the child was again advised to undergo another X-ray in 8 hours. Before the next X-ray was scheduled, the mother complained of the child passing the pencil as a single long piece and a few small pieces in the stool intermingled with feces, which was confirmed by direct visualization. A confirmatory X-ray was performed immediately, which did not reveal any of its parts in the gastrointestinal tract (Fig. 3).

The child was admitted to the emergency for a total of 2 days before discharge when he was active, lively, and hemodynamically stable. Danger signs were explained to the patient party, and the patient was discharged with follow-up in the emergency immediately, if necessary. However, no follow-up was noted.

Discussion

Foreign body ingestion in children is common and mostly occurs in the age group between 6 months and 6 years, and similar to the case in the discussion, follow a direct witness of ingestion by a family member [4]. While adults with ingestion are mostly symptomatic, asymptomatic cases are more common in children [4] and for the foreign bodies in the stomach or duodenum than in the esophagus [11]. This might be the

case for common and small foreign bodies; however, a long foreign body such as a pencil would be expected to be symptomatic.

About 80%-90% of cases of gastrointestinal foreign bodies pass involuntarily with no intervention required [4]. However, it is very difficult for a long and sharp foreign body to pass naturally because of 4 major narrowings: the lower oesophageal sphincter, pylorus of the stomach, C-loop of the duodenum and the ileo-caecal junction [2]. Considering this, an impaction was probable in this case. The most common site of gastrointestinal foreign body impaction is the esophagus; however, once it passes into the stomach, the chance of impaction decreases significantly [12]. The spontaneous passage of a pediatric foreign body initially located in the stomach (71.4%) and below is much more common than that in the esophagus (12.2%) [13] and is a good possibility in an asymptomatic child even when the foreign body is long and sharp [14]. This was thought of, when the child at presentation had the pencil in his stomach. However, the chances of impaction would still be significantly high as objects >6 cm in length and >2 cm in diameter are unlikely to pass through the pylorus and ileocaecal valve [12]. In the case of a long gastrointestinal foreign body, a toothbrush has never been reported to come out of the gastrointestinal tract spontaneously and only once it did reach the colon with multiple injuries [15]. Despite the multiple challenges for natural expulsion, the semisolid diet (banana), gut peristalsis, and smooth outer coating of the pencil must have been very helpful for its passage through the pylorus and beyond. The timely radiographs and radiology consultations further aided to the successful conservative management. To our knowledge, no case has ever reported a spontaneous elimination of a normally-sized ingested pencil without any symptoms or injuries.

Endoscopic removal, for a blunt foreign body in the stomach, is indicated within 72 hours, whereas a long and sharp one requires it within 24 hours [16]. A laparoscopy is indicated in case of a failed endoscopy. An exploratory laparotomy is usually reserved as the last therapeutic option. However, there are no clear guidelines on the need and appropriate timing for an invasive intervention [17], particularly in nonemergent or asymptomatic cases. An important assessment, before committing to an invasive procedure in the lack of its emergency indication, can be the risk-benefit ratio about complications of both [8]. While no action or delayed action increases the chances of complications, an exploratory laparotomy is a complicated and risky procedure in itself. Even endoscopic removal through the esophagus is not entirely uncomplicated, as studies with large sample sizes have shown that approximately half (50%) of patients could develop complications [11,18]. Furthermore, the literature has suggested that a quickly passing gastrointestinal foreign body in an asymptomatic child demands waitful monitoring as it prevents complications related to endoscopy and surgery [14].

The limitation in the management of this case lies in the possibility of an undesirable outcome. However, in the given circumstances, the multidisciplinary team of radiology and the paediatric surgery opted for conservative management for at least 8 hours by weighing them with the complications of early exploratory laparotomy. This was following a



Fig. 3 – Confirmatory plain radiograph (chest + abdomen + pelvis) taken after spontaneous expulsion not revealing the foreign body or any of its parts in the gastrointestinal tract, in both erect and supine positions.

critical assessment of multiple factors to determine the need and appropriate timing for a commitment to laparotomy, which included the patient's age and presenting complaints as well as the foreign body's initial location, type, propelling rate, shape, size, alignment, and duration of ingestion. After all, it has been suggested that treatment of gastrointestinal foreign bodies must rather be personalized [19].

The purpose of this case is to spread awareness about the possibility of managing a quickly moving long and slender foreign body initially located in the stomach or beyond in an asymptomatic child conservatively under critical observation with the help of radioimaging, particularly in the settings lacking an endoscopy. However, it does not mean to consider this a norm in settings with all the medical facilities. Although, the possibility of conservative management and spontaneous elimination of an asymptomatic foreign body ingestion over an invasive procedure has not just been discussed earlier in the literature [20] but has been preferred if the foreign body is

beyond the esophagus [14]. This could be of a major concern in underserved areas lacking pediatric endoscopy or CT, particularly in underdeveloped countries, such as Nepal. A very helpful tool in these circumstances could be simple imaging (X-ray). However, it seems that a wooden foreign body cannot be identified with an X-ray because of its radiolucency [8]. The inability of an X-ray to detect wood can be contributed to its low density, however, the inner graphite or the coating of the pencil can still have a higher density. Consequently, a long wooden foreign body with distinct margins was identified in this case using X-ray only. Although this is more helpful in the setting of a radiology consultation, a plain X-ray should not be skipped even for radiolucent foreign bodies, particularly for patients who cannot afford CT. Many countries lack free healthcare and most of the people in these countries live below the poverty line. Thus, it becomes very important to provide such patients with the best possible treatment at minimal expenses. In such circumstances, the doctors usually opt for an expensive

investigation (such as a CT) only when a cheaper investigation (such as a plain radiograph) is inconclusive. In addition, ruling out complications and differentials is another vital part of plain radiography.

Conclusion

This case reports a rare incidence highlighting the possibility of conservative management of a long-ingested foreign body, which can be of a concern in underdeveloped countries that lack endoscopy in many areas. Although this should not be considered a norm, this strongly suggests that the treatment of ingested foreign bodies should be individualized. Thus, all the variables related to the child and the foreign body need to be properly evaluated before committing to an invasive procedure like an exploratory laparotomy. Moreover, a simple X-ray should not be discouraged even for radiolucent foreign bodies, as it helps to rule out differentials and can be a financial boon for poor patients in countries without free healthcare.

Ethical approval and consent to participate

Given.

Consent for publication

Verbal and written.

Patient consent

Written informed consent was obtained from the patient's mother for publication of this case report and the accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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