



Case Report

Foreign body ingestion: Is intervention always a necessity?

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ABSTRACT

Introduction: Intentional and accidental foreign body ingestion are commonly encountered in clinical practice. In adults, intentional foreign body ingestion is frequently observed among individuals with psychiatric disorders and prisoners. Controversies exist regarding the management of sharp or pointed objects. We contribute to this existing controversy by presenting a case of a 43-year-old male who accidentally ingested a metallic screw and was managed successfully through endoscopic retrieval.

Case presentation: We discuss a case of a 43-year-old male presented to our emergency department after accidentally swallowing a metallic screw, 1 h and a half prior to his presentation. He was initially asymptomatic then started to complain of vague abdominal symptoms. X-rays of the chest and abdomen demonstrated the presence of a metallic screw at the mid-abdomen. Computed tomography scan of the abdomen then confirmed its presence within the gastric lumen, with no evidence of gastric or bowel perforation. The patient was managed via esophagogastroduodenoscopy in which the ingested screw was extracted. He was discharged after 24 hours in a good condition.

Clinical discussion: A limited number of epidemiological studies have shed light on the prevalence and incidence of foreign body ingestion among adult individuals. Probability of spontaneous passage depends on several factors including the size, shape and composition of the impacted item, as well as the age of patient and duration of ingestion prior to presentation.

Conclusion: Considering the variation of ingested objects and the availability of several therapeutic approaches, a patient-tailored management plan should always be established.

1. Introduction

Intentional and accidental foreign body ingestion are commonly encountered in clinical practice. Intentional ingestion is frequently observed among individuals with psychiatric disorders and prisoners [1]. Accidental ingestion, on the other hand, can occur in both adult and pediatric populations but is mostly seen in children [2]. Fortunately, 90% of ingested items can pass spontaneously through the gastrointestinal tract [3]. However, although rare, foreign body ingestion can result in catastrophic complications such as perforation and even death if appropriate management was not provided in a timely manner. Controversies exist when the ingested object is sharp or pointed in character as endoscopic extraction is recommended by some authors to prevent similar complications [4]. While others take into consideration the high possibility of uneventful passage and advocate for a conservative approach despite the potential risk [5]. The uncertainty experienced

when managing such cases is magnified when the ingested object is rare yet particularly hazardous, such as metallic objects [4]. In this report, we contribute to the existing controversy by presenting a case of a 43-year-old male who accidentally ingested a metallic screw and was managed successfully through endoscopic retrieval. The current paper was reported in line with SCARE guidelines [6].

2. Case presentation

A 43-year-old male presented to our emergency department after accidentally swallowing a metallic screw, 1 h and a half prior to his presentation. He was initially asymptomatic then started to complain of vague periumbilical pain, moderate in severity and associated with hematochezia. He denied experiencing any other symptoms, such as nausea, vomiting, diarrhea, choking, drooling, or fever. His medical history was only significant for a right hepatectomy performed for the

Abbreviations: Computed tomography, (CT).

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purpose of donation. Apart from that, he was not known to have any medical or psychological disorders.

Upon examination, he was hemodynamically stable and not in pain or any respiratory distress. Abdominal examination revealed a soft, lax abdomen with no evidence of peritonitis. Vital signs were within normal limits except for tachycardia with a pulse rate of 110 beats per minute. Laboratory investigations were unremarkable. X-rays of the chest and abdomen (anteroposterior and lateral views) were obtained, and as shown in Fig. 1 a radiopaque metallic screw at the mid-abdomen was identified. Computed tomography (CT) scan of the abdomen (Fig. 2) confirmed the presence of the ingested metallic screw within the gastric lumen, with no evidence of gastric or bowel perforation.

The patient was admitted for esophagogastroduodenoscopy along with a capsule endoscopy under adequate conscious sedation. During endoscopic retrieval, the stomach and esophagus were intact with no signs of perforation. The metallic screw as illustrated in Fig. 3 was observed then held with a snare and drawn out slowly and smoothly with no subsequent complications. The patient was kept for 24 hours under observation and then discharged home in a good condition.

3. Discussion

Ingestion of foreign bodies can be encountered in all age groups, with pediatric patients accounting for 80% of cases [7]. A limited number of epidemiological studies have shed light on the prevalence and incidence of this challenging clinical issue among adult individuals. Lyons and Tsuchida reported that various types of ingested foreign bodies are responsible for 1500 annual deaths in the United State [8]. Probability of spontaneous passage depends on several factors including the size, shape and composition of the impacted item. Patient's age and duration of ingestion also play a fundamental role in the management decision. Given the fact that elderly patients might experience a form of esophageal dysmotility, their chances to expel ingested objects spontaneously are much lower compared to the general population [1]. Along the passage course, impacted objects might end up with a wide spectrum of complications, manifesting in a form of abscess (retropharyngeal,

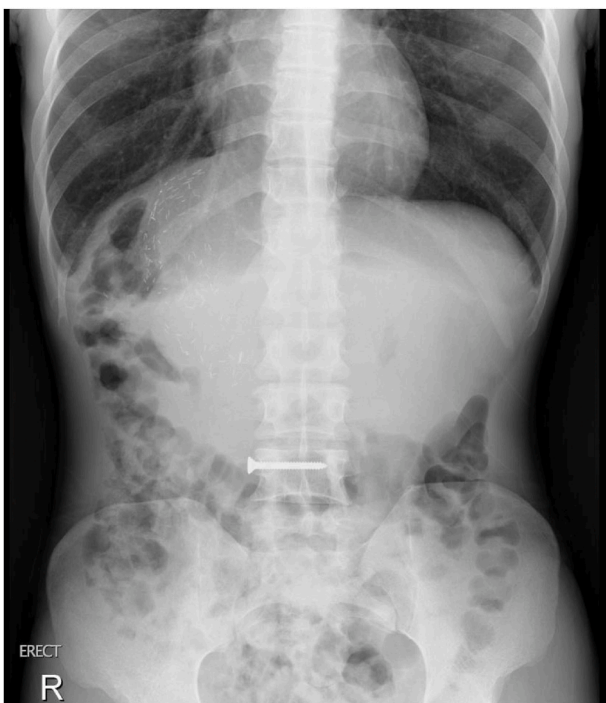


Fig. 1. Anteroposterior view of abdominal x-ray obtained initially, illustrating clearly the radiopaque screw at the mid-abdomen.



Fig. 2. Computed tomography (CT) of the abdomen showing the presence of ingested screw within the gastric cavity.

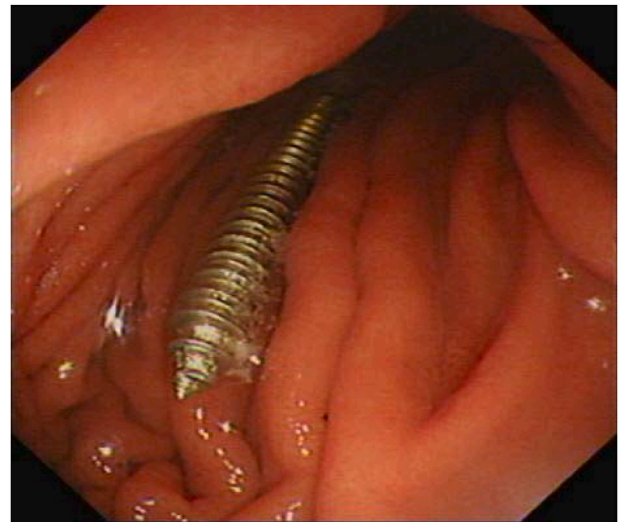


Fig. 3. Ingested screw identified on endoscopy prior to retrieval.

hepatic or retroperitoneal), esophageal or intestinal perforation, bowel obstruction, hemorrhage and even death [4,9]. Impaction of swallowed items might occur near areas of anatomical narrowing such as the lower esophageal sphincter, pylorus, ileocecal valve and, in rare instances, the appendiceal lumen [10]. Mohammed et al. reported a case of screw ingestion in a 4-year-old boy, which was impacted in the appendiceal wall and thus resulted in acute appendicitis [11]. Plain radiograph (anteroposterior and lateral views) can reveal the presence of the foreign body and localizes its position within the gastrointestinal tract, therefore, is usually the initial radiological modality to utilize. The role of CT scan is controversial but it is generally accepted to be obtained in order to identify radiolucent items [12]. In general, around 90% of ingested items pass uneventfully with conservative management, on the contrary, 10% and 1% require endoscopic and surgical interventions, respectively

[13]. Needles, fishbones and razor blades, along with other sharp items, have a risk of perforation estimated to reach 35%, particularly observed at the ileocecal valve [10]. Therefore, endoscopic extraction remains a necessity in managing sharp objects to avoid subsequent complications [4]. Conservative management is kept for small blunt objects, especially those that have passed the pyloric sphincter. Despite the fact that metallic foreign bodies such as screws and nails classically possess a great potential to cause perforation, some authors prefer a conservative approach in managing such afflicted patients. Bazabih and Getu, for instance, successfully managed a 23-year-old male, who ingested a metallic nail and remained asymptomatic, with monitoring and serial radiological examination alone [14].

The rates of morbidities and mortalities associated with battery ingestion increased seven-fold over the last decades due to the introduction of more powerful batteries along with the increased consumption. Cylindrical and disc batteries are the two commonly swallowed types. Disc type is the most lethal due to its electrical discharge current that causes tissue burn and liquefaction necrosis within 2–3 hours of ingestion. The main determinants of injury severity are the type, size, location, and timing of the battery ingestion. Neck, chest and abdominal x-rays are essentials to identify the location and distinguish disc batteries from coins. Disc battery in the esophagus will demonstrate a “double halo” and “step-off” signs on the anteroposterior and lateral views, respectively. In general, disc batteries and multiple cylindrical batteries need immediate endoscopic extraction whereas conservative management remains a choice if the ingested object is a single cylindrical battery [15,16]. Regarding magnetic objects, they might initially exhibit no clinical manifestations. Progression of clinical condition is then determined by timing, location, and number of ingested magnets. Usually a single magnet is harmless, but the issue arises when multiple objects are swallowed sequentially. Multiple objects can create strong magnet attraction at the wall of hollow abdominal organs, causing distortion at that point, resulting in intestinal ischemia, perforation, and fistula formation. Endoscopic extraction of magnet seems advisable within 12 hours of ingestion [17,18].

Caustic ingestion, defined as the ingestion of an intense alkaline or acidic product, represents another distinct entity of foreign body ingestion. Ingestion of caustic substances in adults is predominantly observed in suicidal intent due to psychiatric disorders. Caustic material can result in tissue necrosis and eschar formation, therefore, endoscopy is one of the standard measures to assess the extent of tissue damage after ingestion. The optimal time for endoscopic intervention is within 24–96 hours after ingestion to minimize risk of iatrogenic perforation. It has been suggested that endoscopy should involve the esophagus, stomach, and first part of the duodenum until a circumferential second or third-degree burn is seen [19,20]. In an attempt to compare the endoscopic findings of alkaline and acidic ingestions and the resultant effect of both, a retrospective study was conducted by Hollenbach and colleagues. The authors pointed out that alkaline substances cause significant damage to the esophagus and stomach compared to acids [20]. Considering the variation of ingested objects and the availability of several therapeutic approaches, a patient-tailored management plan should always be established.

4. Conclusion

Metallic item ingestion, in particular, represents a challenge to healthcare practitioners. We report a case of accidental screw ingestion by a 43-year-old male patient, successfully managed via endoscopic extraction, and provide a brief review of literature for other types of foreign body ingestion. Based on our experience, we recommend managing cases of foreign body ingestion in an individualized manner to provide optimal outcomes for treated individuals. Benefit-risk assessment can help in establishing a safe yet cost-effective management plan.

Ethical approval

Not required.

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Author contribution

DB and LB wrote the manuscript. MA is the treating consultant who reviewed and edited the manuscript.

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Consent

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

Declaration of competing interest

None.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.amsu.2022.104944>.

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