

Foreign body ingestion: Is intervention always a necessity?

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Abstract-

Introduction: Intentional and unintentional foreign body ingestion is common in clinical practice. Conscious extracorporeal ingestion has been observed frequently in adults with psychiatric illnesses and among prisoners. There is controversy about the management of sharp or pointed objects. We contribute to this existing controversy by presenting a case of a 38-year-old woman who accidentally swallowed two metal needles and was successfully treated with conservative management.

Case Presentation: We discuss the case of a 38-year-old woman who presented to our emergency department after accidentally swallowing two metal needles 2 hours before presentation. She was initially asymptomatic and then began to complain of vague abdominal symptoms. X-rays of the chest and abdomen revealed the presence of two metal needles in the mid-abdomen.

Clinical Discussion: A limited number of epidemiologic studies have elucidated the incidence and prevalence of foreign body ingestion in adults. The likelihood of spontaneous passage depends on several factors, including the size, shape and composition of the affected object, as well as the age of the patient and the duration of ingestion before exposure. **Conclusion:** Taking into account the variability of ingested objects and the availability of multiple treatment modalities, patient treatment should always be developed.

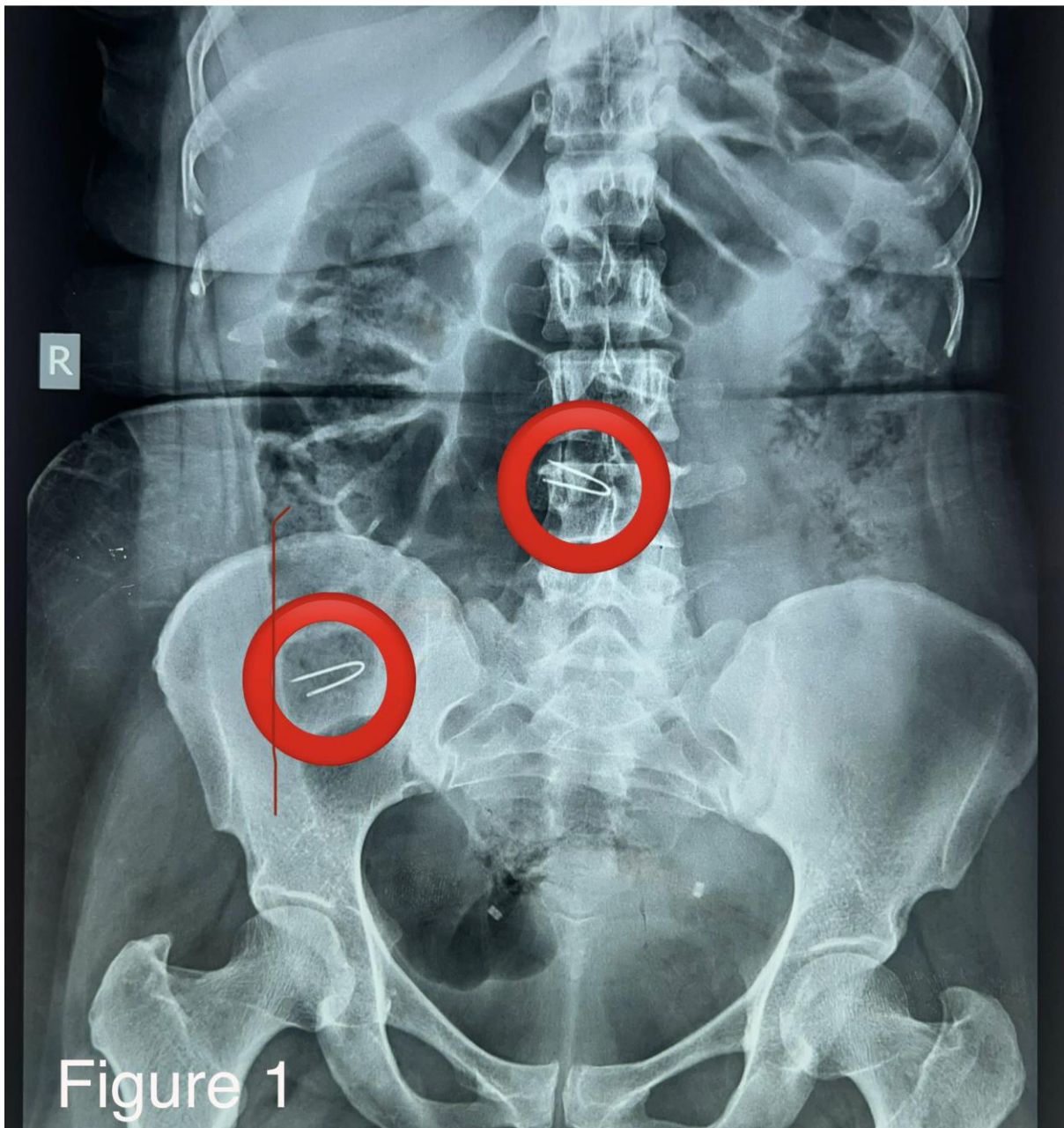
1. Introduction

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 38-year-old female who accidentally ingested two metallic pins and was managed successfully through management. The current paper was reported in line with SCARE guidelines [6].

2. Case presentation

A 38 year-old female presented to our emergency department after accidentally swallowing two metallic pins, 2 half prior to her presentation. She was initially asymptomatic then started to complain of vague periumbilical pain, moderate in severity and associated with 2 episodes of vomiting. First episode of vomiting contained food particles and Second episode of vomiting was blood tinged. She denied experiencing any other symptoms, such as diarrhea, choking, drooling, or fever. Her medical history was only significant for perianal surgery and laparoscopic tubal ligation. Apart from that, she was not known to have any medical or psychological disorders.

Upon examination, she 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 102 beats per minute. Laboratory investigations were unremarkable. X-rays of the chest and abdomen (anteroposterior views) were obtained, and as shown in Fig. 1 a radiopaque metallic pins at the mid-abdomen was identified. The patient was admitted for observation and conservative approach was planned. On day 2 of admission repeat erect abdomen xray was done and shown in Fig.2 one metallic pin was passed successfully and on day 4 of admission on further erect xray of abdomen as shown in Fig.3 no foreign body can be seen and patient was discharged in good health from the hospital and without any complications



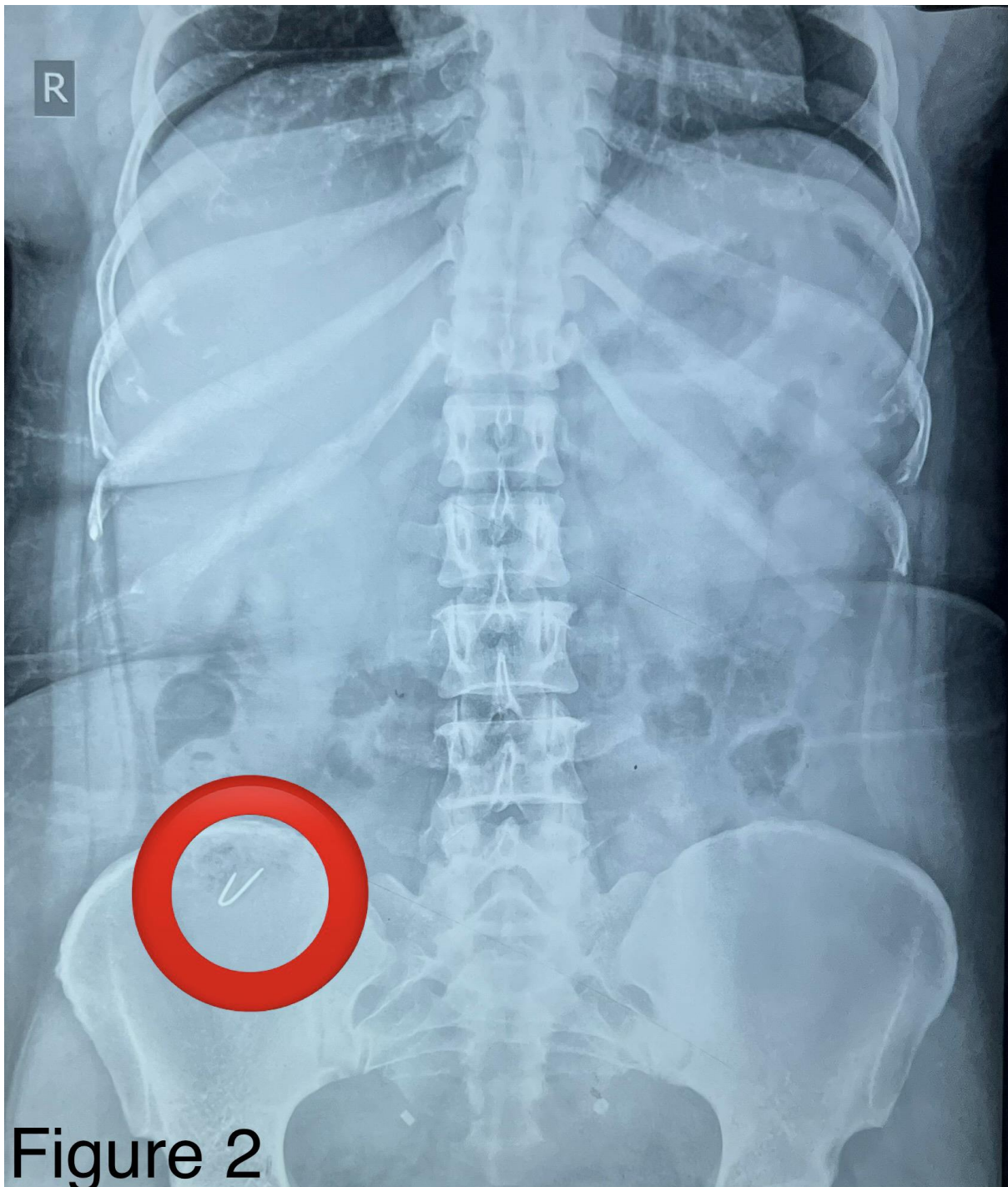


Figure 2



R Figure 3

Figure 1: erect abdomen xray showing two metallic pins

Figure 2: erect abdomen xray showing one metallic pin

Figure 3: erect abdomen xray after successfully passage of metallic pins with conservative management

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)

[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 38-year-old female patient, successfully managed via conservative management, 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

REFERENCES:

- [1] X. Wang, S. Su, Y. Chen, Z. Wang, Y. Li, J. Hou, et al., The Removal of Foreign Body Ingestion in the Upper Gastrointestinal Tract: a Retrospective Study of 1,182 Adult Cases, 2022.
- [2] G. Blanco-Rodríguez, G. Teyssier-Morales, Penchyna-Grub, et al., Characteristics and outcomes of foreign body ingestion in children, *Arch. Argent. Pediatr.* 116 (4) (2018).
- [3] Y. Zong, H. Zhao, C. Sun, M. Ji, Y. Wu, S. Zhang, et al., Differences between intentional and accidental ingestion of foreign body in China, *BMC Gastroenterol.* 20 (1) (2020).
- [4] A. AlMuhsin, F. Alsalman, A. Bubshait, R. Abu Hajar, *Surgical Management of Massive Metal Bezoar*, Cureus, 2021.
- [5] Y. Bezabih, M. Getu, Spontaneous passage of accidentally ingested metallic nail in an adult: a case report, *Int. J. Surg. Case Rep.* 92 (2022), 106865.
- [6] R. Agha, T. Franchi, C. Sohrabi, et al., The SCARE 2020 guideline: updating consensus surgical Case Report (SCARE) guidelines, *Int. J. Surg.* 84 (2020) 226–230.
- [7] R. Cheng He, T. Nobel, A. Greenstein, A case report of foreign body appendicitis caused by tongue piercing ingestion, *Int. J. Surg. Case Rep.* 81 (2021), 105808.
- [8] L. Lyons, L. Tsuchida, Foreign bodies of the gastrointestinal tract, *Med. Clin.* 77 (5) (1993) 1101–1114.
- [9] M. Tavallaei, M. Bahadorinia, A. Haj Mohamad Ebrahim Ketabforoush, Intentional ingestion of a metallic wire causing perforation and retroperitoneal abscess: a case report, *Clin. Med. Insights Case Rep.* 14 (2021), 117954762110259.

- [10] M. Bisharat, A. Spence, B. McAree, T. Lioe, D. McManus, R. Spence, Breast cancer in women under 40 - the belfast experience, *Eur. J. Surg. Oncol.* 34 (10) (2008) 1188.
- [11] A. Mohammed, D. Ghazi, S. Arif, Ingested metallic foreign body impacted in the vermiform appendix presenting as acute appendicitis: case report, *Int. J. Surg. Case Rep.* 57 (2019) 201–204.
- [12] J. Khorana, Y. Tantivit, C. Phiuphong, S. Pattapong, S. Siripan, Foreign body ingestion in pediatrics: distribution, management and complications, *Medicina* 55(10) (2019) 686.
- [13] J. Lee, Foreign body ingestion in children, *Clin. Endoscop.* 51 (2) (2018) 129–136. [14] Y. Bezabih, M. Getu, Spontaneous passage of accidentally ingested metallic nail in an adult: a case report, *Int. J. Surg. Case Rep.* 92 (2022), 106865.
- [15] B. Sahn, P. Mamula, C. Ford, Review of foreign body ingestion and esophageal food impaction management in adolescents, *J. Adolesc. Health* 55 (2) (2014) 260–266.
- [16] R.K. Newman, B. Dijkstra, J. Gibson, Disk Battery Ingestion [Internet], 2022 [cited 2 September 2022]. Available from: <https://pubmed.ncbi.nlm.nih.gov/29262219/>.
- [17] M. Alfonzo, C. Baum, Magnetic foreign body ingestions, *Pediatr. Emerg. Care* 32 (10) (2016) 698–702.
- [18] K. Dokleštic, Z. Loncar, B. Jovanovic, J. Velickovic, Magnets ingestion as a rare cause of ileus in adults: a case report, *Vojnosanit. Pregl.* 74 (11) (2017) 1094–1097.
- [19] K. Ramasamy, V.V. Gumaste, Corrosive ingestion in adults, *J. Clin. Gastroenterol.* 37 (2) (2003) 119–124.
- [20] M. Hollenbach, J. Tünnemann, M.F. Struck, J. Feisthommel, T. Schlosser, T. Schaumburg, et al., Endoscopic findings and outcome in caustic ingestion of acidic and alkaline agents in adults: a retrospective analysis, *Medicine (Baltim.)* 98(35) (2019), e16729.