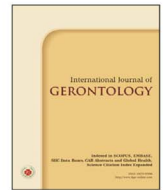




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Case Report

Accidental Foreign Body Ingestion in an Elderly Patient with Dementia: Successful Retrieval from the Jejunum via Single-Balloon Enteroscopy

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SUMMARY

Accidental foreign body ingestion in elderly patients presents unique diagnostic and therapeutic challenges, especially when complicated by comorbidities such as dementia. We report the case of an 87-year-old man with dementia who unintentionally swallowed a segment of a plastic chopstick. Initial esophagogastroduodenoscopy did not reveal the foreign body, but a subsequent abdominal computed tomography scan identified a 5.5 cm rod-like object in the jejunum. The foreign body was successfully removed via single-balloon enteroscopy, and the patient recovered without complications. This case highlights the importance of prompt diagnosis and the utility of advanced endoscopic techniques in managing small bowel foreign bodies in elderly patients.

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1. Introduction

Foreign body ingestion is a common problem in clinical practice, particularly among children and the elderly.¹ In elderly individuals, the risk increases due to cognitive impairments (such as dementia), impaired swallowing control, intraoral sensitivity, poor vision, and tooth loss.² Most ingested foreign bodies (80–90%) pass through the gastrointestinal tract spontaneously. However, 10–20% may require endoscopic removal, and less than 1% necessitate surgical intervention.^{3,4} Complications can occur when the object becomes lodged in the esophagus, stomach, or, less commonly, the small intestine.

For prompt recognition and intervention, the history of ingestion — including timing, type of foreign body, and onset of symptoms — is important. Nevertheless, a medical evaluation may be challenging in elderly patients with dementia. In cases involving the small bowel, the foreign bodies are beyond the reach of conventional esophagogastroduodenoscopy (EGD), and advanced endoscopic techniques, such as single-balloon enteroscopy (SBE) and double-balloon enteroscopy (DBE), may be needed. SBE and DBE offer a minimally invasive approach to foreign body removal in small bowel, reducing the need for more invasive surgical procedures.

Here, we present a case of accidental foreign body ingestion in an elderly patient, where the object lodged in the proximal jejunum. We discuss the challenges and management strategies in this patient population.

2. Case presentation

An 87-year-old man with a history of chronic obstructive pulmo-

nary disease and dementia was brought to the emergency department following an unintentional foreign body ingestion 2 hours prior to admission. He presented with a fever since the morning of admission, and he subsequently refused to eat lunch. His caregiver attempted to open his mouth using plastic chopsticks; however, he bit off a segment of the chopstick and inadvertently swallowed it. He was brought to the emergency department immediately. Upon presentation, he also exhibited shortness of breath and desaturation, and required oxygen supplementation via a mask at 10 L/min. Initial abdominal X-ray revealed a rod-shaped foreign body measuring approximately 5 cm in length located in the left upper abdomen (Figure 1a). The patient was intubated and then admitted to the intensive care unit (ICU).

Despite the finding, an EGD performed promptly thereafter did not detect the foreign body from the esophagus to the duodenum. We followed up with an abdominal X-ray the next day, which still showed the rod-shaped foreign body in the left upper abdomen. An abdominal computed tomography (CT) scan was arranged, demonstrating a 5.4 cm rod-like lesion in the proximal jejunum (Figure 1b). Therefore, we scheduled a SBE for foreign body removal that same day. During the SBE, a 5.5-cm rod-shaped foreign body was found 70 cm distal to the pylorus in the proximal jejunum (Figure 2), and it was successfully removed using a snare (Figure 3). After foreign body removal, the patient's diet was advanced as tolerated. He was extubated two days later and discharged on the fourth day following endoscopic treatment without further complications.

3. Discussion

Foreign body ingestion is a common clinical problem encountered in the emergency department, accounting for an annual incidence of 120,000 cases and 1,500 deaths in the United States.¹ Pa-

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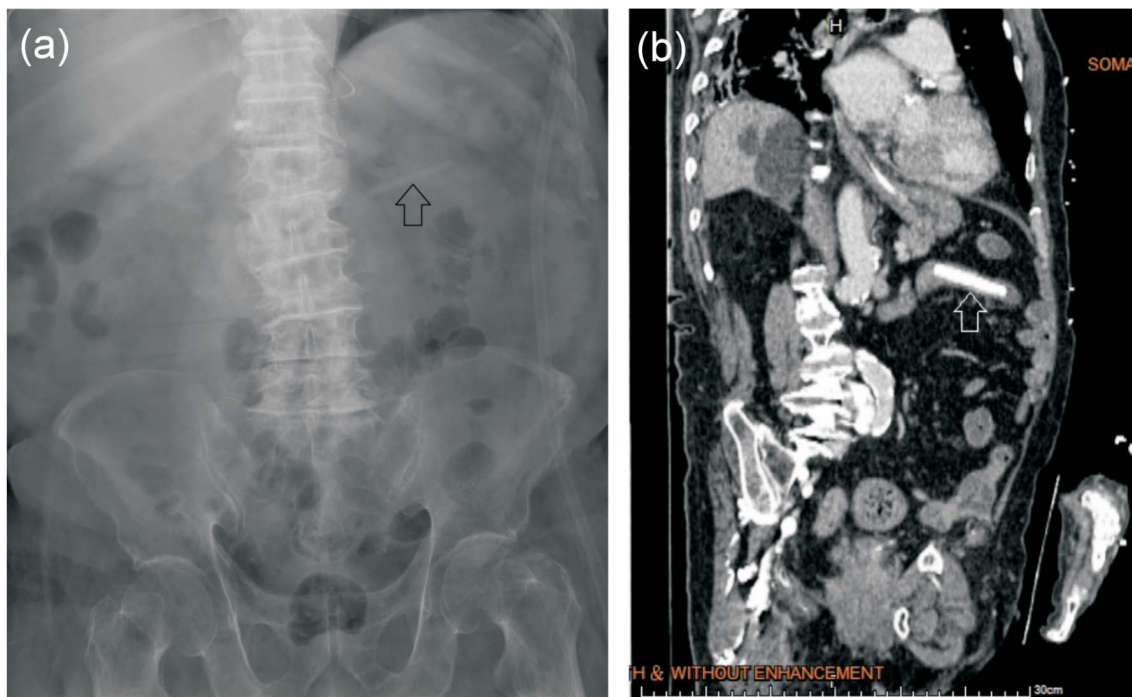


Figure 1. (a) Abdominal X-ray revealed a rod-shaped foreign body measuring approximately 5 cm in length located in the left upper abdomen. (b) Subsequent abdominal computed tomography (CT) imaging demonstrated a 5.4 centimeter, rodshaped lesion within the proximal jejunum.



Figure 2. Single balloon enteroscopy showed a 5.5-cm rod-shaped foreign body was found 70 cm distal to the pylorus in the proximal jejunum.



Figure 3. A 5.5-cm foreign body was successfully removed using a snare.

tients of all age groups can be involved, especially children and the elderly. Children often ingest foreign objects due to curiosity or by accident, while foreign body ingestion in adults appears more often in patients with psychiatric disorders, mental retardation, acute intoxication, cognitive impairment (such as dementia), in prisoners seeking secondary gain, and in the elderly population.^{1,3} Elderly individuals frequently experience foreign body ingestion due to impaired swallowing controls and intraoral sensitivity. Additionally, factors such as poor vision, tooth loss, and the use of dental prosthetics can contribute to mis-swallowing incidents.² Moreover, dysphagia is common among older adults due to neuromuscular degeneration or other underlying conditions, which raises the likelihood of swallowing large or dangerous items. The most commonly ingested foreign bodies by adults are bones (fish or chicken).⁵ Dentures and medicine

packing are more commonly seen in the geriatric population than in the pediatric population, psychiatrically or mentally impaired group.²

In the diagnostic challenges, the diagnosis of an ingested foreign object mainly relies on the patient's medical history. The information guides the choice of diagnostic assessments and determines the urgency and extent of any necessary interventions, based on the type of foreign body, the patient's reported symptoms, and clinical findings.³ However, foreign body ingestion in elderly individuals with dementia can pose diagnostic challenges, particularly when the object moves beyond the stomach and into the small intestine, as observed in this case. Shah et al. reported a curious case of foreign body ingestion in an elderly male patient with dementia. He initially presented with coughing, vomiting, and difficult swallowing after he had several bites of food. He was brought to ED immediately. Food impaction was suspected, and an EGD was performed promptly. Unexpectedly, in addition to food, coins were also identified in the esophagus.⁶ Usual historical clues, such as choking, coughing, drool-

ing, vomiting, dysphagia, refusal to eat, and respiratory distress, may be helpful in these patients.^{1,2} A thorough history and detailed communication with caregivers are essential for diagnosis.

When there is a reported history of swallowing a foreign object, a radiographic assessment of the neck, chest, and abdomen is suggested to evaluate the presence, location, size, shape, and number of ingested objects.^{3,4} Plain radiography is useful and recommended as the initial screening method, but it may fail to identify the exact location or complications of the foreign body, and some materials — such as wood, plastic, glass and fish or chicken bones — may not be readily seen in plain films.^{3,4} Further diagnostic imaging with CT is necessary in certain conditions. The sensitivity and specificity of CT scan are significantly superior to radiography.⁵ ESGE guidelines recommends CT scan in all patients with suspected perforation or other complication that may require surgery.³

While most foreign bodies pass through the GI tract without intervention, approximately 20% require endoscopic or surgical removal, particularly when the object is large, sharp, or impacted in narrow parts of the GI tract.^{3,4} The most common sites of foreign body impaction are esophagus and pylorus. Endoscopic interventions are successful and safe in more than 90% of cases.⁷ The jejunum is a relatively uncommon site for foreign body impaction compared to the esophagus or stomach, but it can occur, especially in elderly patients with altered GI motility or prior abdominal surgeries.⁸ The location of the foreign body in the jejunum requires the use of advanced endoscopic techniques. SBE is an effective method to retrieve foreign bodies located in the small bowel, as it allows for deeper intubation of the bowel beyond the reach of traditional endoscopy.

Some case reports and series have described the successful use of balloon-assisted enteroscopy for retrieving retained video endoscopy capsules and other foreign objects.^{9–13} There are still limited data on the use of balloon-assisted enteroscopy for extraction of foreign bodies currently.⁸ In managing small bowel foreign body ingestion, the decision to use balloon-assisted enteroscopy should consider the nature of the foreign body, patient stability, underlying diseases and anatomical factors, antegrade versus retrograde approaches, availability of appropriate endoscopic accessories, need for fluoroscopy, and the expertise of the endoscopist.⁴

In the therapeutic considerations, the choice of SBE was particularly appropriate in this elderly patient, given its minimally invasive nature compared to surgical options, which carry higher risks in older adults with multiple comorbidities.^{8,14,15} DBE is another advanced endoscopic technique that facilitates deep small bowel access. While DBE offers similar diagnostic and therapeutic capabilities, SBE is often favored due to its shorter procedural time and simpler setup, which may be advantageous in elderly patients with comorbidities who are less tolerant of prolonged procedures. However, DBE may provide better visualization and deep intubation in cases requiring extensive exploration of the small bowel. The choice between SBE and DBE depends on the expertise available and the specific clinical scenario. Surgical intervention is usually reserved for cases where endoscopic removal fails or is contraindicated, such as in the presence of perforation, foreign bodies causing obstruction, or significant patient instability. Surgery carries higher risks of complications, prolonged recovery, and increased morbidity in elderly patients, making endoscopic methods the preferred first-line option whenever feasible. Endoscopic removal minimizes the risks of complications such as bowel perforation, infection, or bleeding, which are more common in frail elderly patients. After successful removal of the foreign body, careful post-procedure monitoring is crucial in elderly patients. This cautious post-procedure approach is vital in el-

derly patients to prevent aspiration, ensure proper nutrition, and monitor for any delayed complications such as bowel perforation or infection.

In our case, the patient inadvertently swallowed a segment of a plastic chopstick while his caregiver attempted to open his mouth. Although the initial X-ray showed the foreign body in the left upper abdomen, an abdominal CT scan was necessary to confirm its location in the proximal jejunum. Subsequently, SBE enabled the successful extraction of the 5.5 cm foreign body from the jejunum, approximately 70 cm from the pylorus, without any adverse events.

We would like to highlight the following points: First, handling during caregiving, particularly for patients with cognitive impairments who are at risk of ingesting non-food items, should be approached with caution. Second, multimodal imaging is crucial in cases where foreign bodies progress beyond the stomach. Third, SBE appears to be an effective and safe method for retrieving foreign objects in small bowels.

4. Conclusion

Foreign body ingestion in elderly patients, particularly those with dementia, presents significant diagnostic and therapeutic challenges, especially when the object becomes lodged in the small bowel. The complexity of caring for elderly patients with multiple comorbidities underscores the need for a careful, multidisciplinary approach to diagnosis and treatment, ensuring the best possible outcomes for this vulnerable population.

To prevent similar incidents, caregivers of patients with dementia should be educated on practical measures, including monitoring meals closely, avoiding small or sharp objects in their environment, and ensuring that eating utensils are appropriate for safe use. These preventive strategies align with the broader goals of geriatric care and may help reduce the incidence of accidental foreign body ingestion in this high-risk population.

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