

An Adult Patient Who Swallowed a Toothbrush: A Case Report

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Abstract

Toothbrush ingestion is a rarer condition than other swallowed foreign bodies. It is usually seen in the elderly, patients with psychological disorders, and mentally retarded individuals. In this article, we present the case of a 21-year-old female patient who accidentally swallowed a toothbrush. The toothbrush was successfully removed with flexible endoscopy using a polypectomy snare.

Keyword: Endoscopy, toothbrush, bulimia, anorexia nervosa

INTRODUCTION

Foreign body ingestion is one of the important causes of emergency department visits, although it may be involuntary or intentional. While ingestion of smaller-sized objects is frequently observed in children, ingestion of unexpectedly shaped and sized objects is generally observed in the elderly, alcoholics, and adults with mental and psychological disorders.¹ Small foreign bodies such as coins, needles, and buttons can pass through the gastrointestinal tract without any problem, whereas a toothbrush is a very difficult object to pass due to its size and rigid structure. Due to the high potential for complications, an early endoscopic procedure is vital.^{2,3} In this article, we planned to present the case of a 21-year-old female patient who presented to the emergency department after swallowing a toothbrush.

CASE PRESENTATION

A 21-year-old female patient presented to the emergency department of the hospital after swallowing a toothbrush. She was followed up by the psychiatry department and started medical treatment about 1 year ago due to obsessive-compulsive disorder, but was not currently taking any medication. The patient stated that she accidentally swallowed the toothbrush after brushing her teeth. On physical examination, the patient's general condition was good, her consciousness was clear, and her vital signs were stable. There was no defense or rebound on abdominal examination. All other system examinations were normal. Standing direct abdominal radiography revealed the presence of a foreign body in the left upper quadrant of the abdomen (Figure 1). After obtaining consent for the procedure from the patient and patient relatives, endoscopy was performed under midazolam. Endoscopy revealed the brush part of the toothbrush in the stomach was more proximal. The handle of the toothbrush was successfully removed by grasping it with a polypectomy snare (Figures 2 and 3). The length of the removed toothbrush was 19 cm (Figure 4). No complications were observed during and after the procedure. The patient was discharged after 6-8 hours of follow-up in the emergency department.

DISCUSSION

Although ingestion of a foreign body is common, ingestion of a toothbrush is a rare event. To the best of our knowledge, 32 cases of toothbrush ingestion have been reported in the literature.⁴ Young women constitute the majority of these cases.⁴ Toothbrushes are mostly swallowed to induce vomiting either intentionally or accidentally in patients with bulimia or anorexia nervosa.⁴ There are cases in which especially young female patients aim to induce vomiting by touching the toothbrush handle to the back of the throat and report that they accidentally swallowed the toothbrush during this process.^{5,6} While small swallowed objects (<2.5 cm) can pass through the gastrointestinal tract without any problem, large and rigid objects such as toothbrushes (>10 cm) are unlikely to pass through the pyloric canal and duodenal flexure. In the literature, swallowed toothbrushes are most commonly encountered in the stomach and secondly in the oesophagus.^{3,4,7}

In the past, the first successful toothbrush extraction after toothbrush ingestion was reported by laparotomy in 1927,⁸ the first laparoscopic extraction in 1997,⁹ and the first successful toothbrush extraction by endoscopic intervention in 1983.¹⁰



Figure 1. Foreign body on standing direct abdomen x-ray.

Small foreign bodies in the stomach usually do not cause any symptoms. However, symptoms such as abdominal pain, fever, bleeding, and vomiting may develop after ingestion of toothbrush-sized objects. The presence of these symptoms should suggest the possibility of complications, including pyloric stenosis, obstruction, perforation, pressure necrosis, and rupture.⁷ Care should be taken especially because foreign bodies in the esophagus may cause complications with high mortality, including esophageal perforation, mediastinitis, and airway obstruction.¹¹ In order to prevent these complications, removal of these objects by early endoscopy is recommended.³ Using an overtube during endoscopy may prevent mucosal damage that may develop in the oesophagus.¹²

Although the tool used to remove the toothbrush is often a basket or polypectomy snare, a gastric balloon grasper is also among the tools used.^{13,14} It is important that the endoscopy procedure be performed carefully by an experienced endoscopist. During endoscopy, care should be taken to adjust the position of the toothbrush to be parallel with the esophagus so that the toothbrush can pass through the gastroesophageal junction easily without causing mucosal damage and foreign body impaction in the esophagus. When the toothbrush reaches

MAIN POINTS

- Accidental ingestion of small-sized objects is more common in children. Ingestion of large-sized and differently shaped objects is more common in the elderly, alcoholics, and people with mental and psychological disorders.
- Toothbrushes are mostly swallowed to induce vomiting either intentionally or accidentally in patients with bulimia or anorexia nervosa.
- Endoscopic toothbrush removal should be performed carefully by an experienced endoscopist.

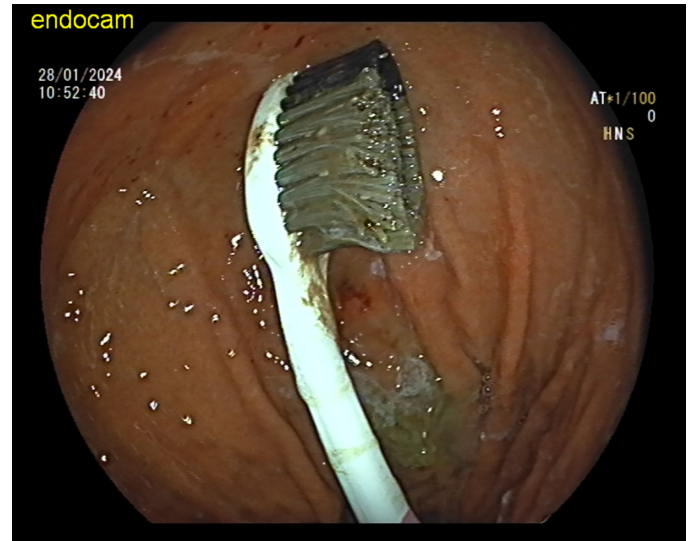


Figure 2. Endoscopic image of a toothbrush in the stomach from the cardia.

the oropharynx, it is recommended that the patient's head should be extended backwards and the toothbrush should be taken out by holding it by hand.¹³ After successful endoscopic removal of the toothbrush without complications, the patient can be discharged in a short time. If complications develop or if the endoscopic procedure is not successful, laparotomy or surgery with a laparoscopic approach should be considered.¹⁵

This is a case report of a successful endoscopic toothbrush removal in a young female patient who accidentally swallowed a toothbrush. The long axis of the stomach is not wide enough for the toothbrush to rotate. In cases where the brush part of the toothbrush is seen more proximally than the handle part, it should be kept in mind that the patient aims to vomit by touching the handle of the toothbrush to the back of the throat. Conscious desire to vomit may be the result of a psychological disorder. Therefore, patients should also be evaluated psychiatrically.

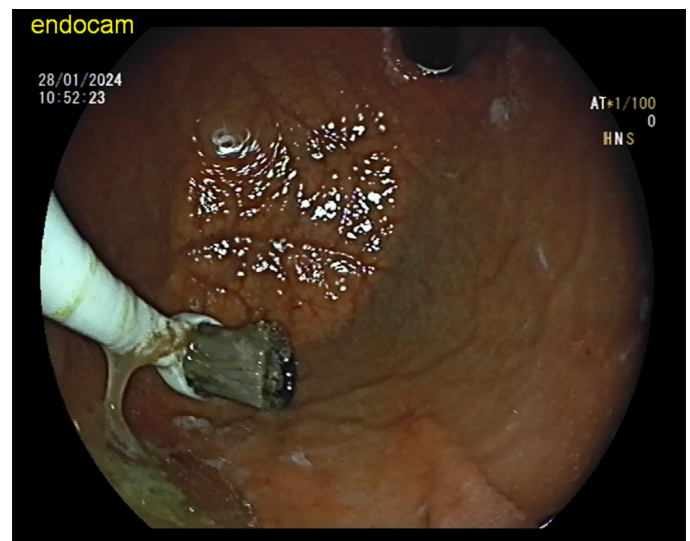


Figure 3. Endoscopic image of a toothbrush in the stomach in retroflexion.

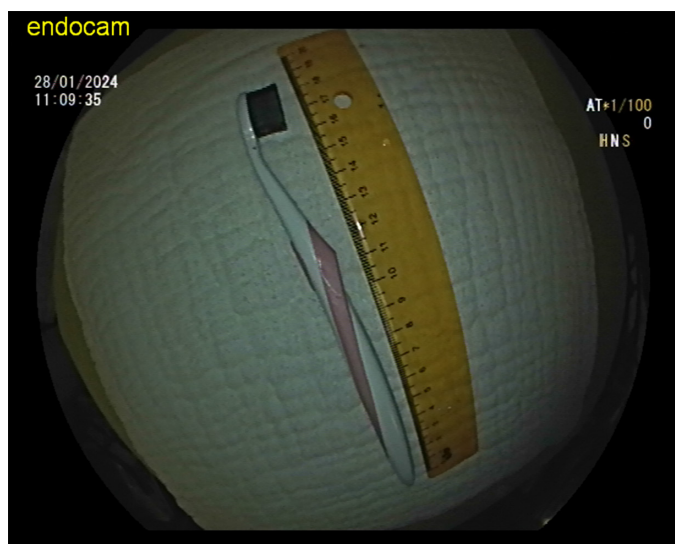


Figure 4. Image of a toothbrush removed by endoscopy.

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Informed Consent: Written informed consent was obtained from the patient who participated in this study.

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