Endoscopic Removal of an Accidentally Swallowed Toothbrush

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Abstract

A rare case is reported with a large foreign body in the upper gastrointestinal tract. A 19-year-old girl accidentally swallowed her toothbrush which was successfully removed via endoscopy using a polypectomy snare under topical pharyngeal anesthesia. The extracted toothbrush was 20 cm long, and it had the characteristic radiographic image.

Key words: endoscopy, toothbrush

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Introduction

Foreign body ingestion is a common problem encountered in the emergency room (1). A swallowed toothbrush poses a special problem as it never passes through the GI tract spontaneously (2). Early endoscopy and removal is recommended. We report a 19-year-old girl who accidentally swallowed a toothbrush which was extracted via endoscopy without complication.

Case Report

A 19-year-old girl presented to our Gastroenterology department via the emergency room. She swallowed her toothbrush accidentally when she was in an effort to provoke vomiting with the toothbrush, and the surgeon suggested an endoscopic examination. The teenage, well-developed student did not have complaints; there was a three-hour period between the time of the accident and the start of the examination. A physical examination revealed tenderness in the upper quadrant abdomen and a temperature of 37°C. Plain x-ray film of the chest and abdomen showed a characteristic radiographic image of a toothbrush with parallel rows of short metallic radiodensities in the lower esophagus only in LAT position (Fig. 1B), not in PA position (Fig. 1A). The patient does not have any psychiatric disease or mental retardation, but she provokes vomiting sometimes due to overeating. Informed consent was obtained from the patient and her relative. After pharynx anesthetization by lidocaine spray, the endoscopy was performed by a video endoscope of GIF-240 type. The brush was found in the lower esophagus from 32 cm from the incisors (Fig. 2A), but its handle went through the cardia. Injury was not found on the esophagus. The removal of the toothbrush was attempted by using an Olympus polypectomy snare (Fig. 2B). It was necessary to assist the toothbrush to go through the pharynx by hands. The total procedure lasted only 5 minutes. The extracted toothbrush was 20 cm long (Fig. 3), and it had the characteristic radiographic image in PA position (Fig. 4B), not in LAT position (Fig. 4A). The procedure was successful, the patient who tolerated it well without sedation, left the hospital after thirty minutes of observation, without any complaints.

Discussion

Ingestion of a foreign body is commonly encountered in the clinic among children, adults with intellectual impairment, psychiatric illness or alcoholism, and dental prosthetic-wearing elderly subjects (1). However, toothbrush swallowing is rare, with only approximately 40 reported cases (2, 3). It was reported that a toothbrush shows a characteristic radiographic image with parallel rows of short metallic radiodensities due to the metallic plates that hold the bristles in place (4). However, we must pay attention to the
Figure 1. Plain x-ray of chest and abdomen (PA and LAT) showed a characteristic radiographic image of a toothbrush with parallel rows of short metallic radiodensities in the lower esophagus (arrow) only in LAT position (B), not in PA position (A).

Figure 2. Endoscopic view of the adult toothbrush located in the lower esophagus (A) and the toothbrush grasped by polypectomy snare (B).

Figure 3. Extracted 20 cm toothbrush.

Figure 4. Plain x-ray of the extracted toothbrush (PA and LAT) with characteristic parallel rows of short metallic radiodensities which were shown only in the PA position (4B) and not in the LAT position (A).

radiographic image because an improper X-ray may result in an uncharacteristic radiographic image, just like Fig. 1A and Fig. 4A. Unlike most other foreign bodies, there are no reports of swallowed toothbrushes passing spontaneously (2). Thus prompt intervention is required in order to avoid complications such as pressure necrosis causing gastritis, ulceration and perforation. An initial extraction strategy to consider is endoscopy by a skilled technician, and the first successful performance of this procedure was reported in 1983 (5). All objects impacted in the esophagus require urgent or emergent treatment (1). For large and long foreign bodies, to avoid local injury is very important. In the present case, because the toothbrush was too rigid to be bent, we gently and slowly assisted the toothbrush to go through the pharynx with hands. If the toothbrush has become impacted upside down in the esophagus, it is wise to push the toothbrush into the stomach first, and pull it out with a snare after correcting the direction of toothbrush. It would be more difficult for the endoscopist to bend the handle of toothbrush than to bend the head of toothbrush. If endoscopic removal is not possible and particular complications are not present, a laparoscopic approach may be an alternative to laparotomy (6).

References


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