Case Report

Endoscopic Removal of Accidentally Swallowed Toothbrush

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Kuwait Medical Journal 2009, 41 (1) 66 -68

ABSTRACT
Foreign body ingestion is a very well recognized problem that confronts surgeons. Toothbrush ingestion is rare, with only a few cases reported. We report a case of accidental swallowing of a long toothbrush and review the available literature on the complication and management of toothbrush swallowing. A 15-year-old female presented to the emergency room in Al-Sabah hospital, Kuwait, complaining of having swallowed her toothbrush. In addition to routine biochemical investigations, abdominal and chest X-ray were done. Abdominal X-ray revealed a foreign body (toothbrush) in the stomach. Endoscopy was used successfully to remove the toothbrush with no complication. The case is reported because of its rare nature.

KEY WORDS: endoscopic removal, foreign body, toothbrush

INTRODUCTION
Accidental swallowing of a toothbrush is rare but requires immediate medical intervention in one way or the other. It is known that 80% of swallowed foreign bodies pass spontaneously through the gastrointestinal tract[1], but there is only one report regarding swallowed toothbrush passing through the pylorus[2,3], which makes the condition a potential risk for complications such as pressure necrosis causing gastritis, ulceration and perforation[4].

The only documented case in which a toothbrush passed the pylorus was in 2006. In that case, the most serious complication of large bowel perforation and liver injury occurred. Laparotomy was required for repairing the colo-hepatic penetration[9].

Our case is one of the rare cases that has been managed quickly and successfully using endoscope to remove the toothbrush.

CASE REPORT
A 15-year-old female presented to surgical emergency room complaining of having swallowed her toothbrush accidentally during tooth brushing. Six hours later she started developing mild epigastric discomfort without vomiting or any other symptoms. She had no psychiatric illness or history of bulimia, and no previous hospitalization.

The patient was immediately assessed. She was clinically stable. Inspection of the oropharyngeal cavity was unremarkable with no signs of injury such as laceration, abrasion, contusion or bleeding. Also, there were no signs of neck emphysema. Chest was clear with good bilateral air entry. Abdomen was soft and lax with no area of tenderness, and no guarding.

Chest X-Ray AP and lateral and neck X-Ray were obtained. No abnormality was noted. Abdomen AP X-Ray showed a foreign body shadow opposite the level of lumbar 2-3 vertebrae, no air-fluid level and no free air under diaphragm (Fig. 1). Patient was admitted to the surgical ward for further management. The decision was made for urgent endoscopic examination and trial of foreign body removal. Flexible upper gastrointestinal endoscopy was done under general anesthesia for better patient control and patient was intubated for airway protection. The oral, esophageal and gastric mucosa was normal, A 19 cm toothbrush was found in the stomach fundus and a polypectomy snare was used to remove it successfully without intraoperative complications (Fig. 2).

The patient did well post-endoscopy. Repeat chest and abdomen X-rays were normal. Oral fluid was started followed by normal diet, which was well tolerated. The patient was discharged home with no complaint 48 hours after the procedure. The patient’s family refused psychiatric consultation.

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DISCUSSION

Ingestion of a foreign body is commonly encountered in the medical field among children, adults with intellectual impairment, psychiatric illness or alcoholism, and dental prosthetic-wearing elderly subjects. In fact, swallowing of foreign bodies has been reported as early as 1200 BC. A wide variety of objects may be swallowed, but coins, pins, bones, and razor blades predominate. Most of these objects (80%) can be managed by observation with serial examinations and abdominal radiographs. They usually pass spontaneously through the gastrointestinal tract. However, more invasive ways of retrieval are required in case of complications.

Toothbrush swallowing is rare with few reported cases, the first one being in 1882. No cases of spontaneous passage of the swallowed toothbrush were reported. This fact makes the possibility of complications such as gastritis, ulceration and perforation higher. That is why some of the reported cases required surgical intervention in the form of a laparotomy.

In one reported case the 20 cm long swallowed toothbrush passed through the pylorus, duodenal loop, ileo-cecal valve and perforated the proximal transverse colon and then penetrated the liver. Laparotomy was performed with repair of the perforated organs. The first reported death from a toothbrush occurred in 1889 as a result of gastric perforation three days after ingestion.

Swallowed foreign bodies particularly, stick-like objects such as toothbrushes may cause injury to any part of the gastrointestinal tract or the adjacent vital organs. However, such injury could escape diagnosis at the emergency department. In one reported case, the toothbrush penetrated the oropharyngeal region of a 10-year-old boy, a broken part wedged close to the carotid artery. The initial examination did not reveal the fatal injury.

Intervention must be quick and effective according to the availability of equipment to avoid complications. Treatment options for swallowed foreign bodies continue to evolve. In the past, patients were subjected to emergency laparotomy to remove the objects and prevent perforation. An initial extraction strategy to start with is endoscopy. The first successful performance of this procedure was reported by Ertan et al in 1983. Endoscopic removal of swallowed toothbrush should be done under general anesthesia with the patient intubated to avoid complications. There is a potential risk for aspiration, perforation, or surgical intervention.

In one report, the success rate for endoscopic removal of ingested foreign bodies was 48%. In another report, surgery was rarely required. Laparoscopic intervention is considered in cases of failed endoscopic removal. In fact, the laparoscopic approach may be an alternative to laparotomy. Wishner et al reported the first successful laparoscopic removal of a swallowed toothbrush in 1997.

A Medline search yielded some reported cases in which, endoscopy was used successfully to remove...
the swallowed toothbrush. Some of these cases failed to be managed by endoscopy and laparoscopy had to be used.

CONCLUSION

We suggest that endoscopic removal of ingested toothbrush should be attempted under general endotracheal anesthesia with available surgical backup.

REFERENCES