

CASE REPORT

A case of colohepatic penetration by a swallowed toothbrush

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Abstract

Although foreign body ingestion is relatively common, toothbrush swallowing is rare. We report a case of a swallowed toothbrush which passed through the ileocecal valve and perforated the proximal transverse colon, then the liver. To our knowledge, this is the first case to be reported.

Key words: Toothbrush; Colohepatic penetration

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INTRODUCTION

Toothbrush ingestion is uncommon, but requires prompt medical attention. Although 80% of ingested foreign bodies pass spontaneously^[1], there are no reports regarding swallowed toothbrushes passing through the pylorus^[2]. Here we present an unusual case of a toothbrush swallowing which passed through the ileocecal valve and perforated the proximal transverse colon, then penetrated the liver. To our knowledge, this is the first case to be reported.

CASE REPORT

A 31 year-old man was admitted to the Surgical Depart-

ment via the Emergency Room with one week history of right upper abdominal pain. He was diagnosed with schizophrenia 13 years earlier and treated at a local hospital. A physical examination revealed tenderness in the right upper quadrant and a temperature of 37 °C. Laboratory tests showed a white blood cell count in the upper normal range, a slightly elevated C-reactive protein level (23 mg/L) and elevated aspartate aminotransferase/alanine aminotransferase levels (51/99 IU/L).

A plain abdominal radiograph showed a characteristic radiographic image of a toothbrush with parallel rows of short metallic radiodensities in the right upper quadrant (Figure 1). At that time, the patient stated he swallowed a toothbrush 1 year earlier. An abdominal computed tomography scan revealed a metallic density in the ascending colon (Figure 2A) and a low density lesion penetrating the lateral section of the liver (Figure 2B). The presumptive diagnosis was colohepatic penetration by a swallowed toothbrush and a laparotomy was performed. No abnormal ascites fluid was observed. Dense adhesions between the proximal transverse colon and the lateral section of the liver were found. When the proximal transverse colon was mobilized, the shaft of a toothbrush was observed penetrating the colon and liver (Figure 3). The toothbrush was removed and the perforated colonic opening was repaired. The extracted toothbrush was 20 cm long (Figure 4). The patient had an uneventful hospital course and was discharged eleven days after surgery.

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^[1,3]. However, toothbrush swallowing is rare, with only approximately 40 reported cases^[2]. 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]. 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^[5]. An initial extraction strategy to consider is endoscopy by a skilled technician, and the first successful performance of this procedure has been reported by Ertan *et al*^[6]. If endoscopic removal is not possible and particular complications are not present, a laparoscopic approach may be an alternative to laparotomy^[7].

To our knowledge, this is the first report of a swal-



Figure 1 A plain abdominal radiograph showing a characteristic toothbrush image with parallel rows of short metallic radiodensities in the right upper quadrant (arrow).

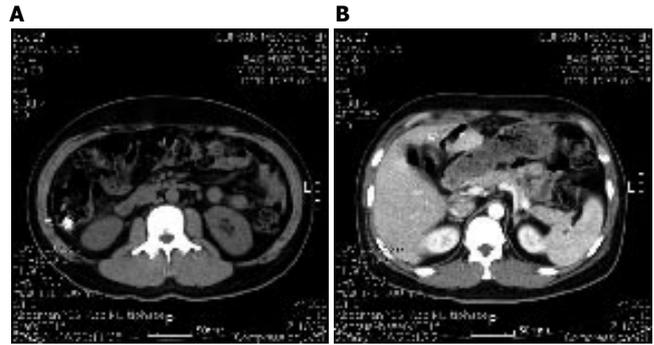


Figure 2 Abdominal computed tomography (CT) imaging. **A:** A metallic density in the ascending colon (arrow); **B:** A low density lesion penetrating the lateral section of the liver (arrow).



Figure 3 Shaft of a toothbrush penetrating the proximal transverse colon and the lateral section of the liver (arrow).



Figure 4 Extracted 20 cm toothbrush.

lowed toothbrush passing through the ileocecal valve and penetrating the colon and liver. Similar to the present case, there are reports of toothpicks penetrating the pyloroduodenal region and migrating to the liver^[8]. A Medline search indicates that other similar reports involving toothbrushes are found only in the esophagus and stomach. In the present case, it is highly remarkable that a 20 cm toothbrush could pass through the pylorus and duodenal loop.

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