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Endoscopic guided Removal of a swallowed toothbrush from stomach in a rural setup in India.

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Abstract
Swallowing and removal of a toothbrush might not be very common, especially in rural areas, with very minimal facility, where experts are also not available. This is a case of endoscopic guided removal of a swallowed toothbrush that took place in our hospital. Mamit District Hospital is a small hospital with only 30 beds.

Keywords: Swallowing and removal of a toothbrush, endoscopic guided, Mamit

Introduction

Toothbrush swallowing is a rare occurrence. Toothbrush ingestion most commonly occur in patients with psychiatric conditions like bulimia or anorexia nervosa, schizophrenia and bezoar. Most swallowed toothbrushes have been found in the esophagus or the stomach of affected patients1-3. Most foreign bodies pass uneventfully through the gastrointestinal tract without complication. However, fewer requires early endoscopic removal due to their corrosive nature, alimenting tract perforation or physical size4. Objects longer than 6cm or wider than 2.5 cm will have difficulty negotiating the duodenal C-loop due to its fixed retroperitoneal position5. Therefore, the FB shall be removed as soon as possible to avoid necrosis and gastric perforation6,7.

Toothbrush ingestion is uncommon but requires prompt medical attention8.

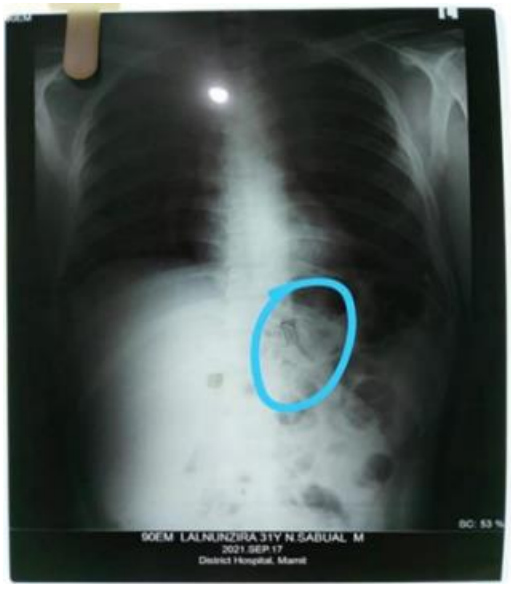

Fig. 1.

Case Report

A 26 years old alcoholic man presented to District Hospital, Mamit (Mamit is a small district capital town, in the state of Mizoram, India with a population of approximately 86,000 according to 2011 census and identified by NITI Aayog as aspirational district since 2018 till date, the people are Mizos, Brus and Chakmas.) on the night of 17th September, 2021 after ingestion of a toothbrush, 1 hour before he was brought to the hospital. According to his mother, he ingested the toothbrush as he was trying to commit suicide as he had psychiatric problems. His vitals were normal and he was conscious and oriented at the time of examination. He had no pain and no distress. Plain chest X-ray and abdomen X- ray showed a suggestive image of the bristles of the toothbrush in the abdomen. (Figure 1)

Fig. 2 & 3.

The patient was admitted and kept under observation for one night and discharged fully normal the next day.

Discussion

Toothbrush swallowing is a rare occurrence1-3. There has been no previously reported case of a toothbrush swallowing in this hospital.

Due to the straight cause of esophagus, it readily reaches the stomach but due to the small size of the pylons and duodenal sweep it usually stays in the stomach and in within reach by upper GI endoscopy9.

About 80% to 90% of small foreign subjects that reach the stomach will eventually pass through the alimentary canal10,11. Up to 20% however, will need endoscopic removal and perhaps will require surgical intervention12. Long objects are unlikely to pass through the stomach; especially there is a dimension of more than 13 cm in length for adults and 5cm for children or more than 2cm wide11. Objects exceeding these dimensions have a higher risk of creating complications and they require endoscopic removal13. Early endoscopic retrieval of the Toothbrush reduces morbidity & mortality14.

A swallowed toothbrush is a rare occurrence with limited cases reported and it never passes through the gastrointestinal tract spontaneously. Once past the esophageal sphincter, there are three physiological narrowing in the gastrointestinal tract including pylorus, duodenal C-loop and ileocecal junction. In a review of 31 cases of toothbrush ingestion in 1988, no episodes of spontaneous passage were reported15.

Most of the cases described in the literature happened in adult patient. Almost all the patient presented a history of excessive alcohol consumption, illicit drug use and intellectual impairment, psychological or psychiatric disorders16.

Ertan et al, reported the first case of successful endoscopic removal of a swallowed toothbrush17. Most successful endoscopic toothbrush extraction, where located in the esophagus and few of them where in the stomach. Some authors found the endoscopic approach unsuccessful due to the size and shape of the ingested toothbrush18. It should also be considered that endoscopic extraction is not exempt of hazard.

Esophageal perforation during the endoscopic extraction has been reported19.

The patient was taken to the endoscopy room and 10% lignocaine was given in the oral cavity and his throat. After waiting for the action of the lignocaine spray, the endoscope was introduced in the esophagus and the head of the toothbrush was visible at the GE junction.

As we do not have a polypectomy snare to catch the toothbrush, a Biopsy forcep was used to grasp the toothbrush. As it slipped again and again, several attempts were made. As the patient was cooperative, we were able to make several attempts without any sedation. Slowly the toothbrush was moving upwards along with the biopsy forcep at the cricothyroid junction. The endoscopist caught the toothbrush with his left hand and pulled out the toothbrush with his hand. (Figure 2 & 3)

Conclusion

Swallowing a toothbrush do not occur commonly and early removal of the toothbrush is necessary in order to reduce morbidity and mortality. In a rural setup like Mamit District Hospital, where facility is minimal, early intervention with whatever equipments available is necessary in order to avoid complication and save a life.

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