Accidentally Swallowed Toothbrush in a Mentally Healthy Patient during Routine Brushing: Case Report and review of literature.

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Abstract.

Ingestion of foreign bodies is a common clinical condition, particularly within the pediatric age group. This is often due to the exploratory behavior of children, which includes placing objects in their mouths. While foreign body ingestion is primarily a pediatric concern, it can also occur in adults, typically associated with underlying behavioral disorders or high-risk behaviors. In adults, the reported incidence is about 10–20%, with only approximately 1% requiring surgical intervention.

We report a rare case of accidental swallowing of a toothbrush during routine tooth brushing in an adult without any underlying behavioral or psychiatric disorder. This occurred as a result of improper brushing technique. Our objective is to draw attention to the possibility of accidental ingestion of a toothbrush during routine oral hygiene, even in the absence of mental health disorders. Typically, such foreign bodies are lodged in the stomach upon presentation. This case highlights the need for public awareness regarding proper tooth brushing techniques, particularly when cleaning the base of the tongue. Additionally, we recommend that upper gastrointestinal endoscopy facilities be made available in secondary and tertiary health centers to minimize the need for invasive laparotomies.

Key Words: Accidental, swallowed, toothbrush, foreign body

INTRODUCTION

Swallowing a whole toothbrush is an extremely rare occurrence. The most frequent causes include psychiatric disorders such as bulimia nervosa, anorexia nervosa, and schizophrenia, as well as suicidal attempts or accidental ingestion while brushing the base of a coated tongue. There are also occasional reports of ingestion of broken toothbrush fragments. [1,2]

There is no standardized length for adult toothbrushes; the length typically ranges from 16 to 22 cm (including the head, neck, and handle). When a toothbrush enters the gastrointestinal tract, it poses a serious clinical concern due to its length and rigidity, which hinder its passage through the duodenal C-loop and the ileocecal junction. Consequently, it often becomes retained in the esophagus or stomach, with an increased risk of impaction and perforation.

In a rare case involving a schizophrenic patient, a toothbrush was found in the ascending colon, causing a fistula between the right colon and the liver, necessitating laparotomy (Lee MR et al.).

Similarly, Yaosaka T. et al. described a case where a toothbrush was located in the second part of the duodenum after a woman accidentally swallowed it while cleaning her coated tongue.

In most cases, a plain abdominal X-ray is sufficient to confirm the diagnosis and locate the foreign body. [1] The first-line therapeutic approach is endoscopic removal, especially when the intervention occurs shortly after ingestion. [5] If endoscopy fails or is unavailable, laparoscopic gastrostomy is recommended as the next best option. [6,7] Common presenting complaints include a history of swallowed toothbrush, mild epigastric discomfort, and anxiety.

We herein present an unusual case of accidental toothbrush ingestion in a mentally sound adult.

CASE REPORT

A 42-year-old male private school teacher presented to the Accident and Emergency Unit of Ladoke Akintola University of Technology Teaching Hospital, Ogbomoso, Oyo State, Nigeria, in February 2020. He reported accidentally swallowing a toothbrush while brushing the base of his coated tongue during his routine oral hygiene two weeks prior to presentation.

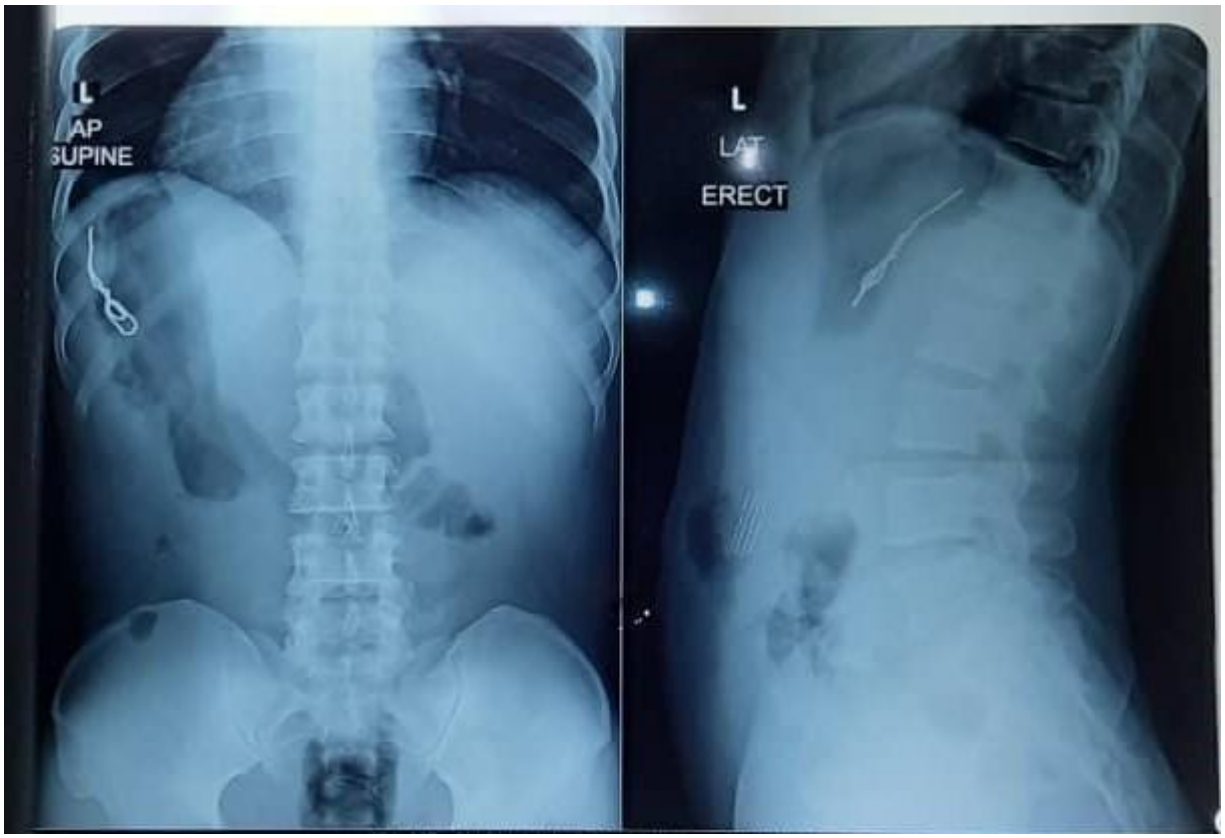
The patient delayed seeking medical attention due to fear of embarrassment but eventually confided in his employer, who is a nurse, when he became concerned about possible complications after failing to pass the toothbrush through defecation. He denied any previous history of foreign body ingestion or passage of foreign objects in his stool. He also reported no symptoms of epigastric pain, vomiting, abdominal distention, or discomfort. His past medical history was unremarkable.

On physical examination, he was a healthy-looking man in no obvious distress. His vital signs were stable. Abdominal examination revealed a full abdomen that moved with respiration, with no tenderness, palpable masses, or distension. Bowel sounds were normoactive. Digital rectal examination was unremarkable, and examination of other systems did not reveal any significant findings.

A plain abdominal X-ray (erect and lateral views) revealed the bristle end of the toothbrush located within the gastric cavity, pointing toward the pylorus. The handle was not clearly visualized; however, a thin, rope-like opacity was noted near the region of the fundus. Laboratory investigations showed a packed cell volume of 44% and a random blood sugar level of 96 mg/dL.

Unfortunately, an upper gastrointestinal endoscopy could not be performed because the hospital's endoscopy machine was non-functional at the time of presentation

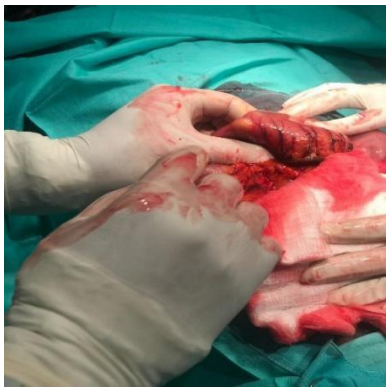
Xray.

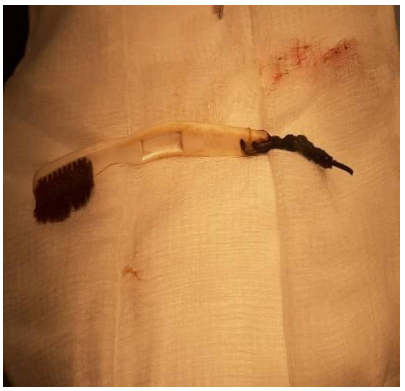


X-ray showing toothbrush in the stomach and a rope like metal attached to the handle.

He subsequently had an emergency mini-laparotomy via a 6cm supraumbilical incision done. The stomach was palpated to identify the presence of the brush. A 2cm transverse incision was made on the fundus and the toothbrush was delivered. The incision was then closed in two layers using vicryl 2.0 and silk 2.0 for all through and sero-muscular layer respectively. Minimal local irrigation around the gastric incision was done, the procedure was well tolerated. He had a quick recovery and was referred to a psychiatrist, wound stitches was removed on the post-operative day 8 at the surgical outpatient clinic. Subsequent clinic visit where uneventful, he was cleared of any form of psychological disorder and subsequently discharged home.

Pictures.





DISSCUSSION

Up to 80% of swallowed foreign body occur in children between the ages of 6months and 4years. This reflect the tendency of children to use their mouths in the exploration of their world.[9] Concomitant psychiatric problems, mental disturbances, and risk taking behaviors may lead to foreign body ingestion in adults, which accounts for about 10-20%. Of these, only about 1% will require surgery. [9] The object most commonly swallowed in children is coins. The male-to-female ratio in young children is 1:1. In older children and adolescents, male are more commonly affected than females because of tendency of high risk behavior in male children. Meat impaction, resulting in esophageal food bolus obstruction, is more common in adults. [9] Swallowed objects are more likely to lodge in the esophagus or stomach. Recently, there is an increase in the incidence of people excreting hard drugs like cocaine but no single record of a patient excreting a toothbrush; most will lodge in the stomach. There are no reported cases of a toothbrush passing through the gastrointestinal tract spontaneously and removal is recommended to prevent complications. [10]

The variety of non-food items that can be placed in the mouth and then swallowed, whether intentionally or accidentally, is surprising. Swallowing a manual toothbrush, aside from broken fragments, is a rare occurrence. This may happen due to one of three causes: suicide, psychological disorders (such as bulimia, anorexia nervosa, or schizophrenia), or accidentally after brushing the base of the coated tongue. [4] This is the factor in the case described above. Our patient attached a metal object to his toothbrush to make it long enough to reach the base of his tongue. This has been a habit of his since childhood.

In bulimia, the perception of the reality of the body itself is affected and patients induce vomiting this to eliminate the food intake as soon as possible. Using a toothbrush to induce vomiting and accidentally swallowing it can be a clue to the diagnosis. [4] Common complications of swallowed brush include gastritis intestinal perforation from pressure necrosis, subcutaneous emphysema intestinal obstruction, abdominal discomfort gastric ulceration and intestinal fistula.[3] This can easily be prevented when a diagnosis is made and prompt intervention is done. Most toothbrushes can easily be identified in a plain abdominal x-ray. [10, 13]

The ideal management involves fist excluding any psychiatric disorder and treating them if present, followed by patient reassurance, administration of analgesics and anxiolytics. If necessary, removal of the foreign body should be attempted via endoscopy, if endoscopy is unsuccessful, laparatomy is the next step. [6, 7] In our case, both endoscopy and less invasive options were unavailable, necessitating an exploratory laparotomy.

CONCLUSION

Although cases of swallowed foreign bodies, especially toothbrushes, in adults are rare, they are more common among adults with psychiatric disorders and those with bulimia. However, this can occur accidentally in individuals who have a habit of brushing the base of their tongues while holding the toothbrush parallel to their tongues. If the toothbrush slides too far back while cleaning, it can be swallowed even in the absence of a psychiatric disorder. This group of people should learn to brush their tongues gently and perpendicular to the tongue, or use a tongue scraper.

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