Foreign Body: Uncommon Cause of a Catastrophic Upper GI Bleeding: a Case Report

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Case Report

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Abstract

Background: Upper gastrointestinal bleeding following swallowing foreign body is often caused by a fistula between the large arteries and esophagus, which causes severe and fatal bleeding.

Case presentation: A 24-year-old woman presented with severe bleeding in the upper gastrointestinal tract after unwanted swallowing a toothpick. Due to unstable hemodynamic conditions, endoscopic evaluation was not possible, and she was immediately transferred to the operating room. The source of the bleeding was the upper part of the esophagus, as the site of the bleeding was temporarily packed and ceased the surgery. CT-angiography of the head and neck arteries showed esophageal to carotid fistula.

Discussion: Esophageal fistula of large arteries usually causes severe bleeding. Awareness from warning signs and timely diagnosis may propose better clinical outcomes.

Background

Local invasion, erosion of the pharynx, or esophageal adenocarcinoma usually led to massive hematemesis due to vessel-esophageal fistula. Esophageal foreign bodies may cause a similar complication and, in most cases, lead to sudden death, which should be promptly treated before developing massive uncontrollable hemorrhage (1).

Foreign body ingestion is remarkable in children more than adults. The Complication of foreign body ingestion depends on the site and type of foreign body. Moreover, a partial denture with sharp metal hooks, metal springs, and sharp bone pieces are among the most common and hazardous foreign bodies that result in fistula formation or esophagus puncture (2).

Fistula is particularly uncommon and is a life-threatening situation. A rare consequence of esophageal perforation by a foreign body can be the penetration of a great vessel. The repercussion can be drastic when it occurs, such as severe hemorrhage at the time of penetration or later with the formation of a pseudoaneurysm (3).

In reviewing the literature, we did not find a similar case in which swallowing a toothpick causes catastrophic gastrointestinal bleeding. Due to dangerous complications like severe gastrointestinal bleeding and arterial fistulas in patients with foreign body swallowing, especially sharp ones, they should be followed and evaluated seriously. In this report, we presented a rare case of esophageal perforation with the development of a traumatic carotid artery after unwanted toothpick ingestion.

Case Presentation

On 3 August 2021, a 24-year-old woman was admitted to the emergency department of Shahid Beheshti hospital, Qom, Iran, due to hematemesis with toothpick ingestion (size: finger food). Seven days before the incidence of bleeding, she felt that a foreign body had been retained in the throat, but the patient was

unaware of ingestion of toothpick. The past medical history and drug history of patients were clear. Toothpick used in decorated fruit accidentally be swallowed by the patient as she overlooked that. The patient refers to the physician for pain in the throat and then be declined due to regular reports of otorhinolaryngology examinations. For pain mitigation, she received cephalexin and ibuprofen. The patient presented one episode of blood vomiting, followed by one exsanguinating hematemesis and three times hematemesis seven hours before admitting to the emergency department. The blood pressure was 89/50 with a negative tilt test. Laboratory tests are shown in Table 1. After 2 hours of admission, active hematemesis occurred suddenly with shock and loss of consciousness. The patient was intubated, and urgent endoscopy be proposed; however, emergent laparotomy was done due to severe hypotension and ongoing bleeding; no lesion was found in the stomach and duodenum. Endoscopic evaluation in the operation room revealed no lesion in the esophagus, but once again, we suspected upper GI bleeding origin, and endoscopy was repeated. Evaluation and complete otolaryngologist examination were done, but bleeding origin remained unclear. When the bleeding was stopped, the patient was transferred to ICU. Thirty-five packed cells and 17 fresh frozen plasma transfusion was used for the patient. Ultimately, CT-angiography was done, as the finding revealed the presence of gas consistent in the right para pharyngeal in the hypopharynx (Fig. 1). Carotid artery damage was observed, and the finding of lateral neck dissection revealed a fistula of carotid with the upper esophageal sphincter that was repaired with a graft. Esophageal perforation was sutured, and adjacent tissue was used to buttress the primary repair (Fig. 2). The sternocleidomastoid muscle was dissected at its proximal insertions and used as a flap to protect the common carotid artery. Unfortunately, due to the brain damage, a seizure occurred. However, it was controlled. Therapeutic care was unsuccessful, and finally, the patient was declared dead due to brain death.

Table 1

Laboratory data for a 24-year-old woman presented with severe bleeding in the upper gastrointestinal tract due to swallowing a toothpick

Laboratory data	Normal range	Day of admission	After surgery	Second day	Third day	Seven day
HB	12-16	9.7	12.8	10.6	8.8	9.6
platelet	150000-450000	323000	117000	60000	75000	113000
Cr	0.6-1.2	0.8	0.8	0.9	1	1.3
PH	7.35-7.45	7.38	7.06	7.45	7.46	7.34
PCO ₂	40	36	56	40.9	44	40.1
PO ₂		61	51	35.5	33	23.8
HCO ₃	22-28	21.3	15.9	28.2	28.4	21.3

Discussion

A fistula between the carotid artery and the esophagus is commonly caused by the ingestion of a foreign body (exp., chicken bone or fishbone) and may mistake with other causes of upper GI bleeding. In a study Between January 2015 and December 2015, three cases of esophageal perforation involving the aorta by a foreign body were reported. One patient died of the rupture of the pseudoaneurysm during the preparation of the surgery (4). View to the literature, most reported GI bleeding caused by foreign bodies included bread or fish bones ingestion (5). Aortoenteric fistula caused by toothpick ingestion presented with initial sepsis was reported by Liao, E and et al. (6). Elsa Oliveira and et al. reported that one case included aberrant right subclavian artery-esophageal fistula yields massive upper gastrointestinal bleeding, which was challenging to identify and control. They reported that a patient's prognosis depends on early diagnosis and surgical repair is essential for survival (7).

It would be better not to be ignored and evaluated in the first admission by taking a more accurate history, examination, and imaging. Also, if CT angiography was possible in the early phase of bleeding, it should be performed to prevent catastrophic results. A fistula between the carotid artery and the esophagus should always be suspected in patients with the following conditions: (a) undergone hypopharynx or esophageal surgery, (b) iatrogenic to post carotid procedures, and (c) a history of foreign body ingestion.

A rare condition of esophageal perforation due to toothpick ingestion and formation of a fistula between the common carotid artery and esophagus was described in this report. Rapid diagnosis can prevent massive bleeding before the formation of a fistula results in fatal bleeding. In this patient, when she was first admitted to a medical center with neck pain, it would be more reasonable than the physician performing further examinations before the penetration of a foreign body into the soft tissue and formation of a fistula resulted in fatal bleeding. As described in this case, the patient presented the gullet pain after ingesting a foreign body (a toothpick), lasted for one week, one episode of vomiting blood, followed by one exsanguinating hematemesis. Although upper gastrointestinal endoscopy is an excellent diagnostic choice, it was impossible to perform in this case due to instability of hemodynamic state. Awareness of warning signs such as thoracic pain, regurgitation of blood, or melena is vital in the timely diagnosis of fistula and may help reach a better outcome.

Abbreviations

CT: Computed Tomography

ICU: Intensive Care Unit

GI: Gastrointestinal

PA: Pseudo Aneurysm

Declarations

Ethics approval

Approval was obtained from the ethics committee of Qom University of Medical Sciences. The procedures used in this study adhere to the tenets of the declaration of Helsinki.

Consent to publish

Patient signed informed consent regarding publishing their data and photographs.

Availability of supporting data

All data and materials are available from corresponding author.

Authors' Contributions

[Sara Nasiri], and [Ruhollah Taghavi] writing and original draft preparation. [Sajjad Ahmadpour], Review and revise of the manuscript. [Mohammad Amin Habibi], [Mohammad Saeidi], and [Ahmad Hormati] designing, investigation. [Mehdi Pezeshgi Modarres], correspondence(s). All authors have read and approved the manuscript.

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Conflict of interest

The authors declare that they have no conflict of interest.

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Figures

Figure 1

Contrasted CT scans A: coronal view and B: axial view revealing the presence of gas (red arrow) consistent the right Para pharyngeal in hypopharynx.

Figure 2

Surgical procedure. A: perforated the esophagus (blue circle) and right common carotid artery (white circle). B: esophagus (yellow circle) and repaired right common carotid artery with patch of artificial vessels (blue circle) due to toothpick which caused carotid artery and esophagus fistula.