

A Rare Case of Oesophageal Denture Impaction with Suspected Oesophago-Bronchial Fistula in a Patient with Retroviral Disease — Case Report and Literature Review

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ABSTRACT

Accidentally swallowed dentures can lead to severe complications in the gastrointestinal tract- especially the oesophagus. Therefore, an early diagnosis and institution of an effective therapeutic approach are of utmost importance. Though the primary treatment of an impacted foreign body in the oesophagus is an endoscopic removal, a primary surgical treatment is advised for dentures with sharp hooks especially due to the increased complication rates.

Here in we are report a case of accidentally swallowed denture with delayed presentation in a female patient with retroviral disease. Attempts at endoscopic removal was not successful and transhiatal oesophagotomy was done by cardiothoracic unit. There was suspected oesophago-bronchial fistula as patient developed cough which necessitated percutaneous endoscopic gastrostomy tube placement.

This case highlights the importance of an early and preferred treatment in the form of a controlled surgical intervention as compared to an endoscopic extraction for patients with impacted dentures with sharp hooks.

INTRODUCTION

Impacted foreign bodies in the oesophagus are common both in adults as well as in children. In children, coins, pieces of toys, etc. are the commonly seen foreign bodies, while in adults, orthodontic appliances are the most common cause of an accidental swallowing¹.

An accidental ingestion of an appliance can create a medical or a surgical emergency that can lead to serious complications, including death from aspiration of the foreign body². Because of their sizes, rigidity and pointed edges; dentures get frequently impacted in the oesophagus and are difficult to retrieve endoscopically³. Denture impaction in the oesophagus is a common emergency with management challenges. Patients usually present with dysphagia, throat pain, odynophagia and pooling of saliva in pyriform sinus⁴. Factors responsible for dislodgment of dentures from the alveolar ridge and subsequent impaction in the esophagus are: poor fit of the denture at insertion, prolonged usage, and failure of dental clinic follow-up evaluations especially when the denture becomes loose⁵.

Case presentation

A 51yr old female trader who presented with a two-month history of dysphagia and suspected swallowing of foreign body during a meal. It progressively worsened from an initial dysphagia to solids to difficulty in swallowing liquids. There was associated odynophagia and vomiting of recently ingested meal. Additionally,

dry cough and hyper salivation were noted. She was said to have swallowed a fish bone. Prior to onset of symptoms, there was no weight loss nor dyspepsia. She is a teetotaler and does not smoke. There was no associated regurgitation, halitosis, nor history suggestive of neurological or psychological disorders.

She initially presented to a peripheral hospital at her place of abode where she was admitted and discharged after 2 days for further radiological investigations at a tertiary institution. This led to her referral to the cardiothoracic surgery unit in Enugu state university teaching hospital (Surgical outpatient). The unit reviewed and admitted same day.

Past medical history and surgical history: She is retroviral disease positive (diagnosed 3 years ago), she was on antiretroviral medications but stopped when this condition started. She is known to have hypertension for about a year. No past surgical history.

Family and social history: She is single with no children and the 4th of 5 offsprings (2 males, 3 females), she does not take alcohol nor tobacco in any form.

Drug and allergy history: Nil

While on admission, Gastroenterology unit was invited on the 3rd day.

On Examination: A middle aged woman chronically ill looking with wasting, afebrile to touch, anicteric, not pale, no cyanosis. There were no signs of dehydration, no digital clubbing, peripheral lymphadenopathy, nor leg oedema .

Digestive system: Good oral hygiene and normal buccal mucosa. Abdomen was full, moved with respiration. No areas of tenderness. Liver span was 12cm, spleen was not palpably enlarged. Kidneys were not ballotable. No demonstrable ascites. Bowel sounds were present and normoactive.

Digital rectal examination: there was good anal sphincteric tone, Examining fingers were stained with faeces.

Cardiovascular system: Pulse rate- 74b/m full volume and regular, Radio-Radial Synchrony, no Radio-femoral delay, arterial wall thickening nor locomotor brachialis.

BP: 110/70mmHg.

Jugulovenous pulsation was not raised.

Apex Beat- 5th left intercostal space mid clavicular line not heaving.

HS :first and second heart sounds were heard, no murmurs.

Respiratory system: Respiratory rate- 20c/m, Oxygen saturation – 97% room air

Trachea is central

Equal Chest excursion

Equal and normal tactile fremitus on all lung zones.

Resonant percussion notes across all lung zones

Equal and normal vocal resonance across all lung zones.

Vesicular breath sounds across all lung zones, No added sounds.

Available Investigations: -

RESULTS:

Full blood count:

Hemoglobin -12.1g/dl	NORMAL
Packed cell volume – 36%	NORMAL
Mean corpuscular volume – 87 fl	NORMAL
Mean corpuscular hemoglobin- 27.7pg/dl	
Mean corpuscular hemoglobin concentration – 32.9g/dl	NORMAL
White blood cell count – 4840/mm ³	NORMAL
Neutrophils – 57%	NORMAL
Lymphocytes – 42%	NORMAL
Eosinophils – 3%	NORMAL
Monocytes – 3%	NORMAL
Basophils – 0%	NORMAL
Platelets – 271000/mm ³	NORMAL

Serum electrolytes urea & creatinine:

Na – 143mmol/l	NORMAL
K – 3.8mmol/l	NORMAL
Cl – 118mmol/l	NORMAL
HCO ₃ – 24mmol/l	NORMAL
Creatinine – 107.6umol/l	NORMAL
Urea – 10.8mmol/l	NORMAL

Viral Screening

Retroviral screening- positive

HBsAg- negative

Anti-HCV- negative

Urinalysis – amber and cloudy, ph =5.0, Protein nil, glucose nil, nitrite nil, bilirubin nil, urobilinogen nil, ketones nil, ascorbic acid nil, blood nil

Diagnosis

Upper Gastrointestinal Endoscopy findings: -

- 1) Foreign body (bone like in appearance) seen 25 cm from incisor teeth, brownish in colour and completely occluding the oesophageal lumen with erythematous and oedematous surroundings, about 3 by 3 cm in diameter. Oesophagus distal to the FB could not be visualized.
- 2) Attempts at removal of the foreign body was unsuccessful as it was stuck to the oesophagus

Impression: - Foreign body in the oesophagus with oesophagitis

Recommendation: - surgical removal via thoracotomy / oesophagostomy by the Cardiothoracic unit (CTU).

Treatment

She subsequently had surgery the next day under GA + ETT single lumen

Intra-Operative Findings:-

Foreign body in the oesophagus, just 2-3cm distal to the azygous vein. The perforation in oesophagus is noted as 2cm right postero-laterally.

Oesophago-bronchial fistula about 3cm in diameter, oblique and in left antero-lateral part of the oesophagus with gush of air on ventilating the patient and SPO2 (oxygen saturation) was dropping.

No obvious intrathoracic soiling was seen (the removable denture was occluding the perforation). Naso gastric tube was inserted for feeding which was to commence the next day.

Feeding was commenced the next day via the tube.

She was subsequently recommenced on HAARTS (Highly active antiretroviral therapy). She remained under the care of the CTU team.

5 days post op, water swallow test was done but the patient failed (with her coughing). It was tried again on the 14th day and 28th day with similar results. Gastroenterology unit was eventually invited for repeat upper GI endoscopy and possible PEG (Percutaneous Endoscopic Gastrostomy) tube placement after about a month (This was done about 4 days later).

No perforation or fistula was seen.

She was eventually discharged to the CTU clinic.

Currently, she is able to tolerate solid feed but is given liquids via the PEG tube.

Complication

Oesophagobronchial fistula about 3cm in diameter, oblique and in left antero-lateral part of the oesophagus with gush of air on ventilating the patient.





The above pictures are the dentures removed during surgery

DISCUSSION

Oesophageal denture impaction ranges between 1.3% - 38.6% in clinical practice^{6,7} and the management outcome depends on: site of impaction, shape and size of the denture, duration of impaction, premorbid medical conditions of the patient, the surgeon's expertise and availability of appropriate instruments, especially in resource limited countries⁸. Late hospital presentation significantly promotes sequelae associated with management of impacted dentures.

In another report, the incidence of esophageal denture impaction among foreign body ingestions ranged between 0.4% and up to 17.6%, and the most common site of impaction was the esophagus⁹.

Certain high-risk groups have been mentioned in the literature including patients with confused mental status, alcohol inebriation, general anesthesia, medication overdoses, and neurological diseases such as seizure disorder^{10,11}. However, a systematic review by Kent et al. evaluated published reports of denture swallowing or aspiration over 15 years and concluded that 56% of patients did not have any predisposing factors. They also noted that most retrieved dentures were damaged or loose¹². The most common symptoms upon presentation are throat discomfort, dysphagia, odynophagia, and persistent FB sensation^{13,14}. The most reliable clinical signs indicative of FB entrapment in the cervical esophagus were neck tenderness and pooling of saliva in the pyriform sinuses¹⁵. Patients with esophageal denture impaction present with or without pains and sensation of object in the throat. Occasionally, they may present with change of voice, and fever probably due to long standing foreign body^{16,17}.

Conditions such as neurological problems that may cause improper swallowing like Parkinsonism, previous history of neck trauma, and instrumentation, history suggestive of esophageal neoplasm should be carefully evaluated in adult patients with esophageal foreign body impaction^{14,18}.

Plain radiographs are often used in making diagnosis, however localization prior to surgery might be difficult because most dentures are radiolucent except the wire used for fixation which appears radiopaque.

The endoscopic procedure is the treatment of choice and is usually successful. Neck exploration or oesophagotomy is safe and effective when endoscopic surgery is not successful¹⁹. Removal of the impacted foreign body of the esophagus should not be delayed, especially if that body is sharp and voluminous, because it can lead to fatal complications²⁰. Fatal complications are usually associated with perforation of the esophagus and the consequent development of mediastinitis, tracheoesophageal fistula, or erosion of major blood vessels that results in hemorrhage^{21,22,23,24}.

Removal of foreign body in the esophagus, as well as in our case, should definitely be tried by endoscopic approach, even when we are not fully convinced in the possibility of a successful endoscopic treatment. Endoscopic approach is certainly more comfortable and less traumatic for the patient, and if it is not effective, foreign body can be removed by surgery^{25,26}.

Human-immuno deficiency virus and oesophagobronchial fistulae

Despite the high frequency of gastrointestinal complications and opportunistic infections in HIV-1 infected patients, tracheoesophageal and bronchoesophageal fistulae are rare²⁷. Some cases have been attributed to opportunistic infections such as cytomegalovirus, mycobacterium tuberculosis, candidiasis and syphilis²⁸. HIV weakens the immune system, making individuals more susceptible to opportunistic infections that can damage the esophagus and surrounding tissues, leading to fistula development. Denture impactions in HIV patients are very rare. The weakened immune system delays healing process. Other associated factors that can lead to fistulae formation in such patients include noncompliance with HAART medications and delayed diagnosis.

In conclusion, delayed presentation for prompt evaluation and intervention in oesophageal denture impaction could lead to complications such as oesophago-bronchial fistula formation. Endoscopic evaluation is the treatment modality of choice but surgical intervention should be employed once endoscopic approach fails.

Conflicting interests

There are no conflicting interests.

Patient's consent

Consent was obtained from the patient.

Ethical approval

Ethical approval was not obtained since this is a case report.

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