



OESOPHAGEAL DENTURE IMPACTION: A CASE PRESENTATION

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ABSTRACT

BACKGROUND:

Otolaryngologists frequently face challenges of impacted oesophageal dentures in our environment. This study focuses on a 31-year old bricklayer with impacted denture in the oesophagus in our centre.

CASE PRESENTATION:

This case, reports the details and processes of a successful rigid oesophagoscopy and extraction of an impacted denture at the mid section of the oesophagus of a 31-year old bricklayer who presented at the Accident and Emergency unit of Federal Teaching Hospital Owerri (formerly Federal Medical Centre, Owerri) with clinical symptoms suggestive of impacted denture in the oesophagus. The patient reported a history of inadvertent ingestion of his denture with accompanied symptoms of difficult and painful swallowing, drooling and a radiological evidence of air entrapment around the foreign body confirming the diagnosis.

CONCLUSION:

This case illustrates the successful extraction of impacted denture from the oesophagus using rigid oesophagoscope. Timely diagnosis and intervention play a crucial role in averting the potential hazards associated with impacted dentures in the oesophagus.

KEYWORDS: Denture, Impaction, Oesophagoscopy, Oesophagus, Rigid

INTRODUCTION

Dentures are removable teeth-replacement alternatives that are made to fit and support the defect caused by the missing teeth.¹ They support the aesthetic appearance of the face and enhance the clarity of speech.² In addition, dentures make eating a pleasant experience.²

According to the World Health Organization, edentulous patients are said to be handicapped, disabled and physically impaired because of their limited aesthetics and inability to masticate and speak properly.^{2,3} About 20% of the population wears dentures, and they are said to experience improved health and quality of life compared to those who do not.^{2,3}

Missing teeth from any cause in humans has significantly contributed to the increased incidence of people wearing dentures in our environment.^{4,5,6} Consequently, this has resulted in a proportionate increase in the number of accidentally swallowed dentures and oesophageal impacted dentures.^{4,5,6}

Oesophageal denture impaction is often encountered by the Otolaryngologist as one of the many emergencies seen in our hospital. This may be the first report of this type of case from our centre; hence, the need for this case presentation. In addition, this presentation will provide relevant data to strengthen health promotion and public health education regarding the risks associated with dentures and failure of routine denture re-evaluation at clinics.⁷

CASE PRESENTATION

A 31-year-old bricklayer presented to the Accident and Emergency department of the Federal Teaching Hospital, Owerri with history of pain on swallowing, sudden onset of dysphagia for both solid and liquid diets, drooling and feeling of something stuck in his

throat of a day duration prior to presentation. There was no associated dyspnoea, hoarseness, neck swelling, fever or cough. No otologic or rhinologic symptom.

There was a preceding history of inadvertent swallowing of his denture containing two teeth (right upper central and lateral incisors) while drinking water after breakfast. He has been using the denture for over 7 years without follow-up at the dental clinic. There were repeated efforts by the patient to remove it by inducing vomiting and ingestion of large bolus of food without relief of symptoms.

Examination revealed an anxiously looking young man in no obvious respiratory distress, afebrile (36.8°C), not pale, anicteric, acyanosed and with no pedal oedema. Vital signs were stable. Oral cavity and oropharyngeal examination showed evidence of a missing denture confirmed by the absence of right upper central and lateral incisors. Other systemic examinations appeared normal.

A diagnosis of Impacted foreign body (denture) in the oesophagus was made. He was on nil per oral and intravenous fluid. Result of x-ray lateral soft tissue of the neck showed air entrapment at the level of C7 to T1 as shown in figure 1. There was no significant finding on chest x-ray. Other investigations appeared normal. He immediately underwent emergency rigid Oesophagoscopy and foreign body (denture) removal under General Anaesthesia with Endotracheal intubation and adequate muscle relaxant. Intraoperative broad-spectrum antibiotics was also given. Preliminary pharyngeal examination prior to rigid oesophagoscopy using an anesthetist laryngoscope was performed with no foreign body seen in the oro and hypopharynx.



Figure 1 shows patient's radiographs

However, denture was visualized at 24 cm from the upper incisor on rigid oesophagoscopy. It was successfully removed using grasping forceps following gentle manipulation to dis-impact it. The foreign body (denture) is shown in figure 2. Oesophageal mucosal bruises at the level of the dis-impaction were noted. A nasogastric

tube size 18 fr was passed intraoperatively for feeding, resting and healing of the site of the bruises for 5 days. Anaesthesia was reversed, patient was extubated and thereafter moved to post anaesthesia care unit. Once he was stable, he was moved to the Otolaryngology ward for post-op management.



Figure 2 shows the denture plate with sharp edges

He was counselled and was able to feed orally on discharge. He was yet to be seen for follow-up at the Otolaryngology clinic.



Figure 3 shows the patient's edentulous teeth, rigid oesophagoscope and the grasping forceps

DISCUSSION

Impaction of swallowed dentures in the oesophagus is not uncommon, despite the inherent elasticity and peristalsis of the oesophagus.⁸ Early detection and appropriate management are crucial in impacted oesophageal dentures.

Our index patient was 31 years of age, which is within the age range where oesophageal denture impaction is common in our environment (31-40 years), as reported by other researchers.^{7,9,10} This may be attributed to their involvement in activities that endanger their teeth. In contrast, Adedeji et al.⁴ reported that older age group (61-70 years) are commonly affected. This was attributed to reduced sensation in the oral cavity and reduced motor function of the laryngopharynx in elderly people.^{7,11} Even though the reason for this age variation is beyond the scope of this study, it might be related to older people's attitudes toward personal health care.¹¹

Studies have shown that oesophageal denture impaction is more common in males.^{3,5,7} Our patient was a male. The higher prevalence of denture impaction among males may be related to their smoking habits; smoking has been reported to cause nicotine-induced poor oral mucosal sensation.⁴ However, it has been noted that a higher proportion of females wear dentures than males in the overall population.¹¹ This could be attributed to cosmetic reasons.^{3,7} Moreover, it can be explained by the fact that females are more health-conscious and tend to maintain their dentures more effectively than males.^{3,7}

Prolonged use of one denture and failure in keeping with the dental clinic follow-up appointment predisposed our patient to dislodgement of his dentures from his gum due to the wear and tear causing loosening.¹² Other factors include inappropriate fabrication of dentures by quacks, alcohol intoxication, cerebrovascular accident, maxillofacial accidents, psychiatric illness, wearing dentures during sleep and general

anaesthesia or ingestion during feeding (as seen in our patient).⁸ The provision of universal health insurance may help alleviate out-of-pocket payments for these services which in turn will improve attendance to follow-up at the dental clinic.⁷

A large surface area and pointed edges of the dentures promote impaction in the oesophagus.⁷ Impacted dentures are commonly found at anatomically narrow areas of the oesophagus: the cricopharyngeal sphincter (15 cm from the upper incisor is the narrowest part of the oesophagus and the commonest site of denture impaction), level of aortic arch, left main bronchus (25 cm from the upper incisor), and at the lower oesophageal sphincter (40 cm from the upper incisor).^{6,7} Our patient's denture was retrieved 24 cm from the upper incisor which was at a level just before the level of the left main bronchus. This is supported by a retrospective study by Onyeagwara and Okugbo in Nigeria which recorded that two of the 44 cases studied were impacted above the tracheal bifurcation.¹³

Upper acrylic dentures have been recorded to be the most commonly accidentally dislodged and swallowed denture by various researchers. The patient in our case ingested his upper denture.^{1,5,7} This could be because the dislodging effect of gravity is more effective in the upper denture than in the lower denture.⁷

Following accidental ingestion of dentures, most times patients volunteer that history. In addition, they may also complain of dysphagia (described as the most common symptom), odynophagia, pooling of saliva in the mouth, and regurgitation of undigested meals.^{1,6,8} Patients may be asymptomatic which may lead to a delay in presentation to the hospital. Some may present with life threatening acute airway obstruction.¹⁴ The patient in our case provided a clear history of ingestion of his denture while drinking water after breakfast, in addition he also presented

with dysphagia, odynophagia and pooling of saliva in the mouth.

The radiological features that could help clinch the diagnosis include air entrapment in the oesophagus (just as seen in our patient), indentation of the trachea and widening of the retro-tracheal region.^{1,5,7} Acrylic dentures are made of radiolucent polymethylmethacrylate material (the same as our patient's denture) which makes it difficult to determine the exact site of the denture on plain radiography.^{5,7} Hence, manufacturers need to embed radiopaque markers on it to help make it radiopaque.⁷ In situations where it is difficult to identify the denture using plain radiograph, further evaluation using computerized tomography scan (gold standard in identifying missed dentures), fiberoptic esophagoscopy, or barium swallow may be considered for further evaluation.^{6,7} The disadvantage of barium swallow is that it makes subsequent endoscopy difficult as it blurs the oesophageal lumen and the denture.⁷ It may also result in barium-induced mediastinitis in oesophageal perforations. Therefore, it should be reserved as a last resort.^{6,7} However, the pledget of cotton wool soaked in barium and swallowed by the patient which is arrested by the impacted denture, may serve as a marker of the position of the denture.⁷

Most impacted dentures are treated with rigid esophagoscopy, as seen in our patient.^{7,13} Rigid esophagoscopy is the main approach for oesophageal dentures; however, open surgery may be required.^{7,13,14} Our patient had his denture successfully retrieved using rigid esophagoscopy. Shear forceps can be used to aid denture removal in situations where safe removal may not be guaranteed in large dentures.⁶ This is especially true when the plate of the denture is too hard to cut through.¹² Other methods of removal of impacted dentures include cervical esophagotomy and the use of flexible

esophagoscopy with polypectomy snare.^{12,14,15}

Delay in removal of oesophageal impacted denture increases the risk of complications such as oesophageal obstruction, oesophageal pressure necrosis, oesophageal perforation, bowel perforation, tracheoesophageal fistula, pulmonary aspiration, mediastinitis, sepsis and vascular erosion of a missed impacted denture.¹⁶ Reports have shown that the rate of complications from impacted dentures multiplies from 3.2% at 24 hours after ingestion to as high as 23.5% after 48 hours.¹⁷ Complications could also occur from attempts to remove impacted dentures.^{16,17}

CONCLUSION

Dentures are aesthetic and aid oral functions but could be impacted in the oesophagus despite its inherent elasticity and peristalsis. Early presentation, diagnosis and treatment are key to a successful outcome.

CONFLICT OF INTEREST

There were no financial or personal relationships which could influence bias in this case presentation.

AUTHORS INFORMATION

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