

An Impacted Denture in the Hypopharynx - A Quick Intervention Reduces Morbidity

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Authors' contributions

This work was carried out in collaboration between all authors. Author SKA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors AS and OW managed the analyses of the study. Author SKA managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

A 32-year-old male police officer was brought to Accidents and Emergencies on account of ingestion of a denture while trying to drink his medications, 4 hours prior to presentation in our facilities. He reported immediate painful distress, a choking sensation, cough and mild difficulty in breathing. A plain radiograph showed opacification with increased prevertebral soft tissue shadow in the region of C4-C5 of the hypopharynx. The emergency examination was conducted under general anaesthesia and the foreign body was extracted from the throat. Immediate post-operative condition was satisfactory. This case is reported to demonstrate the importance of properly anchoring artificial dentures, and as a reminder to people with artificial dentures to exercise caution when taking medications. Early presentation and quick intervention, as described in this case study, are vital to prevent serious morbidity which may occur as a result of such a condition.

Keywords: Denture; hypopharynx; foreign body impaction.

1. INTRODUCTION

Foreign body ingestion and aspiration are among the most common reasons for visits to the emergency department associated with high morbidity and mortality [1]. Coins, meat bone, marbles, safety pins, buttons, batteries, and screws are among the most commonly ingested and aspirated foreign bodies in the paediatric age group [2]. In adults, coins and dentures have been reported to be the most common aspirated foreign bodies. Ingestion and consequent aspiration of the airway caused by sharp foreign bodies are frequently associated with serious complications. If they are not removed promptly, oesophageal erosion, perforation, abscess, or mediastinitis may result [3]. Early removal of this foreign body must be considered to reduce the risk of complication of dislodgement and subsequent ingestion or aspiration. Accidental ingestion of a foreign object can cause a medical or a surgical emergency leading to serious complications, including death from aspiration of the foreign body [4]. Due to their size, rigidity, and sharp edges, dentures frequently impacted in the oesophagus and are difficult to retrieve endoscopically [5].

Teeth contribute to the aesthetic appearance of the face. Among others, biographers and playwrights have described teeth to portray the facial appearance of their characters. While early European visitors to Nigeria admired the "perfect row of white teeth" exhibited by a number of natives, tooth loss as a result of caries and periodontal disease has led to the converse being true today. Increased tooth decay has aligned with growth in the number of people wearing dentures in our environment; and, proportionately, an increase in the incidence of oesophageal impacted dentures [6].

2. CASE REPORT

A 32-year-old male presented in our Accidents & Emergencies on account of ingestion of a denture approximately 4 hours prior, when he had accidentally swallowed an upper artificial denture while taking his medications. The patient reported immediate localised pain and distress, a choking sensation, cough, and mild difficulty in breathing. No nasal or otological symptoms were observed, and the patient had no previous history of similar ingestion; nor of hypertension, diabetes, peptic ulcers, asthma, or surgery. He claimed to be conversant with routine daily removal and cleaning of the denture without

issue. Examination revealed a young man fully conscious and well oriented but in painful distress. He was not pale, anicteric, afebrile (36.8), nor dehydrated. Other physiological measurements at the time were as follows: HR: 74 bpm, BP 150/90 mmHg, SPO₂:97% on room air and RR: 28 cpm. Ear & nose examination revealed no abnormality, while the oral cavity & oropharynx revealed good oral hygiene with absence of 2 upper incisors and left canine, no hyperaemia or swelling. There was no neck swelling, and his chest was clinically clear.

A plain radiograph of soft tissue neck revealed opacification with increased pre-vertebral soft tissue shadow in the region of C4-C5 of the hypopharynx (Fig. 1). Emergency examination was undertaken under general anaesthesia and endoscopy. The denture (Fig. 2) was found impacted in hypopharynx and covered by caked blood. It was extracted with grasping forceps with little resistance. The longest axes of the denture were measured at 5x10 cm.

Immediate post-operative condition was satisfactory. The patient tolerated graded oral feeding after 24 hours post-operative time and was subsequently discharged 48 hours post-operative time.

3. DISCUSSION

Oesophageal impaction of dentures is common in Nigeria. Most patients are aware of the diagnosis before seeking treatment. Exceptions to this are children, the mentally handicapped, and those under the influence of alcohol. In addition, acrylic dentures are associated with reduced sensitivity of the oral cavity due to the insulating nature of the resins used in their fabrication [6]. Although coins are the commonest foreign bodies which are seen in the oesophagus in children, dentures are common in aged people due to the decreased sensation of the oral cavity in denture wearers and the poor motor control of the laryngopharynx [7].

Swallowing and aspiration of dental foreign objects is often reported in the literature. Swallowing is more common than aspiration and usually seen in the elderly. As noted by Nwafo et al. [8], artificial denture use has increased among Nigerians. Previous studies showed impacted dentures among Nigerians constituted 4.9% and 2.2%, respectively, of foreign bodies in the pharynx and esophagus [7].



Fig. 1. Lateral view of plain radiograph of soft tissue neck showing the denture (indicated with green pointer) in the region of C4-C5 of the hypopharynx

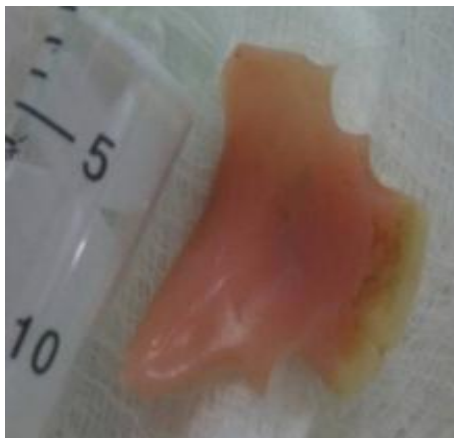


Fig. 2. The acrylic denture

Radiological imaging can determine the exact site of the radio-opaque impacted foreign body. However, dentures are frequently made of acrylic resin - a radiolucent material - thus they are difficult to assess on plain X-Rays, though the radio-opaque wire hooks of the dentures can sometimes be seen if they are present [4]. It is difficult to localise the site of impacted denture by imaging if there is no wire in it, unless complications such as emphysema, mediastinitis, increased prevertebral shadow, and loss of cervical lordosis are also present. The radiolucency of dentures makes radiological localisation almost impossible, and due to their rigidity, large size, and irregular and unyielding edges, impacted dentures are apt to produce

lacerations during endoscopic removal from gullets rendered friable by impaction [9]. Most swallowed foreign bodies are impacted at the cervical hypopharynx and the upper oesophagus. In our index case the denture was embedded in the hypopharynx, causing mild respiratory difficulty. In this region, there is an elevated risk of aspiration of the blood emanating from the injury to hypopharyngeal structures. This made urgent intervention necessary.

Few reports have described the usefulness of endoscopic removals, even for sharp or penetrating foreign bodies [10]. However, the sharp hooks of the dentures are likely to damage the oesophageal or the pharyngeal wall. Consequently, it is difficult to remove the dentures endoscopically. Many articles have supported this primarily surgical approach over an endoscopic removal for sharp dentures.

Endoscopic extraction of dentures carries a substantial risk of perforation [8]. Factors responsible for this include the size, rigidity, sharp edges of the dentures, and attempting extraction in less-than-ideal situations. In addition to these, the degree of peri-oesophagitis at the site of impaction may increase the risk of perforation. Endoscopy was performed in this case as the radiograph already provided a guide as to where the denture was impacted, and the location is not considered to be linked with high morbidity with quick intervention.

4. CONCLUSION

Impacted denture extraction via rigid endoscopy carries a high risk of perforation, though it can be undertaken in ideal situations under direct vision with the judicious use of shears forceps. There is no room for expectant or conservative management in cases of impacted dentures, as the risk of complications increases the longer it takes before the appropriate surgical intervention. It is therefore imperative for the denture to be removed under direct vision as soon as a diagnosis is made.

CONSENT

As per international standard or university standard participant consent has been collected and preserved by the authors.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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