A Consequence of Edentulism in an Elderly Patient

Lee Eng Kiang*

Intensive Care Medicine, Ng Teng Fong General Hospital, Singapore

Abstract

We report the case of a severe airway obstruction from a foreign body in the esophagus of a 77-year-old gentleman who subsequently went into asystole secondary to severe hypoxia. The patient was admitted to the hospital for cellulitis of the lower limb and was having dinner when he swallowed a piece of steamed fish of a diameter of approximately 4 cm. It lied horizontally in the esophagus and about 7 cm above the carina. It resulted in an extrinsic pressure posteriorly on the trachea, leading to complete occlusion of the airway. The patient struggled to breathe and subsequently collapsed from the asphyxia.

The patient was of sound mind with a history of hypertension and ischaemic heart disease. He had normal upper teeth but there was no documentation of dentures for the lower teeth. He was on normal regular diet at home and he continued to receive normal diet during his 4 day hospitalisation in the general ward.

The importance of good dental hygiene and a good set of teeth for mastication and swallowing are prerequisite for good digestion and a good quality of life.

Keywords: Choking; Food; Foreign body airway obstruction; Geriatric

Introduction

A literature search revealed that it is uncommon to have a case of airway obstruction from a foreign body in the esophagus of an adult [1]. The two cases mentioned in these reports were patients with impaired mental capacities. Most of the cases are reported in young children and these are generally, from swallowing of toys and obstructions occurred due to a relatively soft muscular trachea that is not well developed in young children [2,3]. However, other reported cases of airway obstruction in children and in adults are related to rare causes of a mucocele in the esophagus [4] or displacement of a stent in the esophagus [5]. There are however a series of studies that showed a significant increase incident of food choking in the elderly population in Japan [6] and association with depressed mental status or impaired swallowing reflexes [7]. The study on elderly patients in Japan showed favourable outcome if bystander resuscitation was started early when choking was detected but unfortunately this was not the case in this patient.

This 77-year-old male with a background history of hypertension and ischemic heart disease was admitted for septicemia from a leg ulcer. He recovered very well with appropriate antibiotics therapy after 4 days and was due for discharge home when the accident occurred. He was having his dinner and was eating slowly when he was noted to be choking by the patient next to his bed and help was activated immediately. He was in asystole within a few minutes and he received continuous external cardiac compression during the attempt to intubate him in the general ward. It was noted to be a grade 3 intubation and a lot of food particles were noted in the oropharynx.

The peak pressure was noted to be high and persistently above 40 cm H₂O after he was successfully intubated. The saturation was persistently below 90% and only reverted to 100% with a FiO₂ of 100%. The asystole also reverted to sinus tachycardia with 2 doses of intravenous adrenaline and after twenty minutes of resuscitation. The patient was subsequently brought to ICU for mechanical ventilator support and monitoring. An attempt was made to place a nasogastric tube but the tube kept coiling back into the oropharynx, Figure 1.

Case Report

A bronchoscopy was done to elicit the cause of the high peak airway pressure. The oropharynx appeared edematous in figure 2 and the posterior wall of the trachea was noted to be pushed forward with close to complete occlusion of the trachea in figure 3. Rice particles were noted in both bronchi but soilage was minimal in figure 4.
A surgical referral was made for gastro-endoscopy which was performed immediately. A piece of fish was discovered in the upper esophagus and it was successfully fragmented and the peak airway pressure improved significantly.

The patient was on full ventilator support and received sedation and therapeutic temperature management for at least 24 hours. Despite all these he didn’t show any improvement of his conscious level over the next 72 hours and a non-contrast CT scan of the head showed extensive ischemic changes of multiple sites in the brain. The family was updated of the above changes and in view of the poor prognosis he was extubated and was managed conservatively.

**Discussion**

It is unusual to have an accident like this in a cognitively intact patient who had been eating solid food without any complication for four days. The diet he took was analysed closely and we noted that the steam fish was the only meat that was served in large portion on the fourth day. The rest was served in smaller portions and did not result in any complications. No documented difficulty in swallowing prior to this accident was noted.

The case reports related to similar incidents are generally associated with the swallowing of foreign bodies in children or adults with psychiatric disorders. The airway occlusion was attributed to narrowing of the trachea from extrinsic compression of the soft muscular trachea in young children (Figure 2,3). Esophageal mucoceles are not common locally and more often reported in children. To our best knowledge the use of expansible esophageal stent in esophageal carcinoma in Singapore is not common and migration of esophageal stent has not been reported locally [8].

Singapore is a rapidly aging society and it has been postulated that a third of the population will be above the age of 65 years in the year 2020. Falling birthrate with better health care has resulted in an increasing portion of elderly in the population. There is a lack of data to compare edentulism in industrialised developed countries, but it can be safely assumed that retention of natural dentition is increasing in these countries due to better oral care and awareness in some these developed nations. However, the common oral conditions that persist in the elderly are tooth loss, dental caries, periodontitis, dry mouth and oral precancer /cancer and these conditions may precipitate adverse complications (Figure 4).

Edentulism is associated with poor oral health related quality of life as it may precipitate undernutrition and subsequent fragility. Currently dental assessment is not a routine pre-admission requirement and feeding in the elderly patients is not supervised unless there is evidence that the patients are unable to feed themselves. A study done in a local nursing home in 2006 by a team of dentists showed a high prevalence of edentulism and poor dental care in the elderly residents [9]. A total of 265 residents were reviewed and they found that edentulism was common, 41% was completely edentulous and another 29% was completely edentulous in either the maxilla or mandible. The rest had partial dentures. They also noted the extent of untreated decay and retained roots among the elderly residents was high too.

The integration of dental and medical health is critical for people of all ages. Early detection of oral diseases and poor dentition through a concise examination can lead to timely management of systemic diseases and improve quality of life. A recent US CDC survey done showed that patients above the age of 65 years old were twice likely to visit a dentist versus a primary care physician [10].

![Figure 2](image2.jpg)
**Figure 2** The oropharynx appeared edematous.

![Figure 3](image3.jpg)
**Figure 3** Complete occlusion of the trachea by posterior compression.

![Figure 4](image4.jpg)
**Figure 4** Rice particles were noted in both bronchi but soilage was minimum.
Currently in Singapore we do not have enough local data to support mandatory elderly dental care. However, if our local primary care physicians can encourage their elderly patients to make more routine visits to see their dentists, then we may be able to have better dental hygiene and less related complications.

This case highlighted the challenges of providing and delivering good dental care in the elderly age group of patients locally. The patients themselves may not wish to seek dental care, and other disciplines of medicine may not take dental issues seriously enough to make a referral. The selection of diet may not have been taken into consideration in the absence of a good set of functional teeth, natural or dentures. It has always been assumed that solid diet can be served in a cognitively intact patient but the absence of a set of functional dentition for chewing may contribute to morbidity and mortality.

References

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