

A Rare Foreign Body in a Patient with Poor Dentition: A Satay Skewer

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ABSTRACT

Foreign body (FB) ingestion and impaction in the upper gastrointestinal tract is a common urgent referral to otorhinolaryngology. The types of FB are significantly different between children and adults, and it largely depends on the region, sociocultural influences and dietary habits of the patient. Rare FBs in adults should be suspected in certain groups of people with psychiatric illnesses and in patients with dental pathology who are unable to chew food properly before swallowing. In this report, we present a rare case of oesophageal impaction by a long satay skewer with sharp ends along with chicken meat in a 37-year-old man with poor dentition. It was successfully removed using rigid oesophagoscopy.

KEYWORDS: Oesophageal foreign body, satay skewer, dental pathology, oesophagoscopy

INTRODUCTION

Foreign body (FB) ingestion and impaction is a relatively common otorhinolaryngology emergency. It is more common in children and in certain groups of people such as prisoners and patients with alcohol intoxication, underlying oesophageal diseases, mental retardation and psychiatric illnesses [1]. In addition, patients with dental pathologies who are unable to chew food properly before swallowing are prone to food bolus impaction. In adults, 80% of FBs are passed spontaneously without any serious complications [2]. Clinical intervention, mainly endoscopic management, is required in 10%–20% of cases and less than 1% need surgery [3].

The types of FB ingestion may differ between countries and regions, and it mostly depends on the dietary habits, cultural features and sociocultural influences of the population [4]. Food bolus is the most common FB in adults in the Western world, whereas sharp FBs such as fish and chicken bones, fruit nuclei

and dentures are most common in Asian countries [3]. Most oesophageal FBs are impacted at the upper oesophageal sphincter or the cricopharyngeus muscle as it is the narrowest and least distensible part of the gastrointestinal tract [2,4].

The types of FB, specifically sharp objects, as well as the location and the duration of impaction, are the risk factors for complications such as mucosal ulceration, oesophageal perforation, mediastinitis, vascular trauma, aorto-oesophageal fistula, pseudoaneurysm, para-oesophageal abscess, tracheo-oesophageal fistula, pneumothorax and pericarditis [2,3]. Therefore, obtaining proper history regarding the type of FB ingestion, site of pain and associated symptoms such as chest or interscapular pain, shortness of breath, haematemesis, haemoptysis and fever are crucial before initiating any intervention. Most importantly, FB removal should not be delayed as it may result in serious complications.

CASE PRESENTATION

A 37-year-old man with no significant medical history presented with a 1-day history of sudden onset of pain after ingesting chicken satay. After consuming the satay, the patient noticed that the sharp end of the satay skewer was missing and suspected that he swallowed it along with the chicken meat. He then experienced a pricking pain in the middle of his neck during swallowing. Although there was no pain at rest, he complained of intermittent, non-specific chest discomfort, especially when turning his head to either side. In addition, he experienced intermittent shortness of breath approximately 8 hours after the incident, which was aggravated by neck pain during swallowing. He denied any episodes of choking or noisy breathing. His oral intake was markedly reduced and could only tolerate fluid due to the pain. There was no history of fever, interscapular pain, haematemesis, haemoptysis and FB impaction. He had multiple loosening of teeth, mainly the upper and lower incisors, for the past 6 months; however, there was no history of toothache or trauma and did not wear any denture.

He was referred to our centre from a district hospital the following day after the incident. On examination, he grimaced with pain during swallowing, and although anxious, he was co-operative and not in respiratory distress. Oral cavity examination revealed poor dental hygiene, with multiple loosening of the upper and lower medial and lateral incisors. The oropharyngeal examination was unremarkable, and no FB was observed. We initiated flexible nasopharyngolaryngoscopy, which revealed normal findings without any pooling of saliva or suspicious FB observed. A lateral soft-tissue neck radiograph was performed showing long segments of air trapped in the oesophagus at the C6 and C7 levels; otherwise, no obvious radiopaque FB was observed (Figure 1). His lung was clear with good and equal air entry bilaterally on auscultation. Chest radiograph (CXR) and electrocardiogram (ECG) were normal.

The patient was subjected immediately to direct laryngoscopy, rigid oesophagoscopy and FB removal under general anaesthesia (GA). Intra-operatively, a whitish food bolus was observed in the oesophagus 17 cm from the upper incisor, which consisted of chicken

meat with a broken long satay skewer stuck in a horizontal position, and its sharp end pointed to the oesophageal wall at 3 o'clock (Figure 2). The chicken meat was first removed in pieces, followed by dislodging the 3.5-cm long satay skewer into a vertical position (Figure 3). A repeat rigid oesophagoscopy was performed 25 cm from the upper incisors, which revealed mild abrasion with oedematous mucosa at 3 o'clock, and 17 cm from the upper incisor, but no perforation was observed. Due to multiple loosening of teeth, his upper three incisors were accidentally extruded during the procedure and an immediate dental consultation was scheduled (Figure 4). After the procedure, a nasogastric tube was inserted and no oral intake was permitted. Intravenous antibiotic amoxicillin-clavulanate was initiated. A CXR was performed and revealed no signs of oesophageal perforation or mediastinitis. On day 1 post-operation, he was allowed to consume clear water and subsequently a soft diet after no apparent signs and symptoms of oesophageal perforation, such as fever, chest pain, interscapular pain and tachycardia, were observed. His main symptoms such as odynophagia, chest discomfort and shortness of breath were completely resolved, and he was discharged on day 2 post-operation. A 1-week follow-up was scheduled at our outpatient clinic, and a 5-day oral antibiotic was initiated for the patient.

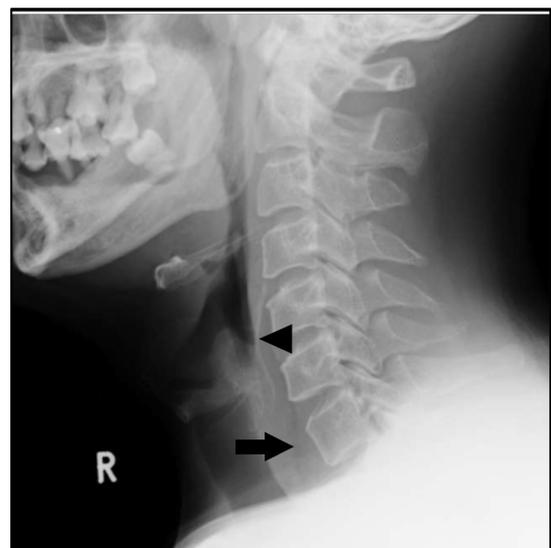


Figure 1 Lateral soft tissue neck X-ray shows long segment of air trapping in the oesophagus (arrow), suggestive of foreign body impaction at the level of C6 and C7 region. Calcified posterior border of thyroid cartilage (arrowhead) may be mistakenly interpreted as foreign body at the level of C5 and C6

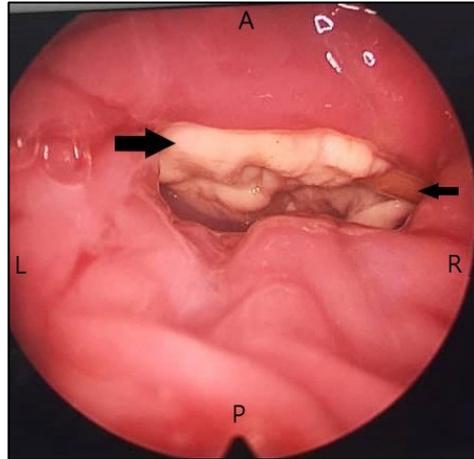


Figure 2 Esophagoscopy shows whitish food bolus seen in the oesophagus at 17cm from upper incisor, consist of chicken meat (big arrow) together with broken long satay skewer (small arrow) stuck in horizontal position with its sharp end pointed to oesophageal wall at 3 O'clock. A – anterior; P – posterior; L – left; R – right oesophageal walls



Figure 3 Successfully removed broken, wooden satay skewer with sharp end measuring 3.5cm in length (small arrow) and chicken meat (big arrow)



Figure 4 Poor dental hygiene with accidental extrusion of upper 3 incisors (A) and multiple loosening of lower 4 incisors (B)

DISCUSSION

FB ingestion is common yet significantly different between the two age groups. Coins and toys are the most common FBs ingested by children, whereas meat and bones are most common in the adult population due to dentures [5]. Patients with a dental problem, as observed in our case, are among the vulnerable groups that experience food bolus impaction due to failure to chew food properly before swallowing. In addition, they are prone to swallowing rare large or long objects along with food as their oral phase is shortened. Types of food commonly consumed by different regions and cultures are the determinants of the different types of FB ingested. Similar to other countries in Asia, the most common FB in adult Malaysians is fishbone [6].

Although satay (also known as sate) (Figure 5) is a popular food in Southeast Asia [7], cases of satay skewer impaction in the upper gastrointestinal tract are very rare. In our case, the satay skewer was broken and embedded in the chicken meat, and the patient could not chew it properly before swallowing due to dental pathology. It was a long skewer with a sharp end, and it got stuck at the oesophageal constriction or the cricopharyngeus region. Furthermore, Muniandy et al. reported a case of a broken piece of satay skewer stuck in the left tonsil of a 20-month-old girl [8].



Figure 5 Wooden skewer with sharp end (arrow) used for holding pieces of chicken meat in chicken satay

Although symptoms depend on the site of impaction, the most common presentations are odynophagia and dysphagia [3,4,6]. Chest pain is a commonly associated symptom and is usually due to referred pain in cases of FB impacted at the thoracic oesophagus [3,4]. However, the symptom should alert clinicians as it might be a presentation of a more sinister underlying pathology, such as oesophageal perforation, mediastinitis or concomitant ischemic heart disease. ECG should be performed whenever possible to rule out any heart abnormality, and if present, it should be prioritised and stabilised before initiating FB removal under GA. Shortness of breath is an extremely rare presentation in the FB oesophagus; thus, the presence of this symptom requires vigilant examination, investigation and observation. It may be a symptom of complications, such as upper airway oedema, aspiration pneumonia or concomitant lung and heart diseases. In this case, CXR should be performed, in addition to lung examination, and careful monitoring for signs of complication and FB in the airway. Our patient also presented with chest discomfort and shortness of breath; however, respective examinations and investigations revealed normal findings and the symptoms completely resolved after FB removal. The symptoms were probably secondary to referred pain as it was aggravated by neck movement and pain-induced shortness of breath sensation.

Lateral soft-tissue neck radiograph for fishbone has a sensitivity of 25% and specificity of 86.3% [9]. We expected that the sensitivity and specificity are lower in cases of wooden satay skewer as it is more radiolucent. In addition to opacity, other findings suggestive of FB on plain radiograph are air pocket and pre-vertebra widening [6]. Due to its low sensitivity, a negative radiograph with positive history warrants oesophagoscopy under GA. Computed tomography scans are usually not indicated as early investigation unless suspected migrated FB or FB is not found during esophagoscopy but the patient still has persistent symptoms.

Oesophagoscopy, either flexible (FE) or rigid (RE) is the mainstay of treatment for removal of impacted oesophageal FB. A systematic review and meta-analysis showed that both FE and RE have comparative success and overall complication rates [10]. According to the American Society for Gastrointestinal Endoscopy guidelines, the decision to perform RE or FE is based on the clinician's judgment [11]. The most appropriate approach is depending on the factors related to the patient's general medical condition, type and size of FB, anatomical site and duration of impaction, and physicians' expertise. RE is more helpful in cases of a sharp and large object as it provides a wide operating lumen, thus giving a great advantage in the manipulation and allowing extraction with multiple instruments. In addition, the airway is protected because the procedure is performed under GA. In our case, the FB was long and sharp, and it was stuck in a horizontal position with a huge food bolus; thus, performing RE was justifiable. We had to manipulate the satay skewer into a vertical position before removal as direct extraction may result in serious oesophageal injury. The major advantage of FE is that it can be performed under local anaesthesia or sedation, is cost-effective as no hospitalization is required and can be performed in patients who are not indicated for GA. However, in our case, we believe that FE is less suitable due to its limitation in manipulating the sharp object with different instruments before removal to reduce oesophageal injury.

CONCLUSION

FB ingestion is one of the commonest cases seen in otorhinolaryngology practice. Rare FB should always be suspicious in certain groups of people such as prisoners and in patients with alcohol intoxication, mental retardation, psychiatric illnesses and dental pathology, which restricts them from chewing food properly. FB removal should not be delayed as it may result in serious complications.

Conflict of Interest

Authors declare none.

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Authors' contribution

V Sha Kri Eh Dam drafted the article. Baharudin Abdullah and Irfan Mohamad involved in critical revision and final approval.

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