



## Case Report

# An unusual laryngeal foreign body in adults: Denture

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## ABSTRACT

Foreign bodies in the larynx are reported quite rarely, with a prevalence of around 4% among patients, especially geriatrics, and represent an acute airway emergency with significant morbidity and mortality rate. This case report aimed to inform about managing foreign bodies extraction and its challenges. A 49-year-old man with a history of wearing dentures was admitted to the emergency room with the chief complaint of a hoarse voice upon waking up, painful swallowing, and a lumpy sensation in his throat. There was no chest pain, cough, nausea, or vomiting. An indirect laryngoscopy examination revealed a foreign body lodged in the anterior rima glottis, impeding the mobility of the vocal folds. Under general anesthesia, emergency direct laryngoscopy, evacuation, and tracheoscopy were performed. It was observed that a foreign denture body was lodged in the larynx and was evacuated using grasping forceps. Post-evacuation, the vocal folds were swollen, with a false vocal fold hematoma, posterior subglottic laceration, and no active bleeding. The foreign bodies in the larynx must be prompted and gently removed because it leads to life-threatening. In suspected swallowed foreign bodies, plain radiographs are the initial imaging approach. Inhalational or intravenous induction is operated to administer the general anesthetic, along with the maintenance of spontaneous ventilation.



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### INTRODUCTION

Accidental ingestion of foreign bodies is a relatively common emergency in otorhinolaryngology. However, it is intriguing to know the variety of foreign bodies swallowed and the method for presenting the case to the professionals (Kumar, 2018). Foreign bodies in an organ come from the outer body or from within the body which are not usually present. The ones originating from outside the body are exogenous foreign bodies that usually enter through the nose or mouth. Foreign bodies in the larynx are life-threatening and often require prompt intervention. Foreign body obstruction of the larynx is uncommon, affecting about 4% of patients with aspiration or accounting for 0.16 - 0.3% of adults (Sehgal et al., 2015). In Indonesia, the percentage of foreign body aspirations by respective location is 5% for the hypopharynx, 12% for the larynx-trachea, and 83% for the bronchus (Darusman et al., 2020). These foreign bodies must also be pulled through the vocal cords, commonly only possible at their narrowest dimension, to prevent vocal cord and oropharyngeal injury (Hewlett et al., 2017).

Foreign body obstruction requires a high level of clinical suspicion, especially for patients without a history of aspiration (Sehgal et al., 2015). The range of clinical signs and symptoms extends from mild voice distortion to life-threatening airway blockages demanding life-saving treatments such as the Heimlich maneuver. The rima glottis, the sagittal plane, is the narrowest portion of the airway in adults. However, sharp or irregularly shaped foreign bodies can become lodged in the larynx. According to the scientific literature, the most common causes of foreign bodies are maxillofacial trauma, dental treatment procedures, ethanol intoxication,

and dementia (Khandelwal et al., 2018). This article aimed to investigate cases of foreign body visualization and removal from a man's larynx. Foreign bodies in the larynx must be prompted and gently removed because it leads to life-threatening. A delayed diagnosis will lead to substantial morbidity and mortality. This case report also aimed to provide information on managing the extraction of foreign bodies and the accompanying problems.

### CASE REPORT

This is a case of a 49-year-old man admitted to the emergency room with a complaint of a hoarse voice. The patient also complained of painful swallowing when eating and drinking and has felt a lump in the throat since waking up. The patient had no complaints of breathing problems, cough, nausea, and vomiting. The patient has a history of wearing fixed dentures (non-removable) constructed by street dentistry. The patient awoke with a symptom of hoarseness and a feeling that the installed fake tooth was loose. His ears and nose are normal. He denied having hypertension or diabetes.

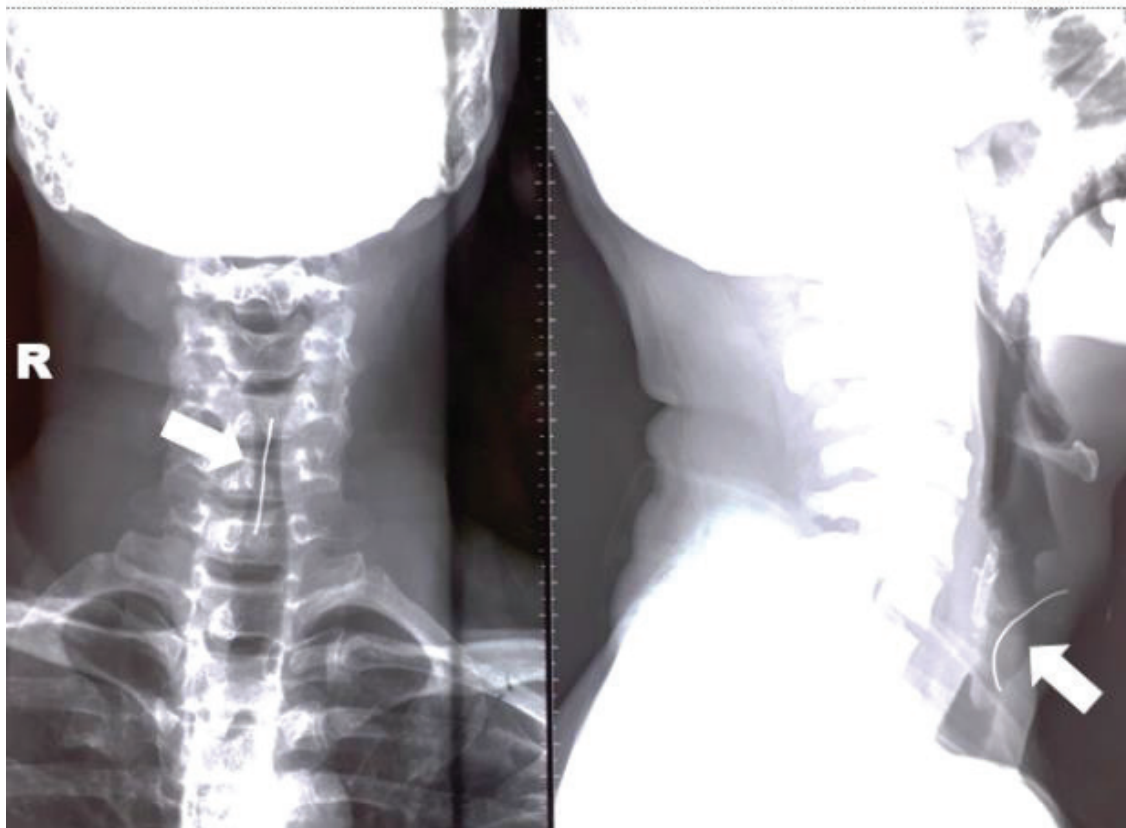
On physical examination, the patient's vital signs were within normal levels, and oropharyngeal analysis indicated a detachment of the upper front teeth and tonsils T1-T1. During indirect laryngoscopy, a foreign body lodged in the anterior glottic rima was found and obstructed the vocal fold movement. Auscultation of the neck revealed stridor. The inhale-exhales and lung sounds are vesicular. The radiological examination of the anteroposterior/lateral (AP/Lat) cervical x-ray showed metal opacity with a vertical direction at 6-7 cervical vertebrae levels (**Figure 1**). Thoracic examination and blood tests laboratory were within normal levels.

The patient was scheduled to initiate emergency direct laryngoscopy, foreign body removal, and tracheoscopy under general anesthesia. Sedation

with propofol injection 1.5 mg/kg body weight (BW) and pain control with fentanyl 2mcg/kg BW, followed by oxygen 5 l/minute to maintain respiration. On direct laryngoscopy, foreign bodies of dentures were found in the larynx. The corporals' evacuation was performed carefully by grasping forceps to minimize injury to the vocal folds. The dentures disconnected from the wire on the first attempt to remove the foreign body. However, on the second attempt, the foreign body was successfully removed.

After removing a foreign body, evaluation with an 0o endoscope revealed diffuse laryngeal edema and a hematoma on the false vocal cord. There were no lacerations, and minimal posterior subglottic lacerations were found on

tracheoscopy with a 0o endoscope. The patient's condition was stable and could be monitored in the regular unit with Ceftriaxone injection of 1 gram/12 hours, methylprednisolone injection of 62.5 mg/12 hours, and Seretide 250 mcg/12 hours inhalation. On the first postoperative day, the patient's condition was stable, with no signs of shortness of breath, and hoarseness had improved. The patient was allowed to leave the hospital and was required to return in seven days. A week after hospitalization, the patient returned to the ENT Clinic for a flexible endoscopy evaluation; the larynx condition was within normal levels. If a patient has a complaint, he is suggested to return to the hospital.



**Figure 1.** On a cervical AP/Lat X-ray, a metal density opacity (metal wires) was visible at the 6-7 cervical vertebrae level.



**Figure 2.** (a) A foreign body of dentures with wires attached to the larynx. (b) Vocal folds after the removal of dentures showed edema and hematoma on the false vocal cords. (c) Lacerations in the posterior subglottic region, without active bleeding. (d) Trachea was within normal levels, and no foreign bodies were observed. (e) Artificial teeth with wires.

## DISCUSSION

Foreign body ingestion is when a foreign body enters the gastrointestinal tract and necessitates immediate laryngoscopy and radiological examination. The role of radiography is instrumental in determining foreign bodies' location. It can be seen if the foreign body is radiopaque (Mahardika & Asthuta, 2020). Of the majority of cases of dentures (63.6%) stuck in the larynx, 11.17%. Coins are the most common external body found in the esophagus of children, whereas dentures are more common in adults. This may be due to the oral cavity's reduced sensation or the laryngopharynx's poor muscle control in denture wearers. In this case, the dentures were swallowed while the patient slept and put on the previously broken dentures. The use of dentures that have been broken is the cause of swallowing dentures. Two cases of denture

ingestion were reported, resulting from the patient's broken dentures. Patient carelessness is a cause that is often reported as the cause of swallowing dentures (Lesyani, 2020).

The foreign body lodged in the larynx is the denture in this case. The inhalation of a foreign metal particle is a rare occurrence. Kansara et al. reported a rare case of foreign laryngeal bodies accompanied by a six-day loss of voice. No history of trauma or fever was present. Indirect laryngoscopy revealed a shiny substance adhering to the left vocal fold (Kansara et al., 2006). A foreign body lodged in the respiratory system is life-threatening and belongs to the airway emergency with a high morbidity and mortality rate.

In most cases, the incidence of foreign bodies lodged in the larynx is between 2 and 5%. If it is lodged in the supraglottic, the patient will cough to release it. However, if the foreign body lodged



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is inhaled, the patient will experience respiratory problems, including stridor, dyspnea, cyanosis, and coughing (Kumar, 2018). According to the ball-valve phenomena, chest enlargement could result from hyperinflation on the side of the chest with the foreign body. On the other hand, the absence of breathing movements on the side of the body affected by atelectasis may indicate that a foreign body has obstructed the airway (Yadav et al., 2007).

Dentures are frequently formed from radiolucent acrylic resin, although the radiopaque clasps of the denture are occasionally visible, as in this patient. Endoscopic removal of dentures is associated with a high risk of esophageal perforation due to their large size, sharp edges, and metal clasps (Mahendra & Yasa, 2019). Compared to another foreign body lodged in the respiratory system, a foreign body can produce hoarseness, stabbing pain, and a lump. Like the patient's anamnesis, he described a hoarse voice, painful swallowing, and a lump sensation. After an x-ray scan revealed that the metal springs size was as large as the larynx in a 6-year-old child with a hoarse voice, fever, and no shortness of breath, Kumar reported a misdiagnosis. It indicates the need to obtain a thorough patient history for an appropriate diagnosis (Kumar et al., 2013).

The foreign body will mostly pass through the glottis into the trachea and main bronchi, so the larynx is not a common area for obstruction. Compared to the left bronchus, the incidence of foreign bodies adhering to the right bronchus is more remarkable, while the incidence is lower in the larynx and trachea. Foreign bodies with a sticky or sharp quality (irregular shape) can become lodged in the larynx, with the rima glottis, the narrowest part of the larynx, being the most common location (Kumar, 2018).

According to Yadav et al., 4.5 percent of 132 patients had metallic foreign body aspiration.

The epidemiology of foreign bodies lodged in the larynx includes metal cutlery, dental proteases, food, and anything else that can obstruct it. Foreign body aspirations can differ based on cultural and regional factors. Certain adult lifestyles and occupations may cause individuals to have atypical objectives. The most common foreign bodies in adults are dentures and food; in children, it is nuts and toy pieces (Hada et al., 2012; Köse et al., 2014; Kumar, 2018; Yadav et al., 2007).

In this case report, an AP/Lat cervical x-ray was operated for the evaluation. Radiologists recommend plain radiography as the first imaging modality for patients suspected of aspirating a foreign body. The suprahyoid region is challenging for the radiologist due to the overlap of soft tissue and bone opacity. Assessing the location of obstructed foreign bodies in the hypopharynx and esophagus is more precise than lateral imaging of the neck. The use of computed tomography (CT) is more accurate for detecting and excluding fish and poultry bones, but conventional radiographs are sufficiently specific to assess the site of the obstruction. Thus, esophagoscopy and additional imaging may not be required. In other words, using plain radiography as the primary diagnostic method is justified (Lue et al., 2000; Senar et al., 2017).

Foreign body removal was supported by general anesthesia with propofol as sedation and fentanyl as analgesia; muscle relaxants were not injected. In the case of foreign bodies, general anesthesia is administered through good inhalation or intravenous induction with the maintenance of spontaneous ventilation. If evacuation is brief, spontaneous breathing can be used to maintain anesthesia. If the surgery is lengthy, however, a muscle relaxant is required to minimize airway damage from coughing. The purpose is to make the surgeon's job easier. Some anesthesiologists recommend putting



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topical lidocaine 1 % to the epiglottis and larynx prior to surgery to reduce hemodynamic reactivity and airway recognition to the bronchoscope into the airways and reduce the requirement for general anesthesia and the risk of laryngospasm (Kendigelen, 2016; Pinto et al., 2012).

### CONCLUSION

In situations that involve foreign bodies, it is essential to take a thorough medical history, do a thorough physical examination, and perform additional tests, such as radiography and direct laryngoscopy. This case was delayed due to a misdiagnosis of symptoms without a supporting examination. Acute and life-threatening, this case requires rapid management. Endoscopic-assisted direct laryngoscopy and grasping forceps are typically used when searching for foreign bodies.

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