



Migrating foreign body in an adult bronchus: An aspirated denture

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As a safety measure, dentures are routinely removed before surgery. Aspiration of a denture could be catastrophic, with medicolegal implications. Foreign body aspiration is uncommon in adults; however, aspirations may remain asymptomatic and undiagnosed for long periods of time. We report an adult male who presented with a cough for more than 6 months. On radiography, a foreign body was found migrating within the tracheobronchial tree from one mainstem bronchus to the other, at different time points. The foreign body was later found to be a portion of his denture. The aspiration may have occurred at the time of a surgical procedure.

Keywords: Airway management; Bronchoscopy; Dentures.



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INTRODUCTION

Silent foreign body aspiration is uncommon in adults. Migration of a silent foreign body from one mainstem bronchus to the other within the tracheobronchial tree is rarer still. Most common foreign body aspirations in a healthy adult are food particles such as bone chips, nut shells, and food boluses. Mendleson described aspiration of gastric fluids and content [1]. Broken teeth and dentures may be aspirated under anesthesia during a difficult laryngoscopy, with medicolegal implications. This case describes a large migrating denture in the bronchus that remained surprisingly asymptomatic.

Consent for publication as a case report was provided by the patient.

CASE

A 48-year-old healthy male presented with complains of mild but persistent cough for about 6 months. The cough was dry, not related to position, and not associated with chest pain or hemoptysis. The cough had episodes of exacerbation that subsided after some time without treatment. He gave no history of fever or any other significant symptom. He was on cough syrups prescribed by his local doctor. He suffered from no other significant systemic or mental illnesses. He was a well-educated man with average intelligence. The patient gave a history of surgical hernia repair gone under general anesthesia about 6 months earlier.

The patient came to us with a chest radiograph (Fig. 1) taken about a month prior, which showed a radiopaque

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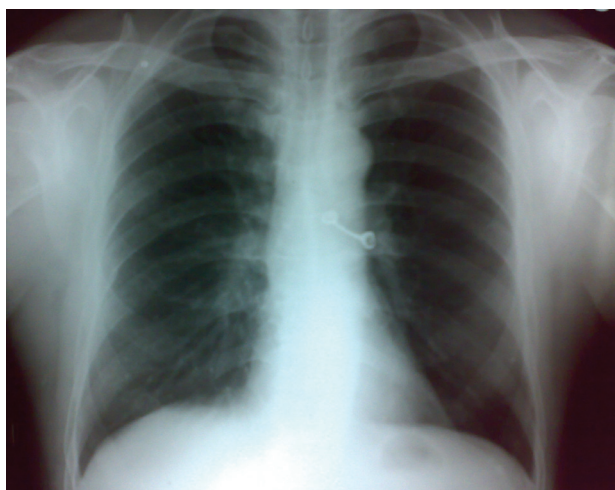


Fig. 1. Chest radiograph posteroanterior view shows a foreign body in the left main bronchus.

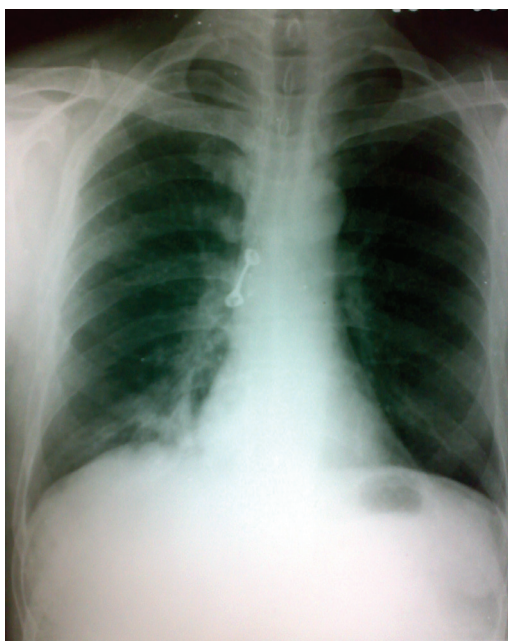


Fig. 2. Chest radiograph posteroanterior view shows the foreign body to have migrated from the left main bronchus to the right main bronchus.

shadow of 2 rings joined by a wire-like structure in the left main bronchus close to the carina. This was initially thought to be an artefact by a local practitioner he was visiting. After about 2 weeks, he was advised to repeat the radiograph (Fig. 2) by another physician. The second radiograph showed a radiopaque shadow in his right main bronchus. This shadow was identical to that in the previous radiograph except for its location and orientation, and was diagnosed as a bronchial foreign body. The

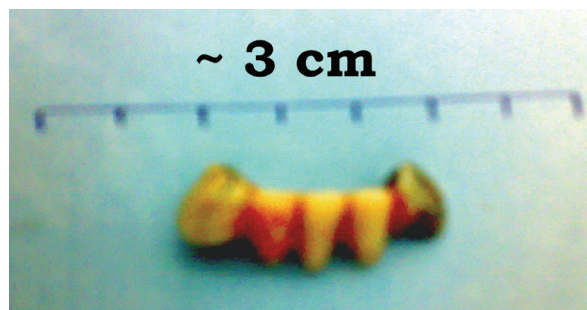


Fig. 3. The denture measured after extraction was found to be about 3 cm wide.

patient was then referred to us.

We were unsure as to the nature of the foreign body. The patient could not think of anything he had aspirated that resembled the shadows. He did not have a history of missing dentures. It was decided that flexible fiberoptic bronchoscopy would be performed to ascertain the nature of the foreign body and if safely possible, to remove it. The plan was explained, written consent taken, and awake fiberoptic examination was performed. The patient received nebulized 4% lignocaine and mouth gargles. Glycopyrrolate was given intramuscular 20 minutes before the procedure. A trained expert performed the bronchoscopy. On fiberoptic view, the foreign body was found to be a portion of denture that was longitudinally wedged just below the carina in the right main bronchus. Using a grasping claw, the foreign body was carefully secured and gently pulled up under vision. Continuous oxygen flow at 15 L/min was given through a nasal prong. There were no episodes of desaturation. The patient was cooperative and the denture was successfully extracted without much difficulty (Fig. 3).

DISCUSSION

This report highlights the possibility of denture aspiration during surgery that may subsequently remain asymptomatic for long periods. Patients remain asymptomatic if the offending agent does not induce any tissue reaction in the airway [2]. Inorganic materials such as those in a denture cause little tissue inflammation [3].

A concern remains regarding physical damage, as these foreign bodies may have sharp edges or pointed wires. A conventional radiograph may not be able to identify radiolucent materials and the risk of tissue damage is real at the time of manipulation and removal [3]. Organic aspirated materials induce intense inflammatory tissue responses and thus identification of such foreign bodies occurs much sooner [4]. Complications of organic aspirated materials are secondary to these inflammatory responses and may result in stenoses. Alternatively, organic materials may absorb moisture and present as an acute emergency such as airway obstruction. Corrosive foreign bodies such as iron or potassium chloride tablets may cause ulcerations in the tracheobronchial tree. Batteries can cause serious injuries once ingested [5].

Aspiration of a foreign body in an adult is usually associated with impaired cognition or alertness [6]. This could occur during an epileptic episode or possibly under general anesthesia. In this case, there was a strong possibility of dentures being aspirated during induction of anesthesia. Our patient was a young, intelligent, well-built male with no significant systemic or mental illness. His symptoms started after surgery and he recalled no other significant events that could cause him to aspirate a foreign body. By exclusion, we believe he could have aspirated the foreign body during the perioperative course.

Surgical safety checklists try and address many such issues and this report only strengthens the evidence that a proper nursing handover and assessment can increase patient safety. Simple questions before changing wards or while receiving the patient in the operating room could have averted this mishap, assuming the patient had indeed aspirated the denture at the time of surgery and anesthesia.

Cough is a very common symptom in patients with an aspirated foreign body. Infective complications secondary to foreign body aspiration may cause associated symptoms such as fever, hemoptysis, foul-smelling sputum, pain in the chest etc. Dyspnea may not always be a prominent feature in chronic foreign body aspiration.

The variability of imaging findings was illustrated in

a series of 19 adults who presented to the hospital with foreign body aspiration [7]. Chest radiographs showed areas of consolidation, atelectasis, and pleural effusion, and rarely evidence of the foreign body in a bronchus. Compared to chest radiographs, chest computed tomography more frequently showed a radiopaque foreign body (16 versus 3). Other findings included atelectasis, hyperlucency consistent with air trapping, bronchiectasis, lobar consolidation, pleural effusion, hilar adenopathy, and a thickened bronchial wall adjacent to the foreign body [7].

Young and healthy adults who have aspirated a small, movable foreign body (fruit pit or bead) are occasionally successfully managed with positional maneuvers (lateral decubitus and Trendelenburg). This may result in spontaneous expectoration of the foreign body or bring it into a more proximal position prior to definitive management.

Bronchoscopic removal remains the most definitive method for foreign body removal from the pulmonary tree [8]. Many types of ancillary equipment, including forceps (some with rubber tips), grasping claws, fish-net baskets, snares, balloon-tipped catheters, magnet-tipped probes, and cryoprobes are available to allow foreign body extraction using flexible bronchoscopy [8]. The choice of retrieval equipment varies with the size, shape, weight, and nature of the aspirated foreign body.

Our case presented a diagnostic dilemma before the procedure regarding the nature of the foreign body. It is fortunate that the denture caused no harm in the interim it remained in this patient's lungs or even during its removal. This report emphasizes the possibility of aspiration of dentures during anesthesia and the perils of a silent aspirated denture with shifting location over time inside the lung.

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