Denture mimicking vocal cords – A rare entity
A case report

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Summary: Laryngeal foreign bodies are not uncommon. A common difficulty encountered is a delay in diagnosis. The clinical features of a laryngeal foreign body may simulate asthma in an adult. The differentiation is necessary in the initial stages as the laryngeal foreign body can lead to sudden death due to airway obstruction. Sudden onset of wheeze in a non-asthmatic patient should arouse its suspicion. A case is reported where patient was transferred to respiratory intensive care unit for respiratory distress with wheeze which was later diagnosed as foreign body larynx.

Key words: Foreign body; difficult intubation; denture; tracheostomy.

INTRODUCTION

Foreign body aspiration, a potentially lethal event, is more common in children compared to adults. Invariably most of the foreign bodies tend to migrate and lodge in the bronchus (1). Foreign body which impacts on the larynx can cause complete respiratory obstruction resulting rapidly in fatal outcome. There is usually a history of choking and coughing which makes the diagnosis easy. However, sometimes patient may not have classical symptoms due to partial occlusion of airway. Laryngeal foreign body may induce spasm and mimic a case of asthma, acute epiglottis, laryngotracheobronchitis (2). A case of foreign body larynx is reported who was misdiagnosed as aspiration pneumonitis.

CASE REPORT

A 23-year old female patient was transferred to Respiratory Intensive Care unit (RICU) from medicine ward with impending respiratory failure. According to the referring physician, patient was admitted with an episode of generalized tonic-clonic convulsions resulting in difficulties in breathing. At the time of admission she was conscious and her vital parameters were stable. She had labored breathing along with wheeze. There was generalized decreased air entry and bronchospasm. Biochemical investigations along with X-ray chest were essentially normal. A probable diagnosis of grand mal epilepsy with aspiration pneumonitis was made and treatment in form of antibiotics, bronchodilators, and anticonvulsants along with oxygen supplementation was started resulting in brief improvement of her condition. Over the next 24 hours her condition steadily deteriorated. There was marked increase in breathlessness and she became semi-conscious, stopped responding to verbal commands though she was still responding to painful stimuli. Her blood gas status revealed severe respiratory acidosis.

At this moment the patient was shifted to RICU and the decision was made to intubate and put the patient on mechanical ventilator. She was administered 120 mg propofol followed by 6 mg vecuronium bromide to facilitate intubation. Despite adequate exposure of glottis on laryngoscopy (Cormack and Lehane grade-I) the trachea could not be intubated even with the smallest size of endotracheal tube. However she could be ventilated with mask though with increased resistance. Repeated attempts at intubation failed as the endotracheal tube could not be negotiated through the vocal cords which were visible as pearly white structure in slightly adducted position. She maintained oxygen saturation of more than 90% for some time but started desaturating soon thereafter and ventilation by face mask became increasingly difficult. Emergency tracheostomy was performed.
and consequently saturation improved drastically and wheeze disappeared. The immediate disappearance of all symptoms following tracheostomy led to the suspicion of a foreign body in the upper airway and an X-ray soft tissue neck was advised which revealed a radio-opaque shadow behind the epiglottis. A single tooth was subsequently removed by the ENT surgeons, which was found impacted in the subglottic area. The neurological status of the patient also improved and she was discharged after the closure of tracheal stoma.

**DISCUSSION**

The larynx performs a very efficient sphincteric function to protect the lower respiratory tract and it is unusual for a foreign body to be inhaled as contrasted to be swallowed (3). The precipitating features in adults are facial trauma, dental procedures, CNS dysfunction due to stroke, mental retardation, metabolic encephalopathy, seizures & alcoholism etc. It has also been reported to occur in healthy adult in the absence of above mentioned conditions (4).

When inhaled, most foreign bodies become lodged in the bronchi because their size and configuration allow passage through larynx & trachea. Larger objects however become impacted in the larynx. Krejovic et al. suggested that 11% of foreign bodies in respiratory tract lodge in the larynx whereas most series show a prevalence of 2-5% (5). Laryngeal foreign body may cause complete respiratory obstruction resulting in rapidly fatal outcome. However it can occur with less severe symptoms like aphonia and may stimulate spasm mimicking asthma (4).

According to a review by Esclamado and Richardson there is usually a history of choking and coughing in about 90% of cases which is followed by stridor, sternal recession, coughing and hoarseness (5).

There are three clinical phases of foreign body aspiration. The initial phase of choking and gagging is followed by asymptomatic phase when the foreign body gets lodged and results in fatigue. The complications occur in the third phase. The major challenge involves the accurate diagnosis, followed by prompt and safe retrieval of the foreign body. The accurate diagnosis may allude the physician, as the initial episode of choking is usually not witnessed. The delayed symptoms may mimic other common conditions e.g. asthma, pneumonia and upper respiratory tract infection.

At admission, this patient was aphonic and the medical history was provided by the accompanied family member who was her father in law. It was presumed that she was not speaking because it is socially not acceptable in this part of the country to speak in presence of elderly in laws. Her desperate movements at the time of choking were probably misinterpreted as seizures. She had mild stridor with bronchospasm at the time of admission, interpreted by the physician as aspiration pneumonia following grandmal epileptic episode. Pulmonary function tests can help in making the differential diagnosis in a known asthmatic patient, as comparison with previous measurements is invaluable. As she was not a known case of asthma, there were no baseline pulmonary function tests to compare with.

Despite the presence of a large foreign body in larynx she did not have severe respiratory distress. Initially probably because the denture was lodged in a manner that it left sufficient chink for the patient to breath conform the observations of Chevaller Jackson that a foreign body may lodge in antero-posterior position without causing much respiratory distress (6). The patient had a sudden onset of wheeze. Probably, she must have inhaled denture during epileptic fit. It was a single prosthetic tooth.

She maintained oxygenation due to passage of air between the tooth and vocal cords. The increase in distress could be explained due to surrounding inflammatory edema. Aspirated denture being white in color mimicked adducted cords. Our repeated attempts at intubation could have been catastrophic if the prosthetic tooth got dislodged and moved in a position to cause total obstruction. To our good luck the tooth was firmly impacted in the subglottic area and the force applied by the ETT was not enough to dislodge the foreign body.

Partial obstruction of respiratory passage with clots, foreign bodies, cysts and tumors of epiglottis can create difficulty in ventilation. Chittora and Kelkar reported a case of respiratory obstruction due to a piece of tissue (mucosal tag) stucked at laryngeal inlet after biopsy (7). Vithalani et al. reported a denture in bronchus in a 42-year old, which remained undiagnosed for three years (8). Yilmaz et al. reported undiagnosed foreign body aspiration in four adults out of whom one had been misdiagnosed as having asthma (9). Wasson reported a similar case in a 23-year old man who accidentally swallowed his denture after alcohol consumption. Laryngoscopy revealed it behind the arytenoids. The walls of glottic opening appeared opposed in midline due to local edema of the laryngeal inlet so they used a gum elastic bougie through...
midline slit and then pushed forward the tube over it in order to minimize trauma caused by repeated attempts (10).

To conclude, airway problems and challenges exist in a patient with inhaled laryngeal foreign body. This case highlights to take into account the possibility of a foreign body in the airway in any patient who presents with a sudden onset of wheeze without prior history of asthma or related diseases. Complete cooperation and good communication between anesthetist and endoscopist is vital in achieving an optimal outcome. It is also suggested that a much closer direct laryngoscopic examination of the larynx should be done so not to miss the foreign body impacted in glottic or subglottic region.

Bibliography
