

## Occult Laryngeal Foreign Body Mimicking Normal Thyroid Cartilage

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**Introduction:** Foreign body aspiration is common especially in children. The absence of history of choking does not rule out the diagnosis. Diagnosis required high index of suspicion.

**Case Presentation:** Undiagnosed foreign body aspiration mostly occurs in bronchial airway rather than larynx and can cause severe complications. In this article, we report a silent laryngeal foreign body aspiration to show that careful history taking and accurate evaluation of radiography are important factors for diagnosis.

**Conclusions:** The single most significant factor leading to detect of tracheobronchial foreign body aspiration is a high index of suspicion; this case highlights the possibility of a foreign body in the airway in patients who presents with a recent onset of chronic respiratory complaints.

**Keywords:** Respiratory Aspiration; Foreign Body; Larynx; Laryngeal; Foreign Bodies; Laryngoscopy

### 1. Introduction

Although foreign body aspiration is much less common in adults than it is in children, silent aspiration is very common. Undiagnosed foreign body aspirations mostly occur in bronchial airway rather than larynx and can cause severe complications (1). Review of the literature shows that occult foreign body aspiration poses difficulties in diagnosis and that often a history of aspiration is lacking (2, 3).

Occult foreign bodies can remain undetectable for months to years and often are misdiagnosed. However, the recurrent nature and the localization of symptoms and signs as well as the findings during bronchoscopy, should alert the physician to the possibility of foreign body aspiration.

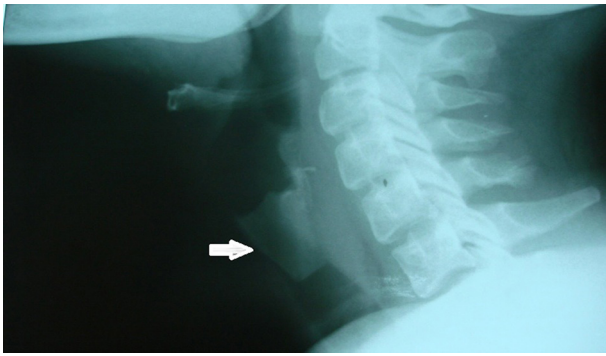
Most occult foreign bodies are reported in tracheobronchial trees, which cause chronic pulmonary symptoms and persistent infiltrates. In this article the authors present a case of occult laryngeal foreign body aspiration.

### 2. Case Presentation

A 23-year-old woman, referred to our clinic with symptoms of sore throat, halitosis and gradually increasing shortness of breath during a period of 2 months. She had a vague history of choking 2 months ago. She didn't have

any history of fever, hemoptysis, dysphagia, or cough. She also complained of mild alteration of her voice quality recently. During this period she was visited by several practitioners but her lateral neck radiograph interpreted as normal.

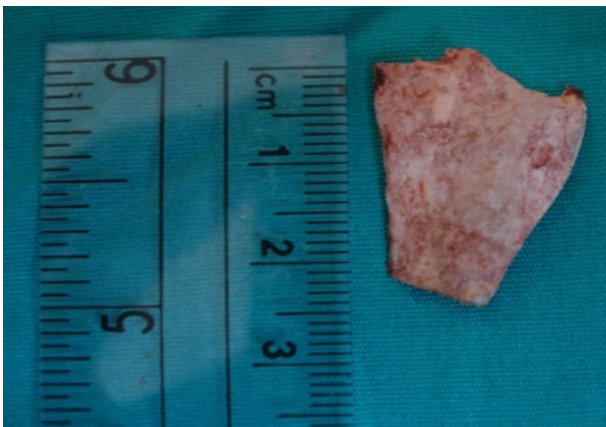
On physical examination she did not have any respiratory distress. Indirect laryngoscopy showed a whitish exudate just below the true vocal cords. Retrograde careful evaluation of lateral neck radiography showed a foreign body in the subglottic area which was very similar to a calcified thyroid cartilage (Figure 1). Poster anterior chest radiography also showed the foreign body (Figure 2). The patient was admitted to our ward and underwent a direct laryngoscopy under general anesthesia with jet ventilation. Just below glottic area, there was a big chicken bone (Figure 3) which was embedded in the surrounding tissue with white exudates around it. After removal of it with a forceps, there was exuberant granulation tissue in the posterior wall of subglottic area. In order to decrease granulation tissue, Mitomycin soaked cotton (1 mg/mL concentration) was remained in place for about 6 minutes and intraoperatively, an 8 mg dose of intravenous dexamethasone was used. The patient revisited 1 week and 1 month, postoperatively and the patient was not noticed any other problems.



**Figure 1.** Lateral Neck X-Ray; Note That it can easily be mistaken by a calcified thyroid cartilage (arrow).



**Figure 2.** PA Chest Radiography, Also Shows the Foreign Body



**Figure 3.** A Laryngeal Foreign Body

### 3. Discussion

The larynx presents a very effective sphincteric function to protect the lower respiratory tract; however, foreign body aspiration is common, especially in children. Although foreign body aspiration is frequently suspected in children with acute or recurrent pulmonary symptoms, it is rarely thought about in adults with subacute or chronic respiratory symptoms unless an evident history of an aspiration event is obtained (4). The precipitating stories in

adults are facial trauma, dental procedures, central nervous system (CNS) dysfunction due to stroke, mental retardation, metabolic encephalopathy, seizures, and alcoholism. It has also been reported to occur in healthy adult in the absence of above-mentioned conditions (3).

If the foreign body is large, it may cause to the life-threatening obstruction of major airways with acute dyspnea, laryngeal edema, asphyxia and cardiac arrest. Small foreign bodies can lodge in the peripheral airway, predominantly in the right lower lobe (4).

The most commonly inhaled object are food pieces, medical equipment and pins (1). The most common symptoms after an asymptomatic interval of varying length are cough, expectorations, spells of fever, hemoptysis and pleuritic chest pain leading to mistaken diagnosis of asthma, chronic obstructive pulmonary disease, bronchitis, chronic pneumonia or pulmonary embolism (4-6).

Review of the literature shows that the most common site of occult foreign body aspiration is tracheobronchial trees and occult laryngeal foreign body aspirations are rare because laryngeal foreign body can produce more obvious symptoms (4, 5).

In adults, occult fish bone in throat and upper esophagus is more common than occult aspiration of a foreign body. The detection of fish bone lodged deeper in the throat becomes difficult because it escapes direct visualization. Even on radiographical examination it can be missed, because of high tissue density of the bony structure of the larynx (7). Such missed fish bones have been reported to cause a variety of complications such as deep neck abscesses, mediastinitis or mediastinal abscess (8).

Occult foreign body aspiration can stand undetected for years, even for 40 years (3). Vithalani et al. (9) reported a denture in bronchus in a 42-year old, which remained undiagnosed for 3 years. Yilmaz et al. (1) reported undetected foreign body aspiration in four adults out of whom one had been misdiagnosed as asthma (1).

This case highlights the possibility of a foreign body in the airway in patients who presents with a recent onset of chronic respiratory complaints. Careful clinical history and physical examination is the mainstay of diagnosis in cases of unrecognized foreign body aspiration. It is also suggested that a much closer direct laryngoscopic examination of the larynx (especially in glottis or subglottic area) should be done.

However, the single most significant factor leading to detect of tracheobronchial foreign body aspiration is a high index of suspicion (11); chest radiography could diagnose the foreign body in 30% - 70% of cases (3).

The definite treatment of a tracheobronchial foreign body is removal of the foreign body by fiberoptic or rigid bronchoscopy. Perfect teamwork and excellent communication between anesthetist and endoscopist is necessary.

Tracheobronchial foreign body aspiration should always be taken in differential diagnosis of chronic respiratory symptoms that are poorly explained even in the absence of a previous history of aspiration.

## Authors' Contributions

Study concept and design: Fatemeh Hassannia, and Farzad Izadi. Acquisition of data: Behzad Pousti and Ehsan Shams Koushki. Drafting of the manuscript: Fatemeh Hassannia and Ehsan Shams Koushki and Mojtaba Maleki. Critical revision of the manuscript for important intellectual content: Mojtaba Maleki, Fatemeh Hassannia, and Ehsan Shams Koushki. Administrative, technical, and material support: Fatemeh Hassannia, Farzad Izadi, Behzad Pousti, and Ehsan Shams Koushki. Study supervision: Farzad Izadi, and Behzad Pousti.

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