



## Foreign Body Aspiration: The Journey of needle in Left Bronchus : A Case Report

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### Abstract

Foreign body aspiration is a challenge that requires rapid and accurate diagnosis. It can lead to partial and complete airway obstruction and potentially life-threatening event. We present the case of a 12-years-old female who inhaled the pin (needle) since  $\pm$  2 weeks ago. The needle position falls in a sharp upward. The patient had cough for  $\pm$  30 minutes after the accident, and complained feeling of lump in the middle of the chest 1 week after the accident, especially when the patient's breathe. No painful swallowing, history of choking, and vomiting mixed with blood. The physical examination and laboratory were normal limits. Chest X-ray shows the foreign body in the trachea with a vertical position at the level of 3-5 thoracic vertebrae. The flexible bronchoscopy was performed and showed left lower lobe was hyperemic and the corpus alienum appeared which was then successfully evacuated. The patient was treated with antibiotics and anti-inflammatory drugs. The patient was stable and discharge. In this case the needle entered the left lower lobe bronchus, so it took a challenge in the evacuation process. Flexible bronchoscopic removal is the mainstay of management of foreign body in tracheobronchial tree.

Keywords: Foreign body, Needle, Bronchus, Bronchoscopy, Aspiration

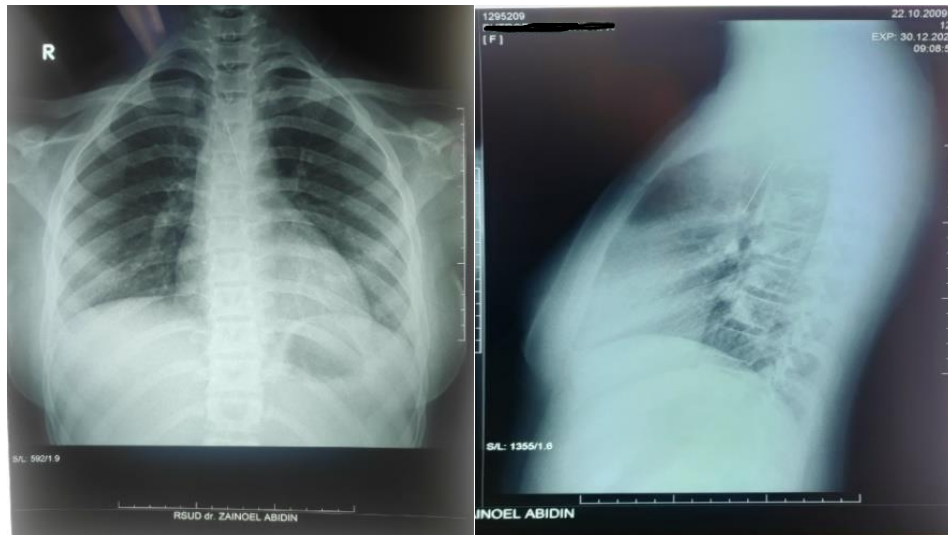
### Introduction

Foreign body (FB) aspiration refers to the inhalation of any object into the tracheobronchial tree. It can be a very deleterious situation and occasionally fatal, but adequate and prompt treatment is linked with low rates of mortality and morbidity.<sup>1</sup> Foreign bodies aspiration is

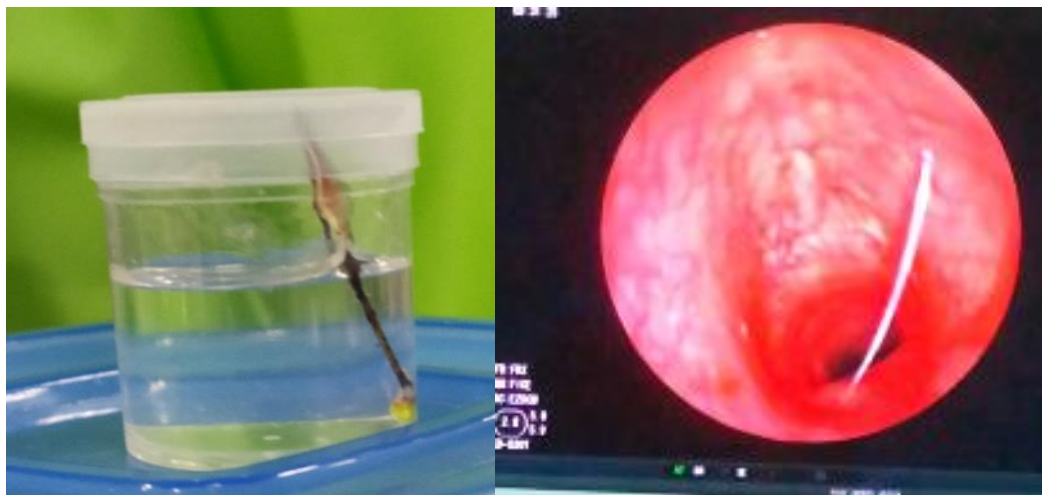
seen frequently in children, some case in adults. The approach to manage the foreign bodies aspiration depends on the type and location, the presence of complications and the clinical condition of the patient. Most aspiration of sharp objects can be managed conservatively, some expert had different opinion in the case of easily identifiable objects causing perforation and extraluminal migration.<sup>2</sup> Foreign bodies in the airway passages can cause chronic nonspecific symptoms such as stubborn bronchitis, recurrent hemoptysis, or bronchiectasis. Complications depend on site, size, shape, nature and duration of the foreign body.<sup>3</sup> Foreign bodies aspiration can lead to total or partial airway obstruction. The symptoms include chronic cough, hemoptysis, body heat, shortness of breathe, chest pain, feeling of suffocation, wheezing or decreased of consciousness, it depends on the location of the foreign body.<sup>4</sup>

### **Case Presentation**

12-years-old girl was referred to the hospital with complaints of inhalation of a pin (needle) which was being bitten, since  $\pm$  2 weeks ago. The initial complaint was a continous cough for  $\pm$  30 minutes, then subsided. The patient complained of feeling of lump in the middle of the chest, especially when the patient was breathing, since 3 days before. No painful swallowing, history of choking, or vomiting mixed with blood. The physical examination and laboratory show the results within normal limits. The chest X-ray shows the high metal density foreign body in the trachea with a vertical position at the level of 3-5 thoracic vertebrae. Laryngoscopy Wisconsin and rigid bronchoscopy was performed by ENT team on the laryngeal area, identified a needle in the left bronchus, covered with granulations, but it difficult to evacuate. Then, the Bronchoscopy with FOB was performed under general anesthesia, the left lower lobe was hyperemic and the corpus alienum appeared in that area, which was then successfully evacuated although the needle had infiltrated the mucosal wall. At the outside, the pin appears yellow with a rusty metal side. The patient was treated with antibiotics and anti-inflammatory drugs. After 1 day after the procedure, the patient was stable, there were no complaints and the patient was discharged.



**Figure 1.** Chest X Ray shows foreign body in left bronchus



**Figure 2.** Macroscopic appears post evacuated needle and the bronchoscopy showed hiperemic bronchus

## Discussion

Foreign body aspiration (FBA) often occurs mostly due to decreased airway protection mechanisms or certain circumstances such as laughing, crying, sneezing can also cause foreign body aspiration. In this case, the needle aspirate while it bite. The cough complaints in patients can occur due to stimulation of irritant receptors found in the larynx, trachea and

large bronchi, including one of them due to foreign bodies. According to a previous study, cough as the single complaint can be found in 61% of symptomatic patients, 19% complaining of cough and fever, and 16,5% with cough and wheezing. The rarest findings are chest pain and hemoptysis.<sup>7</sup> When the aspirate goes into the deeper bronchi, an asymptomatic period may occur. Foreign objects in the form of sharp objects can cause serious injuries that can cause repeated coughing up of blood. The right main bronchus is shorter than the left main bronchus. In this case the needle entered the left lower lobe bronchus, so it took a challenge in the evacuation process.<sup>6</sup>

This case demonstrates the diagnostic challenges of FBA when the needle was hard to evacuate because of the granulations that covered it and the location of the FBA in the left bronchus. In a study by Saki et al, of 1,015 pediatric patients undergoing bronchoscopy for FBA, the location of the FB occurs in the right mainstem bronchus in 55% of patients, followed by left main bronchus, trachea, vocal cords, and less than 2% in both bronchi. The primary outcome was the diagnosis of FBA as confirmed by bronchoscopy.<sup>5</sup> The differential diagnosis of FBA is broad, including more common diagnoses of asthma and lower respiratory tract infections. The diagnosis is often delayed, taking longer than 24 h in 60% of cases. There are no validated clinical prediction models to identify pediatric patients with FBA, therefore, a high index of suspicion is needed for timely diagnosis, especially if the presentation and clinical evolution are atypical. The gold standard diagnosis and treatment of FBA is via bronchoscopy visualization and removal.<sup>6</sup>

In this patient the first symptom was cough. The most common sign of foreign body aspiration reported is cough. In a retrospective study of 173 patients with FBA who underwent bronchoscopy, cough was reported in 75.72%, dyspnoea in 11.56%, wheezing in 6.26%, cyanosis in 2.31%, choking in 1.73%, stridor in 1.16%, and recurrent lung infection in 1.16% of cases. Plain X-ray used as early diagnostic tools in asymptomatic patients with suspected foreign body aspiration. The asymptomatic aspiration cases should be of concern, as late complications such as pneumonia, bronchiectasis, lung abscess and lung atelectasis can occur in case of undiagnosed or abandoned foreign body aspiration. It may also cause bronchial stenosis and obstructive emphysema. Early rapid diagnostic and treatment with bronchoscopy for life-saving conditions are emergently required. The use of flexible bronchoscopy is more recommended than rigid bronchoscopy which is avoided nowadays, especially in pediatric patients due to its invasiveness and higher risk of serious complications.<sup>7</sup>

## **Conclusion**

Foreign body aspiration is one of respiratory emergency. Delay in diagnosis causes a variety of complications. Flexible Bronchoscopy is the management of foreign bodies in the tracheobronchial tree.

## **Disclosure**

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