

Neglected Foreign Bodies in Bronchi in Adults: Experience of 2 Cases

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ABSTRACT

Tracheobronchial foreign body (FB) aspiration is a life-threatening condition that is more common in children than in adults. They are often diagnosed immediately and the foreign body is extracted as soon as possible. However, cases of neglected foreign body aspiration where it is unknown to the patients or they have forgotten the history of aspiration have been reported in the literature. The symptoms depend on the site of the FB impaction ranging from chronic mild wheezing, through to a cough, a complaint of discomfort, general shortness of breath, recurrent pneumonia, or mimicking asthma. In this article, we intend to illustrate two cases of forgotten bronchial foreign bodies that were successfully treated via the process of bronchoscopic extraction in Hanoi Medical University Hospital.

Key words: airway foreign-body, recurrent pneumonia, bronchoscopy

INTRODUCTION

Bronchial foreign bodies may occur at any age and they most commonly occur in infants and little children¹. Some of the risk factors for aspiration include neurological deficits, psychiatric or mental health impairments, alcoholism, drug intoxication, and poor dentition². However, most patients have removed the foreign body expeditiously after choking. Therefore, forgotten FB aspiration in adults is less common. In the literature, there were several cases of FB aspiration found that had been forgotten over a period of time from months to years^{3,4}. The patients often complain of prolonged cough or wheezing and this can be misdiagnosed as asthma, pneumonia, or pneumothorax due to lung cancer⁵.

CASE PRESENTATION

Case 1

A 46-year-old male officer was admitted to our hospital with chest pain and a fever (39.5 °C), and he had coughed up green phlegm for 3 days. He had a history of pneumonia two times this year and received antibiotics. However, his cough persisted. The laboratory revealed elevated leukocytes at 15,000/mm³ with normal hemoglobin and platelet levels. The chest x-ray showed left lower lobe consolidation. The patient underwent a chest computed tomography (CT) scan. On the CT scan, there was a calcium density structure with a length of 20 mm located in the left

lower lobe bronchus, and left lower lobe consolidation (Figure 1 A, B). A bronchoscopy performed after admission showed a sharp bone in the left lower lobe bronchus that was covered in pus and blood with congestion in the peripheral mucosa. The bronchoscope could not enter the left lower bronchus and extract the FB due to stenosis. Therefore, we decided to use antibiotics to reduce the inflammation before removing the foreign body. After 4 weeks of antibiotic therapy, the chest CT scan showed a decreased consolidation of the left lower lobe lung (Figure 1 C, D). The patient then underwent a flexible bronchoscopy under general anesthesia. Both endoscopic forceps and an endoscopic snare were used to remove the FB (Figure 2).

Case 2

A 64-year-old female presented with fever (39 °C), right chest pain, and had been coughing up solid white mucus for 1 week. She had a history of pneumonia 3 months ago and the symptoms improved after receiving 1 week of antibiotic therapy. Moreover, she also had a chronic cough and wheeze. After further questioning, the patient reported that 1 year before, she had choked while eating chicken. However, she did not have significant symptoms, so she did not consider this detail to be important. The patient was suspected of having persistent obstructive pneumonia due to foreign body aspiration. We performed a chest CT scan later. The chest CT scan demonstrated radiopacity in the right lower lobe (Figure 3 A, B). In

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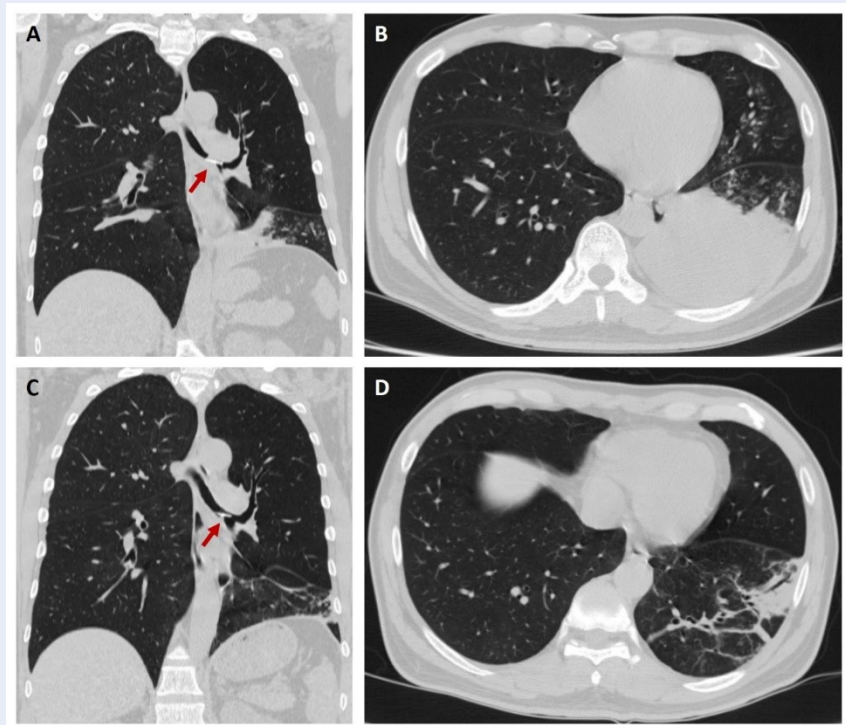


Figure 1: A, C: Chest CT scan revealed a calcium density FB in the left lower lobe bronchus (arrows). B: There was consolidation almost all of the left lower lobe. D: The consolidation was decreased post 4 weeks of antibiotic therapy.

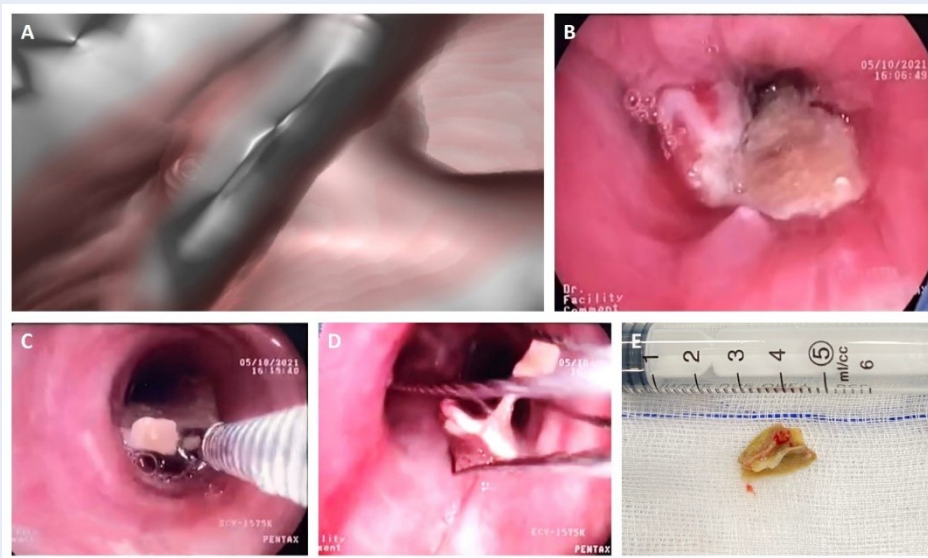


Figure 2: A: Computed Tomography Virtual Bronchoscopy. B: The foreign body located in the left lower lobe bronchus. C, D: Extracting the cap with forceps and snares. E: The foreign body was a sharp chicken bone.

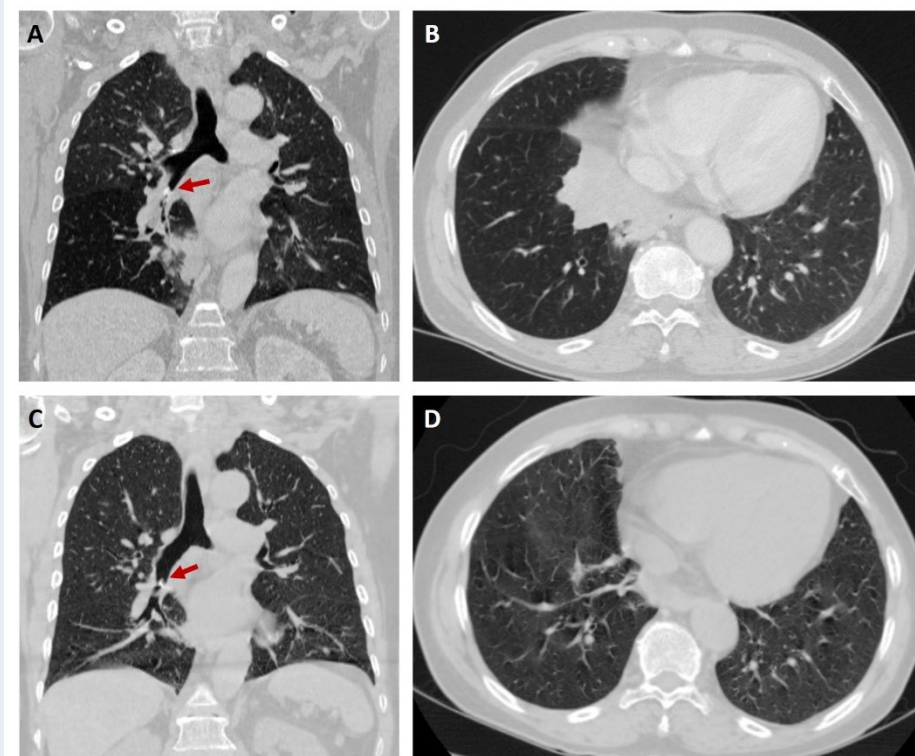


Figure 3: A, C: The bronchial foreign body (arrows). B: Consolidation of the right lower lobe. D: After a course of antibiotic therapy, the consolidation was improved.

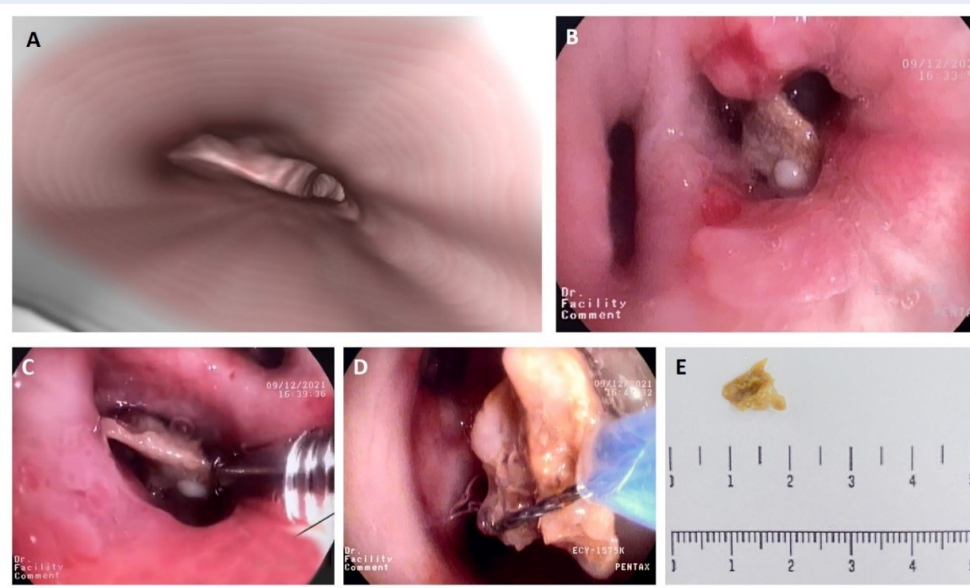


Figure 4: A: Computed Tomography Virtual Bronchoscopy. B: The foreign body located in the right lower bronchus lobe. C, D: Forceps and snares used to extract the FB. E: Retrieved the FB and it was a chicken bone.

addition, there was consolidation in the right lower lobe due to the stenosis of its bronchus. The patient was diagnosed with pneumonia secondary to a foreign body. As the first patient, this patient also received 4 weeks of antibiotics. The chest CT scan post-treatment showed that the consolidation had disappeared (Figure 3 C, D). Subsequently, a flexible bronchoscopy clamped out the foreign body under general anesthesia (Figure 4).

DISCUSSION

Tracheobronchial foreign bodies have been described for years, and it is defined as a FB below the level of the vocal cords⁶. Foreign body aspiration is frequent in children because of their habit of placing objects in their mouths. However, in adults, some of the risk factors of FB aspiration include neurological impairment (resulting from alcohol, sedative use, or trauma), impaired airway reflexes, impaired dentition, and dental procedures⁷. Moreover, cerebrovascular or degenerative neurological diseases such as cerebral infarcts, amyotrophic lateral sclerosis, Alzheimer's disease, or Parkinson's are also related to the development of dysphagia and the increased risk of FB aspiration⁷. Most bronchial foreign bodies in adults are promptly diagnosed and extracted. However, there are several cases of neglected foreign body aspiration reported in the literature where the patient does not clearly remember the circumstances of choking, leading to the FB remaining in the airway for a long time. FB aspiration retention in an adult reported in the literature goes back up to 40 years⁶.

Foreign body aspirations in adults are diverse, and have included food (bone fragments, pieces of vegetables or fruits, and seeds), screws, plastic devices, teeth, dentures...^{8,9} However, the most common neglected foreign bodies are bone fragments and/or food matter. For various reasons, patients may forget the circumstances of the aspiration event. Therefore, the foreign body remains in the airways for a long time before causing clinical manifestations.

The patients often present with a prolonged cough, wheezing, hemoptysis, or recurrent respiratory infections. The patients may be misdiagnosed with chronic obstructive pulmonary disease (COPD), asthma, obstructive pneumonia, and even lung cancer^{5,9,10}. A chest radiograph may detect radiopaque FBs. However, small FBs may not directly visible on a chest radiograph or lung consolidation can obscure the foreign body⁹. A chest CT scan can exactly assess the location of the foreign body and any complications such as obstructive pneumonia, bronchiectasis, atelectasis,

pneumothorax, and lung abscesses^{9,10}. FB aspirations are more common in the intermediate bronchus and right lower lobe. In cases where the FB aspiration is neglected, the size of the FB can be so small that it is more frequently in the lower lobe bronchus as in our two patients.

Patients with neglected bronchial FBs are often admitted with complications such as pneumonia, lung abscesses, and pneumothorax. These patients should be treated with systemic antibiotics for approximately 2 – 4 weeks^{3,11}. When the infection is improved, an endoscopic intervention is performed to remove the foreign body.

A multi-specialist consultation between an endoscopist, anesthesiologist, and surgeon is necessary to decide on the management method of the foreign body¹⁰. The intervention should be done under general anesthesia. A flexible bronchoscopy is considered to be the initial procedure for the evaluation and management of FB aspiration in almost all cases, while a rigid bronchoscopy is often used in pediatric patients^{10,12}. Most neglected bronchial foreign bodies are small, and a flexible bronchoscopy is an effective procedure that can locate foreign bodies in the lower respiratory airways. A flexible bronchoscopy with multiple modalities including forceps, a loop, basket, knife, electromagnet, and cryotherapy is effective at removing most foreign body aspirations¹³⁻¹⁵.

The two cases we reported were hospitalized with recurrent pneumonia, and they were treated with systemic antibiotics for 4 weeks. When the respiratory infection was stable, the FBs were successfully removed by flexible bronchoscopy under general anesthesia.

CONCLUSION

Neglected bronchial foreign bodies in adults are uncommon. Most patients present with a persistent cough and recurrent respiratory infections. Acute episodes of infection should be managed before removing the FB from the airways. Flexible bronchoscopy under general anesthesia is a safe and effective method that can help to remove bronchial foreign bodies.

ABBREVIATIONS

COPD: chronic obstructive pulmonary disease, CT: computed tomography, FB: foreign body

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AUTHOR'S CONTRIBUTIONS

Le Hoan is first author of this article. All authors significantly contributed to the conceptualization and design of the study, the acquisition, analysis and interpretation of data. All authors read and approved final version of this manuscript.

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All data generated or analysed during this study are included in this published article.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Patients were consenting to publish their information. Our institution does not require ethical approval for reporting individual cases or case series.

CONSENT FOR PUBLICATION

Not applicable.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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