CASE REPORT

A Case of Foreign Body Aspiration Mimicking Asthma in Adult

Nurjasmine Aida Jamani[1], Muhammad Naimmuddin Abdul Azih[2], Raihanah Haroon[3], Nur Shairah Mohd Shaari[1]

[1] Department of Family Medicine, Kulliyyah of Medicine, International Islamic University Malaysia, Kuantan Campus, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia
[2] Department of Internal Medicine, Kulliyyah of Medicine, International Islamic University Malaysia, Kuantan Campus, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia
[3] Department of Radiology, Kulliyyah of Medicine, International Islamic University Malaysia , Kuantan Campus, Jalan Sultan Ahmad Shah, 25200 Kuantan, Pahang, Malaysia

ABSTRACT

Foreign body aspiration is uncommon in adults who have no known risk factors such as mental retardation, poor dentition, or advanced age. Adults with foreign body aspiration are commonly misdiagnosed with bronchial asthma, however, does not respond to standard bronchodilator treatment. A thorough history-taking, focused physical examination and a high index of suspicion is crucial in making the correct diagnosis. This paper reports an interesting case of a 41- year-old woman with an undetected 10-year long foreign body aspiration which was misdiagnosed as bronchial asthma.
Malaysian Journal of Medicine and Health Sciences (2023) 19(5):428-430. doi:10.47836/mjmhs19.5.49

Keywords: Asthma mimic, Foreign body inhalation, Foreign body aspiration

Corresponding Author:
Nur Shairah Mohd Shaari, MBBCh
Email: shairah.shaari@live.iium.edu.my
Tel: +609-570 4000

INTRODUCTION

Bronchial asthma is a chronic inflammatory lung disease characterized by clinical symptoms of asthma supported by evidence of reversible airway limitation (1). Spirometry or peak expiratory flow rate measurement are objective tests to demonstrate the airflow limitation. However, these tests are usually not performed before diagnosis (2). Hence, asthma is usually diagnosed based on clinical symptoms which may lead to misdiagnosis, especially in the case of late onset asthma in the adult population. Clinical presentation of bronchial asthma includes chronic cough, wheezing, chest tightness and dyspnea. These symptoms may also present in other diseases such as chronic obstructive pulmonary disease (COPD), heart failure, gastroesophageal reflux disease and foreign body aspiration.

Foreign body inhalation is a condition that can mimic bronchial asthma, whereby a particle is aspirated into the airway and causes obstruction. This condition is less common in adults compared to children. The diagnosis is difficult to make, as 50% of patients cannot recollect a history of aspiration (3). In this case report, we describe the case of a patient with undetected 10-year long foreign body aspiration misdiagnosed as bronchial asthma.

CASE REPORT

A 41 -year- old woman presented with a worsening chronic cough associated with purulent sputum and an episode of hemoptysis for two weeks. She had no fever, loss of appetite, or loss of weight. There is no history of tuberculosis contact or recent traveling. She was initially treated with antibiotics by her family doctor for a week but it did not improve.

The patient was diagnosed with bronchial asthma for the past 10 years on MDI Symbicort. She had multiple visits to her family doctor for recurrent chest infections. She has no other medical illness. She had a strong family history of bronchial asthma, otherwise no history of atopy or allergic rhinitis. She does not smoke or use any illicit drugs.

On examination, she was afebrile and not tachypnoeic. Her blood pressure was 100/70mmHg, pulse rate was 91 beats per minute, and SPO2 was 98% on room air. There was bilateral digital clubbing. Auscultation of the lungs reveals coarse crepitations on the right lower zone and also localized monophonic biphasic ronchi at the same area. Other examinations were unremarkable. She was admitted for intravenous antibiotics for partially treated pneumonia that did not respond to oral antibiotics.
Upon admission, blood investigation and radiology imaging were done to investigate the cause further. Blood investigation showed normal full blood count, renal and liver function. In addition, her inflammatory

markers were normal. CT thorax was prompted by a plain chest radiograph showing localised bronchiectasis with partial collapse of the right lower lobe (Fig. 1). Surprisingly, a calcified foreign body was seen within the right lower lobe bronchus causing progressive cystic bronchiectasis of the right middle and lower lobe (Fig. 2, Fig. 3). There is also superimposed lung infection and mediastinal lymphadenopathies.

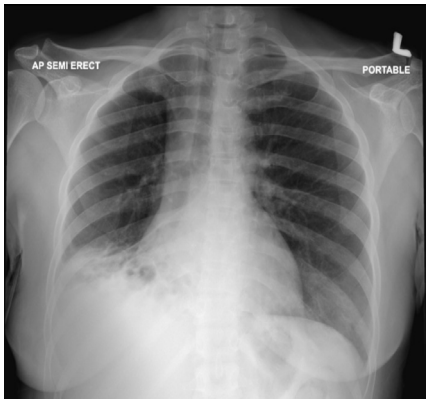

Figure 1: Chest radiograph AP view shows ill-defined air-space opacities with multiple cystic lesions at the right lower zone (arrow) causing partial obliteration and elevation of right hemidiaphragm; likely collapse consolidation and suspicious bronchiectasis.

Figure 2: CT scan thorax in axial plane in non-contrast soft tissue window shows a calcified foreign body within the right bronchus intermedius with similar density to the bones.

Figure 3: CT scan thorax in axial plane in soft tissue window post-contrast shows multiple saccular dilatations of the distal bronchi in the right lower and middle lobes giving rise to 'bunch of grapes' appearance with air-fluid level within.

On further questioning, the patient recalls a neglected incident of choking on a chicken bone around 10 years ago but did not seek medical attention after the incident since she was well. Rigid bronchoscopy was arranged for foreign body removal the next day under general anaesthesia. Findings on bronchoscopy noted a foreign body at the right main bronchus (calcified chicken bone). The foreign body was successfully removed without any complication (Fig. 4).

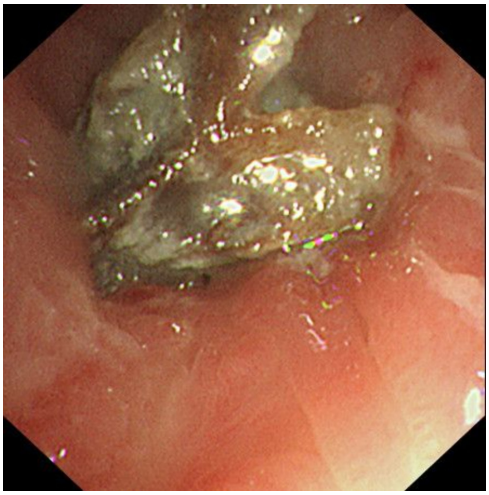

Figure 4: Bronchoscopy image showing a large fragment of chicken bone seen clearly in right bronchus intermedius.

She was treated with IV Cefepime 1gm BD for 10 days and Oral N-Acetylcysteine 600mg BD for 11 days. Bronchoalveolar lavage sample was sent for several tests which include gram stain, fungal culture, acid fast bacilli, and mycobacterium culture which were all negative. She was discharged well with Oral Cefuroxime 500mg BD for 6 weeks and Oral N-Acetylcysteine 600mg BD for 2 weeks after 10 days of admission. Her condition improved tremendously after two months with minimal crepitations heard at the right lower zone with no rhonchi. However, her chest radiograph showed residual bronchiectatic changes at the right lower zone.

DISCUSSION

Undetected aspiration of a foreign body can easily be mistaken as bronchial asthma since the presentation is almost similar. The most common presenting symptoms of foreign body aspiration are choking and shortness of breath (3). While these symptoms are typical, patients can also present with other respiratory symptoms such as chronic cough and wheezing.

As in our patient's case, she was misdiagnosed as having bronchial asthma given her chronic cough and wheezing. However, the failure of asthma to respond to bronchodilators and corticosteroids should raise clinical suspicion of an incorrect diagnosis. This is because there are many causes that can mimic asthma. For instance, chronic obstructive pulmonary disease, heart failure, gastroesophageal reflux disease and foreign

body inhalation.

Thorough history taking and careful examination may be helpful in differentiating the cause of chronic cough and wheezing. The location and intensity of rhonchi are crucial to be determined. The presence of localized rhonchi during auscultation with a monophonic characteristic which does not disappear with coughing indicates a fixed bronchial obstruction as demonstrated by our case. Meanwhile, rhonchi in asthmatic patients are often high-pitched and are usually generalized. On the other hand, bilateral finger clubbing is usually seen in neoplastic lung disease, lung fibrosis, pulmonary tuberculosis and suppurative lung diseases such as bronchiectasis, lung abscess and lung empyema. Finger clubbing is an unusual finding in bronchial asthma and should prompt consideration of other diagnoses.

A study by Heffler et al (2) revealed that among physicians who rely on the clinical history and physical examination alone without further investigation such as spirometry, often bronchial asthma is significantly misdiagnosed. Relying on the symptoms and clinical findings alone can lead to a 50% probability of misdiagnosis (2). This practice will expose a patient to unnecessary usage of steroids, delaying the correct diagnosis and imposing a significant medical cost at the societal level (1).

Spirometry and lung function tests may help to differentiate bronchial asthma from other obstructive lung disease such as chronic obstructive pulmonary disease. In addition, spirometry can help differentiate asthma from other restrictive lung disease such as pneumonia, pulmonary fibrosis and sarcoidosis. Unfortunately, as in our patient's case, spirometry has not been done before the diagnosis of asthma. Heffler et al reported that only 55.2% of asthmatic patients ever performed spirometry tests during their entire life (2), thus resulting in misdiagnosis and suboptimal management of bronchial asthma.

The incidence of foreign body inhalation is uncommon among adults and accounts for only 25% of the cases (3). The adult airway is of a larger caliber where the obstruction is somewhat partially relieved when the foreign body migrates to the distal part. The symptoms may appear as intermittent episodes and mimic an acute asthma attack.

Interestingly, for over 10 years, our patient did not report choking except for wheezing and chronic cough. This presentation is not uncommon since the longest reported duration of an aspirated foreign body is 40 years (5). Moreover, the treating physicians had initially missed the history of aspiration since the patient was not in the high-risk group of aspiration such as elderly, altered sensorium, neuromuscular disease, or alcohol intoxication. Apart from the mentioned risk factors, eating habits and local custom has been reported in the literature to predispose people to foreign body aspiration. A study in Croatia had found organic things such as an animal bone are a common foreign body aspirated due to dietary habits (4).

As for the management, spontaneous resolution of foreign body inhalation is rarely reported in the literature. Therefore, the mainstay of management is removal by flexible bronchoscopy, as it serves as a diagnostic and therapeutic procedure (4). Furthermore, it is important to remove the foreign body as it can lead to complications such as bronchial stenosis. In addition, a foreign body lodged in the bronchial tree has been postulated to initiate the formation of granulation tissue and fibrosis. Complications such as pneumonia, atelectasis and bronchiectasis can happen due to this process.

CONCLUSION

This case clearly illustrates the importance of a high index of suspicion and detailed medical history in detecting asthma mimickers. This is crucial in order to halt the progression of the disease, limit complications, and improve patient quality of life. As the saying goes "all that is wheeze is not asthma".

ACKNOWLEDGEMENT

We thank the patient for consenting to publish this case for academic purposes.

REFERENCES

1. Kavangah J, Jackson DJ, Kent BD. Over- and under-diagnosis in asthma. Breathe 2019; 15: e20 – e27. DOI:10.1183/20734735.0362-2018
2. Heffler E, Crimi C, Mancuso S, Campisi R, Puggioni F, Brussino L, et al. Misdiagnosis of asthma and COPD and underuse of spirometry in primary care unselected patients. Respiratory Medicine. 2018;142(July):48–52. doi:10.1016/j.rmed.2018.07.015
3. Hewlett JC, Rickman OB, Lentz RJ, Prakash UB, Maldonado F. Foreign body aspiration in adult airways: Therapeutic approach. Journal of Thoracic Disease. 2017; 9(9): 3398–3409. doi: 10.21037/jtd.2017.06.137
4. Sehgal IS, Dhooria S, Ram B, Singh N, Aggarwal AN, Gupta D, et al. Foreign body inhalation in the adult population: Experience of 25,998 Bronchoscopies and systematic review of the literature. Respiratory Care. 2015; 60(10): 1438–1448. doi:10.4187/respcare.0397
5. Wang L, Pudasaini B, Wang XF. Diagnose of occult bronchial foreign body. Medicine. 2016; 95(31): e4076. doi:10.1097/md.0000000000004076