Pulmonary Lobectomy on Delayed Inhaled Foreign Body in Adult: A Case Report

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We present the case of a 51 years old female who experienced foreign body aspiration 3 years before. The foreign body, which should be removed by bronchoscopy before, was lodged at the bifurcation of the right inferior bronchus and could only be removed via right lower lobectomy. The patient experienced a swift recovery and was well at follow-up 8 months later.

Keywords: trachea, aspiration, foreign body, thoracotomy

Introduction

Aspiration of a foreign body (FB) into the tracheobronchial tree is more common in children than adults. Foreign bodies are inhaled more commonly into the right side and the main stem bronchi. In rare cases, FB aspiration can be tolerated and remain undetected for a long time, especially in adults, with chronic, non-specific symptoms that led to the diagnosis difficultly. However, this can also lead to catastrophic consequence. The uses of a bronchoscope with different instruments or even thoracotomy were commonly described in literatures for the removal of foreign bodies, aspirated into the peripheral bronchi. Yet in the case reported here, the patient was mis-diagnosed in several hospitals because almost nothing was found through chest radiography. Aspiration of FB existed long before symptoms occurred. An irregularly shaped animal-bone in the right bronchial tree of a 51-year-old woman was arrangec to take out, but the process was proved to be inefficient and it could only be removed via right lower lobectomy with careful planning.

Case Report

A 51-year-old woman was referred to our hospital because of productive cough and shortness of breath. During the previous 3 yrs, the patient had suffered intermittent cough which were managed with courses of antibiotics in local hospitals. Four months before she visited another hospital, where nothing was found through chest radiography except inflammation in the inferior lobe of the right lung. The patient received antibiotic treatment again, but there is no noticeable improvement this time and her symptoms had steadily increased in severity. She was transferred to our hospital with progressive dyspnea. Even on close questioning, the patient could not remember any history of foreign body inhalation or any episode of bucking. She said that she had probably aspirated something while having lunch some day 3 yrs earlier. At that time, she immediately experienced a severe choking sensation and coughing. But these manifestations quickly disappeared, and she had not visited a doctor until 1 month before the symptom of intermittent cough appeared.

The patient had normal physical examination. Her temperature was 36.9°C and laboratory findings were within normal limits. Breath sounds were normal throughout except for fine moist rales in the right base. Computed tomography (CT) scan revealed an atelectasis

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Fig. 1 (a) CT revealed an atelectasis and an infiltrate in the lung were in the right inferior lung. (b) The partly obstruction of the right inferior bronchus in which the foreign body is embedded in granulation tissue.

and an infiltrate in the lung were in the right inferior lung (Fig. 1a) and the partly obstruction of the right inferior bronchus in which the foreign body is embedded in granulation tissue (Fig. 1b). A metallic like foreign body about 2 cm was impacted deep within the mass. Bronchoscopy by a chest physician during hospitalization was reported to show that a foreign body was buried in reactive granulation tissue and could not be observed from the surface. Fearing that the FB lodged firmly in the tacheal mass and endoscopic manipulation could cause severe hemorrhage, we therefore scheduled a right thoracotomy. The operation was performed under general anesthesia. The thorax was entered through the fifth intercostal space under a lateral 10-cm skin incision. The operative findings were that the FB embedded stably in the right inferior lobar bronchial mass. We used right lower lobectomy rather than bronchotomy because of the size of the mass and the shape of the FB. When the operation was over, we cut open the bronchial mass. An animal-bone was perfectly preserved without any destruction of its sharp edges (Fig. 2). It had adhered to the bronchus and was covered with granulation tissue. The operating time was 130 min, and blood loss was 200 ml. The patient was discharged on the ninth postoperative day without complication and she was well at follow-up 8 months later.

Discussion

Aspiration of FB, which can result in life-threatening complications, need prompt diagnosis and intervention. The overwhelming majority of FB inhalation usually occurred in children for they had habit of putting anything within reach into their mouth, especially when they laugh or cry. Although several cases of FB inhalation were reported in adults, these events are exceedingly rare. The clinical presentation of FB inhalation in adults may be insidious and could be overlooked for many years. These situations still remain a challenge to the surgeons due to various clinical presentations. The most frequent symptoms were cough and, respiratory distress and decreased breath sounds were the commonly physical signs when FB inhalation occurred. But in a lot of patients there are no complaints and their physical examination was normal. Chest radiography may be an easy, widespread and helpful method for diagnosing airway FB. However, chest X-ray findings were sometimes completely normal when FB inhalation happened because the FB in these patients was radiolucent. CT scan can detect radiolucent FB and identify parenchymal changes in the tracheobronchial tree.
Rigid or flexible bronchoscope was the most common therapeutic procedure to remove a foreign body from the airway prior to surgery. However, sometimes the FB was located in the trachea of patients for a long time. It is difficult to remove these FB in these cases because of the presence of reactive granulation tissue. Just as the case reported here, diagnosis of an inhaled FB was delayed by more than 2 years which caused distressing consequences. She tolerated FB aspiration for a long time without acute life-threatening consequences, in contrast to most children, who cannot tolerate it. It was this that caused, in longstanding cases, the development of inflammation and of granulation tissue around the FB which generated firm adhesion to the bronchial wall. Removal of the FB using bronchoscope could be carry a risk of severe airway hemorrhage, which is also a hazard for the patient. Thoracotomy should be carried out for retained FB. Therefore, we performed the lobectomy as reported before. She had a full recovery, but the result was distressing for losing a lobe of lung. In conclusion, the possibility of an airway FB should not be excluded even if the clinical and radiological findings in chest seem to be non-specific. Accurate diagnosis often requires a detailed history and CT is an alternative to diagnostic bronchoscopy for evaluation of a suspected FB aspiration. If CT scan or bronchoscopy to evaluate a possible cause for obstruction was performed promptly, these patients may avoid some subsequent unnecessary thoracotomies. For longstanding airway FB can lead to reactive granulation tissue, which can cause the FB adhered to the bronchus firmly. Thus, correct diagnosis at the proper time is extremely important.

Disclosure Statement

We declare that there is no conflict of interest.

References