An occult foreign body aspiration with bronchial anomaly mimicking asthma and pneumonia

Yurdakul AS, Kanbay A, Kurul C, Yorgancılar D, Demircan S, Ekim N. An occult foreign body aspiration with bronchial anomaly mimicking asthma and pneumonia.

Abstract – Foreign body aspiration has a wide range of outcomes, including immediate resolution, acute asphyxia, recurrent pulmonary disease and death. A 52-year-old man was misdiagnosed with asthma and pneumonia for 6 months. A thoracic computed tomography (CT) scan showed an endobronchial lesion in the right main bronchus. Fiberoptic bronchoscopy was performed and the teeth were detected in the right main bronchus, in addition to tracheal bronchus. Aspirated teeth were removed using a rigid bronchoscope under general anesthesia. The patient having a trauma should always be carefully and systematically examined for foreign bodies. A rapid diagnosis depends on high clinical suspicion, clinical signs and radiological findings and the clinician must be aware of all complications of foreign body aspiration.

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Foreign body aspiration (FBA) is a common, serious and potentially life-threatening occurrence in young children, but infrequent amongst in adults (1, 2). The diagnosis of FBA is generally missed or delayed and the patients present later with chronic symptoms and complications such as cough, stridor, wheezing, obstructive pneumonitis, bronchiectasis and abscess secondary to recurrent pulmonary infections (3–6). We report an adult patient with a delayed diagnosis of FBA and bronchial anomaly and emphasize the importance of medical history, careful physical examination and radiological signs after trauma because of the clinical outcomes of FBA.

Case report

A 52-year-old man was admitted with complaints of cough and wheezing for 6 months. He had been diagnosed as having asthma and pneumonia and treated with antibiotics and bronchodilators several times. He had a traffic accident 18 months ago and was an ex-smoker for 15 years. On physical examination, vital signs were normal and auscultation of the lungs revealed wheezes in the right hemithorax. All routine laboratory tests were normal except for elevation of white blood cell and sedimentation rate. Postero-anterior and lateral chest X-ray showed atelectasis and chronic fibrotic changes in the right lower-zone. Pulmonary function tests revealed the following values: Forced vital capacity (FVC): 3.14 L (80% of predicted), FEV_1: 2.35 L (73% of predicted) and FEV_1/FVC: 74%. CT scan of the thorax showed an endobronchial lesion with high density in the right main bronchus, nodular infiltration with atelectasis in the right middle and lower lobes and tracheal bronchus (Fig. 1). Fiberoptic bronchoscopy was performed with the suspicion of an endobronchial tumor or FBA. Tracheal bronchus in the right tracheal wall and a lesion covered with secretions in the right main bronchus were seen. This lesion did not allow the bronchoscope to progress the distal site of the right bronchus. After aspiration of the secretion, it seemed to be teeth (Fig. 2). As the teeth could not be extracted by fiberoptic bronch-

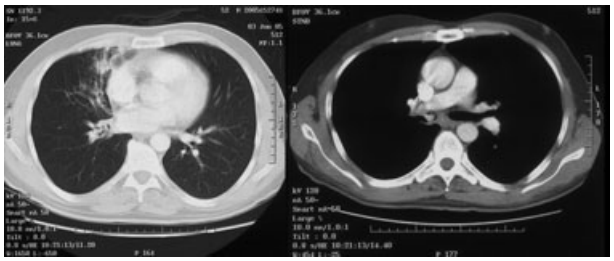

Fig. 1. Computed tomography scan of the thorax showed an endobronchial lesion with high density in the right main bronchus, nodular infiltration with atelectasis in the right middle and lower lobes.

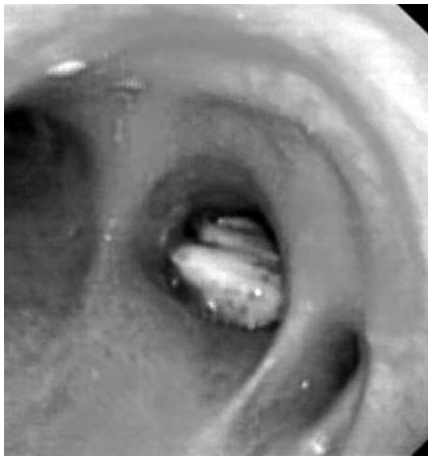

Fig. 2. Tracheal bronchus in the right tracheal wall and teeth covered with secretions in the right main bronchus.

oscopy, the patient underwent rigid bronchoscopy under general anesthesia. A foreign body (teeth) was detected in the right main bronchus and removed with forceps (Fig. 3). After fiberoptic bronchoscopy, a detailed medical history revealed

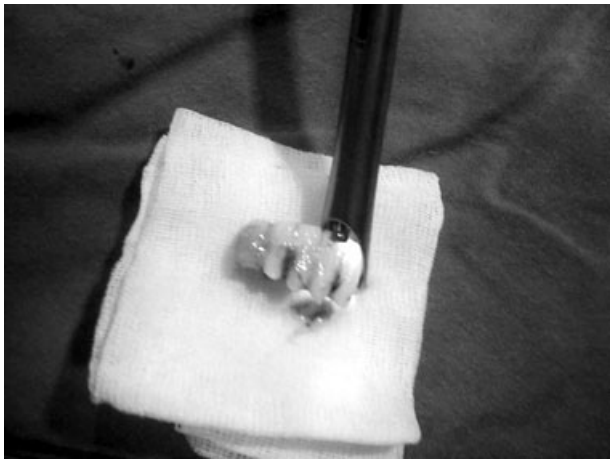

Fig. 3. Aspirated teeth were removed using a rigid bronchoscope.

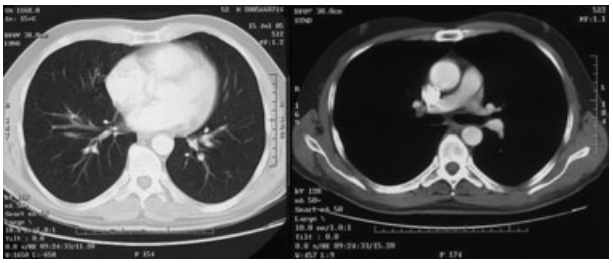

Fig. 4. Computed tomography scan of the thorax showed minimal fibrotic changes in the right lower lobe.

that he had an accident 18 months ago and some teeth were broken following trauma. For this reason, he was admitted to a local hospital for 1 month. But he could not remember any aspiration or any respiratory insufficiency during hospitalization.

We subsequently discharged the patient after an uneventful recovery. One month later, a thoracic computed tomography scan showed minimal fibrotic changes in the right lower lobe (Fig. 4) and pulmonary function tests were improved: FVC: 3.89 L (99% of predicted), FEV_1: 3.12 L (98% of predicted) and FEV_1/FVC: 80%. At follow-up, the patient has remained well.

Discussion

Foreign body aspiration has a wide range of outcomes, including immediate resolution, recurrent pulmonary disease, and death (7). The common clinical symptoms are cough, cyanosis, dyspnea, wheezing, fever and stridor. The variety of clinical and radiological signs and symptoms arises from the level of the aspirated FBA (8). Aspirations, which have not any acute clinical presentations, can remain undetected and occult for a long time. These patients were misdiagnosed and treated with antibiotics and bronchodilators several times, as FBA can mimic a lot of diseases such as croup, asthma, pneumonia, bronchitis or lung cancer. A rapid diagnosis depends on high index of clinical suspicion, clinical signs and radiological findings. Our patient's symptoms were a chronic cough and wheezing and he was misdiagnosed with asthma and pneumonia.

Delayed diagnosis is common in the occult FBA, it ranges from hours to years (7). Because of the delayed or missed diagnosis, chronic complications are frequent. Retained FBA carries high risk of complications such as bronchiectasis, bronchoesophageal fistula, persistent pneumonia or abscess. Thus, complicated patients may undergo surgical pulmonary procedures (9). For our case, the delay time was 18 months for diagnosis. He had a traffic accident 18 months previous and stayed in

hospital for 1 month. All of symptoms began 12 months after the traffic accident and because a chronic cough and wheezing were non-specific presenting features of a number of respiratory conditions such as asthma or pneumonia, the diagnosis of FBA was delayed. After fiberoptic bronchoscopy, a detailed history revealed that he had an accident and some teeth were broken following trauma. Hence, we suggest that clinical suspicion and medical history are very important in the diagnosis of FBA.

In addition, we saw tracheal bronchus in the right wall of the trachea. The rate of tracheal bronchus is approximately 1%, and it is complicated with bronchiectasis and recurrence pulmonary infections. Diagnostic delay in FBA results in recurrent infections and chronic changes in the large areas of the lungs and wide resection such as pneumonectomy.

Most of the radio-opaque-aspirated materials like teeth can be visible in chest X-ray (10). In our case, teeth were invisible in the plain and lateral chest X-ray graphies. Inflammation and granulation tissue develop around the FBA in delayed cases and it is uncommon to diagnose with chest radiography. In our case, chest X-ray showed chronic fibrotic changes and atelectasis in the right lower-zone. If the aspiration is asymmetric in location, unilateral emphysema, atelectasis, or infiltrates may be shown in the chest X-ray on the affected side. Postero-anterior and lateral chest X-rays must be carefully and systematically examined in patients with trauma. In addition, negative chest radiography with a positive history requires bronchoscopy to rule out aspiration of a foreign body.

The removal of the foreign body using flexible bronchoscope under local anesthesia can be performed safely and successfully. But, rigid bronchoscopy is usually preferred in children, and allows the operator to maintain an airway for ventilation during the procedure (10). As extraction of chronic FBA can be difficult due to intense reaction of the bronchial mucosa, thorocotomy is sometimes required (4). In our case, teeth were removed successfully with rigid bronchoscope under general anesthesia without any complication and the patient was discharged after an uneventful recovery.

In conclusion, medical history, clinical signs and radiological findings should be carefully checked in all patients with trauma, to prevent delayed diagnosis and such complications of the FBA.

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