Chronic Bronchial Foreign Body Mimicking Peripheral Lung Tumor

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We describe a case with chronic bronchial foreign body presenting with recurrent hemoptysis mimicking a peripheral lung tumor, and the outcome of surgical resection. A 61-year-old female with recurrent hemoptysis had a peripheral nodule in the right lower lobe. A right bronchial arteriogram showed dilatation and hypervascularity in the nodule. Surgical removal of the nodule contained a small branch of a white cedar. Chronic bronchial foreign body, while rare in adults, should be considered in the differential diagnosis of peripheral lung tumors associated with recurrent hemoptysis.

Key words: hemoptysis, bronchoscopy, bronchial arteriography

Introduction

A bronchial foreign body (FB) is commonly seen in children, but is extremely rare in adults without an underlying disease (1). The early complications of a FB in the bronchus, such as asphyxia, pneumonia and atelectasis, due to bronchial impaction, are well known (1, 2). Although the late complications of a chronic FB have been rarely reported because of its uncommon occurrence, hemoptysis is a common symptom resulting from associated inflammatory hypervascularization of intercostal, mammary, or bronchial arterial tree (1, 3, 4). Here, we describe a case with chronic FB presenting with recurrent hemoptysis mimicking a peripheral lung tumor, and the outcome of surgical resection.

Case Report

A 61-year-old nonsmoker female with recurrent hemoptysis was hospitalized in our hospital in December 1993 for further evaluation of a peripheral nodule in the anterior basal segment of the right lower lobe. The patient had a barking cough and low grade fever in June 1993, with a gradual spontaneous resolution without medication treatment. In July, hemoptysis of about 60 ml each occurred one to three times per two to three days, which disappeared one month later following treatment with hemostatics at another hospital. At the time, no abnormal findings were found on chest radiographs. Hemoptysis recurred four months later and a pulmonary nodule was found on a computed tomography scan. The nodule was about 3.5x2.0 cm in size and located in the periphery of the anterior basal segment of the right lower lobe (Fig. 1).

At our hospital, results of physical examinations were normal. The peripheral blood cell count and tests for bleeding parameters were within the normal range. Biochemical, serological, and pulmonary function tests and arterial blood gases were normal. Tumor markers, such as carcinoembirionic antigen, and neuron-specific enolase, in the blood were within normal limits. Serum cryptococcus antigen test was negative. Cytology, bacteria, fungi, and acid-fast bacilli in the sputum were repeatedly negative.

The patient underwent bronchoscopy to explore the cause of hemoptysis. A pulsating bulge covered with normal mucosa was found medially in the membranous portion of the right intermediate bronchus. There was no blood or other abnormal findings in the bronchi of the right lower lobe. Because of recurrent hemoptysis and the pulsating bulge, no diagnostic procedures, such as biopsy or brushing were performed bronchoscopically in order to avoid a possible life-threatening bleeding. Accordingly, a right bronchial arteriogram was performed which demonstrated a dilated and tortuous truncus, with dilatation and hypervascularity in the nodule (Fig. 2). The pulsating bulge corresponded to the dilated truncus in the bronchial arteriogram, reflecting an increased blood supply to the nodule.

A vascular or an inflammatory tumor was suspected but not confirmed by the above radiologic examinations. In January
Figure 1. A computed tomography scan showing a well-defined nodule of about 3.5×2.0 cm in size in the periphery of the anterior basal segment of the right lower lobe.

Figure 2. A right bronchial arteriogram showing a dilated and tortuous truncus, with dilatation and hypervascularity in the nodule.

1994, anterior and medial segmentectomies of the right lower lobe with ligation of the right bronchial artery were performed to accurately diagnose the nodule and to prevent a possible fatal hemoptysis in the future. A solid induration was palpable in the periphery of the anterior basal segment; a branch of a white cedar tree (about 3.5 cm long) was lodged in the bronchus (Fig. 3). Histopathologically, the nodule showed severe granulomatous inflammation with lymphocytic infiltration just below the visceral pleura and erosion in the bronchial epithelium. After the operation, the patient retrospectively remembered an episode of severe coughing while eating "sashimi" of sliced raw fish served on branches of a white cedar in April 1993.

Discussion

The presence of a chronic FB is rare, particularly in adults. Commonly found FBs include grass, denture, plastics, and medical instruments (1, 4, 5). The early diagnosis of a FB without an apparent aspiration history is extremely difficult because most FB are radiolucent. However, a chronic FB presents as pneumonia, atelectasis, hemoptysis, cough, and fever, radiologically or symptomatically (1, 3–5). Grass chronic FBs are classified into two types including bronchial lodging and extrusion into the chest wall (4). The common complication of a chronic lodging FB in the tracheobronchial tree include severe parenchymal inflammation, bronchiectasis or bronchial stenosis (1, 3, 5). In the present case, the nodule containing the FB mimicked a peripheral lung tumor, and caused dilatation

Figure 3. The small branch of a white cedar with the spikes pointing backward which was lodged in the periphery of the right anterior basal bronchus, along which an incision made in the resected lung.
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and hypervascularity of the bronchial artery, resulting in recurrent hemoptysis.

Bronchoscopic procedures, such as biopsy or the removal of FB rarely cause unexpected fatal bleeding (6). Hemoptysis is not always accompanied by bronchoscopic findings of a vascular lesion, such as a pulsating or blue bulge. These findings were fortunately observed in our patient. Except in the presence of obvious inflammatory lung diseases, such as bronchiectasis and chronic bronchitis, bronchial arteriography in patients with pulmonary nodules complicated by recurrent hemoptysis, may be recommended before bronchoscopic forceps biopsy, brushings or transbronchial needle aspiration.

Thoracotomy is rarely required as a treatment of FB; several bronchoscopic instruments for removal of FB are available commercially (1, 4, 5, 7). Bronchoscopic diagnosis or removal may be impossible when the FB is in the periphery, a case that warrants elective thoracotomy (4, 7). Since the commonest site of FB in adults is the right lower lobe (1), a chronic FB should be considered in the differential diagnosis of a peripheral lung tumor associated with recurrent hemoptysis. Moreover, a history of a FB aspiration event is very important for the diagnosis.

References