CLINICAL QUIZ

Simultaneous Bilateral Spontaneous Pneumothorax

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A 29-year-old Caucasian male presented with a sharp right-sided chest pain and worsening dyspnea of two days duration. He reported chronic cough with productive, purulent, non-bloody phlegm for two years. He denied fevers, chills, or weight loss. He lived in Kansas and denied foreign travel or incarcerations. He had a 20 pack-years cigarette smoking history. He also routinely smoked marijuana. The patient had leukocytosis with a white blood cell count of 18,400 (neutrophils 73%, lymphocytes 17%, and eosinophils 2%). A chest x-ray (Figure 1a) revealed bilateral spontaneous pneumothorax with complete left lung collapse, moderately large left pleural effusion, and 20% right-sided pneumothorax. A computed tomography (CT) of the chest (Figure 1b) showed diffuse lung cysts, including cystic bronchiectasis, and diffuse tree-in-bud infiltrates in the right lung and large left pleural fluid with absence of identified normal lung tissue. There was no thoracic lymphadenopathy. Two chest tubes were placed, one on each side. A large amount of thick purulent fluid was evacuated from his left chest and sent for cultures.

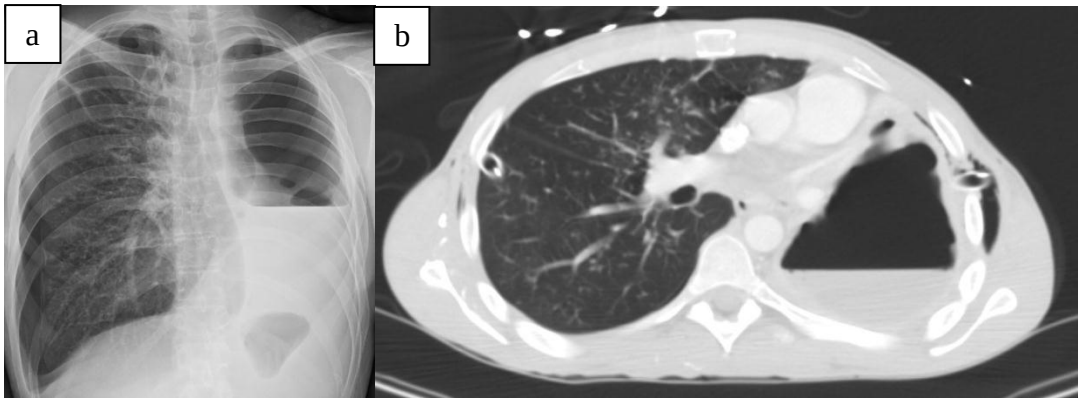

Figure 1. (a) Chest x-ray revealed bilateral spontaneous pneumothorax. (b) CT of the chest showed diffuse lung cysts.

What is the most likely etiology?

A. Pulmonary Langerhans Cell Histiocytosis
B. Mycobacterium Tuberculosis
C. Pulmonary Lymphangioleiomyomatosis
D. Allergic Bronchopulmonary Aspergillosis

Correct Answer: B. Mycobacterium Tuberculosis

Each of the etiologies above have been associated with bilateral spontaneous pneumothorax.[1,2] Pulmonary Langerhans cell histiocytosis usually is diagnosed in young smokers who present with respiratory and constitutional symptoms.[3] CT of the chest shows ill-defined or stellate nodules associated with reticulonodular opacities and upper lung zone cysts or honeycombing. Pulmonary lymphangioleiomyomatosis is suspected in a young female of child bearing age who presents with progressive dyspnea, spontaneous pneumothorax, and chylous pleural effusion.[4,5] Allergic bronchopulmonary aspergillosis should be suspected in asthmatic or cystic fibrosis patients with significant bronchorrhea, eosinophilia, and cylindrical bronchiectasis.[4,5]

Mycobacterium tuberculosis has been reported as a rare cause of simultaneous bilateral spontaneous pneumothorax.[2] Pneumothorax accounts for 0.6% to 1.5% of this unusual radiologic presentation of active Mycobacterium tuberculosis.[6,7] The pneumothorax is believed to be secondary to cavitary formation.[8,9] In our patient, sputum and pleural fluid culture were positive for Mycobacterium tuberculosis. Treatment consisted of antitubercular four-drug regimen, chest drainage, then Video-Assisted Thoracoscopic Surgery (VATS) for the left empyema.

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