

Bronchial Anthracofibrosis From Burn Pit Exposure:

Author Block: H. V. Tran, H. S. Khaira, A. Krishnan;
Pulmonary/Critical Care & Allergy/Immunology, LSUHSC, New Orleans, LA, United States.

Introduction:

Bronchial anthracofibrosis (BAF) consists of bronchial luminal narrowing caused by mucosal fibrosis and bluish-black anthracotic pigmentation on bronchoscopic evaluation. Historically, there has been an association with tuberculosis although recent studies demonstrate a connection with biomass fuel exposure, mineral dust, silica, and coal mining. We present a case of BAF in a patient with biomass fuel exposure.

Case Description:

67-year-old Honduran man with a former 30-pack year smoking history presented to his PCP for one month of nonproductive cough and occasional dyspnea. He immigrated to the U.S. from Honduras 10 years ago at which time he quit smoking. He denied fevers, chills, weight loss, night sweats, and exposure to TB. PFTs demonstrated mild obstruction. Chest CT demonstrated narrowing of the right upper lobe bronchus and the bronchus intermedius due to surrounding soft tissue mass, significant mediastinal lymphadenopathy with areas of calcification, and right upper and middle lobe atelectasis. Bronchoscopy with endobronchial ultrasound (EBUS) demonstrated multiple patches of bluish-black pigmentation throughout the airways, some of which were raised and edematous, with narrowing of the right upper and middle lobe bronchi. Bronchoalveolar lavage, endobronchial biopsies, and fine needle aspirations were performed which were negative for infection, TB, and malignancy. At his follow-up, it was further elucidated that he had extensive biomass fuel exposure for decades while in Honduras. His job entailed clearing land by using large burn pits to destroy brush and wood. He denied other exposures such as coal mining and sandblasting. Ultimately, he was treated with an inhaled corticosteroid and long acting beta agonist with improvement of his dyspnea and cough.

Discussion:

The combustion of biomass fuels generates inhalable particles that can result in pulmonary disorders such as bronchial anthracofibrosis. Carbon particle deposits that lead to anthracotic pigmentation cause local inflammation and fibrosis with distortion and stenosis of bronchi. For decades, BAF had been associated with tuberculosis, however, recent studies have demonstrated strong association with non-infectious etiologies such as biomass fuel exposure. The radiographic manifestations typically seen in BAF, such as bronchial narrowing and mediastinal lymphadenopathy with calcifications, are commonly seen in other conditions such as sarcoidosis, tuberculosis, and malignancy. Therefore, a detailed social history can provide initial clues to the diagnosis prior to performing bronchoscopy for definitive diagnosis.