Cavitary lung disease and hemoptysis in a young man

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The authors describe a patient who presented with episodic hemoptysis and other respiratory symptoms. His chest radiograph showed a diffuse reticulonodular pattern. Bronchoscopy led to the diagnosis of pulmonary blastomycosis.

The case

A 29-year-old man was referred to the pulmonary clinic for episodic hemoptysis. He reported that he had traveled to Gibraltar, Spain, and Morocco 5 months ago. On his return, he experienced shortness of breath, cough, chest congestion, malaise, and wheezing. He was treated with azithromycin, with initial resolution of symptoms, but then experienced episodic hemoptysis, which occurred mainly with exertion. He reported coughing up a tablespoon of frank blood at each episode. The patient was a nonsmoker, rarely drank, and denied recreational drug use. He worked as a mechanical engineer and had no occupational exposures. He had no known tuberculosis exposure. He was born in Greece, and he and his family moved around frequently in Europe before they settled in the United States in 1986.

The findings from his physical examination were unremarkable. A chest radiograph was significant for a diffuse reticulonodular pattern (Figure 1). Tuberculin purified protein derivative test results were negative. Bronchoscopy was performed, and the findings were visually unremarkable; culture and random biopsy specimens were obtained. A CT scan of the chest showed multiple thick-walled cysts (Figure 2). The culture specimens obtained by bronchoscopy grew Blastomyces dermatitidis, and results were confirmed by DNA probe.

Discussion

Blastomycosis is an endemic fungal infection found mostly in the south central and midwestern United States, but it has also been described in Canada and Africa. The epidemiology is poorly understood. B dermatitidis thrives in moist, acidic soil, rich with organic debris. Persons with blastomycosis often report having hobbies such as hunting, camping, or fishing, and operating heavy equipment. However, the overall incidence is only 0.3 to 1.5 cases per 100,000 in areas in which blastomycosis is endemic.

Blastomycosis is a systemic disease and therefore can affect any organ, but it usually presents with pulmonary or dermatologic symptoms. During epidemics, most persons exposed to B dermatitidis have a self-limited illness. About 70% to 75% of patients with acute blastomycosis have isolated lung involvement at presentation; disseminated disease develops in about 25% to 30% of patients. In acute pulmonary blastomycosis, the symptoms typically develop 6 weeks after exposure. Patients often experience a flu-like illness. The chest radiograph can be clear or show nonspecific findings or lobar or segmental consolidation.

In chronic pulmonary blastomycosis, symptoms last longer than 3 weeks. Systemic signs, such as fever, night sweats, weight loss, and purulent sputum, are common. Chest radiographs frequently demonstrate alveolar or mass-like infiltrates that are often mistaken for tumors. Miliary or reticulonodular patterns are also common. Cavitary lesions may occur less frequently. Abnormalities usually involve the upper lung fields. In fewer than 10% of cases, acute respiratory distress syndrome and respiratory failure develop.

Extrapulmonary disease occurs in about 25% of patients. The most common site of involvement is the skin, but the spreading to bones, the genitourinary system, and rarely, the CNS has been documented.

There is no reliable serologic test or skin test for the diagnosis of blastomycosis. Direct culture of infected tissue remains the only reliable method of diagnosis. Unlike Candida or Aspergillus, B dermatitidis is not a colonizer, so any culture that grows the organism is considered diagnostic. There remains controversy over whether acute blastomycosis requires antifungal treatment. Some physicians may not administer antifungal treatment unless the patient is reliable and can be...
followed up with close observation. Others use short-term antifungal therapy to decrease the risk of disease progression. In contrast, all patients with chronic pulmonary blastomycosis or extrapulmonary blastomycosis must be treated, since the mortality rate for these patients can be as high as 60%.

Historically, amphotericin B has been the drug of choice. However, the development of the azoles has provided an opportunity to offer oral treatment regimens. Treatment duration typically is at least 6 months.

Our patient had only mild pulmonary blastomycosis and was given itraconazole, 400 mg/d. He is still receiving therapy and has had no complications.

References: SUGGESTED READINGS

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