Chronic cavitary pulmonary aspergillosis presents as chronic dry cough

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CASE

A 31-year-old woman with no significant past medical history presented with a four-month history of dry cough and one episode of hemoptysis. No postural, seasonal, or diurnal variation in her cough was noted. She denied fever, chills, myalgias, weight loss, chest pain, shortness of breath, abdominal pain, diarrhea, and skin rash; she had no history of substance abuse or recent travel. Clinical examination was unremarkable. Initial laboratory workup was normal except for mild leukocytosis with neutrophilia. Initial chest X-ray (Figure 1 Panel A) revealed a right lower lobe cavity with an air-fluid level and densities in the right midlung. Computed tomography of her chest (Figure 1 Panel B–D) showed right upper lobe posterior segment and right lower lobe cavitary lesions with air-fluid levels. Bronchoscopy revealed a trace amount of purulence from the right upper lobe but was otherwise unremarkable. Cultures of bronchoalveolar lavage fluid grew *Actinomyces odontolyticus* and alpha hemolytic streptococcus; a fungal culture grew *Aspergillus* species. Further workup was negative for *Mycoplasma*, *Pneumocystis jirovecii, Coccidioides*, *Legionella pneumophilia*, *Mycobacterium tuberculosis,* human immunodeficiency virus, cytomegalovirus, and varicella zoster virus. *Aspergillus* workup was positive for *Aspergillus* IgG antibodies. She was started on a course of antibiotic and antifungal therapy consisting of amoxicillin and clavulanate for six weeks and voriconazole for six months with gradual improvement of her symptoms.

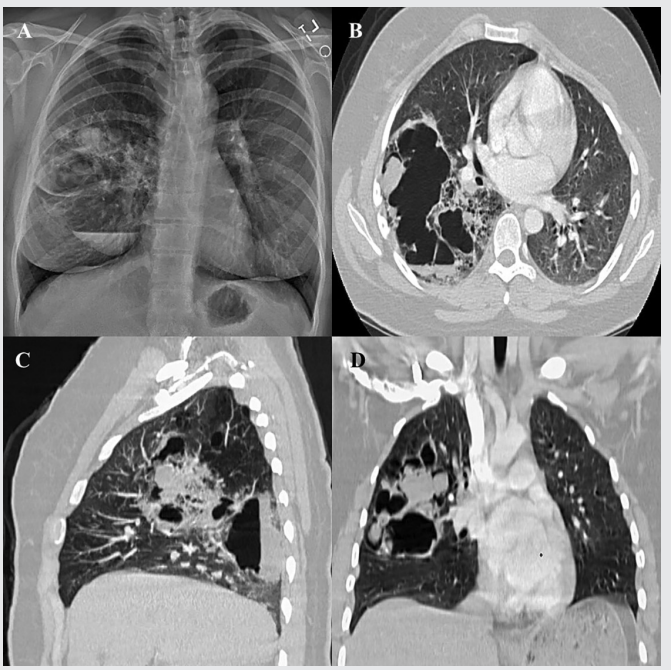

Figure 1. A. Chest X-ray showing right lower lobe cavity with air-fluid levels. **B.** Computed tomography (CT) scan of the chest (axial view) showing right lower lobe cavities with fluid. **C.** CT of the chest (coronal view) view of right lung showing multiple cavities with loss of pulmonary parenchyma. **D.** CT of the chest (sagittal view) of the right lung with multiple cavities.

DISCUSSION

Aspergillus species are a significant cause of morbidity and mortality in both immunocompetent and immunocompromised patients.Pulmonary involvement can include aspergilloma, *Aspergillus* nodule, chronic cavitary pulmonary aspergillosis, chronic fibrosing pulmonary aspergillosis, and subacute invasive pulmonary aspergillosis.[1] Chronic cavitary pulmonary aspergillosis (CCPA) describes a disease pattern in immunocompetent patients in which one or more cavitary lesions are formed over months. Studies have suggested that reduced production of interferon-gamma or interleukin 12 is the pathophysiologic mechanism. The clinical presentation includes dry or productive cough, hemoptysis, weight loss, shortness of breath, fatigue,

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malaise, fever, or chest pain. However, some cases are asymptomatic and are identified radiologically.[1,2] Diagnostic criteria for CCPA include the presence for at least three months of the following: the presence of one or more symptoms, radiographic evidence of one or more cavities (with or without fungal ball or nodules), direct evidence of *Aspergillus* infection by microscopy and/or culture of the respiratory specimen, a positive *Aspergillus* specific IgG, and exclusion of alternative diagnoses.[1,2]

Guidelines recommend that patients with CCPA and either pulmonary or constitutional symptoms or progressive loss of lung function or radiographic progression should be treated with a minimum of 6 months of antifungal therapy. Oral itraconazole and voriconazole are the preferred oral antifungal therapies. Posaconazole can be used for patients with clinical failure or adverse effects. In patients with clinical failure or developed triazole resistance or/and adverse events, longer courses of micafungin, caspofungin, and amphotericin B might be used. Hemoptysis may be managed with oral tranexamic acid, bronchial artery embolization, or antifungal therapy to prevent recurrences. Surgical resection can be considered in patients with localized disease, unresponsive to medical treatment, including those with pan-azole-resistant *Aspergillus fumigatus* infection or persistent hemoptysis despite bronchial artery embolization. For patients with progressive or long-term disease, lifelong antifungal therapy might be required to control the disease with continuous monitoring for toxicity and resistance.[2]

Consent: Informed written consent was obtained from the patient.

Keywords: Aspergillosis, cavitary pulmonary aspergillosis, immunocompetent patient

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