



Answer to Photo Quiz: Chronic Pulmonary Coccidioidomycosis

 Ashley M. Eckel,^a Lynda Bui,^a  Ferric C. Fang^{a,b,c}

^aDepartment of Laboratory Medicine, University of Washington, Seattle, Washington, USA

^bDepartment of Microbiology, University of Washington, Seattle, Washington, USA

^cHarborview Medical Center, Seattle, Washington, USA

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An IgG antibody to *Aspergillus fumigatus* was not present in the patient's serum, and *Aspergillus fumigatus* was not detected in either BAL sample by PCR. However, a serum *Coccidioides* IgG complement fixation titer was positive at 1:32. *Coccidioides immitis/Coccidioides posadasii* was isolated from culture of the BAL fluid and was also detected by a specific PCR assay. Treatment with fluconazole was initiated (1). The patient's lengthy history of pulmonary illness suggests that she had acquired her infection in Mexico or Arizona, but autochthonous coccidioidomycosis has also been reported in Washington State (2). Most coccidioidal pneumonia is self-limited, and fewer than 1% of patients develop chronic progressive pulmonary infections, which may be indistinguishable from other chronic fungal or mycobacterial infections (3). Diabetes mellitus is a risk factor for chronic infection. Radiologic manifestations of chronic disease include residual nodules, chronic cavities, persistent pneumonia with or without lymphadenopathy, pleural effusion, and regressive changes such as localized fibrosis, bronchiectasis, and calcification (4). The pulmonary imaging in this patient was not specific for *Coccidioides* infection; however, the presence of the air crescent sign in the dependent area of the cavitating lesion was not felt to be typical for an aspergiloma, and sparing of the lung apex reduced the likelihood of tuberculosis.

Patients with suspected coccidioidomycosis should be evaluated with serologic testing. Isolation of *Coccidioides* species in culture can definitively establish the diagnosis. Direct sequencing from tissue samples is increasingly utilized. A noteworthy feature in this case is the presence of hyphal forms in the patient's respiratory tract. *Coccidioides* spp. are dimorphic fungi acquired by inhalation of spores, which replicate as spherules containing endospores in the host while forming hyphae in the environment. However, hyphal forms and arthroconidia (see Fig. 1C in the photo quiz) are occasionally seen in foreign-body-associated infections and in the lung cavities of patients with chronic infections (5). Although false-positive *Aspergillus* galactomannan assays have been described for patients with invasive infections caused by other fungi, including *Penicillium* spp., *Cryptococcus neoformans*, *Magnusiomyces capitatus* (*Geotrichum capitatum*), and *Histoplasma capsulatum* (6), to our knowledge this is the first report of a false-positive *Aspergillus* galactomannan assay in a patient with coccidioidomycosis.

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Address correspondence to Ashley M. Eckel, aeckel@uw.edu, or Ferric C. Fang, fcfang@u.washington.edu.

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