Case Series of Pulmonary Coccidioidomycosis

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Coccidioidomycosis, is an invasive fungal infection caused by Coccidioides immitis or Coccidioides posadasii, which are pathogens found in the soil in the Southwestern United States, Mexico, Central America, and South America. In this report, we describe two cases of coccidioidomycosis with pertinent travel history.

Case 1

A 20-year-old Honduran male with no past medical history was admitted for acute encephalopathy, subjective fever, cough, nausea, vomiting, and diarrhea for two weeks. He migrated from Honduras through Mexico to the United States about a month ago. His hospital course was complicated by acute hypoxic respiratory failure requiring intubation with mechanical ventilation and acute kidney injury (AKI) requiring intermittent hemodialysis. Chest imaging studies suggested bilateral nodular consolidation (figure 1). The patient had a positive Coccidioides IgM enzyme immunoassay (EIA) with other infectious evaluation including bronchoscopy unrevealing. Lumbar puncture performed following initiation of antifungal therapy showed no pleocytosis, normal glucose, normal protein, and negative Coccidioides antigen and serologies. The patient was started on fluconazole with clinical improvements in oxygen requirement and weaning from dialysis. He completed a 3-month course of fluconazole with clinical improvement and experienced normalization of his chest x-ray findings at 6-months.

Case 2

A 33-year-old Dominican male with no reported past medical history presented with three weeks of cough, shortness of breath, fever, cough, chills, fatigue, headache, myalgia, and decreased appetite. He was visiting Phoenix, Arizona while his symptoms developed and denies any outdoor or gardening activities while there. He treated for community acquired pneumonia at a regional emergency department in Arizona and completed a course of cefdinir and azithromycin without improvement. He presented to our local emergency department approximately a week later with persistent symptoms and was found to have a persistent left upper lobe (LUL) infiltrate on chest x-ray (figure 2A and 2B). He failed to improve on an empiric outpatient course of doxycycline and was admitted eight days later due to progressively worsening symptoms. Repeat CT chest showed a LUL necrotizing pneumonia (figure 2C and 2D). Pulmonology performed bronchoscopy, and resulting cultures grew Coccidioides species. The patient was discharged on a 3-month course of fluconazole and 6-week course of amoxicillin-clavulanate for both coccidiomycosis and possible post-obstructive bacterial pneumonia. He was clinically improved at 6-week follow up visit.

Discussion

There are typically 10,000-20,000 cases of coccidiomycosis reported annually in the United States, Of these infections, approximately a third present with symptomatic disease with pneumonia, cutaneous disease, and meningitis being the most common manifestations.

Diagnosis is most commonly made by serologic tests, such as enzymatic immunoassay. Microscopy and tissue cultures, that provide definitive diagnosis, must be performed on tissue or respiratory cultures in a biosafety level 3 laboratory. In patients with neurologic symptoms, lumbar puncture should be performed to rule out central nervous system involvement.

Treatment of asymptomatic to mild coccidiomycosis without overt immunosuppressing condition is typically supportive. Fluconazole or itraconazole are the mainstay of antifungal therapy for patients with moderate symptomatic disease, particularly in the setting of immunocompromise. Amphotericin is considered in severe disease.

Although coccidioidomycosis is not endemic to southeastern Louisiana, a not insignificant number of cases are imported into our are through regional travel to the southwestern United States. Therefore, this infection should be considered in the differential diagnosis of patients who present with pneumonia refractory to antibiotic coverage following travel to an endemic area.