CLINICAL VIGNETTE

A Case of Disseminated Cutaneous, Genital & Pulmonary Coccidioidomycosis

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Introduction

Disseminated coccidioidomycosis is an airborne illness caused by the dimorphic fungus *Coccidioides immitis*. Patients with this infection may have chronic pneumonia, fungemia, and extrapulmonary dissemination to bones, skin, meninges, and other regions. Less than 1% of infected patients develop systemic dissemination. Immunocompromised status is the risk factor that carries the highest risk of mortality in this demographic. Disseminated infection most commonly manifests with osseous or central nervous system involvement.[1]

Over the past decade, the incidence of disseminated coccidioidomycosis in the United States has significantly increased in both endemic and nonendemic regions.[2] The study of its epidemiology is vital in order to better approach patient burdens within the health care system and appropriately identify opportunities toward source control and prevention strategies. I hereby report a case of disseminated coccidioidomycosis presenting with diffuse cutaneous, pulmonary, and genital extension. In addition, the most appropriate evidence-based interventions used to pursue and execute the appropriate clinical approach are discussed.

Case Presentation

A 56-year-old male with end stage renal failure on hemodialysis, hypertension, and type 2 diabetes mellitus, with legal blindness initially presented to the emergency room with chronic fever, dyspnea, generalized weakness, cough, and weight loss for two months. He also had severe headache, poor oral intake, vomiting, diffuse skin lesions on the neck and right forearm, and testicular change. His past medical history also included chronic systolic heart failure with 20% ejection fraction.

On initial presentation, he had temperature of 39C, 93% oxygen saturation on room air, tachycardia, and a respiratory rate of 24. Initial Chest X Ray demonstrated numerous bilateral small pulmonary nodules with associated pleural effusion and atelectasis. Chest CT scan revealed a large right-sided pleural effusion with associated consolidation. He was started on antibiotics for presumed pneumonia, however, did not improve with antibiotic management. His cutaneous lesions were previously evaluated for possible neoplasm, but biopsy confirmed cutaneous coccidioidomycosis. Serum coccidioidomycosis titers were also positive. He was started on oral Fluconazole 400 mg/daily and discharged on Fluconazole. Testicular ultrasound demonstrated the presence of bilateral masses suspicious for a neoplastic process. He was evaluated by urology and underwent bilateral radical orchiectomy. Pathology demonstrated necrotizing granulomatous inflammatory changes and both pathology and primary cultures of the tissue were consistent with coccidioidomycosis.

Discussion

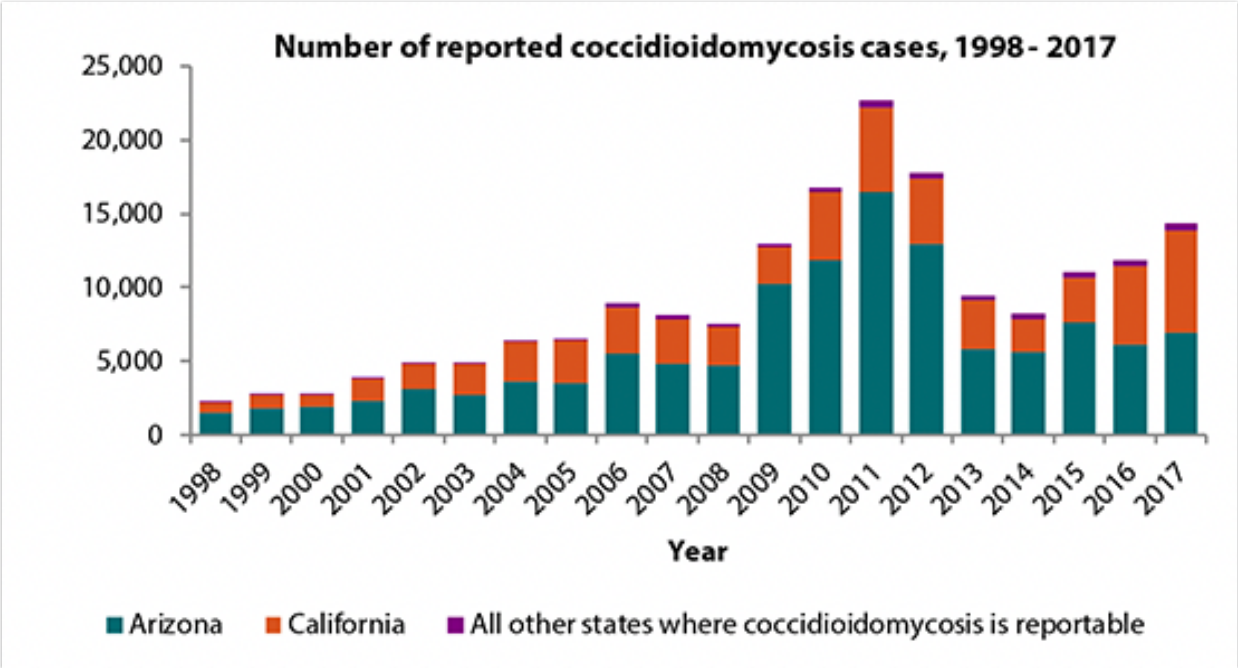
Over the past decade, despite the availability and efficacy of antifungal therapies for treating complicated cases of coccidioidomycosis, disseminated coccidioidomycosis has significantly increased in both endemic and nonendemic regions of the United States.[3,4] Factors contributing toward this trend include, weather patterns with dust storms, earthquakes, construction, excavation, travel, and increasing numbers of chronically immunosuppressed patients. Also, mutation of *C. immitis* into more virulent strains has been noted with increasing use of antifungal agents treating the pathogen.[2]

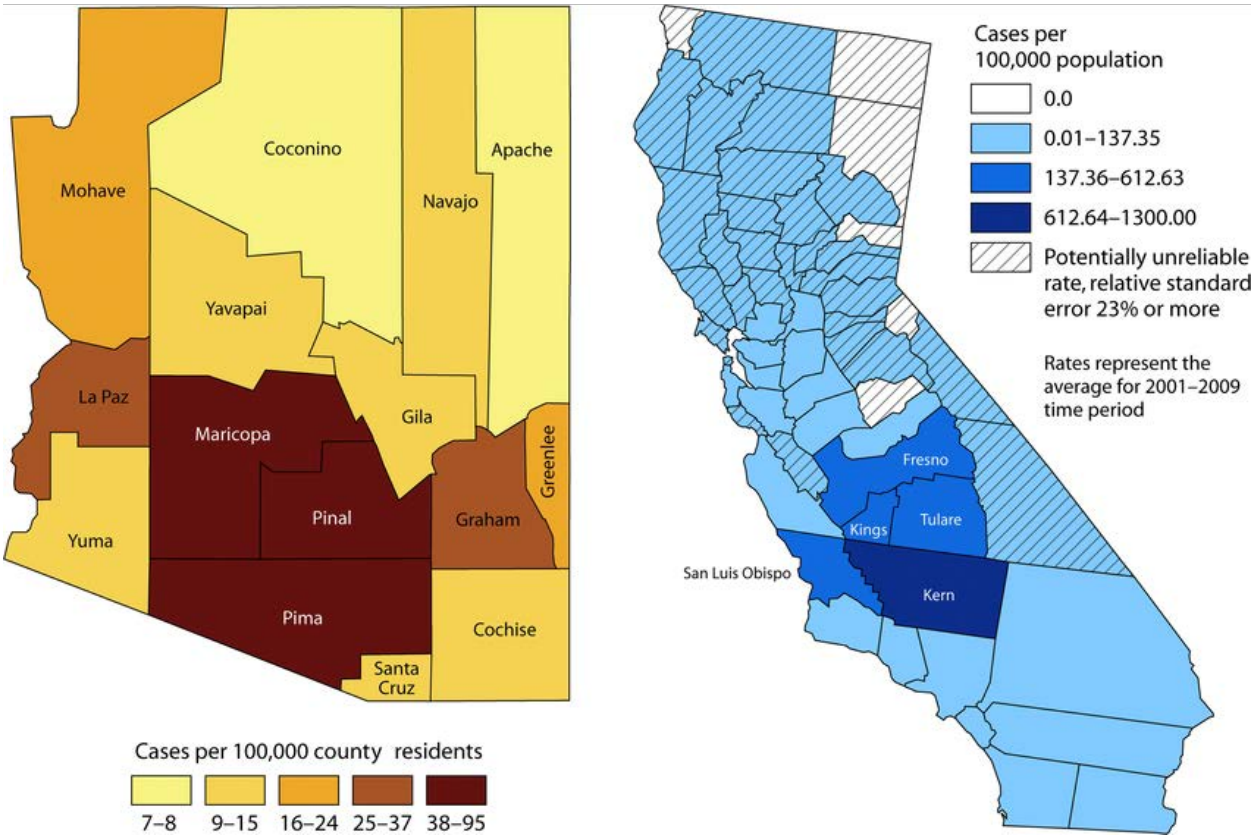
Disseminated coccidioidomycosis ideally requires timely diagnosis and rapid treatment, with appropriate antifungal agents and surgical evaluation for possible resection or debridement.[3] "Morbidity and mortality can be reduced with early recognition and treatment, which depends on understanding the spectrum and presentation of disease".[5] Diagnostic delay also increased financial risk.[2] Diagnosis is usually based on multiple factors, including serum titers, a skin biopsy (if applicable), clinical symptomology, and fungal culture. Azole therapy may be considered for initial treatment of disseminated coccidioidomycosis; Amphotericin B is commonly used in cases with rapid progression of symptoms or in patients with extensive disease, or progression of vertebral, cord compressive, or limb-threatening skeletal disease. The Infectious Disease Society of America recommends initial treatment 6-12 months for extrapulmonary soft tissue coccidioidal infection. Patients may require lifelong treatment depending on the severity of their underlying disease process and their immunocompetence.[3,6]

Most patients who develop disseminated infection originally have a primary pulmonary coccidioidal infection, but a minority of patients do not. Disseminated disease has a higher prevalence in immunocompromised patients, especially with T-cell mediated dysfunction, males, have history of chronic steroid exposure, and in patients with African American,

Native American, Pacific Islander, Hispanic, or Filipino descent. Significant chronic dust exposure, especially in endemic areas and pregnancy are also risks. Delayed diagnosis may result in rapid physiological deterioration.[1,2,7] Patients with risk factors, should include coccidioidomycosis in the differential diagnoses of unspecified cutaneous and genital manifestations. A multidisciplinary approach and prolonged subsequent monitoring ensure optimal prognosis in these patients.

Epidemiology (via California Department of Public Health):





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