A Case of Severe Pulmonary Blastomycosis in an Immunocompetent 39-year old Male

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Blastomyces is fungus that is found in moist soils, primarily in the Great Lakes area, Mississippi and Ohio river valleys, and southeastern US. Spores can be inhaled and can cause disease, with severity ranging from asymptomatic to life-threatening. It most commonly causes pulmonary disease, though it can disseminate hematogenously to affect organs such as skin, bones, and nervous system.

Case: A 39-year-old Caucasian male with no prior medical history presented to an outside hospital with weakness, fatigue, fevers, and nonproductive cough for 3 weeks unresponsive to azithromycin prescribed to him. He was admitted and likewise worsened despite treatment with IV levofloxacin, then vancomycin and meropenem. CT of his chest showed a multilobar pneumonia with multifocal cavitation, mediastinal and hilar adenopathy, trace pleural effusion, and splenomegaly. Blood and sputum cultures were negative. Due to increasing oxygen requirements, patient was transferred to our facility. On admission patient had a temp of 103.1, HR 119, RR 30, BP 149/88, and O2 Sat 96% on 4L of oxygen. On initial exam he was noted to have bilateral crackles. Labs were notable for a WBC of 10.9, sodium of 129, normal LFTs, and a lactic acid of 2.9. Patient was started on empiric vancomycin and Unasyn without improvement. Additional history was obtained that he had visited northern Wisconsin on a hunting trip the month prior to admission. Further investigation into the area's social media revealed high rate of blastomycosis infections, with several other hunters sick with similar presentations. Liposomal amphotericin B was then started empirically given the exposure and disease severity. Blastomyces antigen, and Blastomyces antibody were collected and subsequently positive. Fungal sputum cultures revealed Blastomyces on microscopy and culture. Liposomal amphotericin was continued throughout his hospitalization. His course was complicated by high oxygen requirements as well as duodenal perforation believed secondary to heavy NSAID use prior to admit. Surgical pathology was negative for fungal elements. He rapidly improved clinically on amphotericin and was eventually weaned off oxygen. He finished his 14 day course of liposomal amphotericin and was discharged on itraconazole for 6-12 months, depending on clinical response.

Discussion: Blastomycosis can resemble other pulmonary diseases such as bacterial or mycobacterial pneumonia. Careful review of travel and work history is important in individuals who fail to respond to appropriate antibiotic therapy, as this patient had received. Blastomycosis diagnosis requires visualization of the fungus on histopathology and/or growth in culture. Early diagnosis and appropriate treatment can prevent dissemination. This case demonstrates severe pulmonary blastomycosis in an otherwise healthy, immune competent host who presented as severe community acquired pneumonia failing appropriate treatment.