

Deer Hunting: A Blast-O To The Lungs

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Case presentation

A 39-year-old man with no significant past medical history presented with progressively worsening non-productive cough and fatigue over the past month. He was first evaluated at urgent care but failed to clinically improve despite courses of azithromycin, amoxicillin-clavulanate and levofloxacin. He was admitted to an outside hospital for worsening symptoms. CT chest was concerning for multifocal necrotizing pneumonia. He was treated with empiric vancomycin and meropenem without improvement prior to transfer to our facility five days later for further evaluation. Upon interview, patient reported working in the trucking industry in Odessa, TX, with frequent travel to the Southwestern and Midwestern United States. He has a dog, a donkey and several goats at his home in rural Louisiana. He hunted deer in Wisconsin two months prior and noted that his travel companions developed similar but milder respiratory symptoms. He denies any tobacco, alcohol, or recreational drug use. There are no obvious risk factors for tuberculosis. He ultimately underwent bronchoscopy. Broad based budding yeasts were noted on both Gram stain and CalciFluor white stain of both sputum and bronchial wash cultures. Fungal cultures ultimately grew *Blastomyces* species. He rapidly improved on a two-week liposomal amphotericin induction course and was subsequently transitioned to oral itraconazole upon discharge.

Discussion

Blastomyces dermatitidis is a dimorphic fungus endemic to the midwestern, southeastern and south-central United States and Canadian provinces bordering the Great Lakes and St. Lawrence Seaway.

In Louisiana, blastomycosis is mostly reported in Washington Parish, where environmental conditions such as acidic soil, low elevation, and relatively high rainfall favor the growth of *B. dermatitidis*.

Infection occurs primarily through inhalation of aerosolized spores of *B. dermatitidis* into the lungs. Blastomycosis exhibits a wide spectrum of illness from subclinical infection (30-50%) to acute or chronic pneumonia. Approximately 25%-40% of patients develop extrapulmonary infection with cutaneous, osteoarticular, genitourinary or central nervous system involvement. Disseminated blastomycosis occurs more frequently in immunocompromised individuals, particularly those with impairment in adaptive immunity such as advanced HIV.

For severe pulmonary blastomycosis, the recommended initial treatment is liposomal amphotericin B 3-5 mg/kg per day or amphotericin deoxycholate 0.7-1 mg/kg per day for one to two weeks or through clinical improvement. After completion of induction therapy, treatment is transitioned to oral itraconazole 200 mg three times daily for three days as a load followed by 200 mg twice daily maintenance dosing for a total of 6-12 months. In mild to moderate disease, oral itraconazole therapy is recommended without amphotericin induction.

This case provides an excellent example of how detailed exposure history and risk factor assessment can provide important clues for diagnosis.