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Inflammation and infection

Disseminated blastomycosis presenting with genitourinary abscesses

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ABSTRACT

A 25 year old male presented with several weeks of fevers and testicular pain. Workup demonstrated scrotal and prostatic abscesses. Fluid from these following surgical drainage revealed Blastomyces dermatitidis. He was treated with 12 months of oral anti-fungal therapy and repeat Blastomyces urine antigen was negative at follow up. While disseminated blastomycosis most commonly presents with pulmonary and cutaneous manifestations, genitourinary symptoms are rarely seen, but important to consider.

1. Introduction

Blastomycosis is a fungal infection caused by the fungus Blastomyces dermatitidis. It is endemic to the Midwest, south-central, and southeastern regions of the United States and is found in moist soil in forests or river valleys.[1] Infection occurs through inhalation of the spores and typically infects healthy hosts, unlike most fungal infections.[2] Pulmonary and cutaneous manifestations are most common, but genitourinary, bone, and central nervous system involvement have been reported. We present a case of a patient who presented initially with symptomatic genitourinary manifestations of blastomycosis.

2. Case presentation

An otherwise healthy 25 year old male presented to the emergency department with fevers and left testicular pain. A urinalysis was suspicious for infection and a scrotal ultrasound was performed, showing hyperemia of the left testicle and epididymis indicative of epididymoorchitis. He also had several nodular skin lesions on his back, extremities, and scalp. One of these lesions was incised and sent for culture and syphilis RPR, which were negative. Sexually transmitted infection testing was also negative, including HIV. He received intramuscular gentamicin and a ten day course of doxycycline.

He represented to the emergency department two weeks later with worsening scrotal pain and reported a 20 pound weight loss over the last month. Workup revealed a leukocytosis to 14 $\times$ 10^9/L and a scrotal ultrasound that showed progression of epididymoorchitis with development of a 1.5 cm scrotal abscess. Computed tomography (CT) of the pelvis demonstrated a 6 cm prostate abscess as well as infection within the left sacroiliac joint (Fig. 1). He was admitted to the hospital and started on broad-spectrum antibiotics. Concern was high for blastomycosis based on the appearance of the skin lesions, so a urine Blastomyces antigen test was obtained, which was positive. He was transitioned to intravenous fluconazole therapy. A CT of the chest and abdomen was obtained, demonstrating innumerable pulmonary nodules in a miliary pattern, consistent with blastomycosis. He was taken to the operating room for scrotal exploration and drainage of the scrotal abscess. Culture of the abscess fluid grew out Blastomyces dermatitidis. The next day he was taken for placement of a *trans*-gluteal drain by Interventional Radiology into the prostate with drainage of 65 mL of green purulent fluid. Culture of this also grew out Blastomyces dermatitidis. His *trans*-gluteal drain was removed 3 days later after minimal output. He was transitioned to oral itraconazole for a total of 12 months of therapy. A repeat urine Blastomyces antigen test was negative 9 months after starting therapy.

3. Discussion

Disseminated blastomycosis is a systemic fungal infection caused by Blastomyces dermatitidis, a dimorphic fungus. In the environment, it exists as a mycelia, but, at the temperature of the human body, it converts to a broad-based budding yeast.[3] Infection typically begins with inhalation of its spores with primary immunity provided by the innate immune system.[1] Blastomycosis most commonly manifests pulmonary and cutaneous signs and symptoms, though less than 10% of cases manifest within the genitourinary system, most commonly in the prostate.[4] Patients often present with symptoms of dysuria, bladder or perineal pain, hematuria, or even urinary retention.[1]

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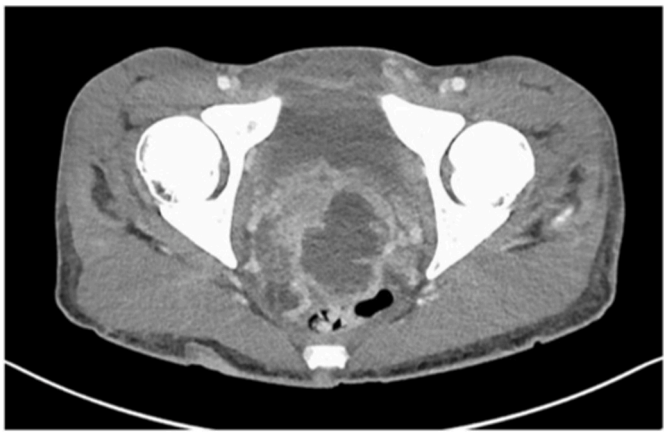

Fig. 1. Complex low-density fluid collection with rim enhancement within the prostate concerning for abscess.

Diagnosis usually is not straightforward. While urine antigen tests for Blastomyces are found to be quite sensitive, there is cross reactivity with other fungi that cause endemic mycoses, particularly Histoplasma capsulatum.[5] Cultures growing the fungi are usually confirmatory, as direct visualization of the organism in cytologic or histologic samples is usually the quickest and most common path to diagnosis.[5] According to the Infectious Diseases Society of America, itraconazole is the preferred first-line treatment for patients with mild to moderate infection, precluding those patients with central nervous system (CNS) involvement. Oral itraconazole treatment is recommended for a total of 6–12 months.[5] Amphotericin B is reserved for those with life-threatening infection, CNS involvement, or immunocompromised patients.[5]

4. Conclusion

Genitourinary manifestations of blastomycosis are relatively rare. Clinicians should have a high index of suspicion for this fungus, especially in endemic areas and when symptoms are refractory to typical antimicrobial treatment.

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Declaration of competing interest

The authors report no conflicts of interest in this work.

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