Blastomycosis Misdiagnosed as Tuberculosis, India

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Blastomyces dermatitidis is a dimorphic fungus that is rarely reported from India; no well-defined area of endemcity in that part of the world has been recorded (1). However, it is endemic to the Ohio and Mississippi River valleys of North America and the states bordering the Great Lakes (2). Acute pulmonary infection is caused by inhalation of aerosolized B. dermatitidis conidia, which convert to yeast forms within the lungs (3). In the acute stage, blastomycosis may be misdiagnosed as bacterial pneumonia and sometimes as another illness. Most cases of blastomycosis are usually diagnosed after the infection has become chronic. Severe pulmonary disease can occur in apparently immunocompetent, as well as immunocompromised, persons (3). Persons from non–disease-endemic areas usually acquire this disease during travel to disease-endemic areas (1).

In November 2014, a 32-year-old man, native to the state of Kerala, India, sought care for multiple discharging sinuses on his anterior chest wall (Figure, panel A). He weighed 75 kg and had been receiving first-line anti-TB therapy for 12 months before receiving the correct diagnosis of blastomycosis. Chronic pulmonary blastomycosis is often misdiagnosed and treated as tuberculosis in disease-endemic and non–disease-endemic areas. We report the case of a 32-year-old man who, after visiting Chicago, Illinois, USA, returned to India and received treatment for tuberculosis for 12 months before receiving the correct diagnosis of blastomycosis.

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months of treatment is required for all patients with pulmonary blastomycosis. The recommended treatment is oral itraconazole. A minimum of 6 months of treatment is required for all patients with pulmonary blastomycosis.

Chronic pulmonary blastomycosis results in chronic cough, weight loss, and hemoptysis, often masquerading as TB or malignancy (4). The patient described here exemplifies the challenges of diagnosing pulmonary blastomycosis in a non–blastomycosis-endemic area where TB is prevalent. Most patients receive multiple courses of anti-TB treatment, which can delay blastomycosis diagnosis by >1 month (5). Chronic pulmonary blastomycosis has been misdiagnosed and treated as TB in disease-endemic and non–disease-endemic areas (1,4). Even in blastomycosis-endemic areas such as Illinois, the median time from onset to diagnosis is 128 days (range 12–489 days) (6). The presence of skin lesions increases the recognition of blastomycosis (2). The patient reported here had worked for 9 months in an area where B. dermatitidis is highly endemic (6). Presence of skin lesions, negative mycobacterial cultures and Xpert MTB/RIF assay results, and the absence of response to anti-TB treatment should have raised the suspicion of blastomycosis for this patient.

Definitive diagnosis of blastomycosis can be made only by culture, which often takes weeks. Direct potassium hydroxide smears and cytopathology are inexpensive, produce rapid results, and can demonstrate characteristic broad-based budding yeasts in samples (1). Although the sensitivity of urinary antigen test for blastomycosis is high, that test lacks specificity because of cross-reactions with Histoplasma spp. (7).

Blastomycosis is rarely reported in India; a review by Kumar et al. (I) reported only 6 definitively diagnosed cases, of which 2 were associated with travel to disease-endemic areas in the United States (8,9). The choice of antifungal medication for blastomycosis depends on disease severity. For severe disease, the recommended treatment is initial amphotericin B therapy for 1–2 weeks followed by oral itraconazole; for mild and moderate disease, the recommended treatment is oral itraconazole. A minimum of 6 months of treatment is required for all patients with pulmonary blastomycosis (8).

A high index of suspicion is needed to detect blastomycosis in non–disease-endemic areas where TB is prevalent. Clinicians should elicit a thorough travel history from patients with illness that does not respond to anti-TB treatment.

**References**


**About the Author**

Dr. Kumar is a clinical microbiologist and professor at Amrita Institute of Medical Sciences and Research Centre, Kochi, Kerala, India. His research interests include emerging fungal infections, antifungal resistance, antimicrobial drug stewardship, and epidemiology of neglected tropical infectious diseases.

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