Blastomycosis

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1 *Blastomyces dermatitidis* and *Blastomyces gilchristii* are dimorphic fungal pathogens that have expanded their environmental range beyond the Great Lakes region and the St. Lawrence, Mississippi and Ohio River valleys

Although rates of blastomycosis in Canada remain low outside of historically endemic areas, the range for *Blastomyces* now includes Quebec, Manitoba, Saskatchewan, Ontario — the Kenora area has the highest global rates — and the eastern United States.[1–3] Changes in climate and land use are hypothesized to be causing the expansion.[2] Although a travel and exposure history remains important to differential diagnosis, cases are increasingly described in patients who have not travelled to traditional endemic areas.

2 *Blastomyces* can infect immunocompetent and immunocompromised people[4]

Blastomyces grows in soil and decaying vegetative material. Blastomycosis is typically acquired through inhalation of spores from the disrupted environment and, occasionally, through cutaneous inoculation; it does not spread person-to-person.[4] Indigenous people have a higher incidence of disease.[3] Other mammals, including domestic dogs, are susceptible.

3 Blastomycosis primarily manifests as a pulmonary infection, with presentations ranging from asymptomatic to mild, nonresolving pneumonia to acute respiratory distress syndrome

The incubation period is 4–6 weeks. Disease disseminates beyond the lungs in 20%–50% of cases, mainly to skin and bone.[3,4] Blastomycosis can mimic community-acquired pneumonia, tuberculosis or cancer.[4] Diagnosis is often delayed given the varied presentations and failure to consider blastomycosis.[4]

4 Microbiologic culture is the gold standard for diagnosis but can take days to weeks

Rapid presumptive diagnosis, sufficient for treatment decisions, can be made based on microscopic visualization of the characteristic yeast on specimens, especially from sputum or biopsy.[4,5] Antigen detection assays have high sensitivity but can cross-react with other fungi.[5] Serology is generally less sensitive and radiological manifestations can vary.

5 Treatment is determined by severity, immune status and clinical response, and involves prolonged, systemic antifungal therapy

Oral itraconazole is the drug of choice for mild-to-moderate disease; severe disease requires initial therapy with liposomal amphotericin B, followed by step-down therapy with an azole compound.[4]

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