

Disseminated blastomycosis in a 57-year-old man working in construction

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A 57-year-old man working in construction presented to the emergency department of a hospital in Northern Ontario with acute onset of confusion and expressive aphasia but no motor or sensory deficits. The patient had an unremarkable medical history and no travel outside of Canada.

The patient underwent magnetic resonance imaging of his head, and a lesion (2.4 cm) in the right temporoparietal region was found (Figure 1A). We suspected malignant disease and ordered chest radiography, which showed an irregular fibronodular opacification (Figure 1B). Bronchoalveolar lavage cultures were nondiagnostic for fungal, bacterial or mycobacterial infection, and malignant disease. An intracranial biopsy was performed that found budding yeast cells consistent with *Blastomyces* spp. (Figure 1C and Figure 1D).

According to the Infectious Diseases Society of America guideline on the treatment of blastomycosis,¹ we started our patient on liposomal amphotericin B, which was followed by voriconazole taken orally at a dosage of 4 mg/kg every 12 hours for one year. We selected voriconazole because of its ability to permeate the blood–brain barrier.² Because our patient was asymptomatic at nine-month follow-up and repeat imaging showed radiographic resolution, we did not extend treatment beyond one year.

Blastomycosis is a fungal infection typically acquired from the inhalation of fungal spores. Although sporadic reports of blastomycosis occur worldwide, most cases are reported in areas of Canada and the United States that border the Great Lakes and waterways such as the Mississippi, St. Lawrence, Nelson and Ohio rivers.^{2,3} Although blastomycosis can affect multiple organ systems, it most often presents with isolated respiratory infection and is commonly misdiagnosed as malignant disease or tuberculosis. Delays in diagnosis contribute to the high mortality associated with blastomycosis of the central nervous system.²

Initial investigations should exclude more common diagnoses. Definitive diagnosis of blastomycosis involves culture or direct microscopic visualization from a clinical specimen.²

The US Centers for Disease Control and Prevention suggests that patients with weakened immune systems consider avoiding activities that involve disrupting soil in areas that are endemic for blastomycosis.⁴

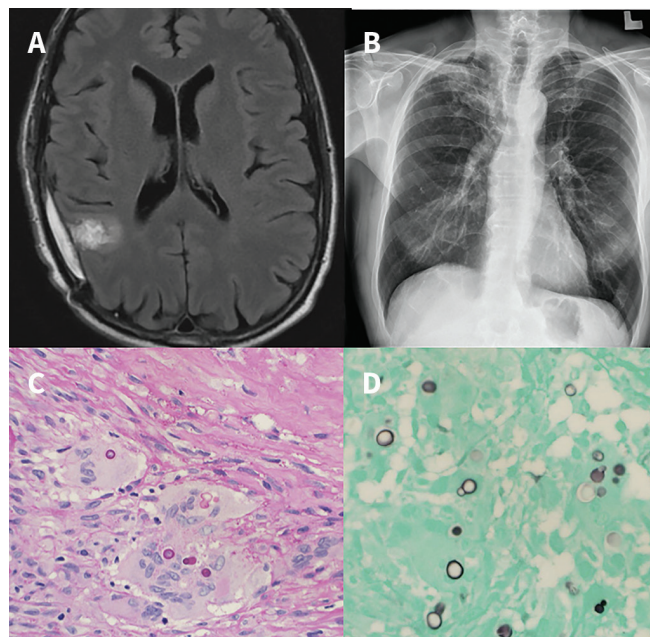


Figure 1: (A) Coronal section of a T_2 -weighted gadolinium-enhanced magnetic resonance image of the head of a 57-year-old man who works in construction that shows a lesion (2.4 cm) in the right temporoparietal region with associated hyperintensity of the resection cavity after a biopsy of the brain. (B) Posterior–anterior chest radiograph showing an irregular fibronodular opacification in the apex of the right lung. Tissue excised at brain biopsy stained with (C) hematoxylin and eosin (original magnification $\times 200$) and (D) Grocott methenamine silver (original magnification $\times 200$) showing budding yeast cells that are characteristic of *Blastomyces* spp.

References

1. Chapman SW, Dismukes WF, Proia LA, et al. Clinical practice guidelines for the management of blastomycosis: 2008 update by the Infectious Diseases Society of America. *Clin Infect Dis* 2008;46:1801-12.
2. Bariola JR, Perry P, Pappas PG, et al. Blastomycosis of the central nervous system: a multicenter review of diagnosis and treatment in the modern era. *Clin Infect Dis* 2010;50:797-804.
3. Morris SK, Brophy J, Richardson SE. Blastomycosis in Ontario, 1994–2003. *Emerg Infect Dis* 2006;12:274-9.
4. Blastomycosis risk & prevention. Atlanta: US Centers for Disease Control and Prevention. Available: www.cdc.gov/fungal/diseases/blastomycosis/risk-prevention.html (accessed 2017 Nov. 8).

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