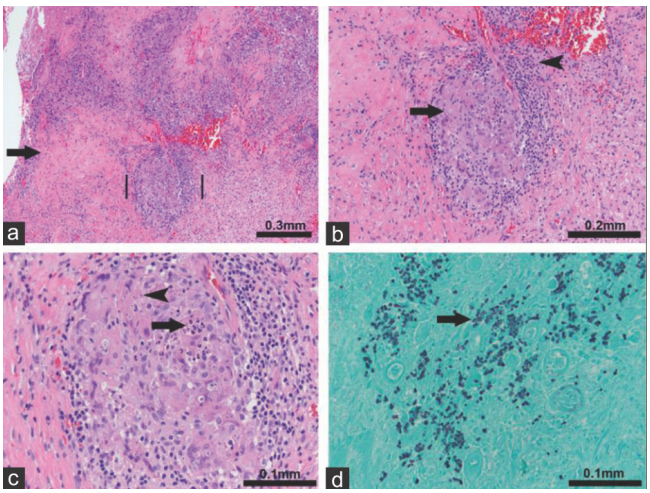

Figure 3: Histologic analysis of the biopsy sample. (a) Histologic sections show a background of reactive fibrosis (arrow) with nodular inflammatory cell infiltrates (between vertical lines). Higher magnification (×10); (b) chronic inflammatory cells: small mononuclear cells (arrow head) and nodular aggregates of pale pink "epithelioid" histiocytes (arrow) imparting a granulomatous appearance (×20); (c) Small spherical organisms are seen (arrow head) and focally a few neutrophils are present in the center of the granuloma (arrow, ×40); (d) GMS staining confirms the presence of fungal organisms that morphologically appear as small dark stained round yeast forms (arrow). *Blastomyces dermatitidis* (×40).

producing mass effect (particularly in the cerebellum), diffuse leptomeningeal enhancement, cerebritis or obstructive hydrocephalus. Restricted diffusion is frequently one of the earliest MRI findings with fungal abscesses. This occurs due to an increased cellularity and viscosity of the pus associated with the infection and frequently precedes gadolinium enhancement. Reduced diffusion signal may frequently be heterogeneous. In smaller lesions, it may be punctate. When compared with fungal infections, bacterial abscesses tend to have a highly restricting homogeneous center. In contrast to their marked diffusion abnormality, fungal abscesses may demonstrate only a weak ring enhancement. This is thought to be secondary to a weak peripheral immune response. A combination of ring enhancement and diffusion signal can help differentiate fungal abscesses from bacterial abscesses or brain metastases. Brain metastases tend to have a thicker ring enhancement and a reduced diffusion in the necrotic center. Brain metastases frequently have a thicker ring enhancement, but typically have no reduced diffusion in the necrotic center.[5]

Definitive diagnosis is established either by isolation of the fungus from a culture or direct visualization on the histological slides. Isolation from the CSF is uncommon. In a case series of 22 patients with CNS blastomycosis, CSF cultures were positive only in 2 patients.[2] Serologic testing is generally considered not to be useful in blastomycosis due to high cross-reactivity with other endemic mycoses. Antigen testing may be positive in the urine and serum. PCR is rarely used and typically not commercially available.

Thus, most cases require a biopsy and a histopathologic examination of the tissue to arrive at the correct diagnosis. The case described above had negative serology, CSF culture and required a tissue sample obtained during resection to diagnose it as a blastomycosis abscess.

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Conflicts of interest
There are no conflicts of interest.

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