

Images in Infectious Diseases

Cryptococcus neoformans var. *gattii* isolate with Unusual Morphology

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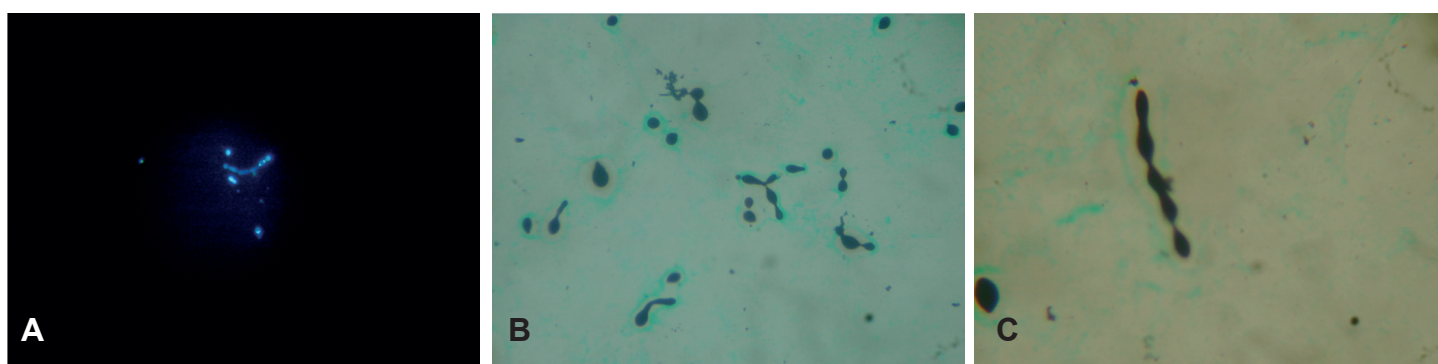


FIGURE A: Calcofluor white staining of CSF showing pseudohyphal forms (40X).

FIGURE B: Gomori-methenamine-silver staining showing encapsulated pseudohyphal forms and germ-tube formation (100X).

FIGURE C: Gomori-methenamine-silver staining showing encapsulated chains of budding yeasts (100X).

An immunocompetent 24-year-old woman was referred to our hospital with viral meningitis that did not respond to treatment. Brain magnetic resonance imaging (MRI) revealed signs suggestive of acute disseminated encephalomyelitis. Cerebrospinal fluid (CSF) showed glucose levels of 64.8 mg/dL and protein levels of 65.6 mg/dL. CSF microscopy showed 42 cells/mm³, including polymorphs, lymphocytes, and yeast cells with atypical morphology. Grocott-Gomori's-methenamine-silver staining, India ink staining, and calcofluor white staining of CSF demonstrated the existence of unusual morphological features like pseudohypha formation, chains of budding yeasts, and structures resembling germ tubes (**Figures A, Figure B and Figure C**). Most of the cells were encapsulated. Sequencing identified yeast isolates grown on blood and CSF cultures as *Cryptococcus neoformans* var. *gattii*. The isolate

was sensitive to voriconazole, amphotericin B, fluconazole, and flucytosine. The patient succumbed to the infection despite initiating treatment with liposomal amphotericin B.

Cryptococcus can deviate from its characteristic morphology as encapsulated budding yeast cells, presenting as pseudohyphae or germ tube-like structures¹. In such instances, cryptococcal antigen detection using latex agglutination or culture identification should be used for a definitive diagnosis.

AUTHORS' CONTRIBUTION

AK: conceived the study, wrote the manuscript, documented the images, cultured the organism; **ME:** Reviewed the manuscript, documented the images; **RP:** Reviewed the manuscript, identified the isolate by sequencing.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

REFERENCES:

1. Williamson JD, Silverman JF, Mallak CT, Christie JD. Atypical cytomorphologic appearance of *Cryptococcus neoformans*: a report of five cases. *Acta Cytol.* 1996; 40(2):363-70.

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