

A case of disseminated neurohistoplasmosis presenting with rapidly progressive cognitive impairment: Case report and review of psychiatric symptoms in fungal infections

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Introduction

Consultation liaison psychiatrists often are called to evaluate cases with atypical courses for potential underlying mental illness. However, there are multiple medical causes of alterations in psychiatric symptoms which are not readily diagnosed without further investigation. Disseminated histoplasmosis is a rare complication of exposure to *H. capsulatum*, a common fungus endemic to the Midwestern United States. Patients may present with fever, fatigue, falls, cerebellar signs, confusion, or encephalopathy, among other physical signs. Given the variety of seemingly unrelated and diffuse symptoms, it often is misdiagnosed and treatment is delayed.

Case

A 66 year old man who presented to a community hospital for recurrent falls. One year prior to his admission, he developed fatigue and cognitive decline. Initially, he was treated for low testosterone and a dental infection by his PCP. He also was seen by an outside neurologist who diagnosed him with mild cognitive impairment and Lewy body dementia based on volume loss on MRI and his cognitive concerns. He then rapidly deteriorated, developing tremors, hallucinations, and falls, prompting admission.

During hospitalization, he was found to have a lymphocytic meningitis on lumbar puncture. Histoplasma antibodies were positive in the blood, urine, and CSF. He was started on amphotericin B, and transferred to a quaternary care center for further management. His course was complicated by hallucinations, paranoia, and encephalopathy, and treatment with quetiapine, valproic acid, and clonidine. He completed his course of amphotericin B, with some improvement in his cognitive and behavioral symptoms. He was discharged to acute rehabilitation on oral itraconazole.

Fungal Species	Endemic Regions	Vulnerable Populations	Clinical Presentation
<i>Cryptococcus</i>	Worldwide	HIV positive, transplant	Meningitis, 20% with AMS
<i>Candida</i>	Worldwide	Immunosuppression, extensive wounds, diabetes, HIV	Meningoencephalitis, vasculitis, hydrocephalus, calcifications
<i>Aspergillus</i>	Worldwide, CNS involvement more common in tropics/subtropics	Neutropenia, corticosteroid use, any immunosuppression	Neurological deficits, fever, headache, seizure, less commonly AMS
<i>Mucormycoses</i>	Areas of high humidity	DKA/diabetes	Headache, black nasal discharge, cerebral infarction
<i>Histoplasma</i>	Ohio/Mississippi River Areas	VP shunts, immunosuppression, transplant, TNF antagonists	Hydrocephalus, memory loss, cognitive impairment
<i>Coccidioides</i>	Southwest US/Mexico	Immunosuppression, HIV, chronic steroids	Meningitis, AMS, personality changes, nausea

Figure 1

Populations at Higher Risk of Fungal Infection

- HIV/AIDS infection
- Transplant
- Immunosuppressed
- Chronically ill patients
- Hematological disorders
- Prolonged antibiotic or corticosteroid activity
- Diabetic ketoacidosis
- Burn patients
- Renal failure

Figure 2

Clinical Features of CNS Fungal Infection

- Historical
 - Risk factors
 - Clinical symptoms
- Objective
 - CT/MRI
 - CNS biopsy
 - Serologies (urine, blood, CSF)
 - Blood cultures
 - Cell counts (CSF, blood)