

Cryptococcal Meningitis Mimicking Acute Stroke in an Immunocompetent Patient: A Case Report

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Abstract

Cryptococcal meningitis typically affects immunocompromised individuals, particularly those with HIV/AIDS. However, rare cases occur in immunocompetent hosts, leading to delayed diagnosis due to atypical presentations. We present a case of a 59-year-old previously healthy male who developed right-sided weakness and dysarthria, initially suspected to be a cerebrovascular accident. His clinical course included persistent headache, fever, and altered mental status. Initial imaging showed non-specific white matter changes, and cerebrospinal fluid (CSF) analysis later confirmed *Cryptococcus neoformans* infection. Treatment with amphotericin B and flucytosine led to resolution of symptoms. This case underscores the diagnostic challenges in identifying cryptococcal meningitis in immunocompetent patients and highlights the risks of diagnostic anchoring in stroke-like presentations.

1. Introduction

Cryptococcal meningitis is a life-threatening fungal infection caused primarily by *Cryptococcus neoformans*, a ubiquitous encapsulated yeast (Sabiiti and May, 2012). It classically occurs in immunocompromised individuals, especially those with advanced HIV/AIDS, organ transplants, or prolonged corticosteroid therapy (Fisher et al., 2021; Williamson et al., 2017). However, cryptococcosis in immunocompetent individuals has been increasingly reported in recent literature (Xiong et al., 2022).

The clinical presentation may mimic other central nervous system (CNS) conditions, including subacute bacterial meningitis, tumors, or even ischemic strokes (Li et al., 2020). Neurological symptoms such as focal deficits, headache, altered mental status, and cranial nerve palsies may lead clinicians to misdiagnose, particularly when

radiographic findings are non-specific (George et al., 2020; Pope and Edlow, 2012).

We report a case of cryptococcal meningitis in an immunocompetent middle-aged man who initially presented with focal neurologic signs suggestive of stroke, emphasizing the importance of considering infectious causes in atypical stroke presentations.

2. Case Presentation

A 59-year-old previously healthy male with no known immunodeficiency presented to the emergency department with sudden-onset right-sided weakness, facial asymmetry, and slurred speech that developed over several hours. He denied any history of fever, recent travel, or drug use. His past medical history included controlled hypertension. There was no history of diabetes, malignancy, or HIV.

On arrival, his vitals were stable (BP 142/88 mmHg, HR 84 bpm, T 37.5°C). Neurological examination revealed right-sided facial droop, 3/5 strength in the right upper and lower extremities, and expressive aphasia. National Institutes of Health Stroke Scale (NIHSS) score was 6. He was outside the window for thrombolysis, and a non-contrast CT scan of the brain showed mild periventricular white matter hypodensities, consistent with small vessel

disease. CT angiography was negative for large vessel occlusion (Table 1).

He was admitted with a presumptive diagnosis of ischemic stroke and started on aspirin and statins. Over the next 48 hours, he developed progressive headache, low-grade fever (38.2°C), photophobia, and worsening confusion. His neurological exam worsened with the development of neck stiffness and bilateral

Table 1: Laboratory and CSF Results

Parameter	Result	Reference Range	Interpretation
White Blood Cell Count	$7.9 \times 10^3/\mu\text{L}$	$4.0\text{--}11.0 \times 10^3/\mu\text{L}$	Normal
Hemoglobin	13.2 g/dL	13.5–17.5 g/dL	Mild anemia
HIV ELISA	Negative	—	HIV negative
Blood glucose	96 mg/dL	70–110 mg/dL	Normal
CSF Opening Pressure	300 mmH ₂ O	90–180 mmH ₂ O	Elevated
CSF WBC Count	65 cells/ μL	0–5 cells/ μL	Lymphocytic pleocytosis
CSF Protein	120 mg/dL	15–45 mg/dL	Elevated
CSF Glucose	28 mg/dL	40–70 mg/dL	Low
India Ink Stain	Positive	—	Encapsulated yeast seen
CSF Cryptococcal Antigen	Positive (1:256)	Negative	Diagnostic

abducens nerve palsy. These findings prompted a lumbar puncture.

Brain MRI revealed mild periventricular enhancement but no infarcts or mass lesions. The diagnosis of cryptococcal meningitis was confirmed, and the patient was started on amphotericin B (0.7 mg/kg/day) and oral flucytosine (100 mg/kg/day). Supportive measures included daily therapeutic lumbar punctures to reduce intracranial pressure. Over the course of 2 weeks, the patient's mental status and motor strength improved significantly. He completed 14 days of induction therapy and was transitioned to high-dose oral fluconazole for consolidation therapy. At 6-week follow-up, he had minimal residual right-sided weakness and was functionally independent.

3. Discussion

Cryptococcal meningitis remains a diagnostic challenge in immunocompetent individuals due to its rarity and atypical presentation (Qu and Lv, 2024). Unlike in HIV patients, where a subacute or chronic presentation is common, immunocompetent hosts may present with more abrupt neurological symptoms, mimicking vascular events such as stroke (Ellis et al., 2018).

The pathophysiology of neurological deficits in cryptococcosis includes increased intracranial pressure, direct meningeal inflammation, microvascular thrombosis, and cryptococcal meningoencephalitis (CM) (Alanazi et al., 2022). Our patient's initial presentation with hemiparesis and dysarthria led to anchoring on a diagnosis of stroke.

However, persistent fever, photophobia, and mental status changes prompted reconsideration, and lumbar puncture confirmed the fungal etiology.

Previous case series have reported stroke-like presentations in cryptococcal meningitis (Chutinet et al., 2025; Pagliano et al., 2020). Recent report states that the patients with immunodeficiency the pathogen spectrum of central nervous system infections is broader and different from that of immunocompetent patients (Weidauer et al., 2020). Moreover, the rate of normal initial imaging was high, underscoring the need for CSF analysis in unexplained presentations.

The case also illustrates the risk of diagnostic anchoring, wherein clinicians fixate on the first plausible diagnosis in this case. The stroke leading to delayed identification of a more appropriate etiology. Fever, photophobia, and cranial nerve involvement should trigger consideration of an infectious or inflammatory process.

4. Conclusion

This case highlights the importance of broad differential diagnosis in patients presenting with acute neurological symptoms, even in the absence of immunocompromise. In stroke mimics with persistent fever or atypical progression, lumbar puncture and CSF analysis remain critical. Early recognition and antifungal therapy are essential to improving outcomes in cryptococcal meningitis. Clinicians must remain vigilant for rare but serious infections that may masquerade as common neurologic emergencies.

Declarations

Ethics approval statement

No ethical approval was required for the current study as it did not deal with any human or animal samples.

Consent to participate

Not applicable

Consent to publish

Not applicable

Data Availability Statement

The data are available from the corresponding author upon reasonable request

Competing Interests

The authors declare that they have no conflict of interest

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Author contribution

Conceptualization, Data curation, Investigation, Formal analysis: A.G.B. Writing—review and editing: D.A. All authors have read and agreed to the published version of the manuscript

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