

Cerebral phaeohyphomycosis by *Fonsecaea monophora*: Report in a patient with AIDS and a ring enhancing lesion



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ABSTRACT

Fungal infections are infrequent causes of brain abscesses. *Fonsecaea monophora* is a dematiaceous fungus that appears to be neurotropic. We report a case of *Fonsecaea monophora* infection in a patient with acquired immunodeficiency syndrome, and review previous reports of brain abscesses by this organism.

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1. Introduction

Fungal infections are infrequent causes of central nervous system (CNS) ring enhancing lesions in patients with advanced acquired immune deficiency syndrome (AIDS). More frequent processes include toxoplasmosis, primary CNS lymphoma, metastases, pyogenic brain abscesses, and tuberculomas (in areas of high endemicity for tuberculosis) [1]. The radiologic finding of a ring enhancing lesion is insufficient to distinguish between the possible etiologic causes [2]. Toxoplasmic encephalitis, the most common infectious cause in those with AIDS in the United States, is usually diagnosed retrospectively following a therapeutic challenge [3]. The number and location of lesions, in conjunction with serologic testing, may suggest an alternate non *Toxoplasma*-related cause and indicate a need for early brain biopsy. We herein present a reported case of *Fonsecaea monophora* causing a brain abscess in a patient with AIDS.

2. Case

A 54-year-old Caucasian female with HIV/AIDS (CD4 42 cells/mm³ and undetectable viral load) presented to the emergency department in February 2012 (day 0) with complaints of

intermittent headache, vomiting, and episodes of left arm twitching for the preceding week (day –7). These episodes were becoming more frequent and longer in duration, lasting up to 15 min at a time. She denied any vision changes. Further characterization of her presenting symptoms was limited due to her mental status.

The patient was diagnosed with AIDS in May 2011 (day –270) with a CD4 count of 20 cells/mm³ and viral load of 142,098 copies/mL. She was started on antiretroviral therapy (ART) with atazanavir 300 mg, ritonavir 100 mg, and a fixed dose combination of tenofovir- emtricitabine 300/200 mg orally daily in June 2011 (day –256). At that time, prophylaxis was initiated with trimethoprim-sulfamethoxazole (TMP-SMX) 160/800 mg orally daily and azithromycin 1200 mg orally weekly for *Pneumocystis jirovecii* and *Mycobacterium avium complex*, respectively. She reported good adherence to her medication regimen at follow up clinic visits and was noted to have an undetectable viral load 2 months after initiation of ART (day –200). Other significant past medical history included hepatitis C without cirrhosis and late latent syphilis treated with 3 weekly intramuscular injections of benzathine penicillin G in April – May 2011 (completed on day –280). She had a history of intravenous (IV) drug abuse but denied use in the last 20 years. She was a smoker (20-pack years) and had been making efforts to quit alcohol (cut back from 24 to 3 beers per day).

On examination, her temperature was 36.6 °C, heart rate 82 beats/minute, blood pressure 94/56 mm of Hg, and respiratory rate 16 breaths per minute. She appeared ill and unkempt. She was noted to be confused and incontinent of stool and urine. She had

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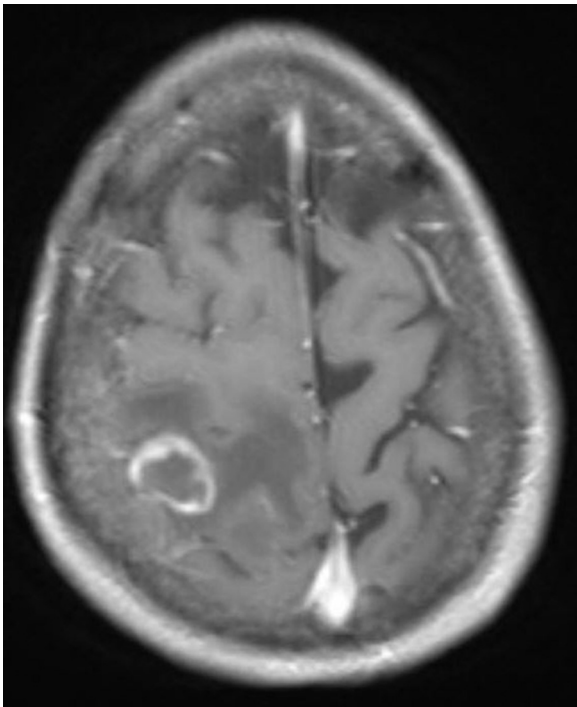


Fig. 1. Magnetic resonance imaging scan of the brain with contrast showing ring enhancing lesion in the right parietal lobe.

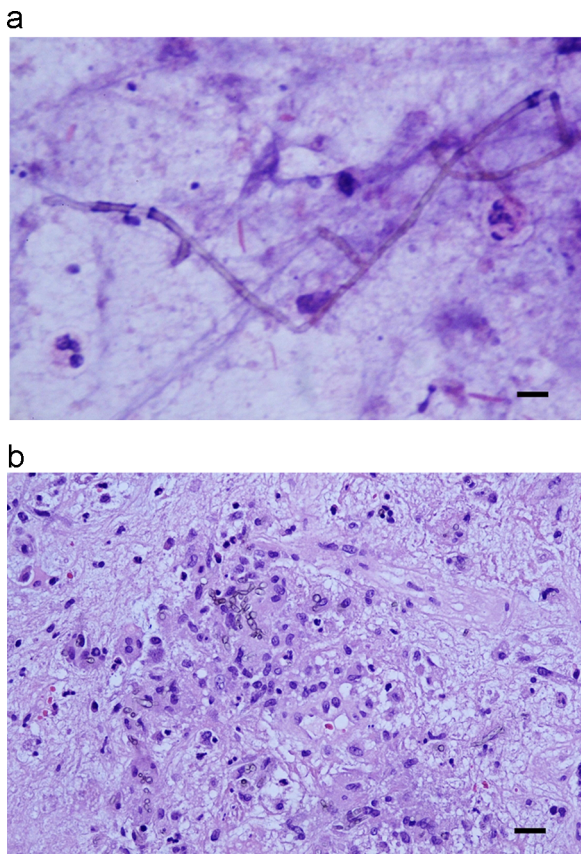


Fig. 2. a. Touch preparation of brain biopsy specimen showing pigmented hyphae. Hematoxylin-eosin stain. Scale bar represents 25 μ m. b. Pigmented hyphae in granulomas. Hematoxylin-eosin stain. Scale bar represents 25 μ m.

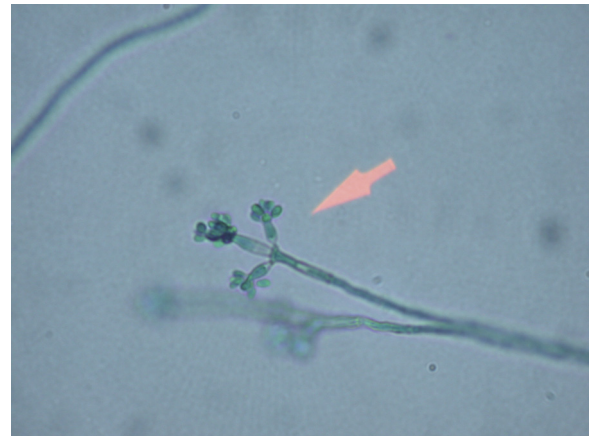


Fig. 3. Photograph of culture isolate (1000x magnification).

Table 1. Review of previously reported cases of *Fonsecaea monophora* cerebral phaeohyphomycosis.

Reference	Age (years)/Sex	Underlying Condition	Treatment	Outcome
Lucasse	10/Male	None	None	Death
Nobrega	28/Male	None	Ampho B; itra	Unrelated death
Surash	53/Male	Diabetes	Vori + 5-FC; itra	Survived
Takei	62/Female	Post-liver transplant	Vori	Survived
Koo	48/Female	Post-renal transplant	Surgery; ampho B + vori; vori	Survived
Doymaz	71/Female	Diabetes	Surgery; ampho B; vori	Survived
Present	54/Female	HIV	Ampho B; ampho B + vori	Death

Abbreviations: Ampho B: amphotericin B; Itra: itraconazole; Vori: voriconazole; 5-FC: flucytosine.

2/5 muscle strength in all muscle groups of her left arm and diminished deep tendon reflexes in that extremity. She did not exhibit any gaze preference. Babinski and Hoffman signs were not present, and the rest of her exam was unremarkable.

Initial laboratory testing revealed a leukocyte count of 3.1×10^3 cells/mm³ (normal $4.0 - 10.0 \times 10^3$ cells/mm³), hemoglobin of 12.7 g/dL (normal 11.5 – 15.5 g/dL), platelet count of 115×10^3 /mm³ (normal $150 - 400 \times 10^3$ /mm³), and creatinine of 0.96 mg/dl (normal 0.50 – 1.04 mg/dL). A non-contrasted computed tomography scan on day 0 revealed a right parietal lobe lesion. The lesion was better characterized on magnetic resonance imaging of the brain with contrast, which revealed a 2 cm ring enhancing lesion with surrounding vasogenic edema (Fig. 1).

She was initiated on levetiracetam 500 mg orally twice daily and empiric therapy for toxoplasmosis with the following regimen: pyrimethamine 200 mg oral loading dose followed by 50 mg orally daily, sulfadiazine 1 g orally 4 times a day, and leucovorin 20 mg orally daily. Additional laboratory data became available on day +1: *Toxoplasma gondii* IgG and serum cryptococcal antigen were negative. Urine was negative for *Histoplasma* antigen. In the few days following admission, her mental status continued to fluctuate. She developed progressive left sided hemiplegia.

Considering her progressive symptoms, nonreactive *Toxoplasma* serology, and claimed adherence to TMP-SMX prophylaxis, she underwent right parietal craniotomy with resection of the mass for pathologic examination and culture on day +7. She was started on dexamethasone 4 mg orally every 6 h in the post-operative period. A calcofluor white stain of the specimen

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