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Medical Imagery

Histoplasma capsulatum in the bone marrow of an HIV-infected patient

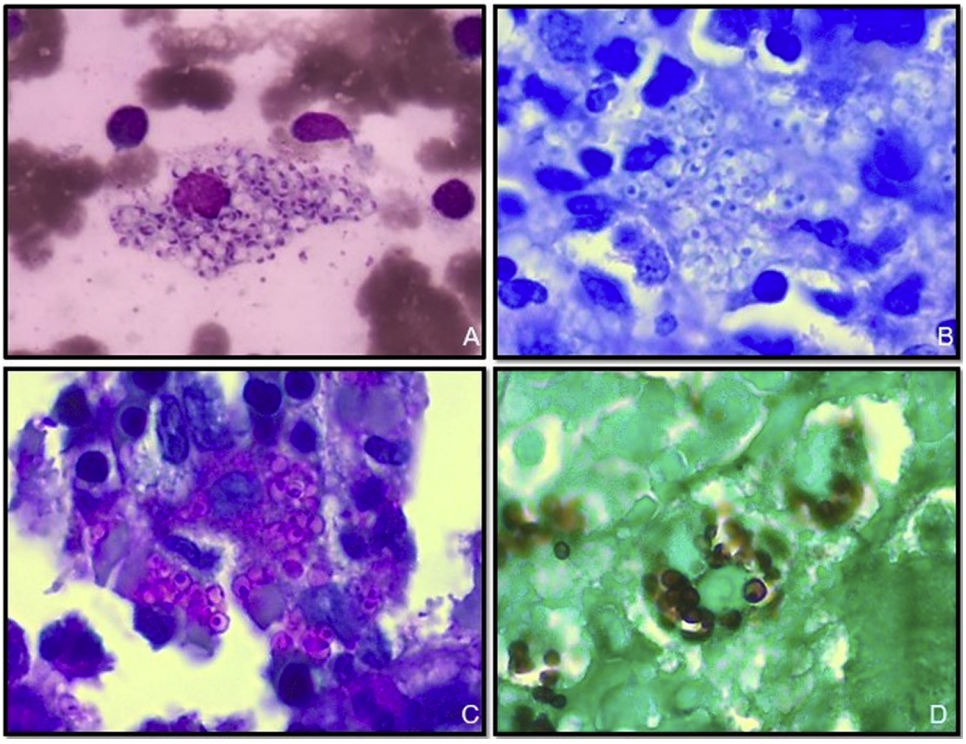

Figure 1. *Histoplasma capsulatum* within histiocytes seen on bone marrow biopsy staining: (A) Wright–Giemsa, (B) Giemsa, (C) periodic acid–Schiff, and (D) Gomori–Grocott.

A 41-year-old man was admitted to the emergency department with a 1-month history of weight loss, intermittent fever, and malaise. Generalized pallor, mild dehydration, and a temperature of 37.5 °C were found on physical examination. Initial blood workup revealed pancytopenia, elevated lactate dehydrogenase, and hypoalbuminemia. A fourth-generation HIV ELISA test was positive. His HIV-1 RNA viral load was 13 800 copies/ml and the CD4+ T-cell count was 3 cells/mm^3. Urine, blood, and cerebrospinal fluid cultures were without microbiological isolation.

Histopathological analysis of the bone marrow revealed oval-shaped yeast cells within histiocytes, some showing narrow-based budding (Figure 1). Histoplasma urine antigen was >25 ng/ml (normal limit <0.5 ng/ml). The diagnosis of *Histoplasma capsulatum* infection was made. Antifungal therapy with amphotericin B deoxycholate was administered for a 14-day period. Given the successful clinical response, therapy was switched to oral itraconazole 200 mg every 8 h for 3 days. The patient was subsequently discharged with itraconazole 200 mg every 12 h indefinitely. Highly active antiretroviral therapy was started a week later following an appointment at an HIV outpatient clinic.

The detection of *H. capsulatum* polysaccharide antigen in HIV-infected patients has a 95–100% sensitivity in urine and 92–100% sensitivity in serum (Connolly et al., 2007). False-positive antigen tests have been reported in cases of *Penicillium marneffei* infection, blastomycosis, and paracoccidioidomycosis (Hage et al., 2011).

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Bone marrow aspirate analyzed by an experienced operator can contribute to the differential diagnosis (Adenis et al., 2014). Identification by culture is the gold standard, with 85–90% sensitivity and 100% specificity (Hage et al., 2011; Couppie et al., 2006). The primary therapy recommended is liposomal amphotericin B; unfortunately its high cost makes it unaffordable in many developing countries. Amphotericin B deoxycholate is an accessible treatment option. Oral itraconazole is an alternative oral treatment option and should be prescribed for a 12-month period, or until the CD4+ T-cell count is >150 cells/mm^3 (Couppie et al., 2006; Wheat et al., 2007).

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Isaí Medina-Piñón[a,*]
Pedro Hernández-Rodríguez[a]
Silvia Estela Haces-Rodríguez[b]
Luis Arturo Acosta-Calderón[c]

[a]*Infectious Diseases Service, Hospital Universitario "Dr. José E. González" and Medical School, Universidad Autónoma de Nuevo León, Madero y Gonzalitos S/N, Monterrey NL, 64460, Mexico*

[b]*Department of Internal Medicine, Hospital Universitario "Dr. José E. González" and Medical School, Universidad Autónoma de Nuevo León, Madero y Gonzalitos S/N, Monterrey NL, 64460, Mexico*

[c]*Anatomic Pathology and Cytopathology Department, Hospital Universitario "Dr. José E. González" and Medical School, Universidad Autónoma de Nuevo León, Madero y Gonzalitos S/N, Monterrey NL, 64460, Mexico*

* Corresponding author at: Infectious Diseases Service, Hospital Universitario "Dr. José E. González" Universidad Autónoma de Nuevo León, Madero y Gonzalitos S/N, Monterrey NL, 64460 Mexico. Tel: +52 (81) 83485013.
E-mail address: isai_med@hotmail.com (I. Medina-Piñón).

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