

Primary Cutaneous Cryptococcosis in an Immunocompetent Iraq War Veteran

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PRACTICE POINTS

- Disseminated cryptococcosis is not commonly seen as a primary cutaneous infection in immunocompetent hosts.
- When encountered, primary cutaneous cryptococcosis (PCC) usually is associated with environments that predispose patients to skin wounds with simultaneous exposure to soil or vegetative debris contaminated with bird excreta.
- The variable presentation of PCC can cause clinical confusion and diagnostic delay; therefore, a high index of suspicion is required for timely diagnosis, particularly in US service members and travelers returning home from endemic areas.

To the Editor:

Disseminated cryptococcosis is a well-known opportunistic infection in patients with advanced human immunodeficiency virus (HIV) infection, but it is not frequently seen as a primary infection of the skin in immunocompetent hosts. We report a case of primary cutaneous cryptococcosis (PCC) of the lower legs in an immunocompetent Iraq War veteran.

A 28-year-old female service member presented to the dermatology clinic with progressively enlarging plaque-like lesions on the shins of 6 months' duration. The patient had resided and worked as a deployed soldier in the lower level of a bullet hole-laden, pigeon-infested observation tower in southern Iraq 9 months prior to the current presentation. During her 7-month deployment, she reported daily exposure to pigeon excreta on equipment and

frequently sustained superficial abrasions and lacerations to the legs due to the cramped and hazardous working environment. The patient noticed intensely pruritic, bug-bite-like papular lesions on the shins and calves 1 month after residing in the observation tower. She sought medical treatment and was given hydrocortisone cream 1% and calamine lotion for a presumed irritant dermatitis. Over the ensuing 3 months, the pruritus worsened, and the primary lesions coalesced into annular erythematous plaques (Figure).

After returning to the United States, the patient presented again for medical care and was given ketoconazole cream 1% for presumed tinea corporis, which resulted in no improvement. A dermatologic consultation and evaluation ensued with subsequent microbial workup showing no bacterial growth on wound culture and no fungal elements on a potassium hydroxide preparation. Hematoxylin and eosin, periodic acid-Schiff, and Grocott-Gomori methenamine-silver staining did not demonstrate any organisms. Tissue cultures for bacteria and acid-fast bacilli showed no growth. A fungal tissue culture ultimately confirmed the presence of *Cryptococcus neoformans*. A lumbar puncture showed no evidence of *Cryptococcus* on DNA probe testing. Serologic testing for HIV was negative, and brain magnetic resonance imaging showed no lesions. Sputum culture and staining showed no fungal elements, and a chest radiograph was normal. A diagnosis of PCC was made and therapy with oral fluconazole 200 mg twice daily was initiated, with the intention of completing a 6-month course. During the treatment, the pruritus resolved within 3 weeks and the lesions involuted over 3 months. From the time of onset of the lesions throughout treatment, the patient showed no

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Annular, confluent, erythematous plaques on the posterior right calf 5 months after onset of primary cutaneous cryptococcosis (A and B).

pulmonary, neurologic, or other systemic symptoms. She currently is healthy with no evidence of recurrence.

Primary cutaneous cryptococcosis mainly affects individuals with underlying immunosuppression, most commonly due to advanced HIV, prolonged treatment with immunosuppressive medications, or organ transplantation.¹ The most common route of inoculation is by inhalation of *Cryptococcus* spores with subsequent hematogenous dissemination.² Primary cutaneous cryptococcosis with skin lesions and no concomitant systemic involvement has rarely been reported, and when encountered, it usually is associated with environments that predispose patients to skin wounds with simultaneous exposure to soil or vegetative debris contaminated with bird excreta.³ Primary cutaneous cryptococcosis can present in a myriad of ways, including papules, nodules, plaques, and even necrotizing fasciitis-like skin lesions.^{4,5} This variable presentation often creates clinical confusion and diagnostic delay; therefore, a high index of suspicion is required for timely diagnosis.

Due to the worldwide deployment of US military service members, exotic cutaneous infectious diseases such as PCC may be encountered in dermatology practice. Prompt clinical and histologic diagnosis is imperative to assess for systemic disease and avoid cutaneous spread and morbidity in US service members and travelers returning home from the Middle East.

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