

Images in Clinical Tropical Medicine

Prototheca wickerhamii Cutaneous and Systemic Infections

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Abstract. *Prototheca wickerhamii*, an environmental alga, rarely causes human infections. We present a case of *Prototheca wickerhamii* cutaneous and systemic infections in an 85-year-old male with adrenal insufficiency. This organism was identified by morphological features and microbiological tests. The patient was successfully treated with ketoconazole.

An 85-year-old male presented with a fever lasting for 2 days. He had a history of adrenal insufficiency with prednisolone use for 2 years. Pruritic erythematous maculopapules on his lower extremities appeared 1 year ago. On examination, he was febrile, tachycardic, and tachypneic. Multiple erythematous plaques were accompanied by papules, shallow ulcers, and crusts on his four limbs (Figure 1). Empirical piperacillin/tazobactam therapy was initiated. Blood cultures obtained on admission were positive after 3 days of incubation. Gram stain revealed spherical Gram-positive organisms of various sizes (Figure 2). A subculture on a blood agar plate showed milky white yeast-like colonies (Figure 3). A lactophenol cotton blue wet mount preparation disclosed characteristic endosporulating sporangia (Figure 4). The organisms isolated from both blood and cutaneous wound cultures



FIGURE 1. Multiple erythematous plaques are accompanied by papules, shallow ulcers, and crusts on his right upper limb and left lower limb.

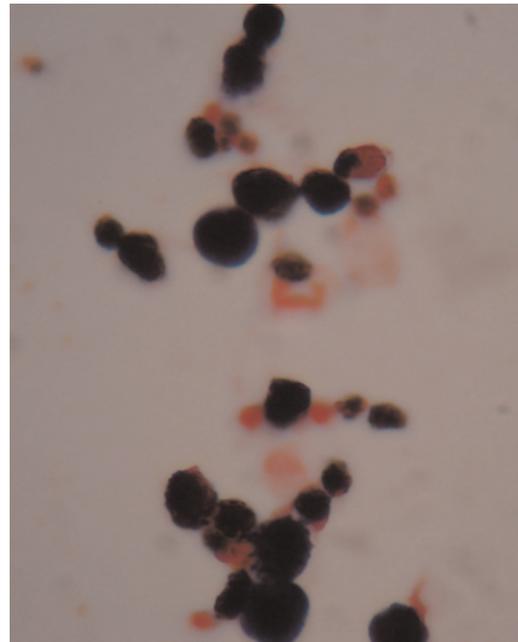


FIGURE 2. Gram stain of blood culture reveals spherical Gram-positive organisms of various sizes resembling yeast. Magnification, $\times 1,000$.



FIGURE 3. Milky white yeast-like colonies are observed on blood agar plate after incubation at 35°C for 3 days.

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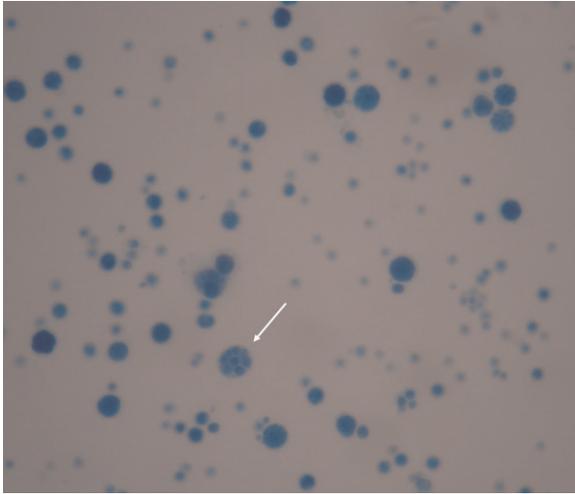


FIGURE 4. Wet-mount preparation with lactophenol cotton blue discloses spherical sporangia containing multiple endospores with symmetrical arrangement. Magnification, $\times 1,000$.

were identified as *Prototheca wickerhamii* using the API 20C identification system (bioMérieux, Marcy l'Etoile, France).

Ketoconazole therapy was started on hospital Day 6. His clinical condition and cutaneous lesions improved with ketoconazole for a total of 4 weeks.

Prototheca wickerhamii is an achlorophyllic alga and is ubiquitous in nature, which can cause human infections. The definite diagnosis usually depends on morphological identification of the organisms in wet slide preparations of cultures and/or direct identification in tissue specimens.¹

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REFERENCE

1. Lass-Flörl C, Mayr A, 2007. Human protothecosis. *Clin Microbiol Rev* 20: 230–242.