Candida dubliniensis Candidemia in Australia

Letter to the Editor: We read with interest the recent publications of Meis et al. (1) and Brandt et al. (2) describing the first reported cases of *Candida dubliniensis* fungemia from Europe and North America, respectively. To contribute to the growing recognition of the pathogenic role of this organism, we report the first case of *Candida dubliniensis* fungemia from Australia.

A 68-year-old Caucasian woman with a long history of alcohol abuse visited the emergency department with a 5-week history of progressive weakness. On physical examination she was afebrile, cachectic, and confused. Poor oral hygiene with gingivitis and tooth decay was noted, but no oral candidiasis was seen. Stigmata of chronic liver disease, including palmar erythema and spider nevi, were present. Neurologic examination showed generalized muscle weakness, mild cerebellar ataxia, and peripheral neuropathy.

Abnormal laboratory tests included hemoglobin 8.7 g/dL with macrocytosis, neutrophils 0.2 x 10^9/L, platelets 98 x 10^9/L, alkaline phosphatase 229 U/L, gamma glutamyltransferase 128 U/L, calcium 1.62 mmol/L, and albumin 2.4 g/dL. Coagulopathy was identified, with a prothrombin time of 23 seconds and an automated partial thromboplastin time of 44 seconds. The HIV 1 and 2 antibody test was negative.

The patient was admitted to the hospital, where she was rehydrated through a peripheral venous cannula, which was removed on day 5. Ticarcillin-clavulanic acid and gentamicin were administered for 4 days until her neutrophil count increased to >1.0 x 10^9/L. The cause of the transient neutropenia was not identified. On day 7, the patient was increasingly unwell, with confusion, postural hypotension, and a temperature of 38°C. Yeasts were isolated from a blood culture taken on day 9. Oral and vaginal cultures collected on day 10 did not grow yeast. Treatment with intravenous fluconazole (400 mg/day) was begun. The patient's fever resolved within 48 hours, and her clinical condition improved gradually. Fluconazole was ended on day 37. There was no evidence of metastatic candidemia.

Positive cultures were detected at 31 hours by the BacTAlert (Organon Teknika Corp., Durham, NC). blood culture system, and yeast were present on Gram stain. Subculture on ChromAgar (ChromAgar Candida, Paris, France) grew apple-green colonies, which were germ tube positive. The Analytical Profile Index 20C profile at 48 and 72 hours was 6 1 5 2 0 1 4 (*C. dubliniensis* - 99.9% certainty) and the API 32C profile was 7 1 4 2 1 4 0 0 1 5, which matches the reported profile for *C. dubliniensis* (3). The isolate grew well at 35°C but did not grow at 42°C. Identification was confirmed by Professor T. Patterson, University of Texas (San Antonio) by Ca3 probe, contour clamped homogeneous electric field (CHEF) karyotype, and CHEF pulsed-field gel electrophoresis. The fluconazole MIC was <0.125 mg/mL by the National Committee for Clinical Laboratory Standards broth microdilution method (4).

The initial description by Meis et al. (1) of *C. dubliniensis* fungemia included three patients with chemotherapy-induced immunosuppression and hematologic malignancy. The subsequent publication of Brandt et al. (2) broadens the spectrum of susceptible patients, with two of four patients having end-stage liver disease and one with HIV infection, although the CD4+ count was in the normal range. Our patient also had advanced liver disease but had few other recognizable risk factors for candidemia, with transient neutropenia and a short course of broad-spectrum antimicrobial therapy the only apparent predisposing factors.

Identification of *C. dubliniensis* as the causative pathogen in cases of candida fungemia is important, as concerns have been expressed that resistance may develop rapidly in oral isolates of *C. dubliniensis* in HIV-infected patients treated with fluconazole (5). However, all eight bloodstream isolates reported to date have been susceptible to fluconazole, and treatment with this agent was initiated in every patient. Our patient had a rapid and complete clinical response to fluconazole therapy. Fluconazole appears to be appropriate empiric therapy in patients with no prior azole exposure. However, susceptibility testing should be performed on each isolate to confirm azole sensitivity.

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References

1. Meis JFGM, Ruhnke M, DePauw BE, Odds FC, Siegert W, Verweij PE. *Candida dubliniensis* candidemia in patients with chemotherapy-induced neutropenia and bone marrow transplantation. Emerg Infect Dis 1999;5:150-3.
2. Brandt ME, Harrison LH, Pass M, Sofair AN, Huie S, Li R, et al. *Candida dubliniensis* fungemia: the first four cases in North America. Emerg Infect Dis 2000;6:46-9.
3. Sullivan DJ, Westerneng TJ, Haynes KA, Bennett DE, Coleman DC. *Candida dublinensis* sp. nov.: phenotypic and molecular characterisation of a novel species associated with oral candidosis in HIV-infected individuals. Microbiology 1995;141:1507-152.
4. National Committee for Clinical Laboratory Standards. Reference method for broth dilution antifungal susceptibility testing of yeasts. Approved standard M27-A, vol. 17, no. 9. Wayne (PA): The Committee; 1997.
5. Moran GP, Sullivan DJ, Henman MC, McCreary CE, Harrington BJ, Shanley DB, et al. Antifungal drug susceptibilities of oral *Candida dubliniensis* isolates from human immunodeficiency virus (HIV)-infected and non-HIV-infected subjects and generation of stable fluconazole-resistant derivatives in vitro. Antimicrob Agents Chemother 1997;41:616-23.

Characterization of a Human Granulocytic Ehrlichiosis-like Agent from *Ixodes scapularis*, Ontario, Canada

To the Editor: Human granulocytic ehrlichiosis (HGE), a tick-associated febrile illness first described in Minnesota and Wisconsin in 1994 (1), has recently been reported in a number of European countries (2,3). Molecular and serologic characterization has shown that the HGE agent is closely related or identical to *Ehrlichia equi* and *E. phagocytophila* (4,5). In the United States, human cases of HGE overlap the range of the blacklegged tick, *Ixodes scapularis*, and the detection of HGE agent DNA in this species