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CASE REPORTS

Recurrent Self-Limited Fungemia Caused by *Yarrowia lipolytica* in a Patient with Acute Myelogenous Leukemia

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***Yarrowia lipolytica* is a weakly pathogenic yeast that is rarely isolated from the blood. We observed transient recurrent catheter-related fungemia attributable to this organism in a leukemic patient. The fungemia and accompanying fever subsided spontaneously. The data suggest that it might be possible to withhold specific treatment for *Y. lipolytica* fungemia even in an immunocompromised patient.**

CASE REPORT

A 15-year-old girl was found to have acute myelogenous leukemia (AML, M1) in December 1998. Induction chemotherapy with cytosine arabinoside, idarubicin, and 6-thioguanine was initiated. After two courses of induction chemotherapy, complete remission was obtained. In October 1999, during admission for the 7th cycle of maintenance chemotherapy, two episodes of fever developed. A central venous catheter had been in place at that time. Blood culture was performed with the VITAL automatic system (BioMerieux, Marcy-l'Etoile, France), and anticancer chemotherapy was stopped. Flucloxacillin and isepamicin were administered empirically. Later, a yeast-like fungus was discovered and identified as *Yarrowia lipolytica* by the Vitek YBC (BioMerieux-Vitek, Hazelwood, Mo.) with bionumber 000402511 (99%) and by the API 20C commercial system, version 2.2 (BioMerieux), with code number 6002000 (92%). At the time of identification of the yeast, the fever had subsided spontaneously. Anticancer chemotherapy was continued, and the patient was discharged.

After an uneventful eighth cycle of chemotherapy, the patient was readmitted to the hospital because of neutropenia (300 white blood cells/μl) and mild fever. Bacteremia and an abscess of the left forearm caused by *Stenotrophomonas maltophilia* were diagnosed by cultures and treated by appropriate antibiotics and incision and drainage of the abscess. *Stenotrophomonas* was no longer isolated, and neutropenia and fever improved. A mild fever developed 3 weeks after admission, and a blood culture was submitted. The fever subsided without specific antibacterial or antifungal therapy, and the patient was discharged. *Y. lipolytica* was isolated from blood after the patient's discharge. The ninth cycle of maintenance chemotherapy was completed uneventfully.

The patient was admitted in January 2000 complaining of high fever (39.5°C). Blood was drawn for culture. Grasin (granulocyte colony-stimulating factor) was started because of severe neutropenia. Isepamicin and ampicillin were administered empirically. Her body temperature slowly decreased to baseline, and she was discharged. Again, *Y. lipolytica* was isolated. At the time of the next admission, the central venous catheter was removed because of her recurrent fungemia even though fever was not present, and *Y. lipolytica* was no longer isolated from her blood.

Discussion. *Y. lipolytica*, also known as *Candida lipolytica*, has been considered one of the emerging opportunistic yeast pathogens (5). It has rarely been isolated from patients with fungemia (3, 4, 6), and it was not included in the long list in Hazen's careful 1995 review of emerging yeast pathogens (2).

We observed a leukemic patient from whose blood *Y. lipolytica* was repeatedly isolated during febrile episodes. The fever subsided without antifungal therapy. We report this case to expand the understanding of *Y. lipolytica* fungemia. In the present case, the patient had experienced three episodes of self-limited fever because of *Y. lipolytica* fungemia that were probably associated with her central venous catheter. These findings are consistent with two previous reports (4, 6). According to Wehrspann and Fullbrandt, it seems that the virulence of *Y. lipolytica* is weak. Neither deep visceral infections nor profound febrile reactions developed in the experimental cases. In the present case, fever subsided without antifungal therapy, even though the host was severely neutropenic. Another characteristic of *Y. lipolytica* fungemia is an association with vascular catheters. The patient reported by Wehrspann and Fullbrandt (6) improved after removal of the infected venous catheter. In a 54-year-old male patient who had undergone cholecystectomy 1 month previously, fever persisted for a week and intravenous catheter-associated thrombophlebitis and accompanying fungemia were found. The fungemia resolved upon removal of the catheter, with no antifungal therapy being administered (4). Recently, a nosocomial outbreak of *Y. lipolytica* fungemia in immunocompromised pediatric patients was reported by Shin et al (3). In this outbreak, all but one of the four cases were related to central venous catheters. Upon treatment with amphotericin B, two acute myelogenous

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leukemic patients were able to keep their Hickman catheters during the subsequent chemotherapy cycles and until after allogenic bone marrow transplantation. In the present case *Y. lipolytica* fungemia was also absent after removal of the central venous line.

These two points raise confusion about dealing with the fungemic state in a patient. It has generally been accepted that there is at least a 40% mortality rate associated with candidemia (1). Therefore, most patients with vascular catheter-associated candidemia should be treated with a course of amphotericin B, and, when possible, the vascular catheter should be removed because of the risks of subsequent deep visceral infection (4). On the other hand, none of the reported cases of *Y. lipolytica* fungemia, including the present one, was complicated by a deep visceral infection. Furthermore, fever subsided spontaneously even in our immunocompromised patient. Given these observations, we think that *Y. lipolytica* fungemia does not cause severe or long-sustained symptoms requiring specific antifungal therapy. Thus, we suggest that *Y. lipolytica* is a weak pathogen and that vascular catheter-associated fungemia caused by this organism does not need to be managed in the same way as that caused by other *Candida* spp. Specifically, antifungal therapy or removal of the vascular catheter is not necessary, although the yeast may colonize in the catheter and be seeded into the bloodstream, resulting in transient and recurrent fever. However, most physicians have little experience with *Y. lipolytica* fungemia. So when a yeast-like organism is found in a Gram stain of the blood culture bottles or the yeast is identified as *Y. lipolytica*, the physician might start antifungal therapy and remove the catheter suspected of being the source even if the fungemic symptoms are no longer present. Actually, it is believed that the central venous catheter was unnecessarily removed in the present case. That is why the result should be urgently reported to the physician in charge, with communication of the weak pathogenicity of this organism and the association with catheter-related fungemia, when *Y. lipolytica* is cultured from the blood. Fortunately, it is simple to identify a yeast isolate as *Y. lipolytica* within a couple of days, because identification kits such as the Vitek YBC and API 20C are available in many microbiology laboratories. By these strategies, unnecessary antifungal chemotherapy or removal of central venous catheters can be avoided. This also helps pediatric patients, especially leukemic patients receiving chemotherapy, for whom catheter removal is particularly undesirable, as it is difficult to find new vessels.

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