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LETTER TO THE EDITOR

Breakthrough *Trichosporon asahii* Fungemia During Caspofungin Therapy

Trichosporon asahii fungemia is a rare opportunistic infection. The predisposing factors for infection with this pathogen in immunocompromised patients include malignancy, acquired immunodeficiency syndrome, organ transplantation, corticosteroid therapy, and hemodialysis.[1–4] We report a case of a patient who has an underlying disease of psoriasis vulgaris with steroid therapy, chronic obstructive pulmonary disease, pneumonia with respiratory failure, and renal failure with hemodialysis. He suffered from breakthrough *T. asahii* fungemia while receiving caspofungin therapy for candidemia, but he was successfully treated with salvage therapy with voriconazole.

This 66-year-old male patient has had psoriasis vulgaris for more than 30 years. He received topical skin ointment and oral steroid therapy at a dermatologic clinic. Unfortunately, he suffered from a car accident with multiple traumatic injuries, and hemorrhagic shock with hypoxic encephalopathy. Then he received tracheostomy with ventilator support. This admission was for treatment of pneumonia, psoriasis vulgaris with acute exacerbation, and acute renal failure. He received broad-spectrum antibiotics (piperacillin/tazobactam, meropenem, levofloxacin, etc.) for ventilator-associated pneumonia (*Psudomonas aeruginosa*, *Acinetobcter baumannii*, *Stenotrophomonas maltophiliae*). On the 30th admission day, he contracted nosocomial urinary tract infection; both his blood and urine cultures showed growth of *Candida glabrata*, for which he received caspofungin 75 mg stat and 50 mg every day intravenously. During a 14-day course of caspofungin therapy, his fever flared up again and a complete blood count revealed that he had leukocytosis. The findings from the blood culture yielded *T. asahii* (Figure 1A), and he was eventually diagnosed to have breakthrough fungemia. He received voriconazole (600 mg, intravenously) every day as a salvage therapy. His clinical condition became stable, and his blood culture was sterile after a 4-week antifungal therapy with voriconazole.

T. asahii is an emerging fungal pathogen in immunocompromised patients,[1–4] with a high risk of mortality even under antifungal treatment. *T. asahii* is a non-*Candida* yeast-like microorganism (Figure 1B), which has been isolated from blood, skin, and urine specimens.[1–3,5] Clinical manifestations of *T. asahii* infection include fungemia, and papulonodular or pustular skin findings. *Trichosporon*, *Cryptococcus*, and *Rhodotorula* species are less susceptible to echinocandin agents (caspofungin, micafungin, and anidulafungin).[1–5] Regarding the mechanism of action, echinocandins act on the fungal cell wall, because the cell walls of zygomycetes and cryptococci lack 1,3-β-D glucan, which explains the poor activity of echinocandins for these fungal infections.[3–5] Only a few patients with invasive trichosporonosis during the use of echinocandins have been reported.[1–3]

Voriconazole is a new triazole derivative that has a good activity *in vitro* against *Aspergillus* spp., *Candida* spp., and *Trichosporon* spp. Voriconazole is more potent than amphotericin B for trichosporonosis.[1,5] Our patient contracted breakthrough *T. asahii* fungal infection during caspofungin therapy for *C. glabrata*, and he was successfully treated with salvage therapy with voriconazole. The combination therapy of echinocandins and azoles is an alternative choice because different drugs are acting synergistically on different receptor sites. Modern therapeutic modalities and the

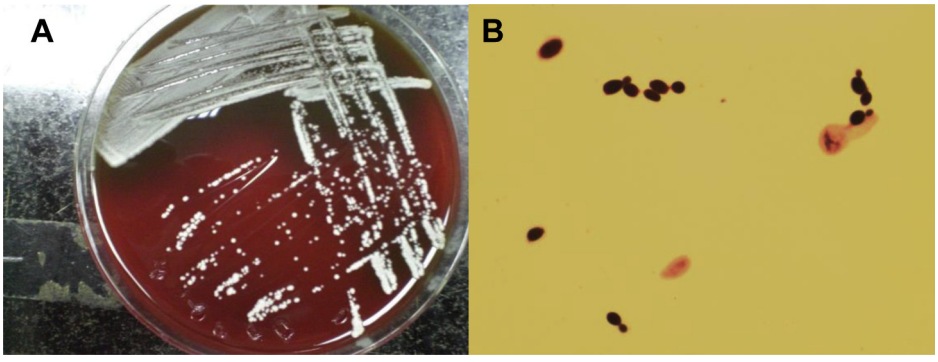

Figure 1 (A) The blood agar plate agar culture shows *Trichosporon asahii* colonies with a creamy, white color. (B) The Gram stain morphology of *T. asahii* reveals yeast-like microorganisms.

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invasive procedure used in critically ill patients pose an increased risk of fungemia.[1,4,5] Consequently, fungal infection has emerged as a major clinical issue.[5] The risk of *T. asahii* fungal infections should not be overlooked in patients with risk factors and those receiving echinocandins for a specific therapy.

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