Trichosporon inkin causing invasive infection with multiple skin abscesses in a renal transplant patient successfully treated with voriconazole

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INTRODUCTION

Trichosporon species are basidiomycetous yeast-like anamorphic organisms that are widely distributed in nature and found predominantly in tropical and temperate areas. In humans, this fungal species is occasionally part of the commensal flora of skin and mucosa, and can be responsible for superficial skin and hair infections (white piedra) or, more rarely, invasive infections in immunocompromised hosts.[1,2] Cutaneous lesions are commonly described in disseminated trichosporonosis.[1] We report the first, to the best of our knowledge, case of *Trichosporon inkin* invasive disseminated infection in a renal transplant recipient who presented with multiple subcutaneous abscesses successfully treated with voriconazole.

OBSERVATION

A 60-year-old woman presented for multiple inflammatory nodules on the limbs and the trunk evolving for 3 weeks. Most were fluctuant with spontaneous fistulization. The patient had diabetes mellitus and high blood pressure and had undergone a kidney transplant for diabetic nephropathy 10 months earlier. Her antirejection therapy comprised prednisolone, 15 mg/d, tacrolimus, 15 mg/d, and mycophenolate mofetil, 1500 mg/d. She reported recurrent cutaneous abscesses requiring surgical drainage since transplantation, with no pathogen identified. The lesions had not improved with empiric antibiotic therapy of amoxicillin-clavulanic acid. The patient was admitted to the hospital because of multiple abscesses, painful swelling of the left thigh (Fig 1, *A* and *B*), fever, and chills. Computed tomography scan found a voluminous (17 × 9 × 9 cm) walled-off collection of the left thigh and subcutaneous, transplant, and pericardial fat abscesses (Fig 1, *C*). There was no ocular or endocardial involvement. White blood cell count was 7570/μL, C-reactive protein was 125 mg/L, and urinary analysis and blood cultures were negative.

Direct mycologic examination of abscess contents with 10% potassium hydroxide found yeastlike cells, pseudomycelium, and true mycelium (Fig 1, *D*). *T inkin* was isolated from culture. Antifungal susceptibility testing according to the EUCAST method[3] found that the strain was susceptible to amphotericin B (minimum inhibitory concentrations [MIC], 0.25 mg/L), fluconazole (MIC, 0.25 mg/L), voriconazole (MIC, $\leq$0.016 mg/L), and posaconazole (MIC, 0.03 mg/L) and resistant to caspofungin (MIC, 1 mg/L), micafungin (MIC, 2 mg/L), and 5-fluorocytosine (MIC, $\geq$64 mg/L). Voriconazole was initiated (intravenous loading dose of 6 mg/kg every 12 hours at day 1 and then 4 mg/kg every 12 hours intravenously). Tapering of immunosuppressive regimen was undertaken

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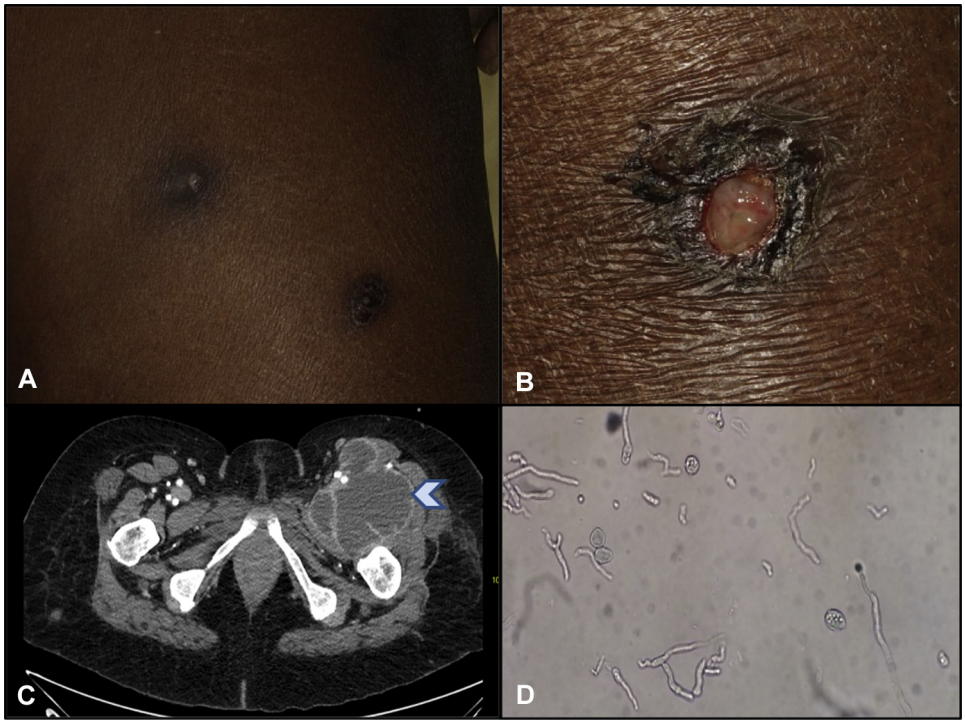

Fig 1. Skin lesions of disseminated trichosporonosis. **A**, subcutaneous abscesses of the right thigh. **B**, Pretibial abscess after fistulization. **C**, Computer-Tomography Scanner views show deep-seated *T inkin* collection of the anterior left tight muscular compartment (dart). **D**, Direct examination of *Trichosporon* with potassium hydroxide: yeastlike cells and pseudomycelium.

(tacrolimus and prednisolone dosing was decreased and mycophenolate mofetil was stopped). The thigh abscess was surgically drained, and surgical samples yielded the same strain of *T inkin*. Voriconazole treatment led to a rapid improvement with reduction in skin lesions, resolution of systemic signs, and inflammatory parameters. Renal function was preserved. The patient was switched to oral voriconazole (200 mg twice daily) after 1 month of intravenous therapy. Five months later, whole-body computed tomography scan showed a complete resolution of subcutaneous and deep-seated lesions.

DISCUSSION

Disseminated infections caused by *Trichosporon* are uncommon, affecting immunocompromised hosts, especially those with prolonged neutropenia.[1,2] In patients with hematologic malignancies, *Trichosporon* is the second most common disseminated yeast infection after *Candida*.[2] More than 200 cases of invasive *Trichosporon* infections have been reported in the literature but only 15 cases in solid organ recipients.[4,5] Autoimmune diseases, solid tumors, AIDS, severe organ failure, extensive burns, invasive procedures, hospitalization in intensive care units, and preterm newborns have been reported as risk factors for *Trichosporon* infection.[1,2,4]

A complete revised taxonomy of the genus was adopted in 1994.[2] Since then *Trichosporon asahii* is by far the most frequently reported agent of disseminated trichosporonosis. *T inkin* is primarily associated with superficial infections but can also be responsible for invasive infections, mostly in patients with hematologic malignancies.[2,4] Only 2 cases of disseminated trichosporonosis caused by *T inkin* have been reported in patients with solid organ transplantation (lung and heart transplantations) but never in kidney transplant recipients.[6,7] *Trichosporon* infections mostly occurred within a year of transplantation. After fungemia caused by *Trichosporon*, skin and lung are the most frequently involved locations, described in 30% to 50% of cases.[1,4,8] Skin lesions present mostly as erythematous or purpuric papules and nodules with central necrosis or ulceration,[8] localized on the trunk, face, or limbs. Rarely, atypical forms have been described,[9] such as multiple subcutaneous abscesses[6] or hemorrhagic ulcerative nodules.[10]

Disseminated trichosporonosis has a very poor prognosis, with a mortality rate of 42% to 87.5%.[2,4,5] Little data about in vitro and in vivo activity of antifungal drugs against *Trichosporon* are available and therapeutic management remains challenging. Triazoles seem to have a better antifungal activity

than amphotericin B, whereas echinocandins are not effective. Fluconazole has less in vitro and in vivo efficacy than voriconazole, posaconazole, or isavuconazole.[2,4,5]

This case suggests that prolonged treatment with voriconazole in association with a tapering of immunosuppressive therapy may be a safe and effective treatment of invasive *T inkin* infection in the setting of renal transplantation.

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