A rare case of postsurgical nosocomial infection of Conjunctiva by *Trichosporon* species.

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Submission: 24.10.2022 Acceptance: 23.12.2022 Publication: 31.12.2022

https://www.doi.org/10.56136/BVMJ/2022_00099

Introduction

Trichosporon species are ubiquitous basidiomycete yeast-like fungi that are often part of the human microbiota and responsible for conditions like superficial skin infection (white piedra), allergic pneumonitis, and life-threatening fungal invasive infections in immunocompromised or critically ill patients receiving antibiotics[1,2]. *Trichosporon* invasive infections are considered the second most common cause of fungemia in patients with hematological malignancies[3,4]. In recent years, this genus has been recognized as an emergent pathogen. But therapeutic management of those infections may be challenging, since *Trichosporon* spp. exhibits intrinsic resistance to the Echinocandins and has poor susceptibility to the polyenes[2]. It can have a high mortality rate even with the treatment of Amphotericin B treatment[5].

Trichosporonosis is rare in immunocompetent individuals. We report a case of trichosporonosis by *Trichosporon asahii* in an immunocompetent individual to alert the clinicians to avoid life-threatening complications of trichosporonosis.

Patient History

A 28-year-old male, working as a blacksmith presented to the emergency department with a diminution of vision, a burning sensation, and watering in his left eye for two days. The patient gave a history of burn injury to the left eye, which was three days old. After preliminary examination, the patient was admitted and started on an empirical course of antibiotics, and an initial plan for grafting was formulated. The patient underwent an amniotic membrane graft as part of his initial management plan. The site of surgery took up the graft well, and the wound was healthy with no signs of infection. After the initial grafting, a second membrane grafting surgery was planned in conjunction with a reconstruction of the upper and lower eyelid with a flap. The attending physician noted discharge from the surgical site one week after the reconstruction surgery. The patient also had itching, periorbital redness along with ocular discharge. The wound was not healing and did not look healthy. The ophthalmologist suspected endophthalmitis (Figure 1). The discharge was collected using a swab and was sent for microbiological investigations to the department of Microbiology.

Figure 1: Infected eye with discharge

The sample was processed for gram staining and inoculated for culture. On Gram stain, Gram-positive yeast-like structures were seen. The first-day reading of the inoculated Blood Agar and Sabouraud Dextrose Agar (SDA) culture plate did not yield any visible growth. After 48 hours of incubation, dry-off white, medium-sized circular colonies were noted in the blood agar plate. Gram staining of the colony revealed Gram-positive barrel shape yeast cells (Figure 2). The finding was communicated to the treating ophthalmologist, and a repeat sample was requested to rule out the possibility of potential contamination. A repeat specimen was received the next day, and similar growth was also noted in the second sample. Vitek 2 Compact (Biomerux, France) automation system was employed to identify the isolate. The report was intimated to the treating doctor, and the choice of treatment (Ketoconazole/voriconazole) was advised. But the patient was not willing for further management, and he took discharge against medical advice.

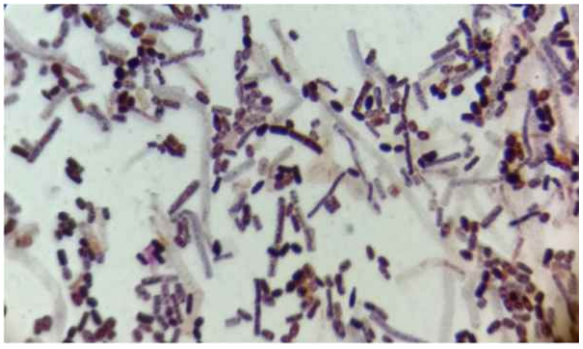

Figure 2: Gram stain of *Trichosporon asahii*

Discussion

Trichosporon spp. is a ubiquitous yeast that inhabit the soil, but may also be part of normal human skin and respiratory tract flora[6]. *Trichosporon* spp., formerly known as *Trichosporon beigelii*[7], includes several genetically distinct species. *Trichosporon* species are increasingly reported and considered to be emerging pathogenic fungi among immunosuppressed patients. The fungus can cause invasive disease at one site or in a disseminated form in which the main targets are the lungs, kidneys, skin, and eyes. Though rare, *T. asahii* can cause invasive infections even in immunocompetent individuals at various sites. In these cases, the infection is associated either with the presence of a foreign body, such as a prosthetic heart valve, an indwelling catheter, or intravenous drug abuse. Other factors like broad-spectrum antibiotic treatment and breaks in the mucosal barrier can enhance mucosal colonization and subsequent invasion of *Trichosporon* species[8]. *Candida* species can identify on the base of growth on CHROMagar (Chromogenic agar)[9], while *Trichosporon* species cannot. It gives dry, light blue colonies on the CHROMagar while dry white colonies on the SDA agar.

T. asahii is also among the *Trichosporon* species frequently observed in cases of immunocompromised patients[10,11] and can cause fatal systemic mycosis with mortality rates approaching 80%[12,13]. A case of postsurgical endophthalmitis caused by *T. beigelii* in an immunocompetent patient was reported by Spirm et al. with systemic and ocular sarcoidosis[14]. Similarly, our patient did not have any underlying immunocompromised condition, but had a history of burn injury to the eye.

In present case report, anti-fungal susceptibility was not performed for *Trichosporon* species because breakpoints have not been described in Clinical and Laboratory Standards Institute (CLSI) guidelines. Azoles (Ketoconazole, voriconazole) are the preferred treatment for *Trichosporon* spp. and were advised. In many studies of *Trichosporon* spp. antifungal susceptibility, breakpoints of *Candida* spp. have been used for interpretation, and no defined cutoff values or breakpoints have been documented in CLSI and The European Committee on Antimicrobial Susceptibility Testing (EUCAST). Those studies perform the anti-fungal susceptibility testing using old CLSI guidelines 2008. We advise the common antifungal drug for treatment[15-18]. More clinical outcome studies using antifungal treatment outcomes should be done. This will help define the necessary breakpoints, helping the treating physicians' better target therapeutic options.

Limitation

The patient took discharge against medical advice due to his personal reason. He did not return for further follow-up and hence treatment outcome of the present case report was not known. Yet, this case report provides insights to physicians while treating an infected wound.

Conclusion

Most of the time, infected wounds can get over-treated for bacterial infection, but in cases of high index of clinical suspicion, a careful microbiological evaluation for fungal pathogens, even in immunocompetent individuals, should be done for detection of fungal etiology and starting antifungal in early stage. It may help immensely in the prevention of mortality and morbidity and improve the outcome of patients.

Ethical Considerations

Ethical approval was waived off by the Institutional ethical sub-committee for case reports. Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflict of Interest: Nil

Source of Support: Nil

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