A teenage with Pythium keratitis—a case report

Introduction: Pythium is an oomycete found in an aquatic environment and is considered to be a plant pathogen. However, it is able to cause ophthalmic and systemic infections in humans and animals. Keratitis or corneal ulceration caused by Pythium species closely resembles fungal keratitis and is known as a pseudo-fungal infection. It is associated with high ocular mortality owing to the difficulty in diagnosis and treatment.

Case Report: A 13-year-old adolescent from rural Sri Lanka presented with pain and tearing from the left eye for 5 weeks’ duration. He was previously healthy and had no history of trauma to the eye. He had fished in a lake recently. On examination, visual acuity was only perception of light and there was a corneal ulcer in the left eye. Since the ulcer had a poor response to medical therapy, penetrating keratoplasty was performed twice with failure of the graft.

Dissected tissue was submitted for laboratory analysis. The organism was identified as Pythium species in the Mycology Reference Laboratory. Repeat intracameral and intrastromal antifungal and topical and systemic antibiotic treatment resulted in a quiet, vacuolated eye with the retained perception of light.

Discussion: Pythium keratitis carries a significant challenge in laboratory diagnosis due to its mucoid-like appearance. Normal PCR has higher accuracy than standard culture identification. Not being a true fungus, Pythium lacks ergosterol. Therefore, it is usually resistant to many commonly used antifungal agents which target ergosterol. High degree of suspicion is important for accurate identification in the laboratory and the clinicians should be informed for early, aggressive surgical intervention along with antimicrobial therapy in order to achieve a satisfactory outcome.

Public health treatment due to rise in Candida auris candidemia infection

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Introduction: Isolation of Candida spp. from a blood sample in patients is known as candidemia. Candida albicans is the most common causative agent of candidemia globally while C. tropicalis is the most common causative agent in India. Candida parapsilosis complex, C. glabrata, and C. krusei are the other three common causative agents of candidemia. Candida auris was described in 2009 and is a public health treatment. It is multi-drug-resistant and causes localized hospital outbreaks.

Objective: To determine the fungal profile of candidemia in a tertiary care hospital.

Methods: Informed patient consent was taken. All patients admitted to the Jawaharlal Institute of Postgraduate Medical Education & Research (JIPMER), Puducherry, India from January 2020 to January 2021, whose blood culture samples yielded yeast were included in the study. The patient’s demographic details were recorded. Yeast isolates were identified by Matrix-Assisted Laser Desorption/Ionization-Time of Flight Mass Spectrometry (MALDI-TOF MS) as per the manufacturer’s instructions. The antifungal susceptibility testing (AST) was performed by microbroth dilution method for fluconazole, voriconazole, amphotericin B, and caspofungin as per Clinical and Laboratory Standards Institute (CLSI) M27 and interpreted by CLSI M19 and M07 document. AST of C. auris was interpreted as per Centers for Disease Control and Prevention (CDC) criteria.

Results: A total of 248 blood culture samples yielded yeast cells during the study period. Approximately 45% of samples were obtained from male patients, while 55% were obtained from female patients. Most of the patients were between 41 to 60 years or under 10 years of age. A total of 12/240 (15.8%) were diabetic, and 30 (12.5%) were positive for severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). Candida tropicalis (34.7%) was the most common causative agent. It was followed by C. parapsilosis complex (20.2%), Candida albicans (16.3%), C. glabrata (13.3%), C. krusei (6.5%), and other C. spp. (3.9%). Candida auris is no longer observed as one of the top five agents of candidemia and it is replaced by C. auris. The rise of candidemia due to C. auris is a cause of concern, and its prevalence is observed more than that of C. albicans in our tertiary care hospital. The antifungal resistant pattern of the top four candida isolates is depicted in Figure 1. The antifungal resistance was maximum in C. auris isolates, followed by C. parapsilosis complex isolates. A total of 12.2% of C. auris isolates were resistant to amphotericin B, and azoles and 4.9% of C. auris isolates were multidrug-resistant.

Conclusion: Candida tropicalis was the most common causative agent of candidemia. But the increased prevalence of C. auris over C. albicans is a cause of concern as 4.9% of C. auris isolates were multidrug-resistant.