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Invasive Trichosporonosis: an emerging blood stream fungal infection in immunocompromised patients

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Introduction: Trichosporon is a genus of yeast-like fungi. It is perhaps most widely known as the cause of white piedra, a benign superficial infection seen in immunocompetent individuals in tropical and subtropical regions. However, the incidence of invasive trichosporonosis has increased in immunocompromised patients, most notably those with hematologic malignancies. Invasive infections due to Trichosporon species are considered rare, so far, but during the past two decades, they have emerged as important opportunistic pathogens in immunocompromised individuals.

Methods: All patients with blood culture positive for Trichosporon species from January 2020 to August 2020 at Woodlands Multispeciality Hospital, Kolkata, India were evaluated. Its etio-susceptibility testing was performed using the reference broth microdilution method. Clinical correlation was done with the positive culture report and patient’s clinical condition to rule out colonization/conamination.

Results: A total of 12 patients were found to have blood culture positive for Trichosporon species among which five were true infections. Various predisposing factors previously reported to be associated with invasive trichosporonosis were also considered in the present study. All the cases were associated with prior central venous catheterization and central lines requiring dialysis via hemodialysis catheter or use of central venous catheter or chemoport. Underlying malignancy was found in all patients. Susceptibility testing was performed for 5-FC, amphotericin B, and Itraconazole. Among them, 6 patients had good in vitro activity, whereas amphotericin B had higher MIC values. The overall mortality rate was 41.67.

Conclusion: Trichosporon infection is a rare, life-threatening infection in immunocompromised patients. Our study highlights the association of central venous catheter and hemodialysis catheter with Trichosporon fungemia and its high mortality. Therefore, strict infection control measures while handling these devices are recommended to prevent these infections. Species identification and susceptibility testing are to be attempted for all relevant clinical isolates in view of deontable resistance to certain antifungal drugs. Echinocandins are not effective in the treatment of trichosporon infection. Amphotericin B should also be avoided. Aspergillus, in particular, voriconazole is the drug of choice.

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Healthy adult with arm swelling and new onset burning pain

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Introduction: Cladosporium chlamydosporium is a dermatophyte fungal agent that is known to produce a variety of clinical manifestations such as cutaneous and subcutaneous infection, cellulitis, pulmonary fungal infection, and rarely central nervous system infection. Some cases of subcutaneous mycosis have been reported from Asia, India. We are describing a similar case from Gujarat, India.

Case History: A 36-year-old healthy, and muscular male farmer residing in central Gujarat presented with painless nodular swelling with normal overlying skin over the posterior aspect of the left arm for the last 3-4 years. He noticed a gradual increase in the size of this swelling and numbness for the last 4 months and burning sensations for the last 10 days before presentation to the surgeon. Local left arm ultrasound showed a subcutaneous soft tissue lesion. Excision biopsy reported invasive fungal infection and patient was referred for further evaluation to an infectious disease facility (Fig 1a). He had no other symptoms and comorbidities. Patient didn’t recall any trauma to the part. Direct microscopic examination with calcofluor white stain on cytological scrape of the lesion was negative. The lesion showed a dermal abscess with small colonies of the fungus (Fig 1c) on mycelial cultures. A high-dose growth on SABOURAUD Dextrose agar medium, browning to blackish colony (Fig 1c) with olive color on the backside (Fig 1d) after 6 days. Lack of colony blue stain preparation of culture isolate showed mycelial elements with morphology suggestive of C. cladosporioides. This culture and also rector mycosis fungoides (Fig 1c), which was confirmed at the National Culture Collection of Pathogenic Fungi, PCI Chandigarh. Review of histopathology revealed a nodule with dense acinus on chronic inflammation composed of lymphocytes, plasma cells with many neutrophils with abscess containing hyaline eosinophilic structures with many PAS-positive septate, thin and thick walled, branching, irregularly shaped, bullous hyphae surrounded by neutrophilic border (Mondor Hoeppli phenomenon) (Fig 1e).

This patient was treated with capsule imaconazole 200 mg three times a day for three days followed by 200 mg twice a day along with beta-stimulation and total surgical excision of the subcutaneous nodule. Patient achieved a therapeutic imaconazole level (~1.4 mg/l) after 1 week. Patient is currently receiving treatment.

Discussion: Subcutaneous mycosis is evident in Asia. Several cases of subcutaneous cladosporioides infection caused by C. cladosporioides mainly involving the lower limbs were reported from Asia. It mostly affects male engaged actively in outdoor activities during their productive age ranged from 20 to 30 years. It affects a relatively healthy, immunocompetent host and has a long history (in years) of asymptomatic nodules/wellings before diagnosis. Treatment comprises of prolonged antifungal treatment with imaconazole along with surgical excision.

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Bacterial co-infections in Mucormycosis infected COVID-19 patients: experience from a tertiary care center in India

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During the second wave of COVID-19 in India, there was a delay in Mucormycosis cases, which posed a serious threat as both conditions require extended hospital stay thus serving as an ideal setting for secondary infections.

Objectives: 1. To ascertain the prevalence and antimicrobial profile of hospital-acquired secondary infections in COVID-19 patients with Mucormycosis.

2. To evaluate the outcome in these patients and compare it with the outcome of COVID-19 patients with Mucormycosis but without any other secondary infection.

Methods: A 2-month retrospective observational study was conducted, where we compared outcomes in two groups of COVID-19 patients with Mucormycosis, one group being patients with secondary infections and the other group including patients without secondary infections.

A total of 100 samples from suspected cases of Mucormycosis, that underwent evaluation by conventional methods, KOH mount and cultures on SDM, were included. Fungal pathogens were identified from the positive cultures, based on macroscopic and microscopic features, as per standard Mycological methods.

Secondary infections apart from Mucormycosis were studied based on conventional bacteriological culture, macrobiological profile, along with identification and antibiotic susceptibility by VITEK 2. PCT and CRP values were also compared. The outcome was then evaluated. Data analysis was done using SPSS V20.

Results: A total of 55 patients out of 140 patients, treated positive for Mucormycosis, either by KOH, culture or both, were the most common isolates identified.

A total of 123/25 (48.4%) people with Mucormycosis developed secondary infections during their stay in the hospital, bloodstream infection being the most common (71.9; 46.4%). Overall, gram-negative (GN) organisms were more common (113/123; 47.7%), in comparison to Gram-Positives (GP) (51/123; 11.72%), but the most common organisms isolated were Enterobacteriaceae (35/123; 28.4%), followed by Klebsiella pneumoniae (41/123; 31.42%) and E. coli (41/123). A total of 45 isolates (36%) of Enterobacteriaceae isolated were multi-drug resistant (MDR) and two of them were vancomycin-resistant. In all, 10131 GN isolates (95.1%) were MDR, high resistance to carbapenems was observed, out of 10113 (98.1%) isolates were resistant to imipenem and eight (9.72%) were resistant to meropenem. A total of 30/24 (24%) patients succumbed to their infection in the group with secondary infections, after an average length of stay of 23.33 days. The most common cause of death in these patients was septic shock. A total of 945/16 (58.6%) succumbed to their infection in the group without any secondary infection at an average stay of 9.12 days in the hospital. CRP was found to be consistently elevated, this biomarker might not have a