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Case Report

Trichosporon, an emerging opportunistic fungus as a causative agent of UTI – a case report from a tertiary care centre in Tamilnadu.

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Introduction:

Trichosporon species, an opportunistic fungal pathogen which is a common inhabitant of soil can colonise the skin, mucosa of respiratory, gastrointestinal, genito urinary tract of human. It generally causes superficial infections like white piedra, onychomycosis in immune competent host [1]. But Nowadays Invasive & systemic infections caused by Trichosporon species are being reported among immuno compromised patients. Of the invasive infections, UTI caused by this emerging pathogen is being increasingly diagnosed among patients associated with medical devices (catheter) with a high rate of morbidity & mortality [2]. During the previous years, Trichosporon genus included a single species, *T.beigelii*. Recently, based on the morphological & biochemical characteristics, Trichosporon genus is taxonomically reclassified into a number of pathogenic species among which *T.asahii*, *T.asteroides*, *T.mucoides*, *T.inkin*, *T.cutaneum*, *T.ovoides* are medically important [3] .Early detection of this pathogen is a great challenge due to lack of specific symptoms & signs, its rarity and lack of awareness about the ability of Trichosporon in the causation of systemic infection. Existence of risk factors (prolonged use of antimicrobials, indwelling catheter, Peritoneal Dialysis) and comorbid conditions (Diabetes mellitus, anaemia, hypoalbumemia) may also contribute to Trichosporon infection.

Hence a high level of both clinical & microbiological suspicion is required to identify this pathogen at the earliest. Also repeated isolation from consecutive 3 or more samples collected

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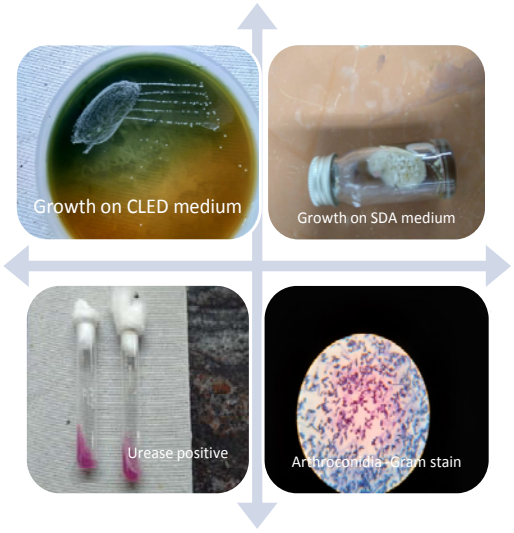
from the same patient is highly suggested to establish the pathogenic role of this emerging fungal pathogen.

Case history:

An 84 year old Non-Diabetic, febrile male with indwelling catheter was brought to the casualty with history of being treated outside for a period of 2 weeks for UTI. On clinical examination, fever, anaemia, periorbital and pedal edema were noticed. The blood and urine samples collected from the patient were sent for biochemical analysis and culture identification to the Biochemistry and Microbiology laboratories respectively. The patient was subjected to peritoneal dialysis and started on higher antibiotics like meropenem. The biochemical analysis showed Urea 120mg/dl, creatinine 4.6mg/dl, albumin 2.8g/dl, leucopenia, thrombocytopenia, normal blood sugar level revealing acute renal failure with hypoalbuminemia.

Urine culture grew creamy white, waxy, wrinkled colonies with deep rugose furrows after overnight incubation on CLED medium. Microscopic examination by Gram stain revealed Gram positive septate hyphae with arthroconidia & blastoconidia .The growth was subcultured on Sabourauds Dextrose Agar, Corn meal agar and subjected to urea hydrolysis test. Cornmeal agar examination also showed septate hyphae with arthroconidia & blastoconidia. The growth was identified as Trichosporon with Gram stain picture, urease production and confirmed by Vitek – 2 automated systems. The pathogenic role of this yeast was confirmed by repeated isolation of the same organism in significant counts from urine sample collected thrice each at 24 hrs interval. Inspite of starting with amphotericin B & triazoles, patient succumbed to infection after 5 days.

Fig 1: Characterisation of *Trichosporon asahii* - a) Growth on CLED
b) Growth on SDA medium, c) Urease positivity d) Gram stained with arthroconidia



Discussion:

Trichosporon, the ubiquitous fungi, forms a part of normal flora of human skin and mucosa. It is now regarded as one of the emerging fungal agents causing systemic, invasive infection among both immunocompromised and immunocompetent individuals. Of the immunocompetent persons, presence of various comorbid conditions and risk factors favour this fungal infection [4].

These risk factors and comorbid conditions include usage of multiple antibiotics for longer period (inadvertent antibiotic usage) [5][6], indwelling catheter, peritoneal dialysis and diabetes [1], anaemia, hypoalbuminemia respectively. Though this fungus is reported worldwide [6], lack of clear and specific clinical features still makes the diagnosis often missed.

This UTI caused by *Trichosporon asahii* was diagnosed in an elderly, anaemic, catheterised male who took self medication with 2-3 antibiotics irrationally for 2 weeks. The irrational antibiotic therapy followed by catheterisation would have contributed to mucosal damage and further infection in this anaemic but otherwise immunocompetent elderly individual.

This fungus isolated by routine urine culture has high chance of being missed out. Here, in this patient, leucocytosis, pyuria, low urinary protein along with persistence of symptoms alerted us for fungal etiology. Patients with UTI on antibiotics, if found to be not responding to treatment, either antibiotic treatment or any other disease causing agent should be thought of.

Repeated isolation of same organism in many consecutive clinical samples collected from the same patient at regular intervals is necessary to confirm the pathogenic role of any ubiquitous micro organism.

In our patient, *T.asahii* was cultured thrice in significant counts with no other bacteria being isolated in his urine sample. This confirmed T.asahii as the causative agent of UTI. Earlier detection of the causative agent during the initial course of infection is of major concern for successful treatment and recovery. Hence a high level of alertness among both clinician and microbiologist is greatly required for much earlier diagnosis of invasive Trichosporon infection using routine lab investigations.

Conclusion

Diagnosis of Trichosporon infection is likely to be missed due to lack of suspicion for this aetiological agent. Increased awareness of the pathogenic role of this fungus among clinicians and constant efforts to screen the samples by microbiologist is needed to detect this agent. Early diagnosis of this opportunistic fungal infection is essential to provide appropriate treatment which will result in complete cure of the patient. Further studies and workups are needed not only to facilitate early diagnosis and treatment but also to study the target population and various epidemiological risk factors contributing to the infection.

Conflict of Interest: Conflict of interest declared none

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