*Available online at http://www.journalcra.com*

*International Journal of Current Research*
*Vol. 7, Issue, 09, pp.20633-20635, September, 2015*

**INTERNATIONAL JOURNAL OF CURRENT RESEARCH**

**ISSN: 0975-833X**

## CASE REPORT

# URINARY TRACT INFECTION BY *TRICHOSPORON ASAHII* – A CASE REPORT FROM SOUTH INDIA

***Dr. Aarthi Sundaresan, Dr. Ambica, R., Dr. Sathyanarayan, M.S., Dr. Nagarathnamma, T. and Dr. Vineetha K.R**

Department of Microbiology, Bangalore Medical College and Research Institute, Bangalore

**ARTICLE INFO**

***Article History:***
Received 27th June, 2015
Received in revised form
15th July, 2015
Accepted 18th August, 2015
Published online 30th September, 2015

***Key words:***

*Trichosporon asahii*, Basidiomycetes,
Indwelling medical devices.

**ABSTRACT**

*Trichosporon asahii* belongs to class Basidiomycetes and is known to cause both superficial and deep seated infections of increasing morbidity and mortality in both immunocompetent and immunodeficient hosts. Urinary tract infections by this fungus though rare, have been reported earlier especially in association with indwelling medical devices.



***Citation*:** Dr. Aarthi Sundaresan, Dr. Ambica, R., Dr. Sathyanarayan, M.S., Dr. Nagarathnamma, T. and Dr. Vineetha K.R. 2015. "Urinary tract infection by *Trichosporon asahii* – a case report from South India*", International Journal of Current Research*, 7, (9), 20633-20635.

## INTRODUCTION

*Trichosporon* is a genus of anamorphic yeasts showing budding cells and true mycelium that disarticulate to form arthroconidia (Middelhoven, 2003). It mainly inhabits the soil, occasionally water, air and organic substrata (Pini *et al.,* 2005) and also constitutes a substantial proportion of normal flora of skin (Chander *et al.,* 2009). They also colonise mucosal surfaces, respiratory and gastrointestinal tract of humans and have also been detected in faeces, sputum, blood and central venous catheters (Wolf *et al.,* 2001; Shang *et al.,* 2010). This genus has undergone extensive review in recent times and as per the new classification of genus *Trichosporon*, the taxon *T.beigelii* is subdivided into seven different species that are pathogenic to man – *T.asahii, T.asteroides, T.cutaneum, T.inkin, T.mucoides, T.ovoides* and *T.loubieri* (Ahmad *et al.,* 2005). *T. asahii* is now emerging as an important life-threatening opportunistic systemic pathogen, especially in granulocytopenic and immunocompromised hosts (Chowdhary *et al.,* 2004). Other reported predisposing factors include extensive burns, organ transplantation, prosthetic valve surgery, human immunodeficiency virus (HIV) infections, corticosteroid therapy, peritoneal dialysis and intravenous catheters (Wolf *et al.,* 2001 and Shang *et al.,* 2010).

****Corresponding author: Dr. Aarthi Sundaresan,***
*Department of Microbiology, Bangalore Medical College and Research Institute, Bangalore, India.*

We report a rare case of urinary tract infection by *Trichosporon asahii* in a patient with no underlying immunocompromising disorder.

### Case Report

A 75 year old previously normotensive nondiabetic male presented to the casualty department of Victoria hospital, Bangalore Medical College and Research Institute in the month of December 2014. He had complaints of burning micturition off and on since 2 months, associated with difficulty in micturition, breathlessness and cough since 2 weeks. He had fever off and on since a week and altered sensorium since a day prior to admission. He had shown to a local doctor and was given antibiotics for the same that were changed twice in view of no improvement. On examination, he failed to respond to commands, was hypotensive and hypoglycemic (GRBS – 31mg/dl) and had bilateral crepitations on chest examination and severely dehydrated. He was immediately catheterized following which urine, blood and sputum samples were sent for cultures. Routine lab investigations were suggestive of reduced haemoglobin (8g/dl), leucocytosis (13,000/cu.mm) and deranged renal function tests. USG showed significant findings of grade I medical renal disease along with benign prostatic hyperplasia. He was started on intravenous Dextrose, Ceftriaxone (1g BD), Metronidazole (100ml TDS), Piperacillin-Tazobactam

(4.5g stat followed by 2.25g TDS) along with Pantoprazole and Ondansetron. In the microbiology laboratory, all clinical specimens were cultured using standard techniques. Serological tests for HIV, HBsAg and Anti HCV were performed and all were negative. The sputum sample yielded normal commensals and the blood culture was sterile. The urine sample was inoculated using a standard loop onto 5% sheep blood agar and MacConkey agar and incubated overnight at 37˚C. The next day, tiny, creamy white, dry wrinkled colonies were observed on blood agar, with a colony count of $>10^5$ colony-forming units (CFU/mL). The colony was subcultured onto two sets of Sabouraud Dextrose Agar (SDA) slants and incubated at both 25°C and 37°C. At both these temperatures, colonies of yeast-like fungus were obtained in pure culture. The colonies were initially smooth, becoming wrinkled and crumb like as it aged, with central elevation surrounded by furrows.

**Figure 1. Growth seen on Sabourad's Dextrose Agar showing wrinkled colonies with central elevation, surrounded by furrows**

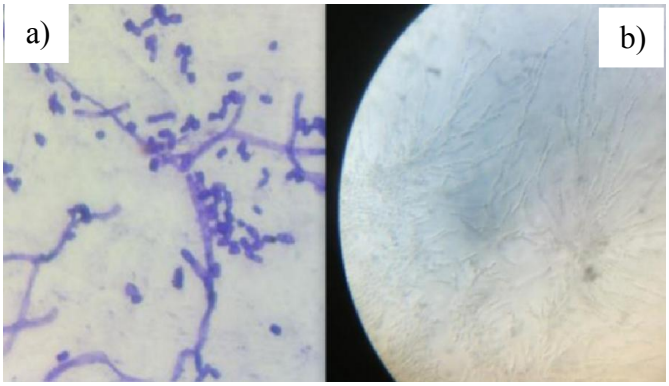


**Figure 2: a) Gram's stain of the colony revealing septate hyaline hyphae with arthrospores and few budding yeast cells. b) Microscopic picture on Cornmeal Tween 80 Agar showing characteristic features as above**

While identification was under process, a repeat urine sample was obtained which on culture yielded similar growth. The yeast was identified as *Trichosporon* on the basis of the Gram stain picture from pure culture and growth at two different temperatures along with a positive urease test. On Cornmeal Tween 80 agar at 25˚C for 72 hours, true hyphae and pseudohyphae with blastoconidia and arthroconidia characteristic of *Trichosporon* were seen.

Carbohydrate assimilation test was performed to identify the species and results were as follows:

| Sugars | Assimilated |
|---|---|
| Dextrose | Yes |
| Lactose | Yes |
| Maltose | Yes |
| Sucrose | Yes |
| Trehalose | Yes |
| Xylose | Yes |
| Arabinose | Yes |
| Raffinose | No |
| Sorbitol | No |
| Galactose | No |
| Inositol | No |

Based on the above, the species was confirmed as *Trichosporon asahii*.

## DISCUSSION

Isolation of the same yeast in two consecutive samples with significant counts confirms the etiological role of *T.asahii* in urinary tract infections even in immunocompetent patients as in our case. *Trichosporon* species that were initially just environmental inhabitants, occasionally a part of the normal human skin flora and a well-established cause of white piedra, are now being increasingly reported as emerging pathogenic fungi in immunosuppressed as well as immunocompetent hosts (Chowdhary *et al*., 2004; Mallick *et al*., 2013 and Baradkar *et al*., 2009). Studies by (Baradkar *et al*., 2008; Sood *et al*., 2006 and Kumar *et al*., 2011) have shown *T.asahii* as an emerging cause of urinary tract infection. Disseminated or invasive trichosporonosis by *T.asahii* has been reported by Chowdhury *et al*. (2004) in India and Girmenia *et al.* (2005). From Italy especially in patients with underlying haematological malignancies. According to a study by Mallick *et al*. (2013) and Treviño *et al.* (2014), urinary tract infection by *T.asahii* has also been found to occur in patients with urinary obstruction or those undergoing vesical catheterization and antibiotic treatment which is in concordance with our case. In view of the increasing incidence of opportunistic and nosocomial infections by *Trichosporon* species especially *T.asahii*, it is of utmost importance that early diagnosis and prompt identification be made in order to initiate appropriate therapy for a successful outcome.

## REFERENCES

Ahmad, S., Al-Mahmeed, M., Khan, Z.U. 2005. Characterization of *Trichosporon* species isolated from clinical specimens in Kuwait. *J Med Microbiol*., 54:639-46.

Baradkar, V.P., Mathur, M., Kumar, S. 2008. Urinary Tract Infection Due to *Trichosporon asahii* in a Diabetic Patient. *Bombay Hospital Journal,* 50(4): 654-56.

Chander, J. 2009. Textbook of Medical Mycology. 3rd ed. Mehta Publishers: New Delhi. p. 114-117.

Chowdhary, A., Ahmad, S., Khan, Z.U., Doval, D.C., Randhawa, H.S. 2004. *Trichosporon asahii* as an emerging etiologic agent of disseminated trichosporonosis: A case report and an update. *Indian J Med Microbiol*., 2004; 22:16-22.

Girmenia, C., Pagano, L., Martino, B., D'Antonio, D., Fanci, R., Specchia, G. *et al*. 2005. Invasive Infections Caused by *Trichosporon* Species and *Geotrichum capitatum* in

Patients with Hematological Malignancies: a Retrospective Multicenter Study from Italy and Review of the Literature. *J Clin Microbiol*., Apr 2005; 43(4): 1818–1828.

Kumar, S., Bandyopadhyay, M., Mondal, S., Pal, N. 2011. A Rare Case of Nosocomial Urinary Tract Infection due to *Trichosporon asahii. J Glob Infect Dis.* Jul Sep., 3 (3): 309–310.

Mallick, S.K., Basak, S., Rajurkar, M.N. 2013. *Trichosporon asahii*, an emerging nosocomial pathogen: are we aware? *Int J Cur Res Rev*., Oct; 5 (20): 75-80.

Middelhoven, W.J. 2003. Identification of clinically relevant *Trichosporon* species. Mycoses. 46:7-11.

Pini, G., Faggi, E., Donato, R., Fanci, R. 2005. Isolation of *Trichosporon* in a hematology ward. Mycoses. 48:45-9.

Shang, S.T., Yang, Y.S., Peng, M.Y. 2010. Nosocomial *Trichosporon asahii* fungemia in a patient with secondary hemochromatosis: A rare case report. *J Microbiol Immunol Infect*. 43: 77-80.

Sood, S., Pathak, D., Sharma, R., Rishi, S. 2006. Urinary tract infection by *Trichosporon asahii. Indian J Med Microbiol*. 24 (4):294-6.

Wolf, D.G., Falk, R., Hacham, M., Theelen, B., Boekhout, T., Scorzetti, G., *et al*. 2001. Multidrug-resistant *Trichosporon asahii* infection of non granulocytopenic patients in three intensive care units. *J Clin Microbiol.* 39: 4420-5.

*******