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Isolation and Identification of Candida Species from Confirmed Cases of Candiduria in a Tertiary Care Hospital

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Abstract: ***Candida is a common discovery; yeasts can be found in urine that has been contaminated during collection, in individuals with bladder colonization, and in patients with upper UTI. Mostly candiduria patients are asymptomatic, and it is more common in elderly persons. The current investigation was carried out to identify the candida species related with UTI and to identify the most common one from clinically diagnosed cases of candiduria. Samples were taken from patients who had candiduria. Microscopical investigations and species identifications were performed on the specimens using specific media.***

Keywords: Candida,Candiduria, UTI- Urinary tract infection, NAC – Non Albicans Candida, Microbial identification.

1. Introduction

Yeast-like fungus called candida is the most common cause of fungal infections. It can infect other areas of the body, especially immunocompromised hosts, and is a normal resident of the skin, mucosal membrane of the oral cavity, gastrointestinal tract, respiratory tract, and genitourinary tract. Among the most prevalent infectious diseases in humans are infections of the urinary tract. Microbiological invasion of any urinary tract tissue extending from the renal cortex to the urethral meatus is the common denominator of urinary tract infections (UTIs), which constitute a vast array of clinical entities in clinical practice. E. coli is the most common organism that causes UTIs, accounting for 70–95% of upper and lower UTIs. The remaining organisms consist of yeast, Enetrococcus faecalis, Klebsiella species, Proteus species, and S. aureus. Bladder and kidneys are impacted by urinary tract fungal infections. Merely their existence suggested infection [1]-[3].

Humans are normally commensal with species of Candida, the most common cause of fungal infection. Any invasive fungus, including Histoplasma capsulatum, Blastomyces spp., Aspergillus spp., Mucoraceae spp., and Cryptococcus neoformans, can cause a systemic or disseminated mycotic infection that affects the kidneys. In hospitalized patients, Candiduria, also known as UTI, is frequently discovered. While candida species are uncommon in healthy individuals, they are frequently found in hospital settings, among patients with predisposing diseases, and in patients with structural abnormalities of the kidney and collecting system. The prevalence of candida species has increased globally [2].

Urinary tract opportunistic fungal infections have increased significantly since the 1980s, with candida species being the most common. Measurably present candida species in urine are detected in less than 1% of clean voided specimens from healthy individuals; however, they are responsible for 5% of urine culture results in general hospital settings and 10% of urine isolates in tertiary care facilities [3].

2. Materials and Method

This study was conducted at Department of Microbiology, 50 samples in total were taken from patients who had Candiduria clinical features. Samples that are improperly collected are not included. The all-clinical isolates should be gram positive oval budding yeast cells. A single isolate was collected for each patient. Germ Tube test was performed for the ability of Candida albicans to form short, thin tubes. On SDA, the cultural characteristics of Candida were investigated .On CHROM agar, additional species identification of candida was carried out [5].

3. Result

3.1 Distribution of Candida according to gender

Gender	No. of cases	Percentage
Male	23	46
Female	27	54

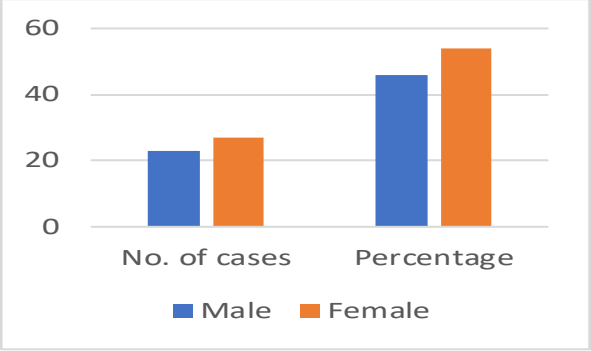

Figure 1: Distribution according to gender

3.2 Distribution of Candida Species

Candida species	Frequency	Percentage
Candida albicans	21	42
Candida non albicans	29	58

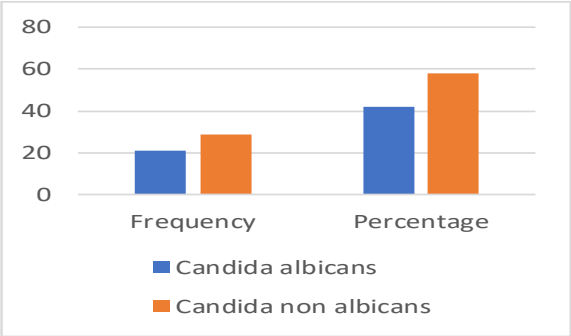

Figure 2: Distribution of Candida species

3.3 Distribution of Non albicans Candida

Non candida species	Frequency	Percentage
C. glabrata	14	28
C. krusei	9	18
C. tropicalis	6	12

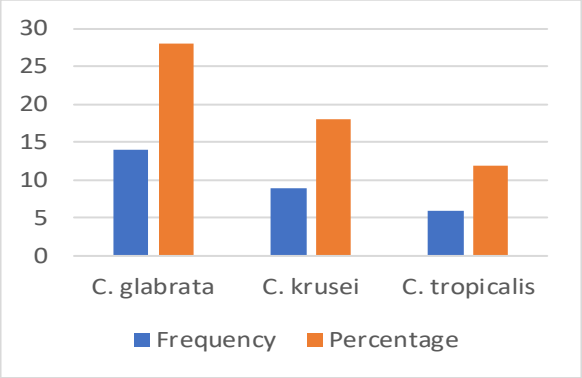

Figure 3: Distribution of Non Albicans

4. Conclusion

In this study, samples from 50 patients with candidiasis were analyzed. Young adult females were the ones who reported the most cases. C. albicans and non-albicans were the species isolated from urine samples in this investigation. Candida glabrata (28%) was the most common species among the isolates that were not Candida albicans, followed by Candida krusei (18%) and Candida tropicalis (12%). The importance of species identification has been brought to light by the emergence of non-Albicans candida species as the main cause of infections. The identification of intrinsically resistant species is aided by the characterization of candida down to the species level. Also observed is the prevalence of Candiduria in women compared to men.

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