

ISOLATION OF INVASIVE CANDIDIASIS IN CANCER PATIENT: CASE REPORT

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Abstract: Fungi, once considered non-pathogenic microbiological curiosities have emerged as an important cause of community acquired and health care associated infections. Invasive fungal infections are important cause of morbidity and mortality in cancer patients. Among various pathogenic species of fungi, *Candida* is the most prominent cause of fungal infections. Candidiasis is an infection of *Candida albicans* causing disseminated disease invariably when host defences are compromised. Here we report a case of invasive mycoses in which *Candida albicans* was isolated from urine sample of 60 year old male. Patient was diagnosed with cancer in penis. A major obstacle to control this infection is inadequate diagnostic techniques. Although major advances in the case of cancer patients over past several decades have resulted in improved survival

Keywords: Fungi, candidiasis, cancer, pathogen, infections, disseminated.

1. INTRODUCTION

A global increase in yeast incidence has been reported by several authors over the past 20 years. Only a few decades back, the role of *Candida* in establishment and progression of infection was considered to be passive, and organic weakness or an immunocompromised status of the host was considered as the vital mechanism responsible for candidiasis (Sardi *et al.*, 2013). Invasive fungal infections are important cause of morbidity and mortality in cancer patients. Fungi are ubiquitous in our environment, only few people realize how intimately our lives are related to these fungi. Although a part of normal microbiota, *Candida* is capable of causing various clinical manifestations ranging from mucocutaneous overgrowth to disseminated infections like candidemia (Eggimann *et al.* 2003). Mucosal, systemic or disseminated disease caused by yeast of genus *Candida* is known as Candidiasis. The major agents are *C. albicans*, *C. glabrata*, *C. tropicalis*, *C. parapsilosis*, and *C. krusei*. *Candida* converts from a commensal to a pathogen in patients who are compromised by immunosuppression, cancer chemotherapy, intravascular catheters, cardiothoracic or gastrointestinal surgery, or HIV infection. *Candida* are small (4-6µm), oval, thin-walled yeast like fungi that reproduce by budding or fission. Although more than 17 different species of *Candida* have been reported as pathogens, only few species cause disease in humans (Odds FC. 1988). Some studies estimate mortality attributed to *Candida* species to be 38%, although it can vary from 50 to 60% (Bross J. *et al* 1989; Komshian S. *et al* 1989).

Opportunistic fungal infection is a frequent complication in patient suffering from cancer. Candidiasis is an infection of *Candida albicans* causing disseminated disease invariably when host defences are compromised (James *et al.* 2006). An opportunistic organism causes disease at any instance when a person's body is in compromised state. Cancer and undergoing certain types of cancer treatments can increase a person's risk of developing a fungal infection. Cancer in all forms is causing about 12 % of death throughout of world. Over 5 lac new cause of cancer and 3 lacs of death are estimated in the country every year. Unfortunately, medical community is not aware of such infections due to fungi in their patients leading to grave consequences (Aglawe V. 2003).

2. CASE REPORT

A 60 year old male was admitted in the hospital with the complaints of lesions in penis. Patient also complained of loss of appetite and fever since few months. Slight oedema was present all over the body. He was diagnosed with cancer in penis. He was under topical chemotherapy, cytotoxic drugs, fluorouracil, radiation therapy. Clinical diagnosis showed cytomears in favour of well differentiated squamous carcinoma.

3. MATERIALS AND METHODS

Collection of clinical samples

For the purpose of isolation of pathogenic fungi urine sample was collected in the pre-sterilized well-Stoppard bottles under aseptic conditions. Morning midstream urine sample was preferred.

Direct microscopic examination

Smear of urine sample was prepared and stained with lactophenol cotton blue solution and was examined under microscope.

Isolation of fungus in culture from clinical sample

Urine was centrifuged in 2000rpm for 15mins. Sedimented pellet was used for streaking Sabouraud's dextrose agar slants. Five slants were inoculated from urine and incubated at $28\pm 1^{\circ}\text{C}$ for 7 days. The slants were examined daily for microbial growth. Control slants was inoculated with normal saline and incubated at $28\pm 1^{\circ}\text{C}$.

Identification of Fungus

The fungus recovered was identified on the basis of direct microscopy macro and micromorphological characteristics. Germ tube test was performed. A tube containing 0.5ml of serum was seeded with the loopful of yeast suspected of being *C. albicans*.

4. RESULT

The direct microscopic examination of urine revealed small oval cells with some budding cells. The inoculated tubes on 3rd day revealed smooth, mucoid, white-cream colour colonies on Sabouraud's dextrose agar medium. The isolated fungus was identified as *Candida albicans* on the basis of germ tube test.

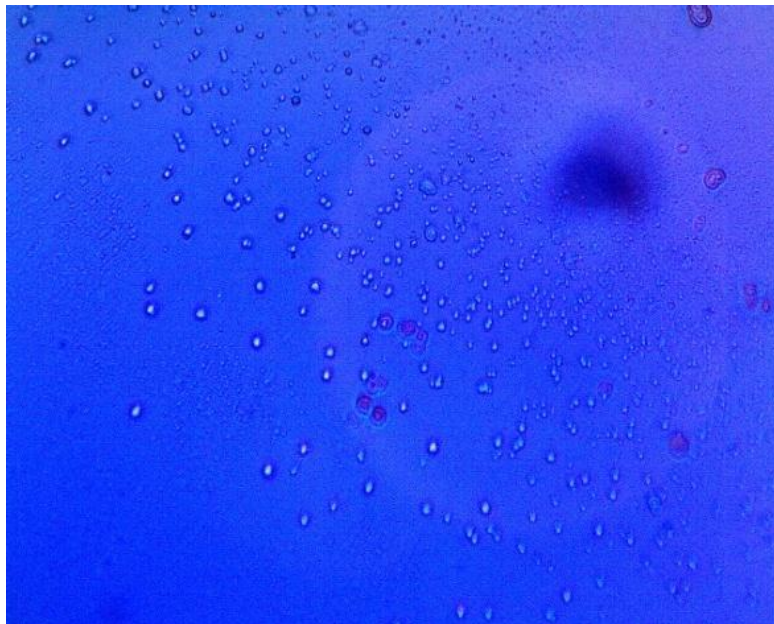


Fig1. Direct Microscopy of urine sample in 40x



Fig 2. Petri plate showing fungal colony

5. CONCLUSION AND DISCUSSION

The incidence of fungal infections in immunocompromised patients, especially by *Candida* species, has increased in recent years. This study was designed to identify *Candida* species isolated from various clinical specimens. Along with the *C. albicans* there has been a greater recognition of the importance of the non-albicans *Candida* species in human disease (Marsh PD. et al. 2009). The transition of this endogenous commensal to the disease-causing parasite may be associated with factors other than the pathogenic attributes of the organism itself, which is rather unique compared with most of the other infectious diseases, where the virulence of the organisms considered being the key factor in the pathogenesis. Hence *Candida* species are strictly opportunistic. Fungal growth was obtained in urine sample of patient. The germ-tube test is the standard laboratory method for identifying *C. albicans*. No single predominant virulence factor for *Candida* is recognized although there are a number of factors that have been implicated in promoting the infection process.

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