Case Report

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Candidemia due to *Candida glabrata* in a non-immunosuppressed hospitalized patient

Melek Sena Altun, Salih Cesur, Esra Kaya Kılıç, Çiğdem Ataman Hatipoğlu, Özlem Öztekin, Sami Kınıklı

Health Sciences University, Ankara Training and Research Hospital, Infectious Diseases and Clinical Microbiology Clinic, Ankara

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ABSTRACT

Opportunistic fungal infections due to Candida species in immunosuppressed patients appearas significant causes of mortality and morbidity. Candida infections and candidemia can also be encounteredamong immunocompetent patients with underlying predisposing factors. This paper presents a 72-year-old diabetic male patient who developed candidemia due to *Candida glabrata* complex without any underlying immunosuppressive disease. The patient fully recovered after a total of 23 days of anidulafungin treatment.

Keywords: Immunocompetent patient, *Candida glabrata* complex, candidemia, case report

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INTRODUCTION

Candidemia and invasive candidiasis are among the significant causes of mortality and morbidity, and the increase in the number of immunosuppressed patients, unfortunately, contributes to the prevalence of the disease. The five main Candida species (spp.) (*Candida albicans*, *Candida glabrata*, *Candida parapsilosis*, *Candida tropicalis*, and *Candida krusei*) account for more than 90% of all cases. Frequencies of Candida spp. vary by patient group, geographical region, previous antifungal treatment, and age (1).

Opportunistic mycoses caused by Candida spp. are very rare in non-immunosuppressed patients. This paper presents a 72-year-old diabetic male patient who developed candidemia due to *Candida glabrata* complex (*C. glabrata* complex) without any underlying immunosuppressive disease.

CASE

A 72-year-old male patient presented to the emergency department with complaints of nausea, vomiting, and painful urination that started 1.5 months ago and fatigue lasting for ten days. It was learned that he presented to another health institution a week ago with the same complaints and was prescribed to use ciprofloxacin 2×750 mg orally for seven days upon the preliminary diagnosis of urinary system infection. He had a history of diabetes mellitus (DM), coronary artery disease, benign prostatic hypertrophy, and lumbar herniation. On physical examination, his fever was 37.2°C, and abdominal examination yielded suprapubic tenderness and right costovertebral angle tenderness. Considering his laboratory findings, leukocyte count was 14,000/mm³ (reference (ref): 4.000-10.500/mm³), C-reactive protein was 175 (ref.: 0-5 mg/dL), AST was 39 IU/L (ref.: 0-40 IU/L), ALT was 55 IU/L (ref.: 0-40 IU/L), creatinine was 0.94 mg/dL, and glomerular filtration rate was 80 ml/min. The result of the abdominal ultrasound (USG) in the emergency department was reported as "The echogenicity of the kidney parenchyma increased (grade I). The bladder wall was diffusely thick (9 mm), and the prostate gland volume was measured as 32 cc."

The patient was admitted to the infectious diseases clinic with a preliminary diagnosis of complicated upper urinary tract infection. In the examination on the first day of his hospitalization, he was in good condition, conscious, oriented, and cooperative and had suprapubic tenderness and right costovertebral angle tenderness in his abdomen. Other system examinations were normal. With the preliminary diagnosis of urinary system infection, we started ertapenem 1×1 gr

Corresponding Author: Salih Cesur, scesur89@yahoo.com

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intravenous (I.V.) treatment. In the follow-ups, he had a fever of 38.6 °C on the 4th day of his hospitalization; thus, blood and urine cultures were taken. Examination of the peripheral blood smear was normal .Patient did not have central venous catheter or urine catheter. *C. glabrata* complex growth in his blood culture and 104 cfu/ml non-albicans Candida growth in urine culture and his blood culture, respectively. Non-albicans Candida isolated from urine culture was not identified as species. Antifungal susceptibility was determined by broth microdilution test according to Clinical and Laboratory Standards. Institute (CLSI). Antifungal susceptibility of the agents were reported as susceptible to micafungin, amphotericin B respectively by using broth dilution method. The minimum inhibitory concentration (MIC) for micafungin was ≤0.06 µg/ml, and MIC for amphotericin B was 1 µg/ml. Ertapenem treatment was discontinued and anidulafungin treatment was started as 200 mg loading and then 1×100 mg I.V according to the IDSA guidline for the management of Candidiasis (2). Blood cultures were obtained from the patient every 48 hours and found no growth on his 9th day of hospitalization. The treatment was prescribed to continue for 14 days after a negative blood culture result. The patient was then discharged, providing follow-up visits.

DISCUSSION

Candidemia is the most common form of invasive candidiasis, and the research often mentions an increase in the worldwide frequency of candidemia due to Candida spp. other than *Candida albicans* (3). Candidemia is among the most significant cause of mortality; the Candidemia-associated mortality rate is reported to be between 40-60% (3,4). Factors, such as the increase in the number of immunosuppressed and critical patients and the widespread use of invasive medical devices (e.g., central venous catheter, urinary catheter) and broad-spectrum antibiotics, contribute to the increase of its frequency (5).

In a 16-year study in a tertiary hospital in Lebanon, the rate of candidemia due to non-albicans Candida spp. (NAC) was reported to be significantly higher than that due to *Candida albicans* (64.7% and 35.3%, respectively).

Other than candidemia, *C. glabrata* complex associated catheter infection, meningitis, brain abscess, endocarditis, and osteomyelitis are reported in literature (6,10).

The main risk factors identified for candidemia in non-neutropenic patients are severe sepsis or septic shock, recent Clostridium difficile infection, diabetes mellitus (DM), total parenteral nutrition, chronic obstructive pulmonary disease (COPD), concurrent intravenous glycopeptide therapy, presence of a peripheral central catheter, previous antibiotic therapy, and immunosuppressive therapy . A Taiwan-based study showed cancer and DM as the most prevalent underlying diseases in patients with candidemia. The most common risk factors for candidemia were previously reported as broad-spectrum antibiotic use, central venous catheterization, and Candida colonization (11). The risk factors for candidemia in our patient were DM, Candiduria, previous use of antibiotics (ciprofloxacin), and the use of broad-spectrum antibiotics (ertapenem). In our case, Candida may be come from urinary tract infection. It is interesting that the patient developed *C. glabrata* complex -related candidemia despite not having an underlying immunosuppressive disease.In present case completely recovered following twenty-three days of anidulafungin treatment.

CONCLUSION

Overall, it should be kept in mind that fungemia due to *C. glabrata* complex and other Candida spp. may develop in patients who do not have an underlying immunosuppressive disease but have risk factors for Candida infections such as DM and the use of broad-spectrum antibiotics.

ETHICAL DECLARATIONS

Informed Consent: Written informed consent was obtained from all participants who participated in this study.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper and that they have approved the final version

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