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Case report

A case of *Candida albicans* fungus balls in the urinary tract appeared during the course of antifungal treatment for *Candida* endophthalmitis

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ABSTRACT

Fungus balls have been rarely implicated as a cause of urinary tract obstruction. Here, we report a case of *Candida albicans* fungus balls in the urinary tract after the treatment of *Candida* endophthalmitis that has enough periods and adequate amount of antifungal agents. The patient completely recovered from this rare complication by irrigating through single-J stent and changing antifungal agents. Here we emphasize that we should take into account not only the susceptibility test results but also the difference in excretion route and tissue distribution of antifungal agents.

1. Introduction

Candida species are the fourth most common organisms isolated from blood culture [1]. *Candida* endophthalmitis reminds us an existence of candidemia. When we see a candidemia patient, which is closely related with a presence of central line catheter, it is most important to remove the catheter for the successful treatment. Other well-known predisposing risk factors are intravenous drug abuse, immunodeficiency, prolonged systemic corticosteroid use, broad spectrum antibiotic administration, and so on [2–6].

In this case, the patient had diabetes and liver cirrhosis as an underlying diseases, but didn't have any catheters. The primary infection site was supposed to be pyelonephritis and followed by endophthalmitis endogenously. In spite of the good course of endophthalmitis and pyelonephritis, *Candida* fungus balls in the ureter appeared afterward even during the course of the antifungal treatment.

2. Case report

A 61-year-old man with a medical history of diabetes mellitus and alcoholic cirrhosis visited a local clinic with a history of back pain and fever lasting for several days. He had not recovered after taking oral antibiotics for five days. Computed tomography showed right hydronephrosis (Fig. 1A) and he was transferred to another hospital. His condition and blood test had not improved even after the administration of antibiotics for pyelonephritis (oral levofloxacin 500 mg for 8 days, ceftriaxone 2g DIV for 8 days and ceftazidime 2g DIV for 8 days). He suffered of various kinds of rashes on the skin and blood test showed HTLV-1 positive and atypical lymphocytes. He was suspected to have chronic or smoldering type of adult T-cell lymphoma, which was eventually denied. In this course of treatment, he complained of a visual disorder, which turned out to be a fungal endophthalmitis by ophthalmologic findings (Fig. 2). On June 4th, he was transferred to our hospital for further treatment of endophthalmitis.

On admission, no remarkable physical findings were apparent other than visual impairment. Laboratory findings revealed a white blood cell count of 24,280/μl, a blood urea nitrogen of 31 mg/dl, a creatinine of 2.7 mg/dl and a C-reactive protein level of 10.9 mg/dl. Other findings revealed a soluble-IL-2 receptor of 4097 U/ml, a β-D

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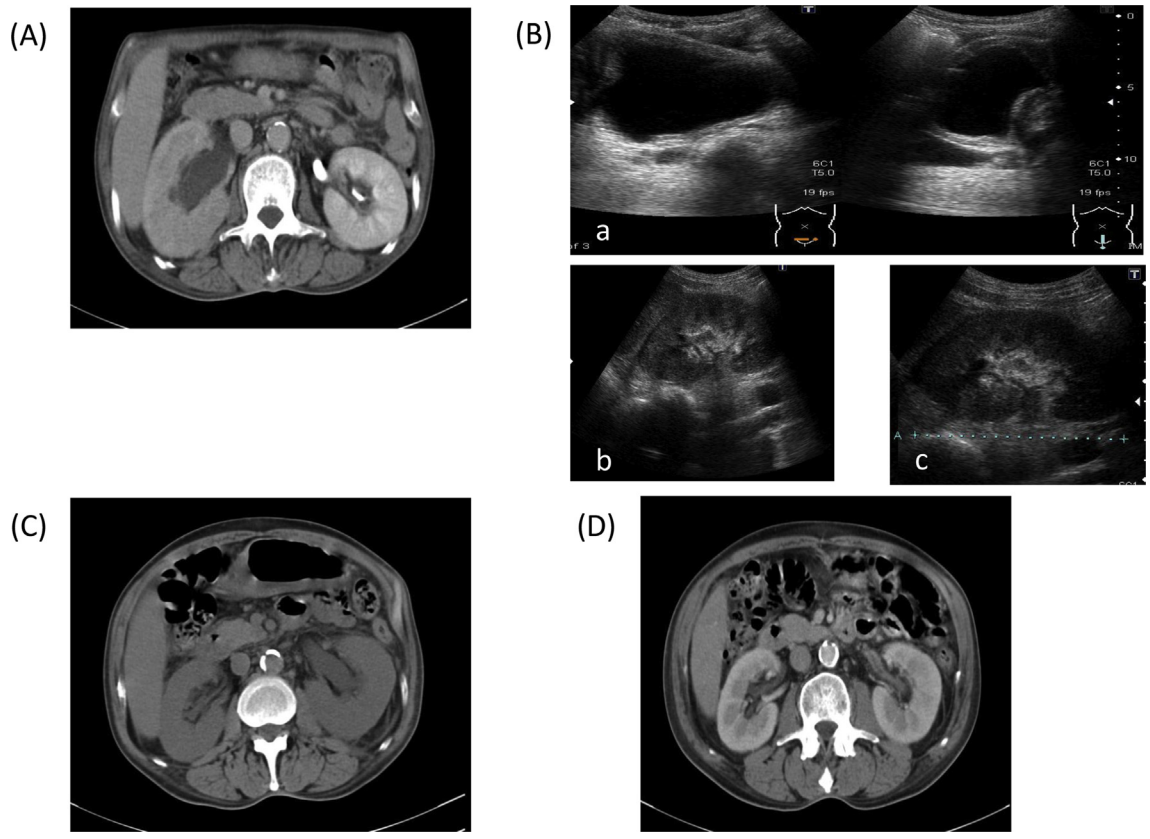

Fig. 1. (A) Right hydronephrosis was detected on computed tomography before the antifungal treatment for pyelonephritis. (B) On admission, ultrasonic echography showed bladder wall thickening (a) without hydronephrosis (b, c). (C) Left hydronephrosis was detected on computed tomography during the treatment of oral voriconazole. (D) Left hydronephrosis improved rapidly by insertion of single-J stent and oral fluconazole treatment.

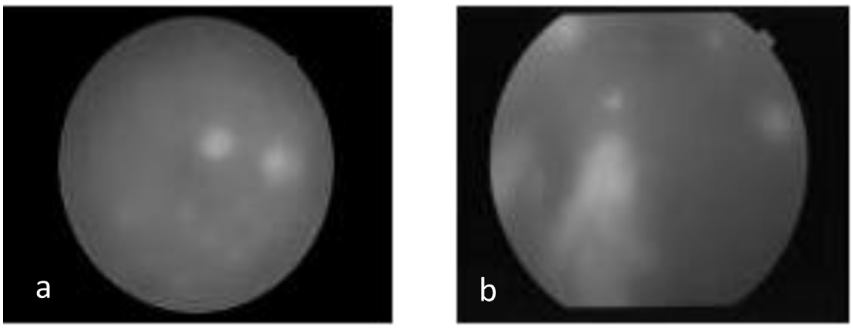

Fig. 2. Fundus photographs on the day of the initial examination at our hospital. Fundus photographs of right eye (a), and left eye (b) showed vitreous opacifications and multiple focal white lesions on the retina.

glucan of 329.9 pg/ml and a Hb-A1c level of 6.9%. Abdominal computed tomography and ultrasonic echography showed bladder wall thickening without hydronephrosis (Fig. 1B). *Candida albicans* (10^3 cfu/ml) was isolated only from urine culture not from blood culture, which was sensitive to all antifungal agents (Table 1). As to antifungals, we chose voriconazole because of renal dysfunction. The patient was treated with voriconazole (6 mg/kg/day) DIV for 22 days combined with vitreous surgery. After the surgery, his condition improved, but ophthalmologic examination and the β-D glucan lebel showed only a little sign of improvement. So, we added Liposomal-amphotericin B (4.5 mg/kg/day) for 23 days for further treatment expecting its superior tissue penetration. Thereafter both blood tests and ophthalmologic examination improved. The antifungal therapy was switched to oral voriconazole (2.8 mg/kg/day) alone on day 56 and he left our hospital.

He relapsed into a fever and left back pain within two weeks of discharge, when left hydronephrosis appeared on ultrasonography and computed tomographic scans (Fig. 1C). After confirming the obstruction of left urinary tract by retrograde urethrography (Fig. 3), obstacles were removed by insertion single-J stent through his urethra with rapid improvement (Fig. 1D). The obstacles revealed to be *C.albicans* fungus ball by histological findings, which showed necrotic tissues with many spores and hyphae of Candida without any malignant tissues. He was treated with fluconazole (45 mg/kg/day) for additional 18 weeks and without relapse or urinary tract abnormalities for 3 years afterward.