



ACUTE OBSTRUCTIVE FUNGAL BALL CYSTITIS DUE TO CANDIDA - A RARE CASE

Medical Microbiology

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ABSTRACT

Fungal urinary tract infections (UTIs), particularly those caused by *Candida* species, have become more prevalent, especially in individuals with long-term catheterization, and patients with underlying conditions such as diabetes. Fungal ball formation leading to urinary tract obstruction is a rare but serious complication of UTIs. We report a case of a 60-year-old male with uncontrolled type II diabetes, who presented with acute retention of urine and dysuria. Imaging studies revealed a suspected fungal ball, which was confirmed by cystoscopy and subsequent microbiological examination. The fungal ball was identified as *Candida* species based on microscopic findings and culture results. This case highlights the importance of early recognition and intervention in managing obstructive fungal cystitis, particularly in patients with risk factors such as diabetes and prolonged catheterization. Early surgical removal and antifungal treatment are crucial to prevent further complications.

KEYWORDS

Acute Obstructive Cystitis, Fungal Ball, *Candida*, Urinary Tract Infection (UTI), Diabetes Mellitus, Cystoscopy, Fungal Cystitis, Urinary Catheterization

INTRODUCTION

Bacterial pathogens are typically linked to urinary tract infections (UTIs), there has been a growing observation in recent years regarding the incidence of fungal UTIs, especially in patients with urinary catheters or indwelling devices.⁽¹⁾ Among these, ureteral and renal obstruction due to fungal ball development has become a major problem to urological therapy. This is typically observed in diabetics and chronic alcoholics, as well as those who have used antibiotics for an extended period of time or had prolonged catheterization. This is a rare complication of urinary tract infection due to fungus in which commonly due to *Candida* species.⁽²⁾ While candiduria may be seen in approximately 20% of hospitalized patients, development of fungal balls is considered very uncommon.⁽³⁾ Key risk factors include older age, diabetes, chronic kidney disease, dialysis, renal transplant, and urinary tract abnormalities with catheters.⁽⁴⁾ Invasive fungal infection poses a serious threat to individuals with immunocompromised states, such as those with hematological malignancy, renal transplants, and diabetes.⁽⁵⁾ Management involves both medical and surgical approaches, requiring immediate identification and intervention to prevent additional complications.⁽⁶⁾

Case Report

A 60-year-old male presented to emergency ward with acute retention of urine for 14 hours and complaint of dysuria. Prior to this 30 days before he was presented with complaint of acute retention of urine and fever for 2 days. Patient was admitted and underwent urinary catheterization. He was diagnosed with urinary tract infection with acute retention of urine. He was discharged after 15 days fully recovered.

Patient had uncontrolled type II diabetes mellitus for over past ten years. Routine urine test shown elevated red blood cells (45/HPF, normal <4/HPF) and white blood cells (150/HPFs, normal <5/HPF). Fasting blood sugar 181 mg/dL and postprandial blood sugar 232 mg/dL. HbA1c was 10.9 g%. The patient was tested for immunodeficiency using an enzyme immune assay test for HIV 1 and 2, which yielded a negative result. Other blood tests were normal.

Routine & Microscopy of urine revealed pus cells with no organism seen. There was no growth in urine culture.

KUB Ultrasound reveals a heterogeneous hypo echoic mass with no evidence of vascularity. CT-IVU shows an irregular filling defect suspicious for a fungal ball. No sign of hydronephrosis noted. For evaluating the cause of acute retention of urine, patient was taken up for cystoscopy which showed white fluffy cotton-like balls in the bladder. Cystoscopic removal of fungal balls was done. (Figure 1)

Microscopic examination of KOH (10%) mount of the fluffy cotton like balls which are collected revealed budding yeast cells and pseudohyphae indicative of *Candida* species. Gram stain revealed Gram positive yeast like cells. Culture on SDA shown white, creamy opaque, smooth colonies with entire edge (Figure 2). Microscopy of culture confirmed *Candida* species which shown yeast like cells with pseudohyphae (Figure 3). Germ tube formation was also observed.



Figure 1. Fungal balls collected by cystoscopy

Figure 2. Growth on SDA

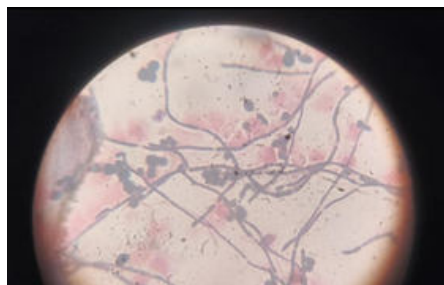


Figure 3. Gram Stain - Microscopy

DISCUSSION

Candiduria is commonly seen in patients who are hospitalized.⁽⁷⁾ It is most prevalent in individuals in intensive care units, patients with indwelling catheters or premature infants.⁽⁸⁾ Fungal balls in the urinary bladder are frequently seen in immunocompromised patients, leading to urine retention and blockage of the urethra.⁽⁹⁾ A fungus ball may originate from agglutination of a necrotic tissue nucleus (papillary necrosis), mucous debris and foreign or lithiasic debris; this can then lead to a urinary tract obstruction and hydronephrosis, which is a very rare complication of candiduria.⁽¹⁰⁾ Fluconazole and amphotericin B deoxycholate (AmpB) are the antifungal agents most commonly used.⁽¹¹⁾ The patient in this case report underwent cystoscopic removal

of fungal ball and was kept on fluconazole 150mg once per day for a period of nine weeks with complete resolution of fungal ball mass. Control ultrasound at the end of treatment was normal.

REFERENCES

1. Ng, K. P., Kuan, C. S., Kaur, H., Na, S. L., Atiya, N., & Velayuthan, R. D. (2015). *Candida* species epidemiology 2000-2013: a laboratory-based report. *Tropical Medicine & International Health*, 20, 1447–1453.
2. Kauffman, C. A. (2014). Diagnosis and management of fungal urinary tract infection. *Infectious Disease Clinics of North America*, 28(1), 61–74.
3. Kobayashi, C. C. B. A., de Fernandes, O. F. L., Miranda, K. C., de Sousa, E. D., & Silva, M. do R. R. (2004). Candiduria in hospital patients: a study prospective. *Mycopathologia*, 158(1), 49–52.
4. Krcmery, S., Dubrava, M., & Krcmery, V., Jr. (1999). Fungal urinary tract infections in patients at risk. *International Journal of Antimicrobial Agents*, 11(3–4), 289–291.
5. Zhou, L., Zhao, H., Chen, Z., & Zhu, L. (2017). Urinary tract aspergillosis in a patient with chronic kidney disease. *BMJ Case Reports*, bcr-2017-221638.
6. Comiter, C. V., McDonald, M., Minton, J., & Yalla, S. V. (1996). Fungal bezoar and bladder rupture secondary to candida tropicalis. *Urology*, 47(3), 439–441.
7. Wainstein, M. A., Graham, R. C., & Resnick, M. I. (1995). Predisposing factors of systemic fungal infections of the genitourinary tract. *The Journal of Urology*, 160–163.
8. Sobel, J. D., Fisher, J. F., Kauffman, C. A., & Newman, C. A. (2011). *Candida* urinary tract infections--epidemiology. *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*, 52, S433–S436.
9. Anan, G., & Sato, M. (2021). Acute urinary retention by fungus balls of *Candida*. *Clinical Case Reports*, 9(8), e04691.
10. Praz, V., Burrini, R., Meid, F., Wisard, M., Jichlinski, P., & Tawadros, T. (2014). Fungus ball in the urinary tract: A rare entity. *Journal de l'Association Des Urologues Du Canada [Canadian Urological Association Journal]*, 8(1–2), E118-20.
11. Palacio-Bedoya, F., Cadena, J. A., Thompson, G. R., Sutton, D. A., Owens, A. D., & Patterson, T. F. (2010). A noninvasive renal fungus ball caused by *Rhizopus*--a previously unreported manifestation of zygomycosis. *Medical Mycology: Official Publication of the International Society for Human and Animal Mycology*, 48(6), 866–869.