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URINARY BLADDER FUNGAL BALL AND EMPHYSEMATOUS CYSTITIS IN A 13-YEAR-OLD DIABETIC FEMALE: A CASE REPORT FROM MBEYA ZONAL REFERRAL HOSPITAL (MZRH), SOUTHERN HIGHLAND TANZANIA

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SUMMARY

Fungal ball in the urinary bladder is very rare. We present our experience of this rare condition in a diabetic teenage girl with poor glycaemic control who presented with a mass protrusion per urethra and episodes of urine retention. CT-IVU revealed urinary bladder fungal ball and histopathological examination showed branching fungal bodies. She was kept on oral fluconazole for nine weeks with complete resolution of urethral mass, urinary bladder fungal ball and episodes of urine retention. Urinary fungal ball is rare in the medical literature and mostly seen in immunocompromised individuals and Intensive care patients in vegetative states. Oral fluconazole has an excellent response and Amphotericin B is reserved for upper urinary tract fungal infection and debilitated individuals.

INTRODUCTION

Fungal ball in the urinary bladder also referred to as fungal bezoars is uncommon. Around 50 cases of urinary tract fungal balls have been reported. Commonest species to form fungal balls are *Candida albicans* about 50%-70%, but other fungal candida species such as *aspergillus*, *mucorales* and *penicillium* have been reported in the literature^{1,2} and to date

there are about 20 cases of urinary bladder fungal balls in the literature, the first case being reported in 1961. Tissue invasion is also rare and predominantly seen in immunocompromised individuals³. Invasive fungal infection is a life threatening infection especially in the immunosuppressed individuals such as hematological malignancy, renal transplant patients and diabetes

mellitus⁴. Here we present a case of a fungal ball without disseminated disease.

Case Presentation: We present a 13 years old female who is type 1 diabetes on insulin injection who was admitted in intensive care unit (ICU) and later in medical ward due to Diabetic Keto -Acidosis (DKA). After fifteen days of being in ICU she presented with history of abnormal mass protrusion per urethra associated with obstructive lower urinary tract symptoms and episodes of acute urine retention. She was catheterized per urethra but still had episodes of urine retention and peri-catheter urethral mass. **Physical:** A long necrotic mass about 3.5cms long protruding per urethra, seemed necrotic but very tough (Figure 1). **Per abdominal examination:** No significant findings were found. Other systems were essentially normal. **Laboratory:** Urine analysis was Normal, Random blood glucose was high, HbA1c was

high, Creatinine was within normal range, and HIV 1/2 was negative.

Imaging: KUB Ultrasound: A urinary bladder mass with thickened bladder wall, CT-IVU: Showed an irregular non-enhancing bladder mass with emphysematous areas suspicious for a fungal ball. No hydronephrosis (Figure 2) **Urethroscopy:** A long per urethral mass originating from a huge mobile necrotic mass in the urinary bladder. Bladder mucosa looked normal all around. The trigone was only visible when the mass was pushed by a scope, but it appeared normal. There was normal jetting from the urethral orifices. So biopsy from the bladder mass was taken as well as the pieces from the tough mass protruding per urethra.

Histopathological Examination: The histological section showed extensive necrosis and Periodic Acid-Schiff (PAS) stain showed round and branching fungal bodies (Figure 3).



Figure 1: shows a pericatheter necrotic mass protruding per urethra.

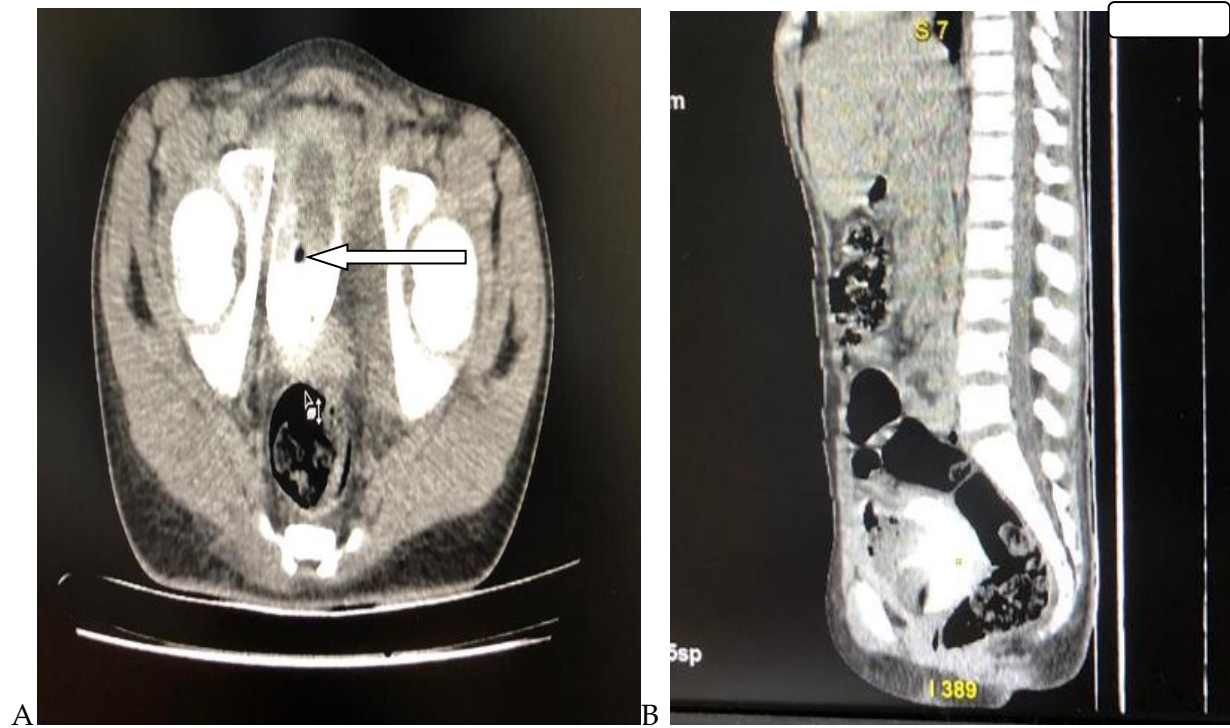
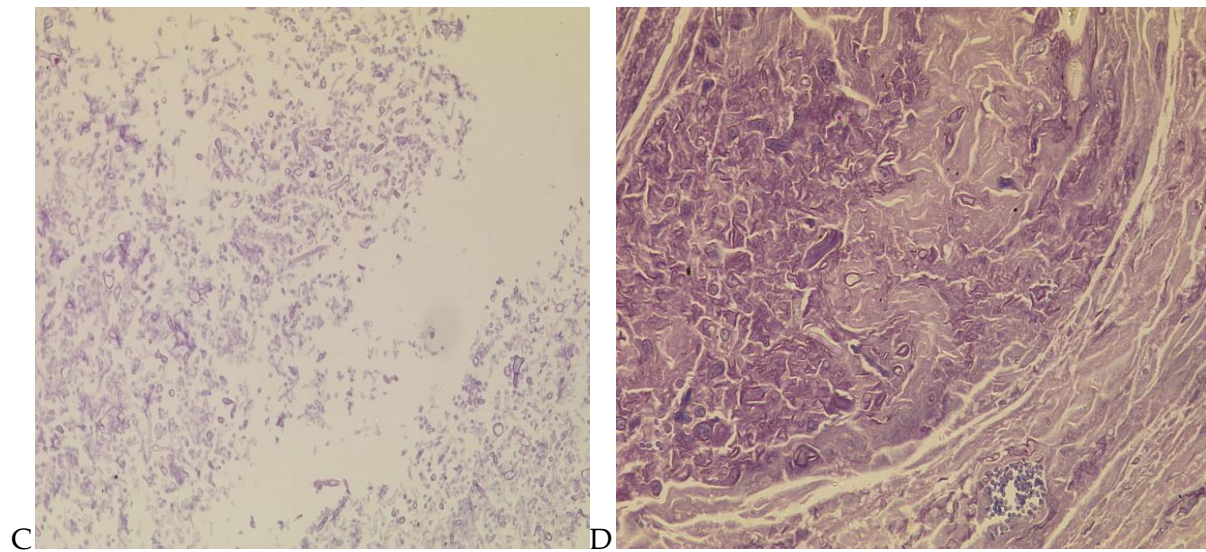


Figure 2 above A and B: CT-IVU excretory phase axial and sagittal reformatted images showing an irregular intravesical mass that has multiple air pockets.



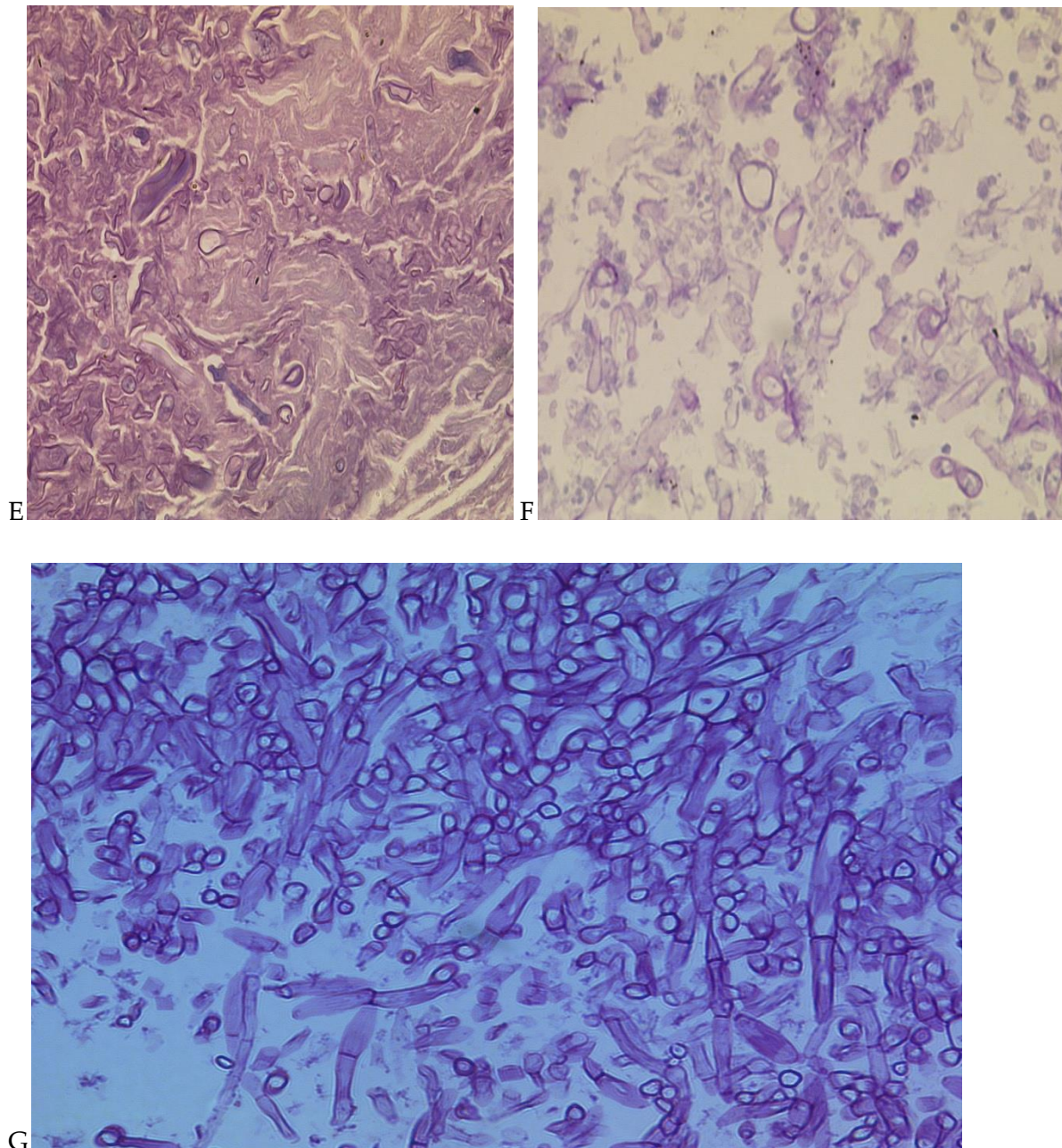


Figure 3: C, D, E and F show the fungal bodies in Low and high magnification while G shows PAS stain with round and branching fungal bodies.

DISCUSSION

Urinary bladder fungal ball in immunocompromised individuals is a common cause of urine retention and urethral catheter blockage⁵. A fungus ball can 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 hydronephrosis⁶. There are three routes of transmission, ascending infections (usually from indwelling bladder catheters), trauma or surgical interventions and haematogenous spread (common in immunocompromised individuals)⁴. Treatment is usually with

Fluconazole and Amphotericin B^{6,7}. The patient in this case report was kept on fluconazole 150mg once per day for a period of nine weeks with complete resolution of fungal ball mass, urethral mass protrusion and

obstructive lower urinary tract symptoms. There were also no more episodes of urine retention reported thereafter. Control ultrasound at the end of treatment was normal (Figure 4).



Figure 4: Bladder sonography in which the urinary bladder has no any mass

CONCLUSION

Urinary tract fungal infection is a relatively common phenomenon however urinary bladder fungal ball and emphysematous cystitis is extremely rare in medical literature and commonly occur in immunocompromised individuals, debilitated patients, ICU patients in vegetative state and neonates in neonatal intensive care unit (NICU). The treatment of fungal infection is fluconazole and Amphotericin B. However, for urinary bladder fungal ball the recommended choice is oral fluconazole while Amphotericin B is mainly reserved for upper urinary tract fungal infection.

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