

Fungal bezoars mimicking an enterovesical fistula: an unique case report.

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Introduction

Fungal colonization or infection of the urinary tract system is relatively common in patients with diabetes or a compromised immune system. Fungal, intravesical bezoars however are extremely rare.

We present an unique case with multiple, gas-holding fungals bezoars and emphysematous cystitis caused by *Candida tropicalis*.

Case report

A 74-year old male patient with a medical history of type 2 diabetes mellitus, chronic kidney failure and atrial fibrillation was referred to the emergency department because of macroscopic haematuria and myctalgia, for which the general practitioner already started 3 courses of antibiotics.

He also suffered from prostate cancer for which he underwent irradiation therapy. The patient had no fever and was not in retention. He complained however of severe pneumaturia.

Laboratories showed no leukocytosis, creatinine of 1.46 cc/dL, eGFR of 49 cc/min/1.73 m² and a hemoglobin of 8.9 g/dL.

Urinalysis showed pyuria and massive haematuria. A treatment with fluconazole and amoxicilline with clavulanic acid was empirically initiated.

Ultrasound demonstrated multiple intravesical hyperechoic semicircular structures with coarse acoustic shadowing, mobile under external pressure. The scout-view showed round densities mingled with air bubbles, packed together in the pelvis. These lesions were ball-shaped and had a mottled aspect on Computed Tomography (CT), resembling intravesical feces.

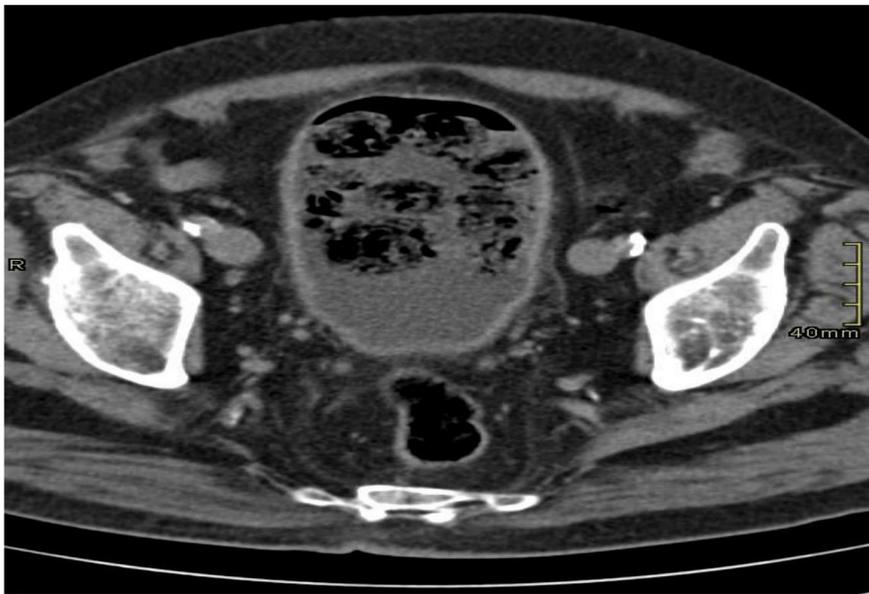


Fig 1: Axial reconstruction of an abdominal computed tomography scan. The bladder is filled with fluid and fecaloid material. A small amount of gas is seen in the anterior part of the bladder. The fecaloid material in the bladder is a fungus producing gas due to anaerobic metabolism.

Urine culture showed a *Candida tropicalis* and fluconazole 200 mg daily orally was continued.

After 3 days of systematic antifungal therapy a cystoscopy was performed which showed large, white balls very suggestive for fungal bezoars.



The fungal bezoars were resected after an additional week of orally fluconazole 200 mg daily and withdrawal of the bleeding diathesis medication.

Continuous rinsing with saline was enhanced during the next 2 days after which the catheter was removed and the patient was discharged. An additional daily dose of 100 mg orally fluconazole days was prescribed for the next 14 days.

Discussion

An increase of 300 % in the prevalence of opportunistic fungal infections over the last decade has been described with *Candida albicans* as most common fungus. Although candiduria is mostly asymptomatic and requires no further treatment, underlying immunosuppression can lead to candidaemia which carries a significant morbidity and mortality rate.

Patients with diabetes are particularly susceptible to these opportunistic infections because of their immunodeficiency but also due to the glucosuria which is an excellent growth medium for the fungi. Other predisposing factors are recent broad-spectrum antibiotic usage, indwelling catheters and urinary tract instrumentation.

Although candiduria is relatively common and is yielded in 5% of the urinary cultures and even in 26.5% of the UTIs with indwelling catheters, intravesical bezoars are extremely rare and only 20 cases have been reported since their first description in 1961. Fungal bezoars with emphysematous cystitis are even more rare and are only described 3 times.

This is to our knowledge the first description of several, large, loose intravesical fungal bezoars with a faeces-like appearance on CT-scan. The treatment of fungal bezoars is still controversial and the Infectious Disease Guidelines were based on low-quality evidence.

An operative and a non-operative approach could be used. A literature study was performed by Rohloff et al. in which 15 case reports were compared and they concluded that both options have advantageous outcomes (3). The surgical approach consists of endoscopic bladder wash, transurethral resection of the bezoars and cystotomy. The medical approach involves local antifungals, spontaneous expulsion or systemic antifungals.

The use of intravesical bladder irrigation with Amphotericin B (ABBI) is controversial and expensive due to the lack of reimbursement. To our knowledge no randomized trials compare saline rinsing with ABBI for fungal bezoars.

Tuon et al. performed a meta-analysis comparing ABBI with systematic antifungals in patients with asymptomatic therapy and showed that ABBI gives better *Candida* clearance rates in the first days but no difference was observed after one week. ABBI could be preferred in patients with renal insufficiency with an optimal treatment duration of 5 days but should according to the authors only be used for asymptomatic candiduria because it doesn't offer systemic therapy.

Jacobs et al. report in their randomized controlled trial in elderly patients with fungal urinary tract infection a higher eradication rate in patients treated with ABBI but a higher mortality rate was observed compared to patients treated with systemic antifungals.

Sobel et al. performed a randomized, controlled trial concerning fungal eradication using fluconazole or placebo in patients with asymptomatic candiduria. The clearance rate in patients with a bladder catheter was similar in treated and untreated patients. They conclude that antifungal therapy may only result in a short-term clearance and that catheter removal is the main treatment to prevent further colonization. Surgical and non-surgical therapies are as such comparable and the potential for higher clearance rates in surgical therapy should be weighed against the operative risks.

Conclusions

Fungal bezoars and emphysematous cystitis should be suspected in patients with diabetes mellitus or immunosuppression complaining of pneumaturia. Treatment options include surgical and non-surgical methods in which the higher clearance rate by surgery should be weighed against the operative risks.

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