THE ASEAN JOURNAL OF RADIOLOGY
ISSN 2672-9393

Case Report

Faecaloid like material in the urinary bladder: A radiological finding in a patient with urinary tract fungal bezoar infection

Abdul Hadi Shamsul Bahrin, M.D.[(1)]
Ahmad Aizuddin Mohamad Jamali, M.D.[(2)]
Khairil Amir Sayuti, M.D.[(2)]
Juhara Haron, M.D.[(2)]
Zul Khairul Azwadi Ismail, M.D.[(2)]
Othman Puteh, M.D.[(2)]
Mohamed Ashraf Mohamed Daud, M.D.[(3)]
From [(1)] Medical Officer, Department of Radiology, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia.
[(2)] Radiologist, Department of Radiology, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia.
[(3)] Urologist, Department of Surgery, School of Medical Sciences, Universiti Sains Malaysia, Kubang Kerian, Kelantan, Malaysia.
Address correspondence to A.A.M.J.(e-mail: aizuddinjamali@usm.my)

Received 30 June 2023; revised 10 October 2023; accepted 10 October 2023
doi:10.46475/asean-jr.v24i3.870

Abstract

Fungal colonization or infection of the urinary tract system is caused by *Candida* species. Fungal intravesical bezoars, however, are extremely rare. Radiological features may mimic the appearance of emphysematous cystitis, which makes the radiological diagnosis challenging. We present an unusual case of urinary bladder fungal bezoar caused by *Candida tropicalis.*

Keywords: Computed tomography, Cystoscopy, Radiography, Urinary tract fungal bezoar.

Introduction

Infection of the urinary tract due to candida is rare and occurs in about 2% of the urinary tract infection [1,2]. It usually happened in a host with a compromised immune function. Predisposing factors include diabetes mellitus, immunocompromise, a steroid therapy, a neurogenic bladder, antibiotic usage, and an indwelling Foley catheter. A rare complication that might happen is the formation of a fungus ball leading to urinary tract obstruction. The radiological appearance of urinary tract bezoar infection is the purpose of the discussion of this rare entity.

Case summary

A 47-year-old male patient with underlying type 2 diabetes mellitus and a history of bladder calculus was referred to the emergency department for intermittent macroscopic hematuria with lower urinary tract symptoms. The patient had no fever and dysuria. Blood investigations showed no leukocytosis, creatinine of 176 umol/L and hemoglobin of 10.7 g/dl. A urinalysis showed mixed pus and red blood cells. The patient was started empirically on cefuroxime with a provisional diagnosis of urinary tract infection secondary to possible urinary tract calculi.

The initial radiograph showed a large amount of faecal-like material seen in the pelvic region (Figure 1). Subsequently, the patient underwent plain computed tomography of kidneys, ureters, and the urinary bladder. The study showed a dilated left pelvicalyceal system with multiple faecaloid materials within the left renal pelvis until the proximal ureter (Figure 2). The Axial and coronal section showed distended urinary bladder with numerous faecaloid materials which caused obstruction of the bilateral vesicoureteral junction (Figure 3 and 4). The faecaloid material appeared like faeces within the colon. No perinephric, periureteric or peri-vesical fat stranding was seen. Adjusting to wide windowing contrast of the CT image could depict a spherical shape of fungal bezoar much better[3](Figure 5).

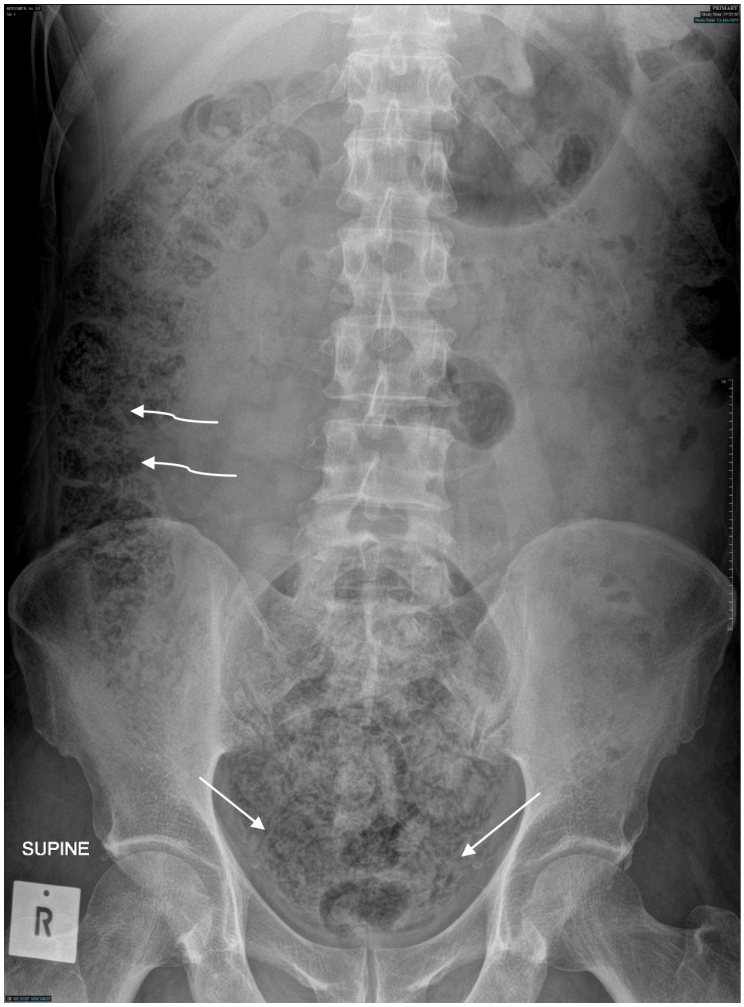

Figure 1. *Supine abdominal radiograph. It showed faecal loaded appearance at the pelvic region (arrow) similar to faecal loaded seen along the ascending colon (curve arrow).*

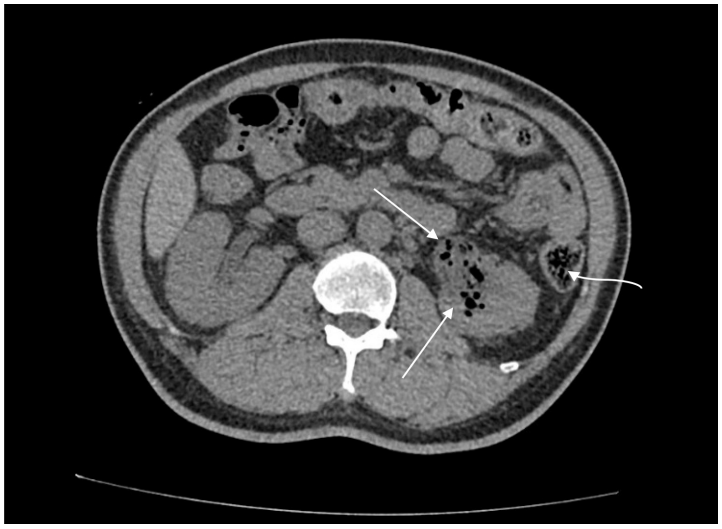

Figure 2. *Axial image of plain computed tomography at the renal level. The dilated left pelvicalyceal system with multiple fecaloid materials within the left renal pelvis(arrow) until the proximal ureter was observed. Note that it appears similar to faecal materials within the descending colon (curve arrow).*

Figure 3. *Axial image of plain computed tomography at the urinary bladder level. The distended urinary bladder with numerous fecaloid materials (arrow) which caused obstruction of the bilateral vesicoureteral junction was observed.*

Figure 4. *Coronal image of plain computed tomography. It showed faecaloid materials filling the urinary bladder and the left pelvicalyceal system(arrow). Note how it appears similar to the faecal materials in the sigmoid and the descending colon (curve arrow).*

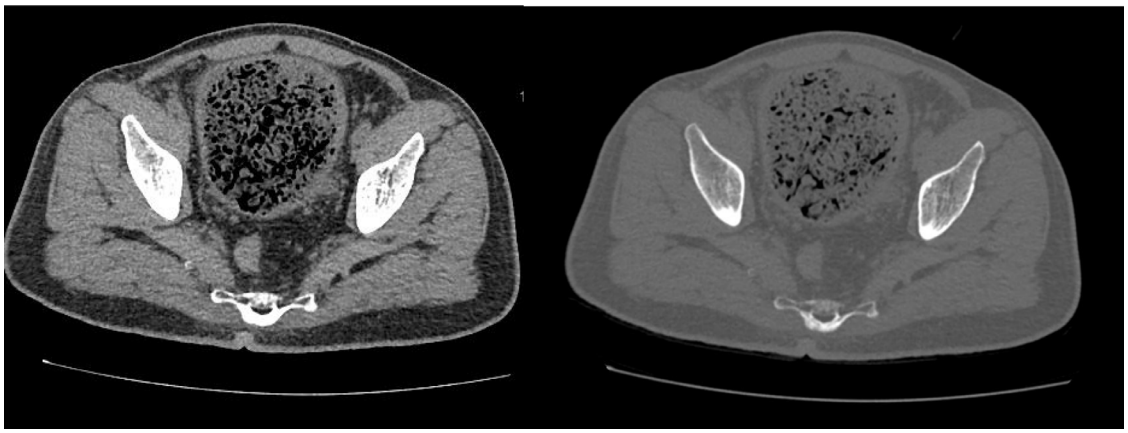

Figure 5. *Same axial images of plain computed tomography were shown in different windowing settings. The left image showed narrow windowing (WW400, WL40), while the right image showed more wider windowing (WW1000, WL100). The right image showed a better delineate spherical shape of fungal bezoars.*

Urine cultured yielded *Candida tropicalis* and intravenous micafungin were initiated. Subsequent cystoscopy was performed which shows numerous matrix stones consisting of fungal bezoar with minimal blood clots (Figure 6). The matrix stones and blood clots were evacuated endoscopically using an ellick evacuator. Approximately 400g of matrix stones were evacuated (Figure 7). Chronic cystitis features were noted in the bladder wall. A biopsy from the bladder wall was taken. Microscopic examination of the biopsy showed features of fungal cystitis.

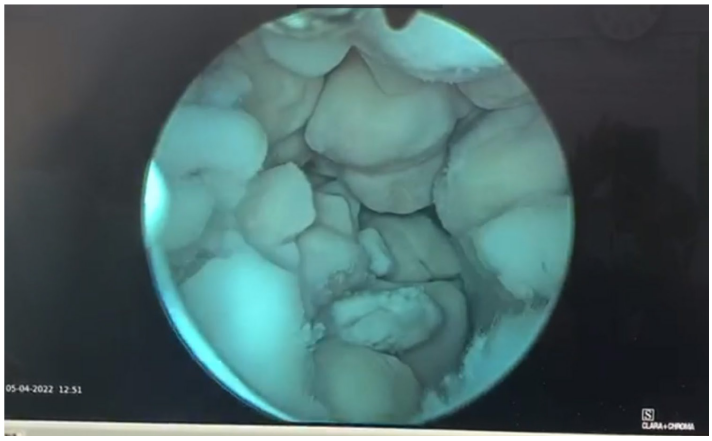

Figure 6. *Cystoscopy showed matrix stones consisting of fungal bezoars.*

Figure 7. *The picture showed content evacuated from the urinary bladder. Approximately 400g of matrix stones were evacuated with blood clots.*

THE ASEAN JOURNAL OF RADIOLOGY
ISSN 2672-9393

Discussion

Bezoar fungal formation is a rare complication with only twenty cases reported since their first report in 1961 [4]. Immunocompromised patients such as diabetes mellitus, prolonged use of steroid therapy, broad spectrum antibiotics, a neurogenic bladder and an indwelling Foley catheter are common predisposing factors [5]. Like in our patients which have poor control of diabetes mellitus as a risk factor causing immunodeficiency and glycosuria, a good medium for fungal growth [6].

In terms of radiological imaging, intravenous urography can demonstrate presence of filling defects in the pelvicalyceal system or in the urinary bladder, but these findings lack specificity for the diagnosis to be made [2,7]. Sonographic appearance shows echogenic masses with or without posterior acoustic shadowing in contrast to the anechoic urine in the pelvicalyceal system [7]. Observing the CT image with the soft tissue window, we may see faecaloid material in the urinary bladder like in this case. The differential diagnosis includes colovesicular fistula, but differentiation can be established clinically. If we adjust wider window width, we can better depict a spherical shape of the numerous fungal bezoars packing in the urinary bladder. Window setting is a helpful method for diagnosing fungal bezoar.

Operative and non-operative management could be used for the treatment of this entity. Rohloff et al. [8] performed a study in which fifteen case reports were compared and concluded that both options had advantages. The operative management consists of cystoscopy bladder wash out and resection of the bezoars, while the non-operative management includes systemic antifungal medication, local antifungals, or spontaneous expulsion.

Conclusion

The case of urinary bladder fungal bezoar infection should be suspected in patients with compromised immune status. Radiological features of the fungal bezoar mimic the appearance of the faecal material in the large bowels. Adjusting windowing technique to a more wider windowing level may allow clinicians and radiologist to get an accurate diagnosis and can better depict the appearance of the fungal ball, thus helping the managing team to give the best treatment for the patient.

Conflicts of interest

The authors have no potential conflicts of interest to report regarding this presentation.

THE ASEAN JOURNAL OF RADIOLOGY
ISSN 2672-9393

References

1. Fisher JF, Chew WH, Shadomy S, Duma RJ, Mayhall CG, House WC. Urinary tract infections due to Candida albicans. Rev Infect Dis 1982;4:1107–18. doi: 10.1093/clinids/4.6.1107.

2. Comiter CV, McDonald M, Minton J, Yalla SV. Fungal bezoar and bladder rupture secondary to candida tropicalis. Urology 1996;47:439-41. doi: 10.1016/S0090-4295(99)80470-1.

3. Henning GM, Chow AK. A bladder full of bezoars: A bizarre finding on CT imaging. Urology 2020;141:e28-9. doi: 10.1016/j.urology.2020.04.013.

4. McDonald DF, Fagan CJ. Fungus balls in the urinary bladder. Case report. Am J Roentgenol Radium Ther Nucl Med 1972;114:753–7. doi: 10.2214/ajr.114.4.753.5.

5. Kumari P, Kan VL. Bladder rupture attributed to candida albicans bezoar. Infect Dis Clin Pract 10:271-2. doi:10.1097/00019048-200106000-00006.

6. Takemura K, Takazawa R, Kohno Y, Yoshida S, Kato H, Tsujii T. Vesical fungus balls (fungal bezoars) by Candida albicans mimicking urothelial carcinoma in a patient with diabetic neurogenic bladder. Urol Case Rep 2018;18:50–1. doi: 10.1016/j.eucr.2018.03.005.

7. Kale H, Narlawar RS, Rathod K. Renal fungal ball: an unusual sonographic finding. J Clin Ultrasound 2002;30:178–80. doi: 10.1002/jcu.10049.

8. Rohloff MA, Shakuri-Rad J, Dehaan AP. Candida bezoars in adults: determining optimal management. J Endourol Case Rep 2017;3:45–8. doi: 10.1089/cren.2017.0021.