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Case Report

Infectious Diseases section

A Renal Bezoar of *Epicoccum nigrum*: An Unusual Clinical Curiosity

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ABSTRACT

A 27-year-old male with a history of previous Percutaneous Nephrolithotomy (PCNL) was admitted to a tertiary care hospital with fever and pain in the left flank. An ultrasonogram revealed left renal calculi with severe hydronephrosis. A DJ stent was deployed as the patient had clinical signs of sepsis. Once he was clinically stable, the patient was treated by redo PCNL. The material which was extricated from the collecting system revealed the presence of the fungus, *Epicoccum nigrum*. Although they were uncommon in the past, fungal infections of the urinary tract are apparently increasing in frequency because of the more aggressive endourological procedures. We are reporting this case to highlight the need for maintaining aseptic procedures during any surgical procedure, the use of imaging techniques and the treatment options which are available in cases of renal bezoars.

Key Words: Renal Bezoar, *Epicoccum nigrum,* PCNL, Endourological procedures

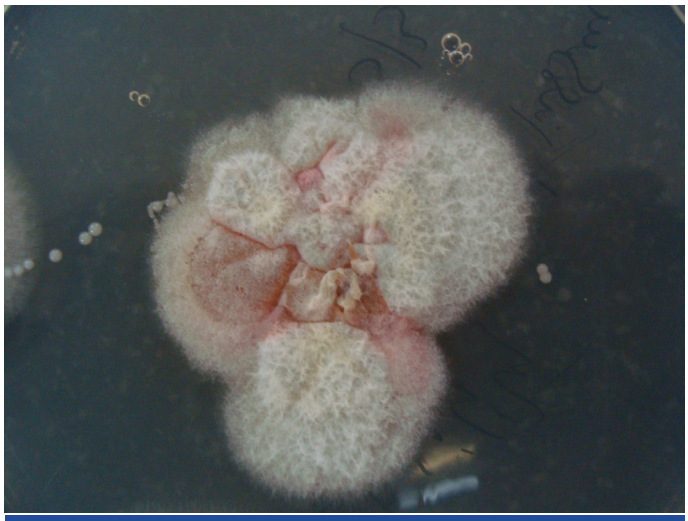
INTRODUCTION

Most of the fungal infections of the urinary tract involve the drainage structures rather than the kidney parenchyma. They usually occur in patients with diabetes or other chronic debilitating diseases and in the presence of urinary stasis [1]. In the present era of endourological procedures, fungal organisms are a major source of nosocomial urinary tract infections. Most often, the infection is caused by Candida, Mucor and Aspergillus, but sometimes, rare fungi are also observed to infect humans [2]. We are reporting here a case of Epicoccum pyelonephritis in a patient who had undergone an endourological procedure for renal stones. This report lays stress on the need for the maintenance of asepsis during any invasive procedure and on the requirement of antifungal treatment to prevent the occurrence of irreversible renal failure.

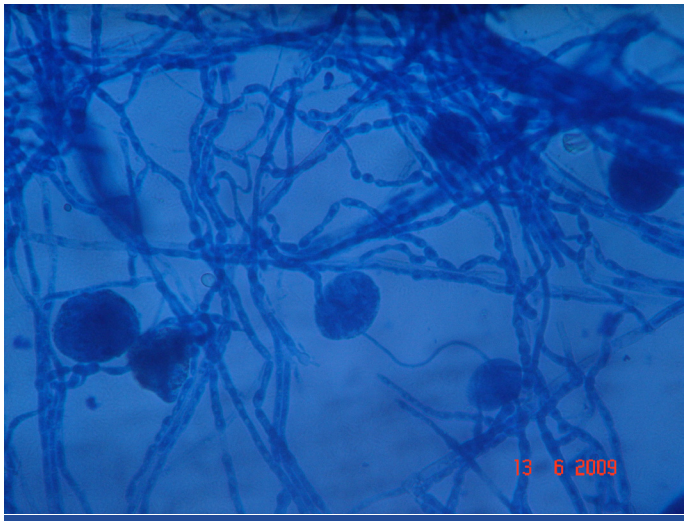
CASE HISTORY

A 27-year-old male who was engaged in marble masonary was admitted to a tertiary care hospital in May 2009, complaining of the loss of appetite, general fatigue, left (L) flank pain and fever ever since he had undergone a PCNL for the removal of renal stones, which was performed elsewhere, six months prior to his presentation to the hospital. His medical history was otherwise normal. On physical examination, the patient was found to be febrile and he had tenderness in the left costovertebral angle. The results of his laboratory studies were as follows: blood urea nitrogen- 14 mg/dL; creatinine- 0.9 mg/dL; the ELISA tests for the HIV antibodies and HBsAg were negative. Urinalysis showed pyuria. Ultrasound revealed left sided hydronephrosis with echogenic material within. In order to drain the infected system and to control the sepsis, DJ stenting (L) was done as the retrograde study of the ureter had shown a filling defect (2.5cm) in the (L) dilated pelvicalyceal system. Two weeks later, a redo PCNL was done to clear the debris from the left renal pelvis. The extricated material which was thought to be a matrix stone, was found to be brownish and cheesy macroscopically [Table/Fig-1] Renal matrix stone. The microscopic examination of a potassium hyrodroxide preparation revealed the presence of septate hyphae. The culture grew a brown coloured velvety colony of three to four days duration [Table/Fig-2a] – Fungal growth on SDA with antibiotics. A lactophenol cotton blue preparation from the culture revealed the presence of septate hyphae with septate conidia, which measured 15-20 microns [Table/Fig-2b] – LCB preparation. The culture was identified as *Epicoccum nigrum*. The patient was treated with fluconazole 150mg weekly and three weeks later, the DJ stent which was deployed during the (L) PCNL was removed. At discharge, the serum creatinine level of the patient was found to be normal and the urine culture was negative. Three months later, the patient presented with mild left flank pain. A radionuclide scan showed a poor functioning left renal unit. His renal functional parameters (urea and creatinine) however were normal. His urine culture grew *Epicoccum nigrum* again. The patient was started on Liposomal Amphotericin B and also oral Voriconazole 200mg bd and this treatment was continued for two weeks. The patient recovered completely and for the past

[Table/Fig-1]: Renal matrix stone



[Table/Fig-2a]: Fungal growth on SDA with antibiotics



[Table/Fig-2b]: Lactophenol cotton blue preparation from growth

one year, he has been asymptomatic. There was no growth in his repeat urine cultures and his renal functional parameters were normal.

DISCUSSION

The frequency of invasive fungal infections is increasing, owing to the increasing number and the improved survival of immuno-compromised patients, though rarely apparently healthy individuals are also infected [3]. In our case, the patient was apparently healthy but he had a history of undergoing PCNL for the removal of renal stones. The fungus is known to be present on stones and due to his marble cutting occupation, it may have colonized on the patient's skin. The fungus may have been introduced into the renal system during the initial procedure.

Epicoccum nigrum is a saprophytic fungus which is recovered from soil and decaying vegetation. This ubiquitious fungus grows on cellulose surfaces under cool and moist conditions. It grows on building materials like paper, marble and stones and therefore, it may be present in the environment. Usually, it causes hay fever or asthma kind of allergic manifestations. It is not known to have caused any human infection as such. It produces toxins which act like the antibiotics, flavipin, epicorazine A and B and indole-3-acetonitrile [4].

The immune status of the patient was good. Therefore, it was quite possible that this fungus may have been limited only to the renal pelvis, where it was found to obstruct the renal system. A complete obstruction may have given rise to a urosepsis-like picture. The removal of the renal mass with good hydration helped the patient in improving. The patient was not on any antifungal treatment for the above condition. Some amount of fungus may have been retained in the renal tissue or the toxins which were released by the fungus may have contributed to the slow degeneration of the renal tissue, which may have then contributed to the poor functioning, as was revealed by the radionuclide scan.

An early diagnosis and treatment of any fungal infection is essential in decreasing the morbidity and the mortality. In recent years, the increased use of computed tomographic scanning and other imaging techniques have helped in rapid diagnosis of renal fungal infections. Endourological interventions help in relieving and treating the obstructions which are caused by fungal infections. The treatment, by way of percutaneous nephrostomy, may help the patient by aiding in the diagnosis of the fungus, irrigation of the renal system with toxic antifungals and improvement in the renal function due to urinary diversion [5]. The new anti-fungal drug, voriconazole, helps in the treatment of the cases with a dematiaceous fungus, like Epicoccum species [6].

Fungal urinary tract infections mayoccur in two ways: systemic invasion from fungal sepsis, and ascending infection from the bladder. In the present case, the reason was neither of them. It was due to a possible implantation of the fungus during the first invasive procedure. This stresses on the need for the maintenance of strict aseptic procedures while any kind of endourological procedures are being conducted. Proper surgical cleaning of the site of operation is a primary requirement. This case also points to the fact that mere surgical removal of the bezoar may not be sufficient, and chemoprophylaxis with an appropriate antifungal treatment to prevent the occurrence of irreversible renal damage is mandatory.

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