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Mucormycosis in a Case of Fever with Nephrolithiasis

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Renal mucormycosis without involvement of the nasal sinuses is an extremely rare opportunistic infection. We report the case of mucormycosis who was negative for the human immunodeficiency virus who presented with fever and fatique and urging. Three sets of blood and urine cultures have collected. Two of the urine samples were revealed mucor with nonseptated hyphal fragments in direct preparation and culture also. The patient was treated with 1mg/kg/day amphotericin B for 2-weeks period. The patient had no residual dysfunction after treatment. This case suggests the importance of culture collection in fungal infection even in the absence of underlying disease.

Key Words: Mucor, Pyelonephritis

Ateşle Gelen Böbrek Taşı Vakasında Mukormikoz İnfeksiyonu:Vaka sunumu

Nazal orijin olmadan izole renal mukormikoz oldukça nadir bir oportunistik infeksiyondur. Burada; HIV negatif olup tekrarlayan ateş yorgunluk ve acil işeme hissi ile gelen hastada mukor infeksiyonu sunulmuştur. Üç set kan ve idrar kültürleri alınmıştır. İki adet idrar kültüründe ve idrarın direkt mikroskobik incelemesinde septasız hifli fragmentler içeren mantar elemanları görülmüş yapılan fungal kültüründe Mukor üremiştir. Hasta 1mg/kg/gün amfoterisin iki hafta verilerek tedavi edilmiş ve hasta tedaviden sonra herhangi bir rezidüel disfonksiyon olmadan taburcu edilmiştir. Bu vaka altta yatan bağışık defekti olmayan vakada bile mukor infeksiyonu yönünden kültürün önemini vurgulamaktadır.

Anahtar Kelimeler: Mukor, Pyelonefrit

A 60 year old man presented with fever, side pain and hematuria lasting for two weeks. In his genitourinary examination, infravesical obstruction was demonstrated. He reported that he has become fatigue and increasingly ill over the last two weeks. He has a history of recurrent stone discharge and ureterorenoscopic stone removel 2 weeks ago. There was no history of immunosupression. His medical and family history was unremarkable. He was negative for the human immunodeficiency virus (HIV).

There were no evidences of nasal inflammation or infection. At urological examination, he had a fever of 39 ˚C, heart rate of 110 beat/minute and arterial tension of 114/78 mmHg. Ultrasonography revealed bilateral ureterohydronephrosis. Patient was hospitalized in urology clinic. He complained of fever increasing with trembling and sometimes decreasing to normal, nausea, vomiting, dyspnea, cough, and anorexia. He had no other complaints. Left costovertebral angle tenderness was established at physical examination. Hemogram and serum biochemistry analyses determined; 13.4 g/dL hemoglobin, 22300 white blood cells per milliliter of blood, 90.2% neutrophile, 60.6% lymphocyte, 42 mg/dL urea, and 2.1 mg/dL creatinine. Patient was free from a stone spontaneously immediately before the operation.

His hydronephrosis was improved, but high fever (sometimes 39 ˚C) continued. Because the urine culture yielded *Mucor,* amphotericin B treatment was started. Microscopic analysis of the urine showed abundant leukocytes and erythrocytes. There were wide, nonseptate hyphal fragments indirect examination of urine, typical of the *Mucoraceae*. Two of the urinary fungal cultures were positive. The patient received 1mg/kg/day amphotericin B within 2-weeks period. At the conclusion of therapy, patient's symptoms resolved, and he has returned to employment. At the end of this treatment patient was discharged home. Three weeks later patient was re-hospitalized. He had again severe pain in left costovertebral angle in physical examination.

Benign prostate hyperplasia and left uretero-hydronephrosis were defined in ultrasonography. His hemoglobin, white blood cells, urea and creatinine were in normal ranges. Urine analysis revealed abundant erythrocytes and leukocyte. Patient underwent endoscopic bladder stone removal, left diagnostic ureterorenoscopy and transurethral prostatectomy operations at the same time. Postoperatively hemoglobin and white blood cells were 11.6 g/dL and 16000 per milliliter of blood, respectively. Serum biochemistry was normal. Having started ciprofloxacin treatment at the dose of 750 mg twice a day, patient was discharged home. .

DISCUSSION

Genera from the order Mucorales (Rhizopus, Mucor, Rhizomucor, Absidia, Apophysomyces, Cunninghamella and Saksenaea) cause an angioinvasive infection called mucormycosis.[1] Mucormycosis presents with rhino-orbito-cerebral, pulmonary, disseminated, cutaneous, or gastrointestinal involvement. Rhinoorbital mucormycosis is the most common form. Immunocompromising states such as haematological malignancy, bone marrow or peripheral blood stem cell transplantation, neutropenia, solid organ transplantation, diabetes mellitus with or without ketoacidosis, corticosteroids, and deferoxamine therapy for iron overload predispose patients to infection.[1]

Over recent years the clinical importance of mucormycosis has significantly increased. Most frequently mucormycosis occurs in neutropenic patients with haematological diseases. Diagnosis of mucormycosis is difficult as it is based on culture methods or microscopy of clinical specimens.[2] Diagnosis depends on a histological demonstration of fungi in tissue samples with or without subsequent culture confirmation.[3,4]

More than 90% of the previously described cases of human mucormycosis have occurred in immunocompromised patients with such diseases as diabetic ketoacidosis, renal failure with acidosis, hematological or solid neoplasms, penetrating head trauma, burns, cirrhosis, chronic steroid or antibiotic use or intravenous drug abuse.[5-11]

Mucormycosis in immunocompetent hosts is rare, and is often related to trauma or foreign devices. Genitourinary mucormycosis has been reported rarely in literature. Isolated renal mucormycosis is an uncommon kidney infection affecting patients with underlying systemic diseases and intravenous (IV) drug abuse. Florentine et al[12] has reported mucor pyelonephritis in a diabetic and IV drug user patient. Williams et al[13] has reported a penil necrosis due to mucormycosis.

Since the patient had no immunocompromising states, contamination with previous urinary catheterization seems to be a predisposing factor for mucor infection in our case. Various substances can increase the infectivity of the *Mucor* inocula (including colloidal carbon, iron, and cortisol).[1] Similarly bladder mucormycosis has also been documented by Perez et al[14] in a patient with permanent bladder catheter.

Although it is rarely seen, genitourinary mucormycosis should also be considered in the differential diagnosis in patients who present symptoms of acute pyelonephritis with history of urinary tract operation or catheterization, in the absence of immunocompromising states.

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