CASE REPORT

Renal Invasive Aspergilloma: Unusual Infection in AIDS

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Invasive aspergillosis is a devastating infection that mainly affects immunocompromised hosts. Nevertheless it is not a common infection in AIDS probably due to specific immune aspects. Even more rare in this group of patients is infection limited to the kidney without dissemination as occurred in our case reported here. He had heroin addiction, AIDS in advanced stage C3, neutropenia and received antifungal prophylaxis as predisposing factors to aspergillosis. Despite correct therapy with Amphotericine B and drainage of one of the abscesses, he died due to antibiotic side-effects and persistence of not-drained contralateral abscess. Our experience supports the fact that we should have a high index of suspicion for fungal aetiology in kidney infection in AIDS patients with predisposing factors discussed in the text, in order to make early diagnosis and to establish prompt aggressive antifungal therapy supported by drainage of fungus collections, or even nephrectomy if required.

Introduction

Isolated renal involvement by aspergillus is a very unusual disease which mostly develops in patients with a severe immunity disorder. Nevertheless it is seldom diagnosed in AIDS, despite the underlying immune defect. In fact only two cases of such infection have been described in AIDS population to the best of our knowledge. We report a new case of isolated renal aspergillosis in a patient with AIDS and its therapeutic challenge.

Case Report

The patient was a 29-year-old male intravenous drug user, known to have positive HIV serology for 4 years and diagnosed of AIDS after oesophagic candidiasis. Ten days before admission he began with right upper abdominal pain referred to the back and temperature of 39°C. On admission, abdominal examination revealed hepatomegaly spanning 4 cm as well as splenomegaly with tenderness over both costovertebral angles. Laboratory data revealed a haematocrit of 39%, haemoglobin of 13 g/d, white blood cells of 3.1 x 10^9/l with 0.4 x 10^9/l lymphocytes with an absolute CD4 lymphocyte count of 70. Urinalysis was normal. Blood, faeces and urine cultures were repeatedly negative. Serology for different pathogens was negative. CT scan with endovenous contrast disclosed an enlarged left kidney with a 3 cm hypodense mass which destroyed parenchyma and progressed to posterior left pararenal space with inflammation of perinephric fat. With suspicion of infectious pyelonephritis and perinephritis, empirical treatment was started with cefotaxime (8 g/day) and netilmicine (300 mg/day). The fever disappeared but pain remained. A new CT scan a week after showed an enlargement of the mass and a new one in the right kidney (Figure 1). In view of this progression, percutaneous needle aspiration was performed under US control. 10 cc of chocolate-coloured pus was drained from left renal mass. Right mass was not drained due to...

Figure 1. Abdominal CT scan showing a hypodense cystic mass in left kidney with posterior extension to left psoas muscle and a 4 cm mass in the right kidney displacing excretory system.
technical problems. After this procedure the pain almost disappeared. Culture of this substance yielded *Aspergillus fumigatus* with intermediate susceptibility to imidazoles and sensitive only to Amphotericin which was started with 1 mg/kg/day for 22 days. After a total dose of 1,400 mg, response was satisfactory but the patient developed pancytopenia secondary to medication that precluded its further use. Maintenance therapy was then continued with fluconazol, despite its weak effectiveness. A new CT scan showed at this moment complete normalization of left kidney but persistence of a smaller right mass (Figure 2). Two weeks after amphotericine interruption, fever reappeared with mental disability and several generalized seizures worsening his situation. He did not respond to antitoxoplasma therapy. Cerebral CT scan showed several round masses suggesting aspergillus broad dissemination. The patient died and necropsia was denied.

**Discussion**

Different species of *Aspergillus* can cause human disease, but the most commonly involved is *A. fumigatus*. Although the exposure to this fungus is worldwide, the development of the disease requires predisposing host conditions. It is actually a saprophyte and only becomes a pathogen for man in certain conditions. Those situations include most of the weakening illnesses such as diabetes, alcoholism, tuberculosis, granulomatous diseases but it is mainly reported in patients with severe immunodepression situations such as organ transplant, steroid therapy, haematologic malignancies, chemotherapy or broad spectrum antibiotics. Nevertheless the low incidence of this infection in patients with AIDS is surprising. This can be due to the selective T-cell involvement in AIDS with relative preservation of neutrophil and macrophage phagocytic function, principle agents with antifungal action whose defect may allow the development of aspergillosis usually with disseminated forms. In that way it has also been reported in AIDS with severe neutropenia and probably facilitated by drugs such as antiviral agents, steroids or broad-spectrum antibiotics. The commonest form of aspergillosis is pulmonary disease. Renal aspergillomas are extremely unusual. According to a literature review by Bibler from 1962 to 1986, and by ourselves up until 1993, 23 cases of renal aspergillosis have been published. Renal parenchymal invasion is described in only three; the rest of the cases were located somewhere along the excretory system with obstructive clinical forms produced by fungus balls. To date only two cases of renal aspergillomas in patients with AIDS as invasive forms are reported, both were fatal despite treatment. To the best of our knowledge, this is the third case of invasive renal aspergillosis in AIDS.

Our patient was an intravenous drug abuser and was known to have stage C 3 HIV infection for 2 years. As predisposing factors he had severe neutropenia, low CD4 count, previous antibiotic prophylaxis for PCP and antifungal therapy, in addition to HIV disease. Only the aspirate of the collection yielded the diagnosis after several studies and empirical treatments. Renal aspergillosis remains a therapeutic challenge, especially for its underlying immunosuppression background. Conventional treatment consists of IV amphotericin B at a dose between 0.5 and 0.6 mg/kg/day, that is a total course from 940 to 2500 mg. Despite correct therapy, the mortality rate is still high in invasive forms. Another drawback is bone marrow toxicity which is frequent and cumulative dose-dependent. Good results have been lately reported with azoles such as itraconazole with better outcome in pulmonary disease than for other sites such as the kidney, where drugs excreted in the urine may be more effective. Nevertheless, high variability in serum itraconazole concentration among patients with AIDS has been reported and, together with the low susceptibility in our patient, was a drawback for its use. Our results support previous experience that emphasize the need of surgical drainage; drained kidney showed normalization on CT scan but aspergilloma remained, despite thorough medical treatment for 22 days and maintenance therapy with fluconazole. Medical treatment alone was demonstrated to be unsatisfactory and this fatal case highlights the importance of drainage reinforced by indefinite secondary prophylaxis after complete treatment.

**Figure 2.** CT scan after left kidney drainage: disappearance of left abscess and persistence of the right one.
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in these immunocompromised patients. Although it is extremely unusual, we must have a high index of suspicion and consider the possibility of invasive aspergillosis in patients with AIDS and predisposing factors as discussed above, in order to establish promptly the proper treatment and perform special techniques such as drainage or nephrectomy, if necessary.

References