Isolated Kidney Localization of Invasive Aspergillosis in a Patient with AIDS

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Although the importance of Aspergillus in AIDS is now increasing, extra-pulmonary disease is still an unusual event, especially when a single localization occurs. A case of isolated renal aspergilloma in an AIDS patient is described. At onset, no recognized risk factors were present in our patient. An early surgical approach combined with antifungal chemotherapy (ambrotetocin B, Itraconazole) led to a good control of the disease, with no evidence of recrudescence at 8 months’ follow-up.

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INTRODUCTION

Aspergillus spp. is considered unusual as an agent of opportunistic infections in AIDS. Nevertheless its role as a pathogen in this disease is now increasing, probably due to prolonged survival and frequent occurrence of neutropenia and impaired macrophage function. Invasive disease is the Aspergillus infection most frequently reported, with prevalent localization to the lungs. Extrapulmonary disease is still rare, especially as a single, deep localization. We report a case of isolated renal aspergilloma, an extremely uncommon feature of invasive aspergillosis in AIDS patients.

CASE REPORT

A 28-year-old male, former intravenous drug user was admitted to the Division with a 2-week history of left lower back pain unresponsive to ketoprofen and with intermittent temperature up to 38°C, nocturnal sweating and a 5 kg weight loss over 1 month.

AIDS had been diagnosed 3 months earlier, due to Pneumocystis carinii pneumonia (PCP), which had been successfully treated with Co-trimoxazole plus prednisone. During the ensuing 2 months he had been well except for an ALT elevation detected 1 month after the onset of PCP which was ascribed to Co-trimoxazole toxicity. Abdominal ultrasound scanning revealed liver and spleen enlargement but the kidneys were normal. He was treated with zidovudine (250 mg b.i.d.) and aerosolized pentamidine once a month. On admission to hospital his temperature was 37.8°C, pulse 80 and blood pressure 130/80. The patient complained of severe pain in his left flank. On physical examination the abdomen was soft, not distended but tender in the left upper quadrant. Hepatomegaly and mild splenomegaly were noted.

Laboratory data showed a WBC count of $4.3 \times 10^9/\text{l}$, neutrophil count of $2.83 \times 10^9/\text{l}$, an absolute CD4 lymphocyte count of $8 \times 10^6/\text{l}$ and normal values of serum creatinine and electrolytes. The urinalysis revealed 20–30 WBCs per high-power field. Radiographs of the chest were normal.

A 60 × 57 mm round mass in the lower pole of the left kidney was detected by means of abdominal sonography. The lesion was surrounded by a thick hyperechoic wall with a complex, partly anechoic centre, consistent with a loculated abscess. A computer-steered tomographic (CT) scan confirmed the presence of a large heterogeneous mass in the lower pole of the left kidney with suspected extension to the perinephric fat and thickening of the ipsilateral psoas, quadratus lumborum and iliacus muscles.

There was no evidence of renal vein or inferior vena cava involvement (Fig. 1). A renal abscess was diagnosed. On the second day of hospitalization a needle aspiration of the mass yielded 7 cc of grey-yellow pus. Microscopic examination of the aspirate showed necrotic material, polymorphonuclear...
leukocytes and hyphae consistent with Aspergillus species. Itraconazole 200 mg orally twice daily was
instituted. Two days later, Aspergillus fumigatus was grown from the aspirate, while sputum, urine and
blood cultures remained negative. Two additional percutaneous aspirations were performed on days 5
and 7, both yielding 50 ml of yellow purulent material. A drainage tube was left in situ and amphotericin
B (25 mg diluted in 25 ml of 5% glucose solution) was administered daily by local instillation. On the
following days the patient remained febrile, with progressive deterioration of the general status,
increasing abdominal and left flank discomfort, anorexia, weight loss and occurrence of leukopenia. All
blood and urine cultures, and an Aspergillus serum antigen test were negative.

After 2 weeks of treatment the patient underwent a left nephrectomy. A bulging, variegated renal mass
with a polycyclic outline, 5 × 5 cm in size, was found in the lower pole. There was no macroscopical
evidence of extension to the perirenal tissues, ureter or vasa. Following nephrectomy a thorough
debridement of the perinephric fat and several biopsies and cultures from muscle tissue were performed.
Microscopic examination showed a single large abscess with central necrosis and cavitation and a
convoluted profile. A peripheral granulomatous reaction with histiocytes and a few multinucleated giant
cells was present. Some smaller abscesses in the surrounding renal parenchyma most probably repre-

tenated transverse sections of digitiform projections of the main abscess. The central necrosis contained
nuclear debris and abundant dichotomous branching septate hyphae, most of them with similar radial
orientation, consistent with Aspergillus spp. (Fig. 2). The inflammatory process with necrosis, fungi and
granulomatous reaction also involved the perirenal adipose tissue. Cultures of the necrotic material,
perinephric fat and muscle biopsies subsequently grew Aspergillus fumigatus.

The patient had a normal postoperative course. On day 2 after surgery, intravenous amphotericin B
was started (total dose 1.5 g in 3 weeks) and on day 7, when a normal oral intake was restored,
Itraconazole 200 mg twice daily was readministered.

The patient's general status improved dramatically with the resolution of symptoms, afebrility and
gradual weight gain, although cultures from postoperative drainage still grew Aspergillus fumigatus. 15
days after the operation he was discharged from hospital. A week later, dehiscence of the surgical wound
occurred, with purulent discharge giving cultures positive for Aspergillus fumigatus. A CT-scan revealed
multiple fluid collections in the left perinephric space, the largest 32 × 40 mm. Despite this rather
discouraging complication, no surgical revision was required, as repeated local drainage and treatment
with Itraconazole 200 mg twice daily achieved a complete recovery in 2 months. At follow-up, 8 months

Fig. 1. CT scan appearance: Multiloculated, dishomogeneous renal mass with a strong ring enhance-
ment. Involvement of ipsilateral iliopsoas muscle and perinephric fat.
later, the patient felt well. Suppressive treatment with Itraconazole 200 mg daily. was continued without side effects.

DISCUSSION

Kidney localization of Aspergillus infection occurred in 8% and 12% of patients respectively in 2 large series of non-AIDS patients (1–2), but it is an unusual finding when isolated (3–4). In AIDS patients, infection with Aspergillus species remains a rare occurrence. Nevertheless cases of invasive aspergillosis have been reported with rising frequency in recent years (5–7). Most of the case reports include at least one of the risk factors associated with this disease: neutropenia, use of corticosteroids, antineoplastic agents, broad-spectrum antibiotics, alcoholism, intravenous drug and marijuana use and underlying lung disease (5–7). In AIDS patients, as in others, the majority of cases reported had their aspergillosis localized to the lung, isolated or with concomitant involvement of brain, heart, kidney, sinuses, muscles or bones (8–11). In the English literature, only 2 cases of isolated renal aspergillosis in AIDS have been reported (12, 13).

In our case the isolated kidney localization of invasive Aspergillosis without specific risk factors was especially noteworthy. Firstly our patient was not taking illicit drugs, nor steroids, nor any drugs other than zidovudine and aerosolized pentamidine at the onset. Furthermore there was no history of alcoholism or leukopenia before the onset. Recently, however, the absence of risk factors has been increasingly reported (14).

The early surgical intervention was probably of importance for the favourable outcome. Early surgery, in our experience, is the treatment of choice even when severe immunodeficiency is present. Lastly, high dosage Itraconazole seems to be efficacious in sterilising the site of infection and preventing relapses.

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REFERENCES


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