

A renal aspergilloma - an unusual presentation of aspergillosis in an HIV patient

David Meya¹, Isaac Lwanga¹, Allan Ronald², Edward Kigonya¹.

¹Department of Internal Medicine, Mulago Medical School, Kampala, Uganda.

²Infectious Disease Institute, Kampala, Uganda.

Abstract

Background: Aspergillosis is a fungal infection occasionally found in immunosuppressed patients. The recommended management of patients with renal aspergilloma remains unclear.

Methods: An HIV patient presented with flank pain and an abdominal mass. Renal aspergilloma was diagnosed.

Results: The patient with CD4 above 200 did well with nephrectomy followed by amphotericin therapy for 14 days.

Conclusions: The merits of surgery followed by antifungal chemotherapy or vice versa are limited. More studies are needed to ascertain the most effective method of treatment for Aspergillosis in HIV patients.

Key words: Renal, aspergilloma, amphotericin, HIV, Uganda.

African Health Sciences 2005; 5(4): 341 - 342

Aspergillosis in immunosuppressed hosts usually presents with invasive pulmonary infection and it may disseminate to other organs, including; brain, kidneys^{1,2} bone and skin. Young et al found renal involvement at autopsy in twelve of 98 patients with aspergillosis². Immune suppression due to HIV infection is now a risk factor for invasive aspergillosis^{1, 3, 10, 11}. Mylonakis et al³ reviewed six cases from 3 hospitals and 32 previously reported cases of infections involving the central nervous system. All 32 patients with definite or probable aspergillosis had advanced HIV infection and had additional risk factors including neutropenia or corticosteroid administration.

We present a case of renal aspergillosis in an HIV infected patient and review the literature.

A 48-year old HIV seropositive male was admitted on a surgical ward in Mulago hospital, Kampala, Uganda with complaints of left flank pain for 2 months with associated fever and vomiting. Initially abdominal pain involved the left flank, he had no history of trauma or urinary symptoms; he had no cough or chest pain. The patient, diagnosed as HIV seropositive one year ago, had a CD4 count of 385/mm³ with a viral load of 10,964 copies/ml at the time of admission and had been taking Stavudine, Efavirenz and Lamivudine for the last one year.

The patient at admission was in fair general condition, was afebrile (36.9°C), and had no pallor, no palpable lymph nodes and no oral thrush. We found no abnormalities on auscultation of the chest and heart. Abdominal examination revealed tenderness in the left upper qua-

drant and renal angle.

The blood count showed a total white cell count of 8,800/mm³, with 50% neutrophils. Erythrocyte sedimentation rate of 45. Urea (10mg/dl) and creatinine (1.2mg/dl) were normal. Urinalysis was unremarkable.

Abdominal ultrasound suggested a left renal mass. Intravenous pyelogram showed a non-functioning upper calyx of the left kidney.

The working diagnosis was that he had a left renal tumor. At surgery, the left kidney was found to be smooth and enlarged at the upper pole with no involvement of perirenal tissues. The renal capsule was breached posteriorly by an apparent abscess. Culture was however not done. The patient recovered well postoperatively.

Histopathology of the kidney showed a yellowish necrotic area at one pole with necrosis and hyphae, which were septate and branching at acute angles suggestive of aspergillus species.

A diagnosis of renal aspergilloma was made and the patient was treated with Amphotericin (0.75mg/kg/day) for two weeks. A urinary tract infection due to post-surgical catheterisation was treated with Ciprofloxacin (500mg BD for five days). He made a good recovery with no additional complications. He is currently being followed up as an outpatient with no further complications related to his underlying HIV or the presumed Aspergillus infection over the last one year.

Causative agents of Aspergillosis include *A. fumigatus*, *A. flavus*, or less commonly *A. terreus*, *A. nidulans*, or *A. niger*. These are ubiquitous in the environment and may be found in soil, decomposing plant matter and commonly cause serious infections, in persons with severe prolonged granulocytopenia (hematologic malignancy, solid organ transplant recipients⁹, as well as in patients on high dose steroids. Only rarely does it become a pathogen in persons with HIV. Invasive aspergillosis has not previously been recognized as an identifiable infection in Uganda. It has been reported to occur at CD4 counts more than 200 cells/mm³ in immunosuppressed patients. Rey D et al¹¹ discuss an HIV positive patient with an Aspergillus renal abscess

Correspondence author:

David Meya

Department of Internal Medicine

Mulago Medical School

P.O. Box 7072, Kampala, Uganda.

Telephone: 256-77-543-730

E-mail: david.meya@gmail.com

similar to the present case who had a nephrectomy after failure to respond to antifungal therapy with amphotericin and itraconazole and they suggest that surgery is the treatment of choice in patients with *Aspergillus* renal abscess. Similarly our patient did well with initial surgery followed by amphotericin therapy. Post surgery antifungal therapy may prevent recurrence of the infection. Conclusions regarding the relative merits of surgery followed by antifungal chemotherapy or vice versa are limited and perhaps controlled studies should be considered.

Of interest, this patient as well as the patient reported by Rey D et al¹¹ both had CD4+ counts above 200/ml. We postulate that the potentially disseminated *Aspergillus* infection had localized to the kidney when the patients started on antiretroviral therapy and may have undergone an immune reconstitution process as the CD4+ count increased.

Early diagnosis of the *Aspergillus* infection is essential for early treatment. Some centers now routinely test blood for galactomannan in high-risk patients and then proceed to a CT scan of the chest or/and a bronchoscopy in those with positive results¹². An aspergillus-antigen assay for galactomannan, which has been reported to have a sensitivity of 93% and specificity of 95%, is now available with results obtainable in about three hours⁴. The serum galactomannan index may also be used to predict response to treatment⁵.

Treatment with amphotericin (dosing may be 0.75-1.0mg/kg/day total dose of 2-4g) has been the standard of care. Adding flucytosine or rifampicin may increase the effectiveness of amphotericin. Gumbo et al¹² and Young et al² showed poor response rates to amphotericin. Other drugs include itraconazole, caspofungin acetate⁶ and voriconazole⁷. Voriconazole may lead to better responses and improved survival with fewer side effects compared to amphotericin⁸.

Acknowledgments

We acknowledge the expertise of Prof. R Kawooya of the Radiology department, Mulago hospital and Mr. S. Kagwa of the Surgery department, Mulago hospital who participated in managing this patient.

References

1. Lotholary O. Invasive Aspergillosis in patients with Acquired immunodeficiency syndrome.-report of 33 cases. *Am J Med* 1993; 5:177
2. Young RC, Bennet JE, Vogel CL, et al. Aspergillosis. The Spectrum of the Disease in 98 patients. *Medicine* (Baltimore) 1970; 49:147
3. Mylonakis E, Paliou M, Sax PE, et al. Central nervous system aspergillosis in patients with human immunodeficiency virus infection: Report of 6 cases and review. *Medicine* (Baltimore) 2000; 79: 269
4. Maertens J, Verhaegen J, Demuyneck H, et al. Autopsy-controlled prospective evaluation of serial screening for circulating galactomannan by a sandwich enzyme-linked immunosorbent assay for hematological patients at risk for invasive aspergillosis. *J Clin Microbiol* 1999; 37: 3223-3228
5. Francois Boutbol, Corinne Alberti, Thierry Leblanc et al. Invasive Aspergillosis in Allogeneic Stem cell transplant Recipients: *Clin Infect Dis* 2002 ; 34(7): 939-945.
6. FDA approves new treatment for Invasive fungal infection. FDA Talk Paper 2001 Jan 29.
7. Denning DW, Ribaud P, Milpied N, et al. Efficacy and safety of voriconazole in the treatment of acute invasive aspergillosis. *Clin Infect Dis*. 2002; 34(5): 563-571
8. Herbrecht R, Denning DW, Patterson TF, et al. Voriconazole Vs amphotericin B for primary therapy of invasive aspergillosis. *N Engl J Med* 2002; 347(6): 408-415
9. Singh N, Arnou PM, Bonham A, et al. Invasive Aspergillosis in liver transplant recipients in the 1990s. *Transplantation* 1997; 64: 716-720.
10. Patterson TF, Kirkpatrick WR, White M, et al. Invasive aspergillosis: Disease spectrum, treatment practices, and outcomes. *Medicine* (Baltimore) 2000; 79: 250-260
11. Rey D, de Matourt E, Saussine C et al. Isolated renal *Aspergillus* abscess in AIDS patient with a normal CD4+ count on highly active antiretroviral therapy. *Eur J Clin Microbiol Infect Dis* 1999; 18 (2): 137-141
12. Denning DW. Early diagnosis of invasive Aspergillosis. *Lancet* 2000; 355: 423-424