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Case Report

Schistosoma mansoni- Associated Immune Reconstitution Inflammatory Syndrome in HIV-Schistosomiasis Co-Infected Patients Undergoing Antiretroviral Treatment

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Abstract

We present two case reports of schistosomiasis immune reconstitution inflammatory syndrome (IRIS) identified during an epidemiological study of interactions between HIV and schistosomiasis in Rarieda district of Nyanza province in Kenya.

INTRODUCTION

Immune reconstitution inflammatory syndrome (IRIS) is a recognized phenomenon that complicates the desired outcome of antiretroviral therapy (ART) [1]. This phenomenon is a result of robust restoration of pathogen specific immune responses to treated (paradoxical IRIS) or latent/subclinical infections (unmasking IRIS), and presents with clinical signs of the inflammation [1]. IRIS has been reported to occur mostly within three months after initiation of effective ART and is associated with a wide spectrum of pathogens, most commonly mycobacteria, herpes viruses and deep fungal infections such as cryptococcal meningitis [1,2]. IRIS is common in sub-Saharan Africa where HIV co-infections, including HIV/schistosomiasis are common. However, so far only 3 cases of possible schistosomiasis IRIS have been described [3-5] and only one epidemiological study has been conducted in western Kenya [6]. In this paper we report on 2 additional cases. Both patients were identified during an epidemiological study of interactions between HIV and schistosomiasis in Rarieda district of Nyanza province in Kenya.

CASE 1: PARADOXICAL SCHISTOSOMA ASSOCIATED IRIS

A 47-year old Kenyan female was diagnosed with *Schistosoma mansoni (S. mansoni)* and HIV-1 infection in May 2010 and received treatment for *S. mansoni* with praziquantel (40 mg/kg). She lives within 2 kilometers of the fresh water Lake Victoria which is infested with cecaria (infective stages of *S. mansoni*), Being a peasant farmer, for the last 17 years she had water contact during bathing, washing clothes and collection of water for drinking. In mid –May 2010, her CD4+ cell count was 77 cells/µL, with an HIV viral load of 448,000 copies/ml. She had an average of 12 *S. mansoni* eggs per gram (epg) of stool. Anti-retroviral therapy (ART; lamivudine, stavudine and nevirapine) was initiated within 2 weeks post *S. mansoni* treatment. After two weeks, her viral load decreased to 2360 copies/mL, and her CD4+ cell count increased to 155 cells /µL while *S. mansoni* eggs were absent in stools. At the same time, she developed fever, bloody/watery diarrhea, and abdominal pain. These gastrointestinal symptoms persisted until 4 weeks after initiation of the ART while the CD4+ cell count increased to 174 cells/µL at 4 weeks and 243 cells / µL at 12 weeks with an undetectable viral load level at 12 weeks. *S. mansoni* eggs remained absent in stools. Ultrasonographical examination before the start of ART and 12 weeks post start of ART revealed an increase of liver size from 12.5cm to 13.5cm at the midclavicular line (normal about 12.0cm), no changes of the spleen size, a gall bladder wall increase from 1.3mm to 2.5mm (normal < 3mm) and a portal vein diameter increase from 8.3mm to 9.2mm (normal about 12mm).

CASE 2: UNMASKING SCHISTOSOMA ASSOCIATED IRIS

A 45-year old Kenyan female was diagnosed with HIV-1 infection in May 2010. She did not present *S. mansoni* eggs in her stools. She lives on the beach of the fresh water Lake Victoria which is infested with *S. mansoni* cercaria and worked as a fish vendor for the last 27 years. She had water contact during bathing, washing clothes and collection of water for drinking. In June 2010, her CD4+ cell count was 186 cells/μL, with an HIV viral load of 606, 000 copies/mL. She was started on ART (lamivudine, stavudine and nevirapine). After 2 weeks, her viral load decreased to 348, 000 copies/mL, and her CD4+ cell count increased to 240 cells/μL. At the same time she developed a skin rash, fever, bloody/watery diarrhea, abdominal pain and abdominal distension.

The gastrointestinal symptoms were similar to those reported by *S. mansoni* infected patients and persisted until 4 weeks after initiation of the ART. At 4 weeks the CD4+ cell count was 267 cells/μL and at 12 weeks 279 cells/μL with an undetectable viral load. She started releasing eggs of *S. mansoni* at three months post start of ART. Ultrasonographical examination before the start of ART and 12 weeks post start of ART revealed a liver size increase from 13.6cm to 14cm at the midclavicular line, a spleen size increase from 10.8mm–11.6mm (normal about 11cm) and a gall bladder wall increase from 1.7mm to 2.1mm.

We describe two cases of possible schistosoma-IRIS. The first patient could be classified as a paradoxical type of IRIS, the second as an unmasking type of IRIS in western Kenya, where we think these cases may be more common and warrant the attention of both the Neglected tropical diseases (NTD) and HIV control programmes. We have since completed epidemiologic studies in the Kisumu area in Kenya which will report on the incidence, clinical manifestations and risk factors for Schistosomiasis associated IRIS.

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ETHICAL APPROVAL

This study was approved by the Kenya Medical Research Institute's Scientific Steering Committee and Ethical Review Committee.

REFERENCES

1. French MA, Price P, Stone SF. Immune restoration disease after antiretroviral therapy. AIDS. 2004; 18: 1615-1627.
2. Lawn SD, Bekker LG, Miller RF. Immune reconstitution disease associated with mycobacterial infections in HIV-infected individuals receiving antiretrovirals. Lancet Infect Dis. 2005; 5: 361-373.
3. Fernando R, Miller R. Immune reconstitution eosinophilia due to schistosomiasis. Sex Transm Infect. 2002; 78: 76.
4. de Silva S, Walsh J, Brown M. Symptomatic Schistosoma mansoni infection as an Immune Restoration Phenomenon in a patient receiving antiretroviral therapy. Clin Infect Dis. 2006; 42: 303-304.
5. Javid B, Aliyu SH, Save VE, Carmichael AJ, Lever AM. Schistosomal colonic polyposis in an HIV-positive man. AIDS. 2007; 21: 386-388.
6. Ogola G, Ouma C, Jura WGZO, Muok E, Colebunders R, Mwinzi PM. A non-Synonymous polymorphism in IL-23 gene (rs1884444) is associated with reduced risk to schistosomiasis-associated immune reconstitution inflammatory Syndrome in a Kenyan Population. BMC Infect Dis. 2014; 14: 316.

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