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A Case of Disseminated Neurocysticercosis as Immune Reconstitution Inflammatory Syndrome in an Immunocompromised Patient

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Abstract

Neurocysticercosis (NCC) is one of the commonest causes of central nervous system related helminthic infection. Cysticercosis is endemic in most of the developing world and infection with HIV (Human Immunodeficiency Virus) is becoming more frequent in those endemic areas. There is a risk of development of exacerbations of previously latent infection in a HIV patient following initiation of HAART (Highly Active Anti-Retroviral Therapy), termed as Immune Reconstitution Inflammatory Syndrome (IRIS). Very few case of NCC as a manifestation in IRIS has been reported. We recommend that NCC as a cause of IRIS need to be considered especially in endemic areas.

Keywords: HIV (Human Immunodeficiency Virus), IRIS (Immune Reconstitution Inflammatory Syndrome), NCC (Neurocysticercosis)

1. Introduction

Clinical disease of the central nervous system accounts for a significant degree of morbidity in immunocompromised patients. Infectious causes are responsible for large number of cases. Timely detection and proper treatment can save fatality outcomes in those patients. Infection with *Taenia solium* causing NCC is not so uncommon nowaday[1]. Cysticercosis is endemic in various parts of world including Latin America, Sub-saharan Africa and southeast Asia. Faeco-oral route is the mainstay of transmission[2]. Highly Active Anti-Retroviral Therapy (HAART) has increased the favourable outcomes of HIV infected patients in terms of both mortality and morbidity. However unfortunately, Immune Reconstitution Inflammatory Syndrome (IRIS) due to immune recovery may paradoxically worsen the disease condition[3]. Exacerbation of preexisting diseases, untreated or partially treated diseases may occur following initiation of HAART. There are few case reports describing dual burden of HIV infection on the manifestations of NCC. But NCC as sole atypical presentation of IRIS following ART is rare. Here we report a patient with HIV infection who presented with neurological manifestations as a result of inflammatory reaction to NCC after starting HAART.

2. Case Report

A 35-year-old married gentleman, manual labourer by occupation with primary level of education, presented in the emergency department with generalised convulsion for last 30 minutes. There was history of (H/O) chronic diarrhea, weight loss for last several months. He had no

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history of headache or vomiting prior to the symptoms nor he had any history of fever or similar illness in the past. He had no history of addictions. He has been diagnosed of having HIV infection for past two months. He was on HAART for last two months with baseline CD4 count of 80. There was no history of any kind of non compliance to HAART previously.

On general examination, Patient was exhausted with generalised wasting of the muscles of whole body. Oral candidiasis was noted. Pallor was present. There was no icterus, lymphadenopathy. Vital signs was normal. On neurological examination, he was disoriented. All deep reflexes involving upper limb and lower limb were depressed. Plantar reflex was bilateral extensor. There was no focal signs and no signs of meningeal irritation. Papilledema was absent on ophthalmoscopic examinations.

On laboratory investigations, total leukocyte count was 6800/cumm with polymorphs 64%, lymphocyte 32%. Hemoglobin (Hb) was 8gm%. Renal & liver function test were normal. ESR was 80 mm in the 1st hour. Hepatitis B Antigen (HBsAg), test for syphilis (Veneral Disease Research Laboratory), Mantoux test, IgG for anti-Toxoplasma antibody were negative. Routine urine examination was unremarkable. Serum sodium was 118meq/L and serum potassium was 4.5meq/L. Anti cysticercal antibody was strongly positive with high titre (dilution 1 in 160). CD4 count was 175/cumm. Cerebrospinal fluid (CSF) analysis shows cell count of 10 cells/cumm, all were lymphocytes. CSF protein was 213mg/dl, sugar 59 mg/dl. ELISA for TB, India ink stain, cryptococcal antigen study and Z-N staining of CSF were negative. Pressure of CSF was normal. Brain MRI was done which has been shown in Figure 1, Figure 2.

Diagnosis of Neurocysticercosis associated with Acquired Immune Deficiency Syndrome (AIDS) was then confirmed. As the symptoms manifested after initiation of HAART it was presumed to be a case of IRIS. Patient was initially treated with Phenytoin, steroid and other supportive management. He became stabilized. After 4 days he was discharged with antiepileptics (phenytoin 300mg once daily) along with HAART and other opportunistic infection prophylaxis. Patient was revisited after 14 days and was doing well.

3. Discussion

IRIS is defined as the paradoxical worsening of previously untreated infection or clinical exacerbation of an opportunistic infection either partially treated or previously latent or asymptomatic in a HIV patient, following rapid immune recovery with HAART[3]. In Asia, reports are slowly emerging, showing that *T. solium* cysticercosis is now not so uncommon public health problem. Most Asian studies demonstrate high seroprevalence rates using mainly antibody ELISA and/or western blot[4]. Neurocysticercosis can present with parenchymal or extraparenchymal lesion along with myriads of manifestations. However seizure is the most common presenting symptoms[5]. Etiopathogenesis of IRIS is still not elucidated properly. Dysregulated immune mechanism is thought to play underlying role in exacerbation of symptoms. Baseline immune status, infective load and other parameters like compliance to medications may play various role in causation of exacerbation of neurological symptoms in this case. Considering the endemicity of neurocysticercosis in this part of world, it should always be considered as first provisional diagnosis in cases of immunocompromised patients who are presenting with seizures. Timely neuroimaging might helps in proper diagnosis in this scenario which is of immense value in initiating rapid appropriate treatment to prevent fatality.

4. Conclusion

Neurocysticercosis presenting as manifestation of immune inflammatory reconstitution syndrome following initiation of Highly Active Anti-Retroviral Therapy is not so uncommon. Neeurocysticercosis as a presenting features of IRIS needs to be considered especially in endemic areas. More systematic reviews needed in this regard to formulate proper treatment guidelines in such cases.

5. References

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