

Case Report

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Immune Reconstitution Inflammatory Syndrome (IRIS) Affecting the Central Nervous System (CNS) In Patient with HIV and Tuberculosis on Antiretroviral Therapy

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Abstract

The Present case was an Immune reconstitution inflammatory syndrome (IRIS) affecting the central nervous system (CNS) in patient with HIV and tuberculosis in HIV patient initiated on antiretroviral therapy. This case identified as the patient was visited Life Care Clinic, at Aurangabad. The patient was newly initiated on antiretroviral therapy (ART), The IRIS was diagnosed based on National AIDS Control Organization guidelines. A typical Mycobacterial CNS-IRIS in AIDS patient was represented, the increase in CD4 count in a rapid way and biopsy showing on encephalitis our diagnosis of IRIS was confirmed. The patient was started on prednisolone and his hemipariesis improved mass effect decreased and patient went home walking then after six months and The Patient weighed about 55kgs and his CD4 count was 359 cells/mm³ and is asymptomatic this confirms Immune reconstitution inflammatory syndrome (IRIS) affecting the central nervous system (CNS) in patient with HIV and tuberculosis. The increase in CD4 count in a rapid way and biopsy showing on encephalitis our diagnosis of IRIS was confirmed.

Keywords: Immune reconstitution inflammatory syndrome (IRIS); Central nervous system (CNS) CD4/TB/HIV/ART

Introduction

The patients with HIV/Tuberculosis (TB) co-infection who are on anti-TB treatment and highly active antiretroviral therapy (HAART) will develop an exacerbation of symptoms, signs or radiological manifestations of TB that are not due to recurrence or relapse of their tuberculosis [1-4]. The IRIS is defined as the occurrence or manifestation of new opportunistic infections or existing opportunistic infections within six weeks to six months after initiating the antiretroviral therapy with increase in the CD4 cells. The IRIS is a complex and a not yet completely well-understood phenomenon that is seen most commonly in HIV infection, The aetiology of these immune reconstitution inflammatory syndrome (IRIS) reactions is unknown, but it is presumed that they occur, as a consequence of HAART-related reconstitution of immunity and leading to an abnormal immune response to antigens released by dead or dying bacilli. The Mycobacteria account for approximately 40% of all cases of infective IRIS in patients initiated on ART [5,6]. The frequency of paradoxical TB-IRIS range from 8% to 43% [7-13] and is dependent on background tuberculosis prevalence rates.

The Present case was an Immune reconstitution inflammatory syndrome (IRIS) affecting the central nervous system (CNS) in patient with HIV and tuberculosis in HIV patient initiated on antiretroviral therapy. This case identified as the patient was visited Life Care Clinic, at Aurangabad. The patient was newly initiated on antiretroviral therapy (ART), The IRIS was diagnosed based on National AIDS Control Organization guidelines. A typical Mycobacterial CNS-IRIS in AIDS patient was represented, the increase in CD4 count in a rapid way and biopsy showing on encephalitis our diagnosis of IRIS was confirmed. The patient was started on prednisolone and his hemipariesis improved mass effect decreased and patient went home walking then after six months and The Patient weighed about 55kgs and his CD4 count was 359 cells/mm³ and is asymptomatic this confirms Immune reconstitution inflammatory syndrome (IRIS) affecting the central nervous system (CNS) in patient with HIV and tuberculosis.

Case Study

A 45 years male farmer by profession came to consultation due to seropositive status for HIV-1 infection and his CD4 count was 49 cells/ mm³ on 3rd October 2011. The Patient was having fever with chills and loss of appetite, he was wrongly diagnosed for enteric fever for three months and treated with antibiotics but no relief. The patient weighed 40 kilos and his CXR showed prominent bronchovascular marking and bilateral bulky hilum. The sonography was found to be normal, ESR was 51 and LFT was marginally deranged. He was started on liver safe AKT (Ethambutol and Oflox). After during the way back home on the same day, the patient developed vomiting and convulsion. He was rerouted to emergency medicine department and treated with anti convulsant and anti-emetic drug therapy.

Patient was then settled and his CT Chest and abdomen and MRI brain was advised on 7th October 2011, The CT Chest shows enlarged lymph nodes in the carinal region with the peripheral enhancement and internal non enhancing necrotic areas, suggestive of caseating lymphadenopathy and It also shows the focal areas of thickened wall of the gall bladder, biliary ducts and central IHBR with the resent clinical history, a possibility of sclerosing cholangitis needs to be ruled out.

The MRI brain with contrast: E/O area of altered signal intensity which is hyper intense on T2W1 and FLAIR and hypo intense on

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T1W1, showing restricted diffusion and minimal delayed central contrast enhancement noted involving the right fronto-parietal lobes, and right high frontal region and periventricular deep white matter, closely abutting the right lateral ventricle however no obvious, The Mass effect/compression over it findings possible favours primary CNS lymphoma. (Another differential diagnosis would be toxoplasmosis, however appears less likely).

The patient was continued on AKT and since CD4 cell count was 49 cells/mm³. According to International guidelines he was initiated on TDF+FTC+EFV. On 17th October 2011. The Patient complained of burning sensation in the sole on the follow up visit on 7th November 2011, and he was advised Tab Neurobion forte and dose of tab Eptoin was decreased. After 3 days he again complained of pain in lower extremities and empirically diagnosed as gout and started on Zyloric and Pyrazinamide was stopped.

After few days pain improved and After two months from initial presentation on 29th Nov 2011, The patient suddenly developed Hemiparesis and was again readmitted, MRI brain showed area of altered signal intensity which is hyper intense on T2W1 and FLAIR and hypo intense on T1W1, and showing restricted diffusion and intense central contrast enhancement with multiple ring enhancing lesion noted involving the right fronto parietal lobes and right high frontal region genu and body of corpus callosum. The lesion is causing mass effect in the form of compression of frontal horn of ipsilateral lateral ventricle and midline shift of 4 mm to opposite side. There is also evidence on adjacent perilesional edema. The similar lesion noted in the right high parietal region posteriorly closely abutting the flax.

The findings favour neoplastic pathology (possibly lymphoma) As compared to previous scan dated 4th October, 2011 there is significant increase in the size as enhancement of the lesion with the new lesion has appeared in the right high parietal region. The Patient has gained weight of two kilos from the baseline and he was afebrile. The CD4 count was repeated and shows 630 cells /mm³ on 6th Dec 2011. Neurophysican's opinion was sought and he advised brain biopsy. The brain biopsy at local pathology lab opinion of normal looking brain tissue with micro haemorrhages seen. There are no toxoplasma bodies or any E/O Koch's seen. The sample was also forwarded to higher centre in Mumbai for second opinion. Impression that right parietal stereoscopic biopsy: inflammatory lesion (Encephalitis).

Conclusion

The increase in CD4 count in a rapid way and biopsy showing on encephalitis our diagnosis of IRIS was confirmed. The patient was started on prednisolone and his hemipariesis improved mass effect decreased and patient went home walking then after six months Patient weighed about 55kgs and his CD4 count was 359 cells and is asymptomatic this confirms Immune reconstitution inflammatory syndrome (IRIS) affecting the central nervous system (CNS) in patient with HIV and tuberculosis.

Discussion

The most common IRIS was tuberculosis followed by pneumocystis. The tuberculosis as IRIS occurred 2.5 months after initiation of ART. There was weak correlation between low CD4 count at ART initiation and occurrence of IRIS. The most common opportunistic infection occurring as IRIS was pulmonary tuberculosis followed by tubercular lymphadenitis and it has also expanding central nervous system tuberculomata [14-16]. The introduction of Antiretroviral Therapy early in TB treatment is an additional risk factor for IRIS. An African study indicated a 12% overall incidence of Tuberculosis IRIS in HIV-TB co-infected patients, with an IRIS incidence of 32% when ART was initiated within 2 months of TB diagnosis and an IRIS incidence of 70% if ART was initiated within a month of starting TB therapy [17]. A meta-analysis of IRIS studies suggests that both frequencies of IRIS events and also with high early mortality in antiretroviral programs in resource-limited settings could be prevented by starting ART [18] earlier prior to the risk of opportunistic infections.

The paradoxical CNS TB reactions are well described in HIV sero negative patients includes expanding intracranial tuberculomas, TB meningitis, and spinal cord lesions [17-19]. The TB-associated CNS IRIS has also been reported in HIV-sero positive patients [20,21]. The HIV-seropositive patient who developed cervical lymphadenopathy after five weeks of ART. The IRIS constitutes a clinical deterioration of OIs in HIV-infected patients as a result of the enhancement of pathogen-specific immune responses, The IRIS including impaired CD4+ cell immune reconstitution upon HIV therapy in patients with opportunistic parasitic infections. The exact estimates of incidence are not yet available. The IRIS in patients initiating ART has been firmly established as a significant problem in both high and low income countries including India. It is because of wide variation in clinical presentation and the still increasing spectrum of symptoms, the treatment of IRIS will remain a clinical challenge due to the variety of clinical presentations and the presence of multiple pathogens capable of causing this syndrome. Since until the understanding of the syndrome is achieved in different regions of the world, clinicians need to remain vigilant when initiating Antiretroviral Therapy (ART) and individualize therapy according to known treatment options for the specific infectious agent.

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Page 3 of 3

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