Idiopathic CD4 Lymphocytopenia

PK Ramalingam¹, K Gayathri¹, RPSP Santhakumar¹, BV Manjunath¹, N Karuppuswamy², B Vetriveeran², S Selvamani², P Vishnuram², Kumar Natarajan³

Abstract

We report a 42 year old male who was an interesting case of “idiopathic CD4 lymphocytopenia” (ICL) in a non-HIV adult with extra pulmonary tuberculosis along with the diffuse splenic calcification and whose symptoms improved with Antitubercular treatment. He was found to have low CD4 counts on two occasions.

Introduction

The decrease in CD4 counts has varied detrimental effects on the immune system of the body leading to various opportunistic infections. It was described way back in 1992 that a syndrome mimicking Human Immunodeficiency Virus (HIV) Infection can occur without any evidence of HIV-1, HIV-2, HTLV-I, or HTLV-II or any other associated immunodeficiency but with the presence of a persistent isolated low CD4 lymphocyte values (of less than 300 cells/mm³ or 20% of total T cells on a minimum of two occasions).¹ ²

These very rare subsets of patients present with opportunistic infections and more commonly manifest with cryptococcosis and non-tubercular mycobacterium infections and progressive multifocal leukoencephalopathy.³ ⁴ ⁵ It has also been postulated that this lymphocytopenia may exist long before the opportunistic infections are documented as there have been reports of asymptomatic patients with low CD4 counts.⁶

Case Report

Our patient was a 42 year old male born of 2nd degree consanguineous marriage. He had recurrent fever with suppurative ear infections, weight loss and grade III dyspnoea. He had a chronic cough with scanty mucoid expectoration over the past 3 months. He had a bilateral conductive hearing loss and he gave a past history of recurrent otitis media for which he had undergone bilateral tympanoplasty. He also was diagnosed to have anaemia of chronic disease 2 years prior to admission and he also recovered from a severe community acquired pneumonia caused by Streptococcus pneumoniae a year back. The patient was emaciated with a body mass index of 18 kg/m² and anaemic with grade 1 clubbing and a mild pitting pedal oedema with no generalised lymphadenopathy.

He had a mild tender hepatomegaly with minimal ascites with no splenomegaly and his respiratory examination was initially normal and subsequently he developed a mild pleural effusion during the course of follow up. He constantly complained of a mild headache and subsequently developed terminal neck stiffness. His blood investigations revealed a Haemoglobin of 9.6 gm/dl with the peripheral smear showing a normocytic hypochromic anaemia and his serum Ferritin was found to be 1102 ng/dl, with a TIBC of 167.8 mcg/dl indicating anaemia of chronic disease. His anti-nuclear antibody (ANA) and HIV-ELISA were negative and thyroid function tests and renal function tests and blood sugars were normal.

His sputum was negative for acid fast bacilli (AFB) in both microscopic examination and by the nucleic acid amplification test. His liver function tests showed a mildly raised transaminases with a normal serum alkaline phosphatase and bilirubin levels. The serum protein was 6.3 mg/dl and albumin was 2.9 mg/dl and serum globulin 3.4 mg/dl. He had normal urine and stool examination with normal lipid and clotting profile. Echocardiography and bronchoscopy was normal and the bronchoalveolar lavage fluid was negative for AFB. During the course of the illness he developed left sided pleural effusion and mild Ascites and also complained of headache with a terminal neck stiffness. His ascitic fluid ADA and CSF ADA levels were normal and their culture did not grow any organism nor show any evidence of malignancy.

Chest radiograph showed mediastinal widening (Figure 1) Trans-bronchial needle biopsy of the mediastinal node did not yield much results and mediastinal lymph node biopsy specimen obtained through the transesophageal route was positive for AFB (Figure 2). His CD4 counts on 2

Fig. 1: Chest X-ray showing mediastinal meaning the splenic calcification at left hypochondrium

Fig. 2: Biopsy specimen of mediastinal node showing AFB

¹Post graduate, ²Assistant Professor, ³Professor and Head, Department of General Medicine, Coimbatore Medical College Hospital, Coimbatore, Tamil Nadu

Received: 12.12.2014; Revised: 31.01.2015; Accepted: 24.03.2015
ICL is a very heterogeneous clinical entity and the pathogenesis has been linked to an accelerated apoptotic function and a diminished proliferative capacity of the T lymphocytes leading on to a multitude of opportunistic infections in the affected individual.

It has been reported that in 15% of patients there occurs a spontaneous reversal of the lymphocytopenia. No micro-organism has been linked to the transmission of this clinical entity, but there occurs commonly, an associated hypogammaglobulinemia, as was also found in our patient. There is no human transmission documented and there is also no specific endemicity for this entity.

The loss of naive T-cells, decreased CD-127 (IL-7 receptor) expression, together with increased serum IL-7 have been postulated to be the cause of this clinical entity. This syndrome can be confirmed if there is a persistent low CD4 cell counts which has been tested at least 6 weeks apart with no associated HIV infection and with no documented therapies that reduce the CD4 counts.

In our patient the CD4 was less than 300 cells/mm³ in more than one occasion and the pathogenesis has been focussed on the treatment of opportunistic diseases that reduce the CD4 counts.8,9

Conclusion

Ours was a rare case of extrapulmonary TB with extensive splenic calcification and idiopathic CD4 depletion and hypogammaglobulinemia. This case highlights the occurrence of disseminated TB in a rare setting of adult onset primary immunodeficiency syndrome and we conclude by stating that a high index of suspicion has to be maintained for earlier identification so as to achieve good response to the available limited therapeutic interventions.

References