**Clinical Brief**

Immune Reconstitution Syndrome in a Child With TB and HIV

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**ABSTRACT**

Immune reconstitution syndrome (IRS) is the transient worsening or appearance of new signs, symptoms, or radiological manifestation of an opportunistic infection occurring after the initiation of Highly active antiretroviral therapy (HAART) and is not due to treatment failure or new infection. We describe a case of a HIV infected child with tubercular (mediastinal) lymphadenitis with worsening of clinical and radiological features on starting HAART. [Indian J Pediatr 2006; 73 (7) : 627-629]

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**Key words**: HAART; IRS; TB; Paradoxical reaction

Synonyms: Immune reconstitution syndrome (IRS), immune reconstitution inflammatory syndrome (IRIS), paradoxical reaction, “HAART attack”

Immune reconstitution can occur in infectious as well as autoimmune conditions. The common infectious organisms are *Mycobacterium tuberculosis*, *Pneumocystis jiroveci*, hepatitis B and C, cytomegalovirus, varicella and *Cryptococcus neoformans*. Rarer causes include *papillomavirus*, *Epstein-Barr virus*, and human herpes virus type VIII. The non-infectious causes include sarcoidosis, rheumatoid arthritis, systemic lupus erythematosus, and polymyositis. Relapsing polychondritis and Graves' disease have also been reported. In Mycobacterium tuberculosis (M-TB) infection, immune reconstitution should be considered in patients with (i) emergence or worsening of the clinical/radiological manifestations of tuberculosis with or without positive acid-fast bacilli smear results obtained from the involved organs. (ii) Exclusion of other potential causes of the symptoms and signs after an extensive diagnostic evaluation, particularly drug fever and other related infection. (iii) Exclusion of drug resistant tuberculosis or other causes that could explain the persistence or relapse of tuberculosis. These reactions are due to augmentation and restoration of immunological response by inflammatory mediators due to increased CD4 cell counts. The syndrome can be managed by anti-inflammatory and steroid therapy. Rarely temporary discontinuation of HAART is indicated.

**CASE REPORT**

A 12-year-old boy was admitted in a hospital with history of fever and weight loss for a period of 2 months. Quantitative buffy coat analysis for malaria, Widal's test and urine culture were negative. Patient was found to be reactive for human immunodeficiency virus (HIV) antibody. A chest skiagram revealed mediastinal lymphadenopathy (Fig.1). His investigations were as
follows; Hb-5.8 gms%, RBC-2.82millions/cu.mm. TLC-12,000/cu.mm. DLC - Plt, L50, M, LFT - Serum Alkaline Phosphatase alone elevated. His CD4 was 3%(51 cells), CD8-26%(442 cells). CD4/CD8 ratio was 0.12. Mantoux test was negative as well as three sputum smears for AFB were negative. One of the pretreatment smears was culture positive for AFB and sensitive to INH, rifampicin and ethambutol. He was treated with antituberculous drugs (ATT) (INH, rifampicin, ethambutol, pyrazinamide) daily for 2 months. Child gained weight, and was asymptomatic. His chest skigram revealed that the nodes had decreased in size (Fig. 2) and CD4 at the end of 2 months was 4%(72 cells). He continued with rifampicin and INH in the continuation phase. At the end of 4 months, due to his low CD4 counts, he was started on antiretroviral therapy (ART) with efavirenz 300 mg once daily along with stavudine 30 mg and lamivudine 150 mg twice daily. Patient developed fever on the third day of ART. He was treated with antimalarials and cefotaxime and gentamicin for 5 days. Widal test was negative. A check x-ray taken (on the 9th day of HAART) showed enlarged mediastinal nodes (Fig. 3). Blood investigations revealed that CD4 was 225 cells (19%). A clinical diagnosis of immune reconstitution syndrome was made. He was started on 1mg/kg/day of prednisolone in divided doses, which was tapered in the next 6 weeks. Patient's fever subsided. ATT was continued. At the end of steroid therapy, a repeat chest X-ray was normal. (Fig. 4). A diagnosis of immune reconstitution syndrome with paradoxical worsening of lymph nodal tuberculosis on starting HAART was thus confirmed.