

Hodgkin's Lymphoma with HIV Infection

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The association between Hodgkin's Lymphoma (HL) with HIV is common in adults but rare in children. A 5-year-old boy, known case of HIV on antiretroviral therapy, presented with prolonged fever, multiple enlarged lymph nodes along with hepatosplenomegaly. A diagnosis of Hodgkin's lymphoma was entertained on histopathological examination; further subtyping was done by immunohistochemistry.

Key words: *Hodgkin's lymphoma, Pediatric HIV.*

HIV-associated malignancies occur much less frequently in pediatric patients compared with adult(1). Advances in anti-retroviral treatment and management of opportunistic infections have been accompanied by an improved survival, which in turn has increased incidence of malignancies in these cases. The majority of malignancies among HIV-infected individuals, children as well as adults are non-Hodgkin's lymphomas (NHL). The prevalence of NHL between both these age groups is similar *i.e.*, 0.36-0.57%(1,2). Hodgkin's lymphoma (HL) with HIV infection has been largely reported among adults(2). We report here an unusual case of HL in a HIV infected child.

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Case Report

A five-year-old boy, resident of Western Maharashtra, was brought with intermittent high grade fever of four weeks duration. This was associated with generalised weakness, lethargy, anorexia and weight loss. Two years back he was diagnosed as a case of HIV infection. Since then he was receiving cotrimoxazole prophylaxis and antiretroviral therapy in form of stavudine (d4T), lamivudine (3TC) and nevirapine (NVP). The mother too was a known case of HIV infection. The father's sero-status was not known. Physical examination revealed that the child was pale and febrile. He had firm, non-tender and non-matted axillary lymphadenopathy. The liver was soft, non-tender and palpable two cm below costal margin, the spleen was also enlarged. There were no petechiae, ecchymoses or sternal tenderness. Rest of the physical examination was unremarkable.

Laboratory investigations revealed hemoglobin 6.2 g/dL, total leucocyte count (TLC) 2.94×10^9 /L and platelet count 150×10^9 /L. His reticulocyte count was 1.2%. Peripheral blood smear showed a normocytic, normochromic blood picture and was otherwise unremarkable. His immunological profile showed CD4 and CD8 count of 164 cells/ μ L (61.2%) and 55 cells/ μ L (20.5%), respectively. The CD4: CD8 ratio was 2.98. Serum proteins were 3.5 g/dL and serum albumin was 2 g/dL. Urine analysis was unremarkable. Blood culture showed no growth. X-ray chest showed no mediastinal adenopathy. Mantoux test was negative. Abdominal ultrasound revealed hepatomegaly, splenomegaly, retroperitoneal lymphadenopathy and normal sized kidneys. Fever did not respond to empirical antibiotics, antimalarials and antitubercular therapy. Excisional biopsy of axillary lymphnode revealed classical Hodgkin's lymphoma of

lymphocytic depletion type (WHO Classification). Immuno-histochemistry further confirmed the diagnosis. Bone marrow biopsy from right postero-superior iliac spine showed infiltration by tumor cells. He was found to be in stage IV (Ann Arbor staging)(3). The child died even before the treatment for HL could be initiated.

Discussion

Pediatric HIV infection presents with diverse clinical manifestations. Fever associated with lymphadenopathy and hepatosplenomegaly can be due to opportunistic infections, tuberculosis, and lymphoproliferative disorders. In absence of guidance from blood culture, urine culture and complete blood counts to establish diagnosis for fever in this case; therapeutic trial of antibiotics and antimalarial were administered. Non-response prompted biopsy of the maxillary lymph node which revealed classical Hodgkin's lymphoma of lymphocytic depletion type.

HL comprises 6.6% of pediatric malignancies. Histological differences of HL in patients are dependent on variable host responses that may in turn be influenced by genetic and environmental factors(4). HIV-related HL is characterized by advanced stage at presentation, highly malignant clinical course and the preponderant histological subtypes of mixed cellularity and lymphocyte depletion and carries poor prognosis(5,6). Currently, there is little understanding of the pathogenesis of HIV-associated lymphomas. Hodgkin's lymphoma associated with immunosuppressed state is usually associated with Epstein-Barr virus (EBV)(7). Nuclear proteins of this virus, such as EBNA and LMPI (latent membrane protein), have been detected in about 40% cases of classical HL(7)

HL in children and adolescents is curable in over 90% of cases(8). Highly active

antiretroviral therapy (HAART) should be initiated or continued while the patient is undergoing treatment for the malignancy. However, there is the possibility of an increase in side effects and complex drug interactions. Therapy regimens applied to cure these malignancies are generally similar to those used with non-HIV-infected children(1). Combination chemotherapy is the mainstay of treatment. Various chemotherapeutic regimens are used. ABVD (Adriamycin, Bleomycin, vinblastine, Dacarbazine) regime is safe, effective and gold standard treatment for pediatric HL. Field radiation therapy is added to site of bulky and/or residual disease(3,8). A multidisciplinary team should manage HIV-infected children with malignancies, including pediatric hematologists/oncologists, pediatric HIV specialists, and pharmacists.

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REFERENCES

1. Granovsky MO, Mueller BU, Nicholson HS. Cancer in human immunodeficiency virus infected children: A case series from the Children's Cancer Group and the National Cancer Institute. *J Clin Oncol* 1998; 16: 1729-1735.
2. Parikh SK, Shukla SN, Shah PM, Patel KM. Pediatric Hodgkin's disease – A study of 232 cases seen at Gujarat Cancer & Research Institute, Ahmedabad. *Indian J Med Paediatr Oncol* 2004; 25: 5-9.
3. Yung L, Linch D. Hodgkin's lymphoma. *Lancet* 2003; 361: 943-951.
4. Correa P, Connor GT; Epidemiologic pattern of Hodgkin's disease. *Int J Cancer* 1971; 8: 192-201.
5. Casari RA, Cattaneo C, Facchetti F. Hodgkin

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- disease developing in patients infected by human immunodeficiency virus results in clinical features and a prognosis similar to those in patients with human immunodeficiency virus-related non-Hodgkin lymphoma. *Cancer* 2001; 92: 2739-2745.
6. Dolcetti R, Boiocchi M, Gloghini A, Carbone A. Pathogenetic and histogenetic features of HIV-associated Hodgkin's disease. *Eur J Cancer* 2001; 37: 1276-1287.
 7. Knecht H, Bachman E, Brouser P. Deletion within the LMP 1 oncogene of Epstein Bar virus are clustered in Hodgkin's disease and identical to observed in nasopharyngeal carcinoma. *Blood* 1993; 82: 2937-2942.
 8. Schellong G, Potter R, Bramswing J. High cure rates and reduced long-term toxicity in pediatric Hodgkin's disease: the German-Australian multicenter trial DAL-HD-90. *J Clin Oncol* 1999; 17: 3736-3744.
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