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Case Report

Acute Hepatitis as a Manifestation of Acute Lymphoblastic Leukemia

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ABSTRACT

Acute hepatitis as a sole manifestation of leukemia is rare in pediatric age group. We present an Acute Lymphoblastic Leukemia (ALL) patient that referred with clinical and biochemical features of acute hepatitis. ALL can be a remote cause of acute hepatitis and physicians can consider it as an etiology of acute hepatitis.

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INTRODUCTION

The leukemias are the most common malignant neoplasms in childhood, accounting for about 41% of all malignancies that occur in children younger than 15 years of age (1,2). The initial presentation of Acute Lymphoblastic Leukemia (ALL) in children is usually nonspecific and relatively brief (3). Hepatosplenomegaly is common in leukemia (30-40%).About 30% of patients with ALL have clinical and biochemical abnormalities in liver function tests sometimes during their illness (4), but frank jaundice is rare especially at the onset of disease. Involvement of the liver in leukemia is common, but only rarely of clinical significance, except in megakaryoblastic leukemia of infancy in which liver involvement presents prior to peripheral blood manifestation (4,5). Liver involvement in leukemia can be due to various factors such as infiltration of leukemic cells, viral hepatitis, drug

toxicity, etc (6). We report a case of acute lymphoblastic
leukemia that presented with acute hepatitis.

CASE REPORT

A 7 year-old boy referred to our hospital because of yellowish discoloration of skin and sclera, dark urine and acholic stool.

The patient was well till 3 months before admission, when he developed cervical lymphadenopathy and fever. Some work up was done for him and infectious causes were ruled out. Report of lymph node biopsy showed reactive hyperplasia. Patient gradually developed anorexia, weakness, on and off fever and finally jaundice. He also had two attacks of hemoptysis and nose bleeding which were mild and resolved spontaneously.

The patient was quite well and alert. His temperature was 36.8°C and his pulse was 100/min. Positive findings in physical examination were yellowish discoloration of skin and sclera, and hepatomegaly (6 cm below costal margin) with soft consistency and no tenderness.

Laboratory findings included: leukocyte count= 1400/mm^3, Hb= 8.69 gr/dl, platelet= 55,000, and ESR= 55mm/hr. Liver function tests showed: total bilirubin= 11.2 gr/dl, direct bilirubin= 5.3 gr/dl, ALT= 1532 u/lit, AST= 3250 u/lit and normal PT and PTT times.

Renal function tests and other biochemical tests were normal. Various infection work up consisted of: toxoplasmosis, malaria, listeria, borrelia and kala azar. CMV, EBV, HIV and HSV were unremarkable. Evaluation for Wilson's disease and autoimmune hepatitis were negative. In peripheral blood smear atypical lymphocyte (5%), thrombocytopenia and neutropenia were detected. Bone marrow aspiration (BMA) was performed which revealed leukemic infiltration. BMA had been done previously which was negative for malignancy. As all of other etiologies were ruled out we considered hepatitis as secondary to leukemic infiltration. Sonography showed para-aortic lymphadenopathy and hepatosplenomegaly with normal echo. Due to thrombocytopenia liver biopsy was not performed. Bone marrow aspiration showed hypercellular marrow and all cells were lymphoblasts (ALL). After a few days patient's condition became stable and liver function improved. He was referred to the Gastroenterology ward for further evaluation and treatment. After appropriate treatment he went to remission phase, and now is under supervision of a hematologist.

DISCUSSION

Leukemia is the most common malignancy in the pediatric age group. Acute leukemia constitutes 97% of all childhood leukemia and consists of two types (7): 1) Acute Lymphoblastic Leukemia (ALL-80%) and 2) Acute Non Lymphocytic Leukemia (ANLL-20%). Three percent of childhood leukemia is Chronic Lymphocytic leukemia (CLL) which is also of two types: Philadelphia (positive) and Juvenile Chronic Myelogenous Leukemia (JCML).

Clinical manifestations depend on the involvement of various organs such as bone marrow, lymphoid system, CNS, GUT, GIT, bone and joints, skin, cardiac and lung (8).

Involvement of the liver in leukemia is common but of rare clinical significance, except megakaryoblastic leukemia which can present with hepatomegaly and abnormal liver function tests.

One rare presentation of neonatal leukemia is liver failure, and biopsy is usually mandatory for the diagnosis (9).

Acute liver failure as a sole manifestation of ALL is very rare, but can occur during this disease. Among the causes of acute liver failure leukemia is seen at the end of the list (10).

Both ALL and CLL can be present with hepatic involvement. Pathology of liver shows diffuse infiltration of leukemic cell. Hepatomegaly is a clue for prognostic evaluation. In spite of marked hepatomegaly, liver function tests are mildly abnormal. Differential diagnosis of jaundice in ALL is important. Various causes such as viral infection and drug hepatotoxicity can be responsible for jaundice in ALL. Clinical features and liver function test can not differentiate the above causes. Liver biopsy is helpful unless coagulopathy does not permit this procedure (11,12).

The size of liver in leukemia can be associated with poor prognosis. If hepatomegaly was due to hepatic infiltration, appropriate management should start with the beginning of the manifestations (13-15). This case of leukemia with acute hepatitis is unique in our center.

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