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Case Report

Acute T-cell lymphoblastic leukaemia presenting with cutaneous involvement in a child: a rare case report

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ABSTRACT

Primary cutaneous involvement in T-cell lymphoblastic leukemia is rare in childhood. We present a case of 6-year-old girl admitted to our hospital because of multiple skin lesions. She was looked pale and weak. Generalized lymphadenopathy was present. Complete blood count revealed 216,000/mm3 white blood cell count. Peripheral blood smear showed 80% lymphoblasts. Bone marrow aspiration revealed 96% blastic cells with immunophenotype and morphological characteristics of acute lymphoblastic leukemia (T-ALL) which was confirmed by flowcytometry. ALL BFM -95 remission induction treatment protocol was started. Skin lesion remained same after two month of the cytotoxic therapy. The symptoms became more aggressive and she died after 4 months of treatment.

Keywords: Acute lymphoblastic leukemia, Chest, Cutaneous, T-cell, Skin nodules

INTRODUCTION

Incidence of involvement of skin is an extremely rare initial symptoms of hematologic malignancy in children.[1] Cutaneous involvement in children with Acute Lymphoblastic Leukemia (ALL) is very rare condition as compared to Acute Myeloblastic Leukemia (AML). Cutaneous infiltration of leukemic cells in children with Acute Lymphoblastic Leukemia (ALL) is very rare condition compared to Acute Myeloblastic Leukemia (AML). Cutaneous infiltration in children with acute monocytic leukemia is a well-known phenomenon.[2]

Scant information is available regarding the occurrence and natural history of cutaneous involvement in children with T-cell acute lymphoblastic lymphoma. We are reporting a case of acute T-cell lymphoblastic leukemia presenting with skin lesion in a 6 years old child.

CASE REPORT

A 6-year-old girl admitted to our hospital because of recent onset multiple skin lesions of various size and shape, with weakness, bodyache, loss of appetite and headache. On examination, she was pale, had generalized lymphadenopathy and hepatoslenomegaly both palpable 3cm below the costal margin at the mid clavicular line. The skin lesion was brown- red indurated nodule of 2 -6 cm diameter with excoriation or ulceration (Figure 1 and 2). The remainder of the physical examination was unremarkable. Results of the complete blood count were as follows - Haemoglobin 7.2g/dL, White blood cell count 216000/mm^3, and Platelet count 40000/mm^3. Peripheral blood smear showed 80% T-cell lymphoblasts. ALT was 112 IU/ L, AST was 248 IU/L, lactate dehydrogenase was 14200 IU/L, uric acid was 8.4 mg/dl with normal renal function tests. Chest roentgenogram and bone survey were normal. Abdominal

ultrasonography was normal with the exception of hepatosplenomegaly. Examination of bone marrow aspirate showed 96% blast cells that were characteristic of T-cell ALL type morphology. Skin biopsy of the skin lesion shows focal infiltration of the sub epidermis and superficial dermis by atypical lymphoid cells and histiocytic cells suggesting secondary leukemic infiltration of skin (Figure 3 and 4). Flowcytometry peripheral blood showed CD3 (90.4% of gated Leukocytes), CD5 (97.4% of gated leukocytes), CD7 (96.70% of gated leukocytes) CD 34 (90.3% of gated leukocytes), CD45 (100% of gated leukocytes) and HLADR (86.90 % of gated Leukocytes) were positive whereas CD19, CD22, CD13, CD33 and CD20 values were negative. With these findings, immunologically T-cell type ALL was diagnosed. ALL BFM-95 remission induction treatment protocol was started. Skin lesion remained same after two month of the cytotoxic therapy. The symptoms became more aggressive and she died after 2 months of treatment.

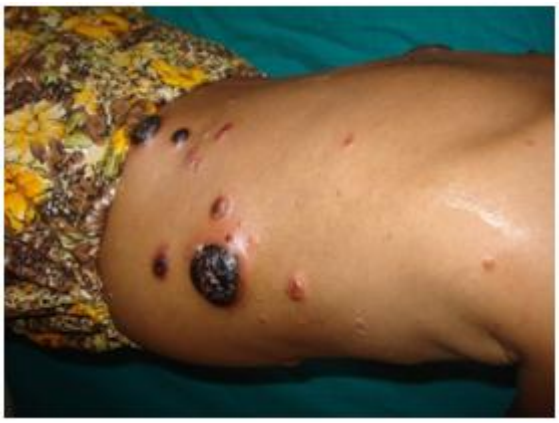

Figure 1: Patient with erythematous nodules & plaque over the chest and front of the trunk.

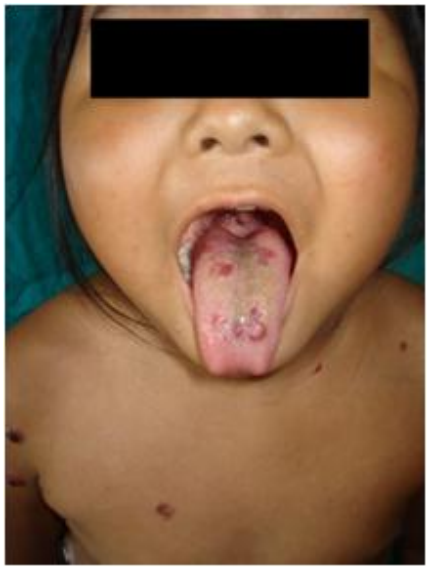

Figure 2: Patient with erythematous nodules over the tongue.

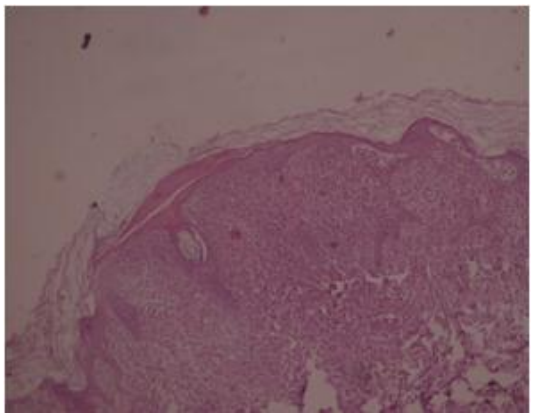

Figure 3: Histopathology of skin biopsy shows focal infiltration of the sub epidermis and superficial dermis by atypical cells (10x).

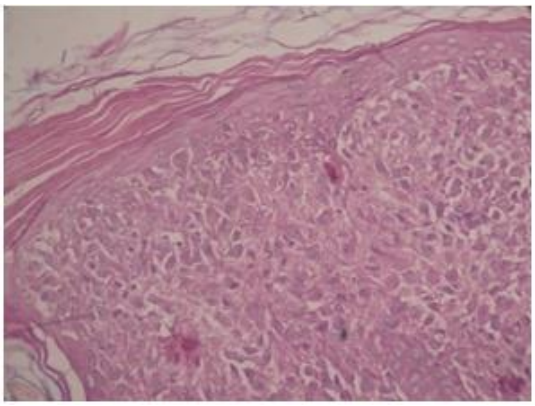

Figure 4: Histopathology of skin biopsy shows focal infiltration of the sub epidermis and superficial dermis by atypical lymphoid cells and histiocytic cells suggesting secondary leukemic infiltration of skin (40x).

DISCUSSION

Cutaneous involvement is a relatively common finding in acute myeloblastic leukemia with monocytic differentiation while it is a rare event in acute lymphoblastic leukemia.[1] Dunn et al.[2] reported 2 patients with leukemic infiltration of the skin among 40 children with acute lymphoblastic leukemia. In another study, 15 patients with initial leukemic infiltration of the skin among 1359 children with acute lymphoblastic leukemia was reported.[5] Till now, in literature no agreement has been seen on association between skin lesions and prognosis.[3-5] Cutaneous involvement has been observed in high risk and low risk Acute Lymphoblastic Leukemia patients. Millot et al.[3] reported 9 of the 15 children of his study group with initial leukemic infiltration of the skin have unfavorable prognostic factors like high leukocyte count, hepatosplenomegaly and age under 12 months. The skin lesions of these patients can be regarded as a dissemination of aggressive leukemic cells to the skin. Su et al.[4] reported that appearance of specific skin lesions in leukemic patients is usually associated with a very poor

prognosis. In a previous report of 25 cases of Acute Lymphoblastic Leukemia in infants with cutaneous infiltration was associated more closely with the patient's age (early period of infancy) than with karyotypic abnormalities.[6]

In our patient, high leukocyte count was thought to be as a poor prognostic risk factor. In the patient, skin lesion remained same after 2 months of the cytotoxic therapy. We would like to highlight that a small growing cutaneous lesion could be the presenting manifestation acute lymphoblastic leukemia.

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