HP Groups

Perinatology & Pediatrics

Clinical Image

T cell Acute Lymphoblastic Leukemia Presenting as Breast Swelling in a Male Child

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A 12 year old premorbidly asymptomatic boy presented with complaints of on and off fever for 2 months, multiple swelling in neck and bilateral painless enlargement of breast for 15 days. There was no history of cough, swelling anywhere else in the body, bone pain, abdominal distention, bleeding, blood transfusion, contact with tuberculosis, redness, trauma or discharge from breasts. On examination, he was hemodynamically stable with normal anthropometric parameters. There was moderate pallor, bilateral, multiple, discrete, soft cervical lymph nodes with largest measuring up to 2 cm. There was bilateral enlargement of breast (left > right); it was soft, granular in feel with no redness or discharge (Figure 1). His investigations revealed anemia (hemoglobin 7.1 gm/dl), leucocytosis (total leucocyte count 65800/mm^3), thrombocytopenia (platelet 89000/mm^3) and a peripheral smear having 81% blasts, phenotypically lymphoid. Flow cytometry from peripheral blood revealed blasts positive for CD1a, CD 3, CD 7, CD 20, CD 5, CD 4, CD 8, CD45, suggesting a diagnosis of T cell acute lymphoblastic leukemia (ALL). Skiagram of chest and CT (Computed tomography) scan (Figure 2) revealed mediastinal widening without any features suggestive of airway or vascular compression but other investigations were within normal limits. He was started on induction chemotherapy with four drugs (Daunorubicin, Prednisolone, L-asparaginase and Vincristine) as per standard protocol but developed acute tumour lysis syndrome with renal failure requiring hemodialysis for 72 hours. After 6 months of induction chemotherapy, he remains apparently asymptomatic, his disease (ALL) is in remission and the breast enlargement has also subsided completely.

Breast involvement in childhood acute leukemia is rare. There have been scarce reports of breast involvement in children with acute myeloid [1] and acute lymphoblastic leukemia both at presentation [2] and relapse [3]. But most of the reports are in adolescent female with involvement of male breast being extremely rare. Leukemic and lymphomatous breast involvement constitutes approximately 0.25% of all breast tumors in adults [4], but no such estimates are available in children owing to its scarcity. Any extramedullary organ may be involved by leukemic infiltration. The mechanism of extramedullary infiltration in ALL is unknown, although some explanations for extramedullary granulocytic sarcoma in some subtypes AML have been proposed based on expression of adhesion molecules such as CD56 [5]. Despite the rarity of clinical manifestations of ALL within the breast, microscopic involvement during ALL was found at autopsy, which may be comparable to the finding of sub-clinical infiltration of other organs [6]. Based on these autopsy findings it is tempting to speculate that the residual leukemic cells can seed the breast for relapse at a later time. The breast, however, is not usually considered as a "sanctuary site" [5].

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Figure 1: Nine year old boy with bilateral enlargement of breast (left > right); soft, granular in feel with no redness or discharge.

Differential diagnosis for breast enlargement in adolescent age group would include gynecomastia, thelarche, fibroadenoma, hemorrhagic cyst, abscess or malignant conditions (e.g. Non Hodgkin's Lymphoma, rhabdomyosarcoma, granulocytic sarcoma, lobular carcinoma, neuroblastoma and endocrine carcinoma) with primary malignancy being extremely rare [3,7]. Leukemic infiltration of breast is usually well circumscribed; the lesion may be unilateral or bilateral, multi-nodular and rapidly enlarging [2]. The mammographic findings are variable and non-specific [5,8]. On ultrasonography, most lesions are homogenously hypoechoic with micro-lobulated or indistinct margins [5,8].

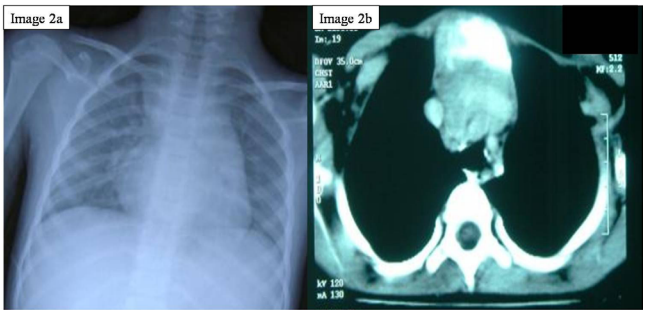

Figure 2: a) Chest x-ray postero-anterior view showing an anterior mediastinal mass; **b)** CT scan of chest (coronal view) showing anterior mediastinal mass without any evidence of airway or vascular compression.

Fine needle aspiration cytology of ALL infiltration of the breast helps in confirmation of diagnosis but the prognosis remains unchanged [8]. Therefore, it was not attempted in our case and the child also showed a dramatic response with chemotherapy further confirming the diagnosis of infiltration by leukemia.

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