Case Report

Bilateral cervical lymphadenopathy as first manifestion in childhood acute lymphoblastic leukemia - A clinicopathologic diagnostic dilemma

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Background: Acute lymphoblastic leukemias (ALL) are commonly seen in early childhood and are characterized by proliferating leucocytes, particularly B and T lymphocytes. Apart from varied clinical presentations, anemia with thrombocytopenia remains prominent presenting clinical feature. **Case History:** We report a rare case of a 4 year-old-boy who presented with fever and cervical lymphadenopathy. A clinical diagnosis of tuberculosis was made and fine needle aspiration cytology (FNAC) was advised. FNAC revealed findings of a lymphoproliferative lesion. Later haematological investigations were carried out and final diagnosis came out to be ALL (L2 morphology). **Conclusion:** Though leukemias are known to present with common clinical features of anemia and thrombocytopenia, a diagnosis of neoplastic pathology should always be kept in mind even while dealing with patients of lymphadenopathies. In addition, lymphomas diagnosed on FNA should be correlated with clinical findings as well as blood findings to also rule out diagnosis of Acute leukemia manifesting solely as lymphadenopathy.

KEY WORDS: Leukemia, lymphoblastic leukemia, thrombocytopenia, lymphoma

INTRODUCTION

Leukemia is a neoplastic clonal proliferation of leucocytes in blood and bone marrow. The disease can originate in lymphoid cells of different lineages, thus giving rise to B or T-cell leukemias, or sometimes mixed-lineage leukemia.[1] The highest incidence is seen in Hispanic children.[2] Within a population of 882 million, 6000 children develop acute lymphoblastic leukemia (ALL) each year in India making it the most common type of neoplasia in children.[3] ALL is more common in children aged 1–4 years. Patients present with sign and symptoms reflecting expansion of the leukemic clone in the bone marrow.[4] Presenting signs and symptoms are varied and commonly attributable to anaemia, neutropenia and thrombocytopenia. They are manifested by fever, anemia, fatigue, weight loss and sometimes bleeding, recurrent infections and easy bruising. There is no detectable infectious cause of the fever, which may be due to ALL itself.[3] Almost 80% of patients have lymphadenopathy. Lymph nodes are usually painless and mobile.

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CASE HISTORY

A 4-year-boy presented with history of recurrent fever, on and off cough with expectoration and neck swellings since 1½ months with a family history of tuberculosis. The fever was mild and persisted for nearly a week. Cervical lymph node enlargement was seen on both sides of the neck. The swellings were gradually enlarging, slightly tender, soft and nodular. The patient was provisionally diagnosed as having tuberculosis by a local practitioner and ATT was started, but showed no signs of improvement. The provisional clinical diagnosis was tuberculosis. Fine needle aspiration cytology (FNAC) and routine hematological investigations were advised. FNAC was done,

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and showed dispersed small and large lymphocytes, along with dispersed lymphoid cell, showing moderate nuclear membrane irregularity and immature nuclear chromatin [Figure 1]. There was no evidence of any granuloma or necrosis. Based on the cytological findings, a diagnosis of atypical lymphoproliferative lesion (Lymphoma) was suggested. However, when peripheral blood examination was done, it showed slightly raised total leucocyte count and presence of blast cells along with mild thrombocytopenia [Figure 2]. A diagnosis of ALL with L2 morphology was made which was further confirmed after bone marrow examination [Figures 3 and 4] and immunophenotyping.

DISCUSSION

Lymph node enlargement in children can be attributed to a multitude of causes including infections, autoimmune diseases, metabolic disorders as well as malignancies. However, it becomes most critical to rule-out or rule-in a malignancy especially in the pediatric age group where ALL is an important underlying cause and investigations such as FNAC should be carried out.[5]

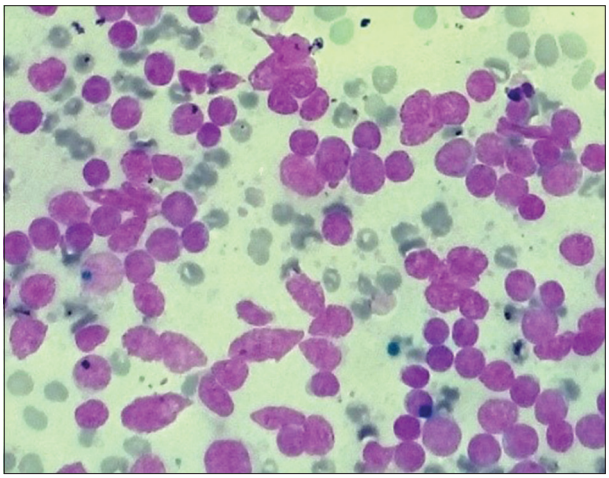

Figure 1: Cytosmears from cervical lymph node showing monotonous population of atypical lymphoid cells dispersed singly (400×)

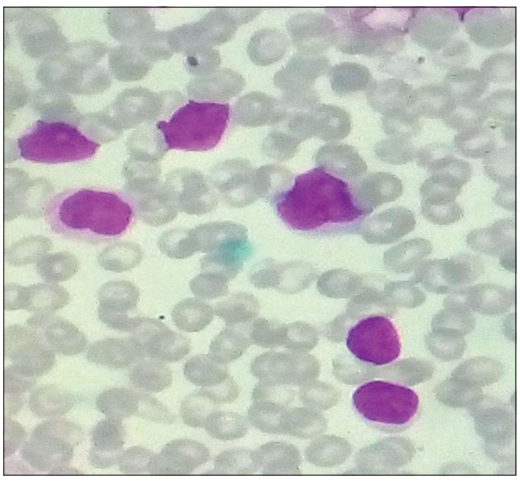

Figure 2: Peripheral smears of the patient showing lymphoblasts (×400)

ALL presents with fever, recurrent infections, bleeding or bruising and other constitutional symptoms. Lymphadenopathy, splenomegaly and hepatomegaly are observed in 50% of cases indicating extramedullary spread.[6] In the present case the only clinical presentation was fever, on and off cough and bilateral cervical lymphadenopathy. There was no hepatosplenomegaly. ALL initially presents with anemia, neutropenia and thrombocytopenia, but in our case lymphadenopathy was the only presenting feature.[7,8] Also we did peripheral smear examination and bone marrow which confirmed the case to be of leukemia rather than lymphoma as was considered in FNA work up. ALL presenting solely as bilateral cervical lymphadenopathy and fever is rare. It has been considered as an important cause of cervical lymphadenopathy in children.[9] Torsiglieri *et al*. carried out a study on 445 children of cervical lymphadenopathy. Histological examination of 445 neck masses revealed malignant disease in 48 of the cases making upto 11%.[10]

Certain criteria can be used to differentiate benign lymphadenopathy from malignant ones.[5] Lesions over 2/2.5 cm in size, firm to hard consistency, absence of tenderness, low mobility, progressive course and the presence of B symptoms are more in favour of malignancy while nodes under 1.5 cm in size,

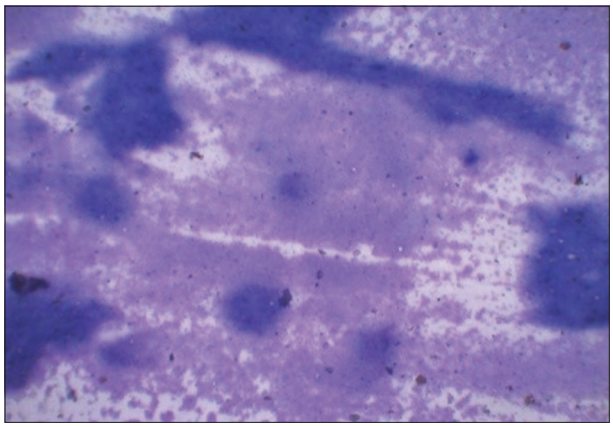

Figure 3: Low power view of bone marrow smears showing increased cellularity (100×) (Leishman-Geimsa Stain)

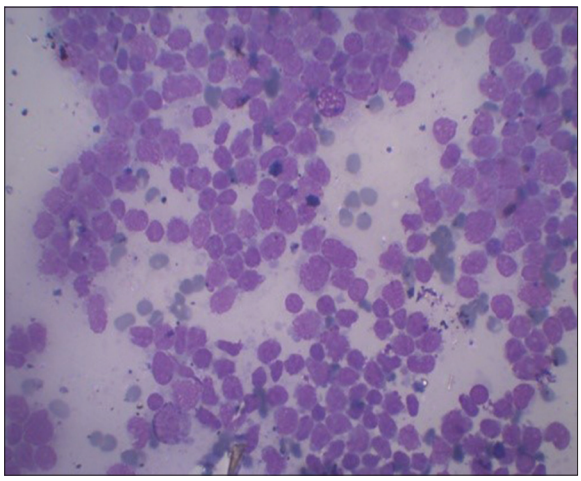

Figure 4: High power view showing proliferation of lymphoblasts (L2) in bone marrow smears (400×) (Leishman-Geimsa Stain)

soft in consistency, tender, associated with redness/fluctuation, mobile, and nodes having a regressive course are more in favor of a benign lesion.

CONCLUSION

Sole clinical presentation of lymphadenopathy without any other associated clinical complaints for ALL is rare. This case highlights the fact that a patient presenting with lymphadenopathy and fever are mis-treated for granulomatous inflammation unless subjective to FNAC. A provisional differential diagnosis of ALL should always be kept in mind in cases of cervical lymphadenopathies presenting in pediatric age group. Additionally our report also emphasizes the importance of carrying out blood and bone marrow examination in such case to rule out leukemic process rather than labelling it as lymphoma, so that a misdiagnosis is avoided.

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