Primary Bone Marrow B-Cell Non-Hodgkin's Lymphoma – A case report

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ABSTRACT

Introduction: Bone marrow (BM) involvement by lymphoma is considered a systemic dissemination of disease elsewhere, although some tumors may arise primarily in the BM microenvironment. Primary Bone Marrow Lymphoma (PBML) is a rare entity whose real boundaries, treatment and clinico-biological significant aren't well defined. **Case report:** Here we present a case of 61 year old female, who was diagnosed with PBML. She achieved remission after 8 cycles of chemotherapy. Unfortunately, the patient relapsed after 6 months of remission. **Conclusion:** PBML is an uncommon lymphoma with unfavorable outcome. Its recognition is essential for accurate diagnosis and adequate therapeutic strategy.

Key words: bone marrow, Non Hodgkin's lymphoma (NHL), Primary lymphoma

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INTRODUCTION

Secondary occurrence of NHL in bone marrow is relatively common. However, primarily bone marrow NHL is rarely seen [1,3]. Bone marrow biopsy in these cases revealed infiltration of lymphoma cells with a diffuse or interstitial pattern. Morphologically mature small lymphocytes or small to large sized lymphoid cells are seen. Also based on immune-histo-chemistry stains, most were classified as lymphoma of B-cell or T-cell lineage.

Here we report a case of primary bone marrow non hodgkins lymphoma (PBNHL). Further we review the literature on PBNHL and discuss its clinical manifestations and diagnostic challenges.

CASE REPORT

A 61 year old male was admitted to Gujarat Cancer Research Institute with an episode of malena, breathlessness, fatigability and blurring of vision. Physical examination showed no lymphadenopathy , hepatomegaly, spleenomegaly, icterus. On routine laboratory investigations, the patient had pancytopenia, Hb- 3.2gm, Total count-3,100/cumm, platelets-37,000/cumm and a positive direct antiglobulin test. On endoscopy mild gastritis was noted. Rest of the routine investigations was normal. CT scan neck, ultrasonography, bone scan, serum protein electrophoresis were normal.

On bone marrow examination, hypercellular imprint smear shows marked proliferation of atypical lymphoid cells (86%)(figure A and B). Erythroid and myeloid precusors were markedly supressed. Myeloid:erythroid ratio was altered. megakaryocytes were seen. peripheral smear showed mild pancytopenia.

On immunohistochemistry CD20, LCA and BCL-2 were positive(figureC,D and E). CD2,CD3,CD5,CD23,CYCLIN D1,MPO and CD10 were negative. MIB1 (PROLIFERATION INDEX) was less than 5%.

Patient received 8 cycles of CVP based regimen. After 8 cycles total count was 4,200/cumm, platelet- 1,15,000/cumm and Hb- 8.2gm. CBC of patient was TC-2,400/cumm , Hb- 8.1gm, platelets-14000/cumm.

Patient presented with fever and neutropenia a week later and was treated with antibiotics. A month later patient was administered one more cycle of CVP, and the patient achieved complete remission in 8 months which was confirmed on bone marrow aspirate and biopsy. Patient presented again after 6 months with the complaints of breathlessnes, cough with expectoration, fever and headache.

Bone marrow examination of the patient revealed relapse of low grade lymphoma. The patient was advised to complete 12 cycles of CVP., but the patient was reluctant due to monetary problems.

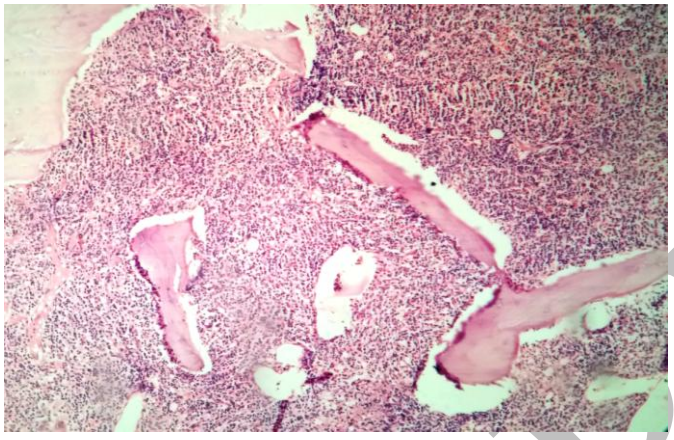

Figure A: 10 x views on BM biopsy shown monotonous population of small lymphocytes.

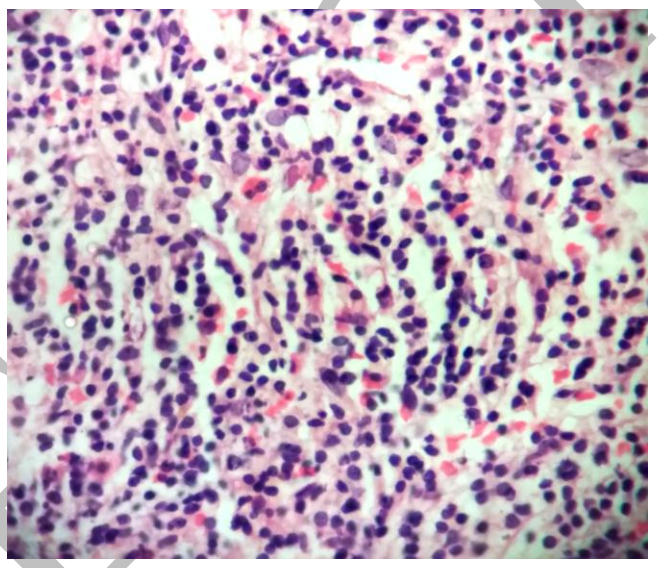

Figure (B): shows 40 x views on BM biopsy showing monotonous small round lymphocytes having scant cytoplasm and inconspicuous nucleoli.

On immunohistochemistry ,Leucocyte common antigen(LCA),CD20 and BCL2 were positive.

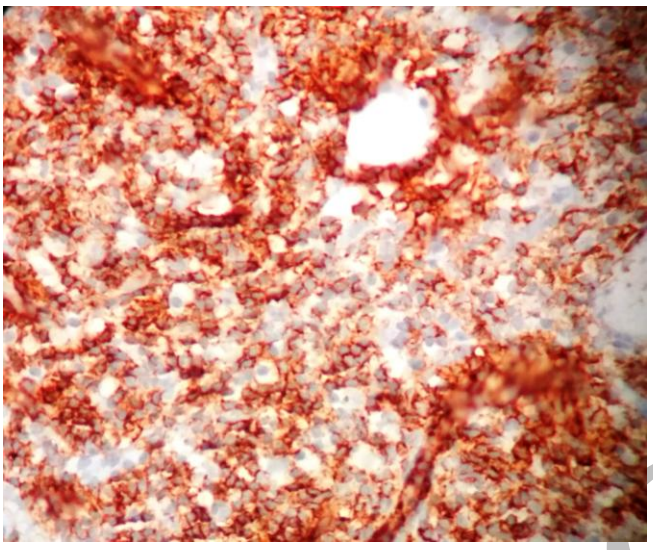

Figure C: LCA positivity

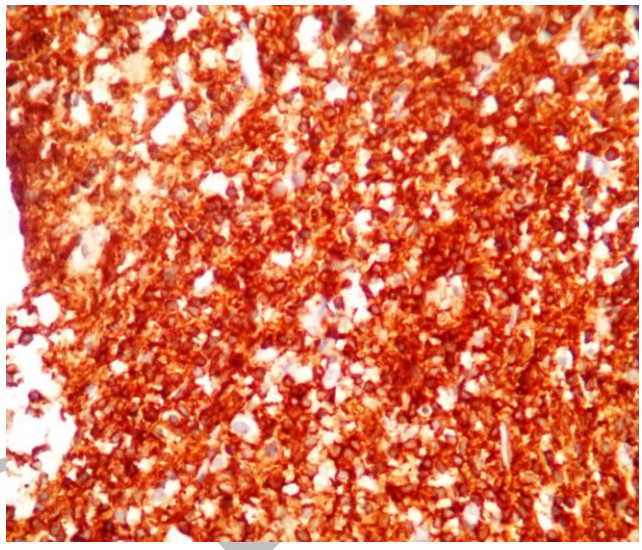

Figure D: CD20 positivity

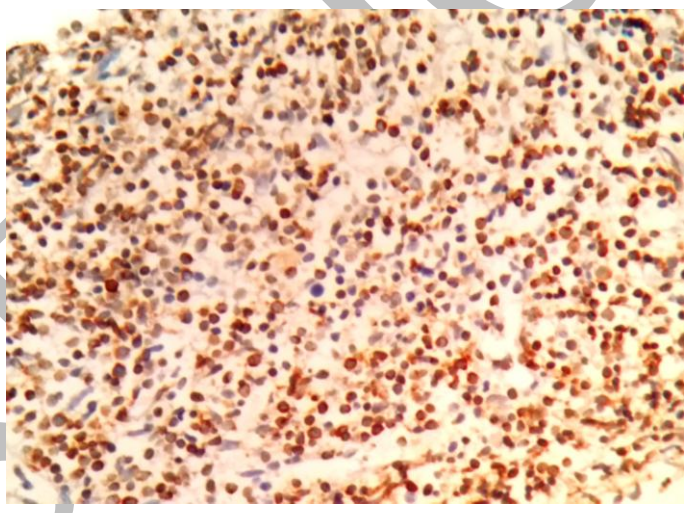

Figure E: BCL2 positivity

DISCUSSION

NHL presenting as an isolated bone marrow disease is extremely infrequent and only 14 cases in total have been published over the last 20 years[4]. There is a lot of variability in defining PBML. In the present study following criteria have been considered.

(1) Its confinement to the bone marrow.

(2) The exclusion of any leukemia/lymphoma entity known to arise primarily in the bone marrow.

(3) No hepatospleenomegaly or any lymphadenopathy.

(4) No involvement of the bone.

There is a very thin line between PBML and lymphomas primarily involving the bone. Primary bone lymphomas are also very rare.(5% of all extranodal lymphomas , <1% of all NHL cases)[4]. But they present with a localised , radiologically visible bone lesion, although their defining criteria hasn't been standardized. In our case, the absence of any localised bone tumor has been confirmed radiologically as well as on the bone marrow biopsy. There is no evidence of bone trabeculae destruction on bone marrow biopsy. Thus PBML would exclusively involve the hematopoetic bone marrow tissue.

Other diagnostic possibilities including Acute Lymphoblastic Leukemia, Lymphoblastic lymphoma, Chronic Lymphocytic Lymphoma, Burkitt's lymphoma ,Splenic Marginal Zone Lymphoma and Hairy Cell Leukemia which could primarily arise on the bone marrow were also excluded.

Review of literature by Martinez et all analyzed 21 PBML and found 19 cases were B-cell lymphomas(4 cases Follicular Lymphoma and 15 cases Diffuse Large B Cell Lymphoma(DLBCL) and 2 cases were Peripheral T cell lymphoma)[4]

Review of 53 PBML cases presented in literature by Hiroko et all have shown that B cell lymphomas are more common than T cell lymphomas in PBML[1].

In the case presented hereby the IHC findings are compatible with a B-cell NHL. Further MIB<5% assigns it to be a low grade B-cell NHL.

A vast majority of patients on presentation had bicytopenia or

pancytopenia.In our case the patient had pancyptopenia on presentation. The cause of cytopenia was estimated to be associated with infiltration of bone marrow by lymphoma cells [3].

The best recommended treatment for a PBML is CHOPbased chemotherapy regimens. Rituximab given along with CHOP based chemotherapy has promising results. For PBML autologous BM transplant is being sought as a good option for the patients without any organ dysfunction or complication [2].

In the present case, the patient was offered CVP based regimen , as it was a low grade NHL. But the prognosis still remains grave.

CONCLUSION

The diagnosis of PBML is still a challenge, as proper criteria and guidelines have not been established. Proper evaluation of morphology and with the help of immune-phenotyping, a diagnosis can be arrived upon.

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