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Case Report

Primary Non-Hodgkin Lymphoma of the Breast: A Case Report

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ABSTRACT

Primary breast lymphoma (PBL) is a rare disease which comprises of 0.04-1.1% of all the malignant tumors of the breast. We report a case of Primary Non-Hodgkin lymphoma (NHL) of the breast in a 50yr old female who presented with painless lump in the right breast. Fine needle aspiration cytology (FNAC) suggested malignancy. This was followed by biopsy and mastectomy which diagnosed the case as Primary NHL of the breast. This was confirmed by immunohistochemistry (IHC) as Diffuse Large B cell lymphoma (DLBCL) with immunoblastic features. Investigations to rule out any other site of lymphoma proved it to be primary NHL.

Key words: Primary Non Hodgkin lymphoma, Fine Needle Aspiration Cytology, Diffuse Large B-Cell lymphoma, Immunohistochemistry.

INTRODUCTION

Malignant lymphoma of the breast may present either as primary or secondary tumor, both are rare. [1] Primary lymphoma of the breast is almost always Non-Hodgkin's type accounting for 1.7% to 2.2% of extra nodal Non Hodgkin Lymphoma(NHL) and 0.38% to 0.7% of all NHL. [2,3] The most frequent histological subtype is Diffuse Large B Cell type(DLBCL) 40-70%.Differentiation of PBL from other breast tumors such as poorly differentiated carcinomas, lobular carcinomas, medullary carcinomas and small cell carcinomas may at times be difficult on cytology alone. Histopathology and immunophenotyping is very essential for a definitive diagnosis. [4]

Here we present a case of 50 year old woman with primary Non-Hodgkin's lymphoma of the right breast which was initially suspected on cytology (FNAC) and confirmed by histopathological examination and immunophenotyping.

CASE REPORT

A 50 year female was admitted to our hospital with right breast mass since 2 weeks duration. Local examination revealed a well defined large lump in the right breast measuring 9 x 5 cms. It was firm to hard, non tender and mobile. Nipple and areola were normal. Opposite breast was normal. There was no evidence of axillary or any other lymph node enlargement. There was no splenomegaly or hepatomegaly.

Peripheral blood smear examination and other routine hematological investigations were within normal limits.

Fine needle aspiration of the lump yielded hemorrhagic material. Smears were stained with Giemsa and Pap. Smears studied were moderately cellular with dispersed cells having high N:C ratio, moderate pleomorphism, coarse chromatin with prominent nucleoli and a rim of scanty basophilic cytoplasm (Figure-1).

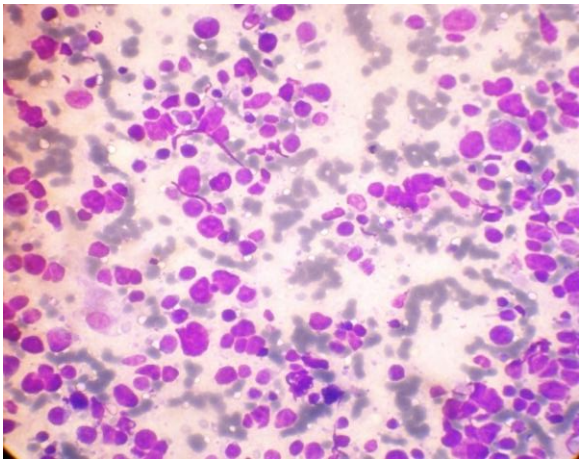

Figure-1: Photomicrograph of FNA smear showing dispersed cells with high N/C ratio, moderate pleomorphism, coarse chromatin, prominent nucleoli and scanty cytoplasm (Giemsa, x400).

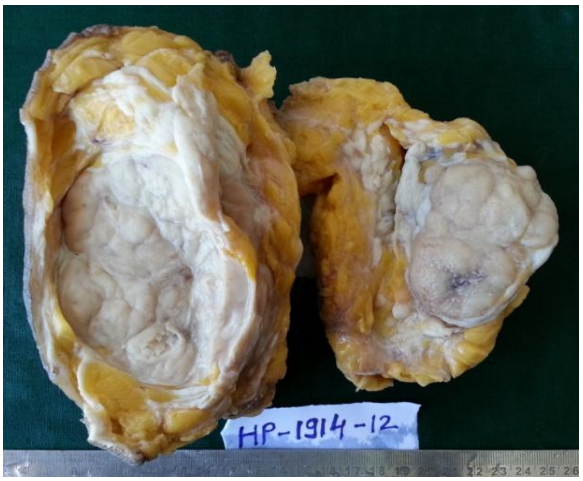

Figure-2: Gross photograph showing well demarcated tumor. Cut surface is gray tan bulging out from surrounding tissue.

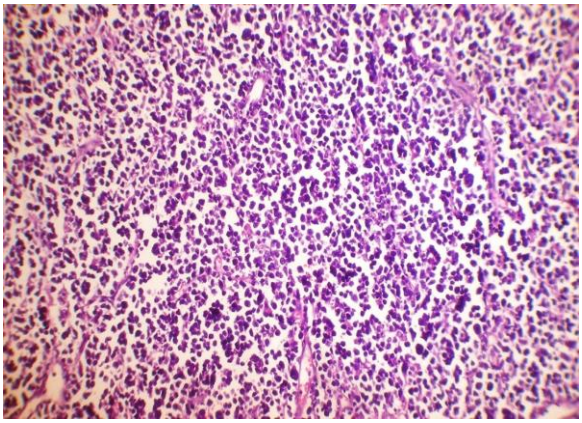

Figure-3: Photomicrograph showing diffuse sheets of small round tumor cells (H & E, x100).

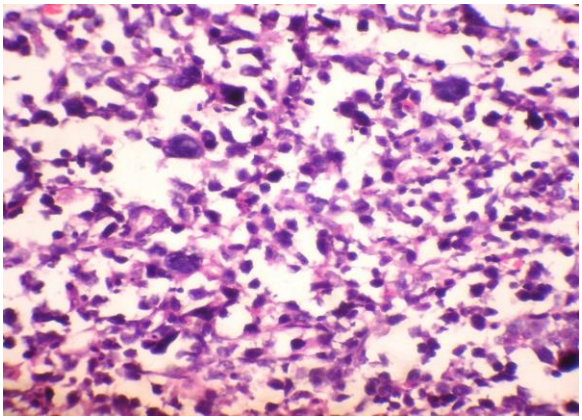

Figure-4: Photomicrograph showing many large cells with pleomorphic hyperchromatic nuclei with prominent nucleoli having thin rim of cytoplasm (H & E , x400).

Diagnosis of breast lymphoma was made with a differential diagnosis of undifferentiated carcinoma.

This was followed by an incision biopsy which showed tumor cells arranged in sheets and dispersed singly. These cells were highly pleomorphic, small to medium sized with high N: C ratio, dense dark nuclear chromatin with irregular nuclear membrane having scanty cytoplasm. At places cells were large, highly pleomorphic with bizarre nuclei.

Histopathological diagnosis of lymphoma of breast was offered and IHC study was advised.

This was followed by simple mastectomy. On gross examination a well demarcated tumor present below the nipple and areola.

Cut surface of the tumor was gray tan bulging out from surrounding tissue. There were no hemorrhagic, necrotic or calcified areas (Figure-2).

Histologic sections showed tumor cells arranged in diffuse sheets and also dispersed singly. These cells were highly pleomorphic with high N: C ratio, dense dark chromatin with prominent nucleoli having scanty cytoplasm. There were many bizarre cells with lobulated nuclei and abnormal mitotic figures with areas of necrosis and scattered histiocytes containing tumor debris (Figure 3 & 4).

Histologic diagnosis of primary breast lymphoma was made.

Immunohistochemistry was done for typing.

Tumor cells were positive for LCA and immunonegative for CK, EMA, ER, PR, CerB2, CD 3 and CD30. There were scattered tumor cells positive for CD 163 and CD 20.

Immunohistochemistry was reported as diffuse large B cell lymphoma with immunoblastic features.

Mastectomy was done followed by CHOP chemotherapy. Patient is doing well after chemotherapy without any recurrence with regular follow up.

DISCUSSION

Primary breast lymphoma may present as a mass and be indistinguishable clinically from carcinoma. Initially the criteria for the diagnosis of primary breast lymphoma were suggested by Wiseman and Liao in 1972 which include

a) Availability of technically adequate specimen
b) Close association between lymphomatous infiltrate and mammary tissue
c) Exclusion of either systemic lymphoma or extra mammary lymphoma, except simultaneous ipsilateral axillary lymph node involvement. [5]

Patients with breast involvement as a result of progression or relapse of previously diagnosed Non-Hodgkin's lymphoma are considered as secondary breast lymphomas.

Majority of PBL are Non-Hodgkin's lymphoma and the commonest is diffuse large B cell lymphoma. Other common types are mucosa associated lymphoid tissue lymphoma and peripheral T cell lymphoma.

In a study done by Bourhafour Mouna et al in 2012, where they reviewed 7 cases of breast lymphoma,all the 7 cases were diagnosed as DLBCL. [6] In our case it was DLBCL with immunoblastic features.

PBL show slight predilection for the right breast but the explanation for this remains unclear. [7] In a study done by Sandeep Kumar Arora et al in 2011, series of 10 cases were reported. Five cases involved the right breast, 4 cases involved the left breast and 1 case had bilateral involvement.

Though the diagnostic accuracy of FNAC in breast lymphomas has increased over the past 20 years from 76 to 93% , biopsy still remains the method of choice for definitive diagnosis and proper immunophenotyping. [4]

Although primary breast lymphoma and carcinoma appear similar clinically and radiographically their treatment and outcome differ to a great extent, most clinicians agree that multimodality treatment is necessary for PBL. [8] Ideally surgery should be limited to a biopsy to establish the correct histological diagnosis leaving the treatment with curative intent to radiotherapy and chemotherapy. [6]

In the present case patient presented with the right sided breast lump and it was DLBCL with immunoblastic features.

We are presenting the case because of its rarity and the diagnostic difficulty it poses in cytologic and histopathology specimen.

CONCLUSION

Primary malignant lymphoma of the breast is a rare disease and few clinicopatholgical features of the disease have been discussed in previous case studies. At present there are no definitive clinical or radiological findings which allow a differential diagnosis between lymphoma and carcinoma of the breast. The most important diagnostic tool remains tissue biopsy and histopathological examination with appropriate immunophenotyping.

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