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CASE STUDY

PRIMARY NON-HODGKIN'S LYMPHOMA OF BREAST- MALT TYPE: A CASE REPORT

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ABSTRACT

The breast is a very uncommon primary site for extra-nodal lymphoma. The Non- Hodgkin's Lymphoma (NHL) of breast typically presents as unilateral mass; the frequency of bilateral disease at first presentation ranges from 5-25%. Majority of them are of B cell phenotype. We report a rare case of Primary Non-Hodgkin's lymphoma of B cell phenotype, MALT (mucosa associated lymphoid tissue) lymphoma of Breast, suspected on fine needle aspiration cytology and confirmed by histopathology and immunohistochemical markers. Lymphoepithelial lesions were identified histologically, and the majority of the cell population were confirmed as lymphoma cells of B cell origin on immunohistochemistry. This case highlights the limitations of cytology and the importance of histological examination supported by immunohistochemistry for making a definitive diagnosis of primary breast lymphoma (PBL). In view of the rarity of the lesion at this site, the case is being reported.

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INTRODUCTION

Malignant lymphoma is a neoplasm which originates in lymphatic tissue. Primary non-Hodgkin's lymphoma of the breast is very rare possibly correlating with very sparse endogenous lymphoid tissue. Possibility in the diagnosis of breast malignancies, accounting for only about 0.1% to 0.15% of all malignant neoplasms of the breast, for 0.34 % to 0.85% of all non-Hodgkin lymphomas (NHLs) and for less than 2% of all extranodal NHLs. (Syed *et al*., 4th edition) At presentation, most patients are clinically thought to have breast carcinoma and the diagnosis of lymphoma is suspected at FNAC and confirmed by histopathology of the excised breast lump as in our case. Majority of the patients of PBL are women in the age group of 31-81 yrs with mean age of 55 years. (Syed *et al*., 4th edition) Most reported patients with Primary Breast Lymphoma are of Non-Hodgkin's lymphoma of B cell phenotype. (Brogi and Harris, 1999; Mangal Pandure *et al*., 2013) In terms of clinical prognosis, an early diagnosis of low grade or stage I lymphoma will generally give the best outcome. (Jinming *et al*., 2012) The management is by surgery, chemotherapy and radiotherapy alone or usually in various combinations depending on the histological subtype, disease extent and individual patient.

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Case report

A 40 years old female presented to our outpatient department with a lump in left breast for previous 2 years, initially small in size then gradually increase in size, with no constitutional symptoms. On local examination, hard non mobile lump was present involving whole of left breast. Skin over the breast was normal and there was no discharge from nipple. Only left axillary lymph nodes were palpable. There was no history of trauma. Rest of the systemic examination was normal. USG showed an approximately 10x6.2 cm sized heterogeneously hypoechoic lesion with increase internal vascularity and few cystic area noted, involving whole of left breast. Few lymphnodes noted in left axillary area. Routine haematological as well as liver and kidney function tests were within normal limits. Chest X-ray and USG abdomen were normal. Fine needle aspiration of breast mass was advised. FNAC smears from breast mass showed rich cellularity, comprising of disperse population of monomorphous cells. The cells were small round having coarse nuclear chromatin and hyperchromatic nuclei with very scanty amount of cytoplasm. Occasional benign ductal epithelial cells were seen (Figure 1). These cytomorphological features suggested possibility of malignant small round cell tumour with differential diagnosis of Non Hodgkin Lymphoma or neuroendocrine breast carcinoma. The specimen of toilet mastectomy of the left breast with left axillary lymph nodes was received. Total specimen was measure about 22.5x13x5.5cm with skin flap of 19x11 cm.

Cut section of the specimen showed infiltrative, multinodular, firm to hard, greyish white growth of 10x9x4.5cm involving whole of left breast (Figure 2). Microscopy revealed a hypercellular tumor composed of small to medium sized lymphoid cells arranged in a monotonous sheet like pattern along with entrapped breast ducts (Figure 3). The neoplastic cells had high N:C ratio, large hyperchromatic nuclei and coarse chromatin. Cytoplasm was scanty, pale and eosinophilic. The ductal epithelial cells were infiltrated by lymphoid cells that is suggestive of well-formed lymphoepithelial lesion (Figure 4). Surrounding fatty tissue was infiltrated by neoplastic cells (Figure 5). Mitotic figures were seen at places. Necrosis and sclerosis were absent. All the 9 lymphnodes showed reactive changes with no evidence of metastasis. Immunohistochemistry was performed using the Biogenex antibodies. It showed that more than 95% of the cells were B cells which were labelled positive with Anti- CD20 (Figure 6) and BCL-2 (Figure 7) and negative with Anti- CD5, CD10 and CD23. Based on the histological and immunohistochemical findings, the case was assigned the diagnosis of Non-Hodgkin's Lymphoma, low grade– B-cell type favouring extranodal MALT type lymphoma.

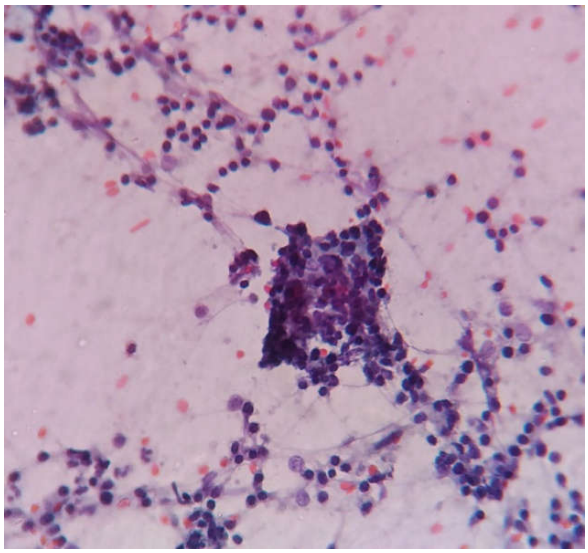

Figure 1. Cluster of benign ductal epithelial Cell in background of monomorphous lymphoid cells. (PAP, 400x)

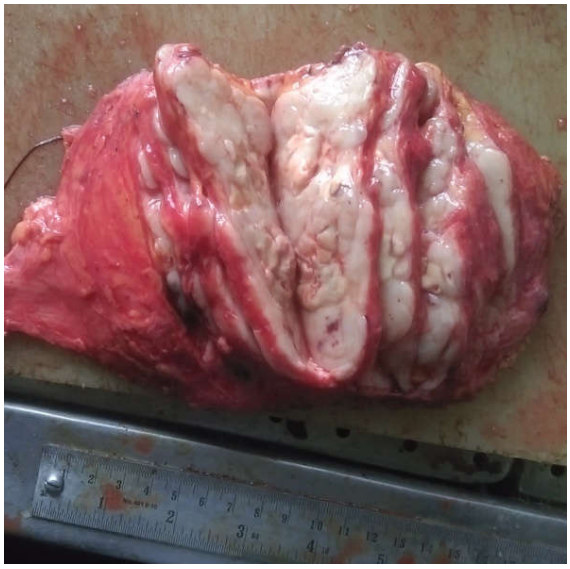

Figure 2. Multinodular, firm to hard growth involving whole breast

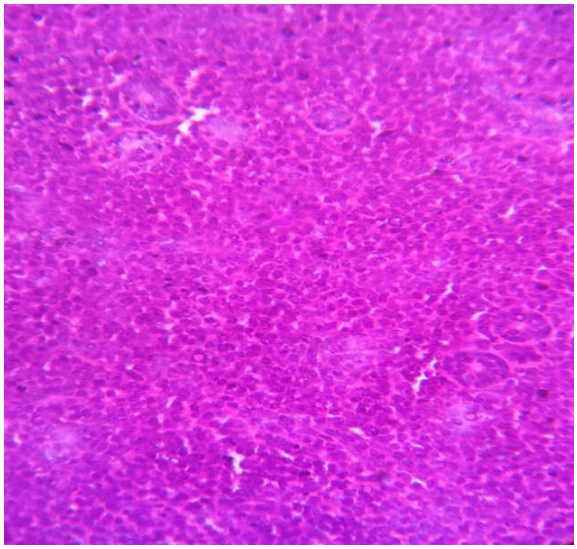

Figure 3. Neoplastic lymphoid cells with entrapped breast duct (H&E, 400x)

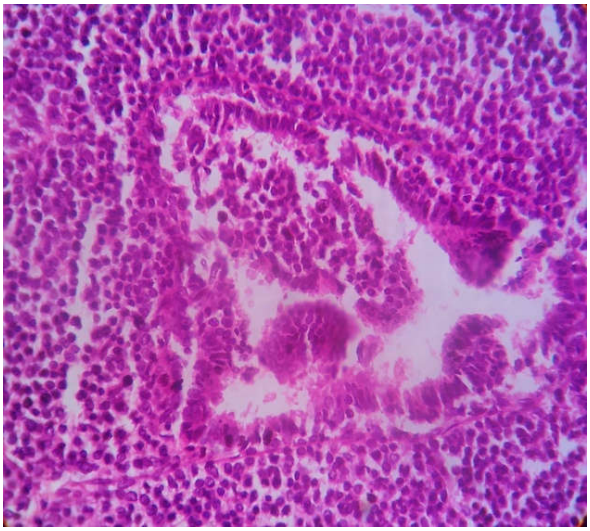

Figure 4. The ductal epithelial cells were infiltrated by lymphoid cells (lymphoepithelial lesion) (H&E, 400x)

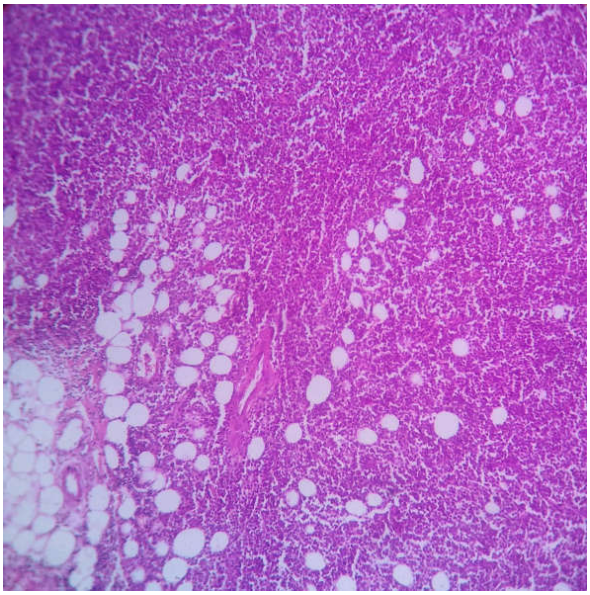

Figure 5. Fat infiltration by lymphoid cells (H&E, 100x)

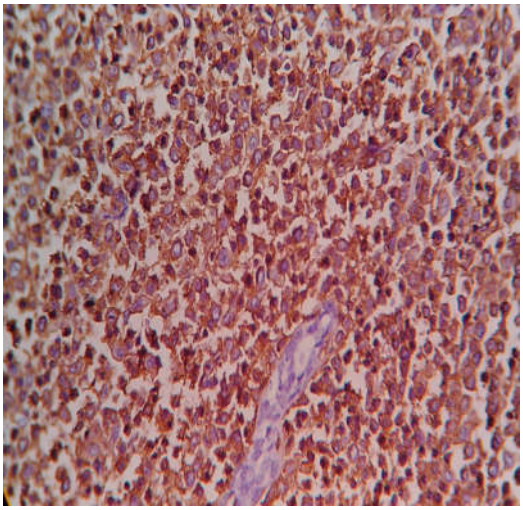

Figure 6. CD20 diffusely positive (IHC, 400x)

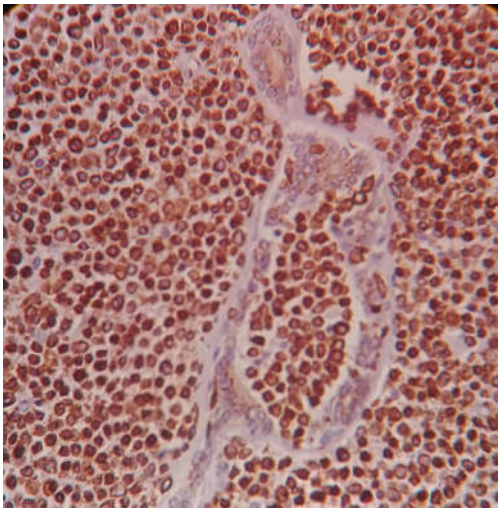

Figure 7. BCL2 diffusely positive (IHC, 400x)

DISCUSSION

Malignant lymphoma of the breast may present as both primary and secondary tumour, both of these are rare. Primary breast lymphoma may appear at any age but majority of the patients are postmenopausal women. It usually presents with painless unilateral multinodular lump which can be bilateral. (Lamovec *et al*., 2003) Wiseman and Liao are credited with first defining the clinical criteria for the classification of PBL. (Wiseman and Liao, 1972)

The specific criteria for the diagnosis of PBL include:

1. The clinical site of presentation is the breast.
2. A history of previous lymphoma or evidence of widespread disease are absent at the time of diagnosis.
3. Lymphoma is demonstrated with close association to breast tissue in the pathologic specimen.
4. Ipsilateral lymph nodes may be involved if they develop simultaneously with the primary breast tumor.

The clinical presentation and radiology of breast lymphoma and carcinoma are similar. Both present as painless enlarging breast lump. On mammogram lymphoma may lack the irregular border of infiltrating carcinoma and more than half exhibit no calcification. Pathology remains the gold standard to differentiate these two malignancies. Histopathology, IHC and/ or flowcytometry are helpful in differentiating primary breast lymphoma from other tumours. (Veena Gupta *et al*., 2006) All histological types of lymphoma have been described. More than 80% of PBL are B-cell lymphomas, mostly CD20+. The most frequent histopathologic types are: diffuse large B-cell lymphoma (DLBCL) which accounts for up to 50% of all PBL, follicular lymphoma (FL) 15%, MALT lymphoma 12.2%, Burkitt's lymphoma (BL) and Burkitt-like lymphoma 10.3%. Other histological types of PBL include small lymphocytic lymphoma (SLL), and anaplastic large cell lymphoma (ALCL). (Veena Gupta *et al*., 2006) The neoplastic cells of MALT lymphoma are typically CD20+, CD45+, CD5-, CD10-, CD23-CD43+/-, bcl-2+/-, and cyclin D1-. (Brogi and Harris, 1999) Although primary breast lymphoma and carcinoma may appear similar clinically and radiologically, their treatments and outcome differ radically. Also because of the rapid growth of lymphoma, it is very important to distinguish primary breast lymphoma from carcinoma in early stages. (Veena Gupta *et al*., 2006) The management of Primary Non-Hodgkin's lymphoma of breast is based on histologic grade. Patients with low grade disease can be managed with local therapy alone. The role of chemotherapy in this group is unclear. Patients with intermediate or high grade disease have better out come if chemotherapy is included. Overall 5 year survival rate is 43%. (Mangal Pandure *et al*., 2013)

Conclusion

Primary malignant lymphoma of the breast (PLB) is a rare but very important differential diagnosis of a breast lump. While examining cytology of painless breast lump, the differential diagnosis of primary breast lymphoma should always be considered. The diagnosis of primary breast lymphoma must always be confirmed by histopathology and immunohistochemistry. The management depends on the histological subtype, disease extent and individual patient. Chemotherapy seems to be the most acceptable option, alone or in combination with surgery and radiotherapy.

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