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Primary Breast Lymphoma: Tissue is the Issue-A Report of Two Cases

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Abstract

Primary lymphomas of the breast are quite uncommon and thus pose significant diagnostic and therapeutic challenge. They are often mistaken for carcinoma breast. Here we are reporting our experience of two cases of primary breast lymphoma. Fine needle aspiration cytology from the breast lump in the first case showed presence of carcinomatous deposits leading to a diagnosis of carcinoma breast. The subsequent core needle biopsy and immunohistochemistry however confirmed the diagnosis of a Non-Hodgkins Lymphoma, thus changing the entire plan of management. In the second patient core needle biopsy was done initially, which revealed Non-Hodgkins lymphomatous deposit. The patient was managed with chemotherapy and radiotherapy, like lymphomas at any other site. Surgery, which is an integral part of treatment in breast carcinoma has practically no role in primary breast lymphoma, thus mastectomy is avoided. This report emphasizes the need of core needle biopsy for planning management in all breast lumps.

Keywords: Primary Breast Lymphoma; Biopsy of a Breast Lump; Nonsurgical Management of Breast Lump

Abbreviations

NHL: Non-Hodgkin Lymphomas; FNAC: Fine Needle Aspiration Cytology; IFRT: Involved Field Radiotherapy; PBL: Primary Lymphoma of Breast.

Introduction

Malignant lymphoma (Hodgkins and Non- Hodgkins lymphoma) commonly arises from lymphatic tissue. Approximately one-third of all non-Hodgkin lymphomas (NHL) show origin from extranodal tissue like spleen or bone-marrow [1]. Primary lymphoma arising in breast however is quite rare and constitutes 0.04-0.53% of all breast malignancies and 1.7-2.2% of all extranodal lymphomas [2,3]. However, it should always be kept in mind while evaluating a case of breast lump. Unlike breast carcinoma where surgery plays a vital role, the management of breast lymphoma predominantly hovers around chemotherapy and radiation [4]. Fine needle aspiration cytology often falls short in diagnosing breast lymphomas accurately, thereby the risk

of subjecting these patients to unnecessary mastectomies. The aim of this report is to be vigilant during evaluation and diagnosis of a breast lump, keeping in mind the pathological possibilities, other than the most commonly encountered "carcinomas" and the necessity of a core needle biopsy as the initial diagnostic procedure.

Case History

Case 1

A 30 years old lady presented with painless lump on left breast. A radiodense lesion was seen in inferomedial quadrant of left breast (BIRADS-V) on mammography. Fine needle aspiration cytology (FNAC) from the lump showed presence of carcinomatous deposits. A core needle biopsy was done for histopathological confirmation which showed small to medium sized neoplastic lymphoid cells with round to oval nuclei. In immunohistochemistry CD-20 and LCA were strongly and diffusely positive with high proliferation index (>95%) suggesting high grade Non-Hodgkins B-cell lymphoma. Whole body PET-CT scan revealed abnormal pattern of FDG uptake in two large well defined lobular soft tissue density masses in the left breast at upper inner and lower quadrants, measuring 4.2X4.1cm and 3.6X3.3cm respectively (SUV max 34.39).The overlying skin, nipple areola complex, pectoral muscle and remaining scanned segment of the body were free from disease. She received six cycles of chemotherapy with R-CHOP regimen (Rituximab, Cyclophosphamide, Adriamycin, Vincristine, Prednisolone) followed by involved field radiotherapy (IFRT) to the primary site to a dose of 36 Gy in 18 fractions at 2 Gy per fraction, 5 fractions per week over a period of 4 weeks. Follow-up PET-CT scan showed no definite evidence of metabolically active disease suggesting complete response to therapy. The patient is on follow-up since last 90 months with no evidence of disease till date.

Case 2

A 50 year old lady presented with complains of a painless lump in left breast since 3-4 months duration. On clinical examination, a hard, mobile lump was found in central and left upper outer quadrant of left breast measuring about 7X7cm size, free from overlying skin and the chest wall. There was a hard, mobile lymph node in anterior axillary fold measuring about 2X2 cm in size. Mammography of left breast showed a lobulated heterogeneous hypoechoic central quadrant lesion more in upper aspect (size 6.1X4.7cm) with few foci of calcification and internal vascularity (BIRADS-V) with multiple hypoechoic axillary lymphadenopathy (2X1.1cm). Core needle biopsy from the lump revealed Non-Hodgkin's lymphoma (Figure 1). Immunohistochemistry showed diffuse strong positivity for CD20, PAX5, BCL2, MUM1 whereas moderate to strong nuclear positivity for BCL6 and c-MYC (Figures 2a,2b) with MIB 1 index 95%. Final diagnosis was diffuse large B-cell lymphoma, activated B-cell type of the left breast. PET-CT scan revealed increased FDG uptake in heterogeneously enhancing lobulated mass in retroareolar aspect of left breast (SUVmax-19.24). Multiple FDG avid left axillary lymph nodes were also seen (SUVmax-5.9). No evidence of abnormal metabolic activity in rest of the scanned segments of the body was found. The patient was given six cycles of chemotherapy with R-CHOP regimen. The repeat PET-CT scan (after six cycles of chemotherapy) showed significant reduction in primary tumour size (2.8X 2.5 cm). The patient was given external beam radiotherapy to the residual disease to a dose of 36Gy in 18 fractions at 2 Gy per fraction over four weeks. Patient is on follow up since last 54 months with no evidence of disease.

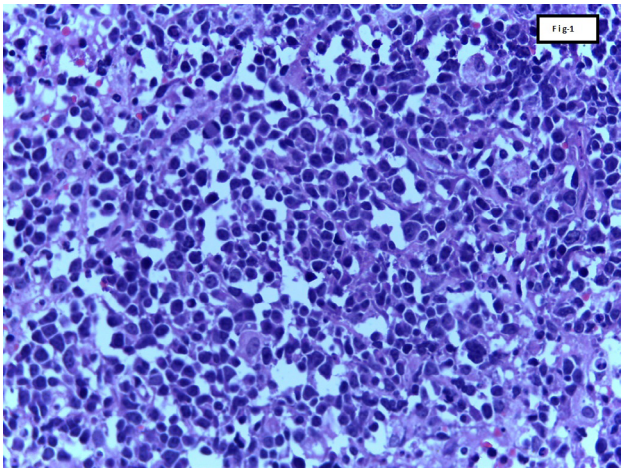

Figure 1: Markedly pleomorphic large atypical lymphoid cells in sheets; H & E stain, 400X.

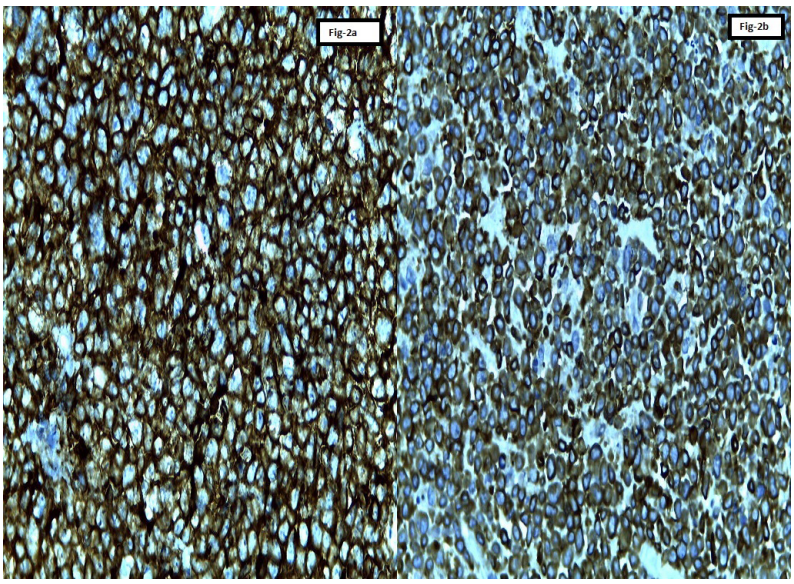

Figure 2a: Diffuse, strong membranous positivity for CD 20.
Figure 2b: BCL 2 diffusely positive in tumour cells.

Discussion

Primary lymphoma of breast (PBL) is quite unusual and shows distinct clinicopathological characteristics. Pathologically, PBL is defined as the presence of lymphomatous infiltrate in normal breast tissue with neither any previous nor concurrent non-Hodgkin's lymphoma at another site [5]. PBL usually presents in women in their fifth or sixth decade of life with a palpable breast lump [6]. One of our patient belonged to this age group (50 years), whereas the other patient was younger, presenting at the age of 30 years. Mostly a single breast is involved, although bilateral involvement has been reported in some studies [5]. Histopathologically, PBL arises predominantly from B-cells and most commonly belongs to large cell type [6]. High grade B-cell lymphoma is a newer entity described in 2016 WHO classification. Role of molecular profiling has got a new role in this subset of patients as it is said that they exhibit MYC and BCL2 and/or BCL6 rearrangement and are classified into double hit, triple hit and double expressor lymphoma accordingly. These are considered a prognostically worse subtype and hence require regular follow-up and subjected to clinical trial in refractory cases. Both of our patients had high grade B-cell lymphoma.

The overall treatment of PBL is similar to that used for other lymphomas and depends mainly on the histological type. Multimodality approach involving surgery, chemotherapy and radiotherapy has been the routine practise of management like other malignancies [7,8]. However, recent studies have shown that aggressive B-cell lymphomas should be treated with chemotherapy alone or in combination with radiotherapy [7]. Various studies have found that mastectomy offered no benefit in the treatment of primary breast lymphoma [9,10]. The most effective combination reported in the literature is 3 to 10 cycles of treatment with CHOP and involved field radiotherapy [7].

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