

## Primary Non-Hodgkin Lymphoma of the Breast- A Rare Case Report

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**Abstract:** Primary breast lymphoma is a rare tumor that presents commonly as a large mass with an incidence of only 0.5%. It has no specific mammographic appearance and can be confused with poorly differentiated carcinoma on routine FNAC or frozen section. With appropriate treatment, this breast malignancy has a relatively good prognosis. We report a case of primary mammary non-Hodgkin lymphoma in a post-menopausal woman, initially misdiagnosed as a case of ductal carcinoma on FNAC. Subsequently mastectomy specimen revealed non-Hodgkin lymphoma, which was confirmed by Immunohistochemistry.

**Key words:** Primary breast lymphoma, Immunohistochemistry.

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### I. Introduction:

Primary lymphomas of the breast are rare with incidence of 0.12-0.5% of all breast malignancies and 2.2% of extra nodal lymphomas.<sup>[1,2]</sup> Most breast lymphomas are the non-Hodgkin's type, which represent approximately 70-90%.<sup>[3]</sup> Diffuse large B- cell lymphomas(DLBCL) constitutes 46-71% of all primary breast lymphomas.<sup>[4]</sup> The pathogenesis of breast lymphomas is still unknown. Prognostic indicators include clinical stage, histological type and patient's age.<sup>[2]</sup> Diagnosis in most of the cases is revealed by routine FNAC performed for breast lumps, but sometimes it is inconclusive as our case was misdiagnosed as poorly differentiated duct carcinoma.

### II. Case Report:

A 55y old woman presented with a 6x6 cm lump in the upper and inner quadrant of the right breast since 1month. There was history of associated pain and swelling of right upper arm. There was no history of nipple discharge, fever, bone pain or respiratory discomfort. Clinical examination revealed hard, nontender ill defined mobile lump with normal overlying skin and nipple. Ipsilateral axilla had multiple enlarged firm and fixed lymph nodes of apical group. Opposite axilla was unremarkable. There was no other significant lymphadenopathy. Per abdominal examination was normal. CT thorax revealed irregular right breast mass with ipsilateral axillary lymphadenopathy. Mass showed small foci of calcification. Underlying pectoral muscle was normal. Metastatic work up revealed no metastasis. Provisional clinical diagnosis was carcinoma of breast. FNAC of the lump was suggestive of poorly differentiated ductal carcinoma.

Patient underwent Right modified radical mastectomy. Mastectomy specimen revealed a grey white lesion measuring 6x5x5cms situated in upper inner quadrant. Lesion had nodular appearance with irregular border and firm in consistency. Mass was situated 0.5cms away from nipple and areola. Surrounding breast tissue was yellowish and rubbery. 12 axillary lymph nodes were isolated largest measuring 4x2x3cms.

Histological examination revealed a tumor composed of small round to polygonal cells in diffuse sheets. Individual cells were small to medium sized, with round hyperchromatic nuclei admixed with large lymphoid cells (Figure 1). Increased mitotic activity noted (3/HPF), with wide areas of necrosis and karyorrhexis. Deep resected margin showed tumor infiltration. Skin with nipple and areola was free from tumor infiltration. 7 out of 12 lymph nodes showed metastatic tumor deposits.

Histopathological impression was small cell malignant neoplasm. Immuno-histochemistry was positive for CD20, negative for CD3, CK, cyclin D1 and TdT. Ki 67 was 70%(Figure 2). Final diagnosis was Diffuse large B-cell lymphoma. The patient was offered post operative chemotherapy in the form of CHOP regimen. Presently the patient is under post chemotherapy follow up.

### III. Discussion:

Non Hodgkins Lymphoma involving the breast as a primary site or as a secondary site from systemic disease, is a rare malignancy. Several series have reported varying incidences of primary and secondary cases. Primary breast lymphoma has a reported incidence ranging from 0.04- 0.5% of malignant breast neoplasms<sup>[5]</sup> of all extra nodal NHL and 0.7% of all NHL.<sup>[6]</sup>

Histologically, primary breast lymphoma is predominantly of B-cell origin with most common subtype being diffuse large B-cell type,<sup>[7]</sup> as in our case. There is a slight predilection for the right breast, but the explanation for this remains unclear.<sup>[8]</sup> It presents most commonly as a palpable mass.<sup>[9]</sup>

The following strict criteria must be met for a neoplasm to be characterized as primary non-Hodgkin lymphoma of breast: (1) an adequate pathologic specimen, (2) close association of mammary tissue and lymphomatous infiltrate, (3) no evidence of disseminated lymphoma at the time of diagnosis, and (4) involvement of ipsilateral axillary nodes only if it occurs concomitantly with the primary lesion.<sup>[10]</sup> Our case met all these criteria for the diagnosis of primary non-Hodgkin lymphoma of breast.

Since there is considerable overlap in clinical and radiological features of breast lymphoma and carcinoma, pathology remains gold standard to differentiate these two malignancies. Although sensitivity of FNAC in diagnosis of lymphoproliferative disorder is 90%, diagnostic pitfalls exist. Confirmatory core needle biopsy is recommended by most authors for suspected primary lesion.<sup>[2]</sup>

The histological differential diagnosis of lymphoma includes lobular carcinoma, medullary carcinoma, amelanotic melanoma and poorly differentiated duct carcinoma.<sup>[11]</sup> IHC and/or flow cytometry is helpful in differentiating primary breast lymphoma to others.

Contralateral breast involvement is best ruled out by MRI scan. It is also useful in follow up of patients to monitor response to chemotherapy and radiotherapy and to diagnose disease recurrence.<sup>[12]</sup>

The treatment of primary non-Hodgkin lymphoma of breast is similar to that given for systemic lymphomas of similar histological type. Most clinicians agree that multimodality treatment is necessary,<sup>[9,13,14]</sup> comprised of wide local excision or mastectomy with lymph node dissection and CHOP regimen of chemotherapy with or without radiotherapy. However chemotherapy without mastectomy has good outcome.<sup>[14]</sup>

The risk of CNS relapses in patients with primary breast lymphoma appears greater than that has been reported for aggressive nodal non-hodgkin lymphoma and approximately estimated to 5%.<sup>[15]</sup> In our case patient is under follow up without any recurrence or CNS relapse.

#### IV. Conclusion:

Core biopsy with IHC is necessary for all poorly differentiated carcinomas diagnosed by FNAC before advising mastectomy to rule out NHL.

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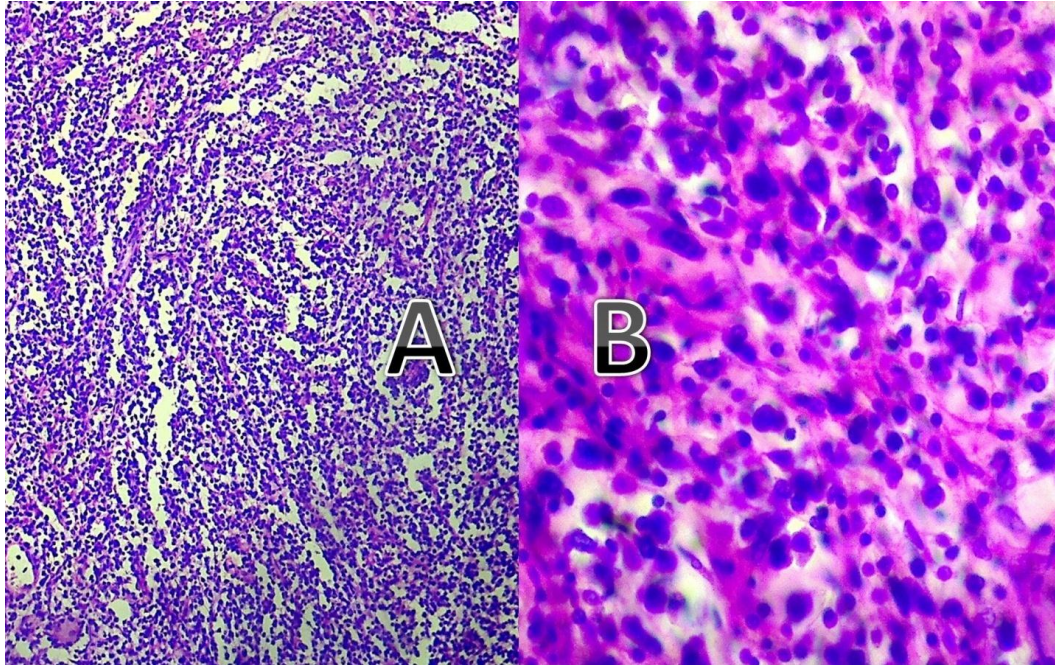


Fig. 1:- Photomicrograph showing (a) Non Hodgkin Lymphoma (H&E, 100x), (b) Non Hodgkin Lymphoma (H&E, 400x).

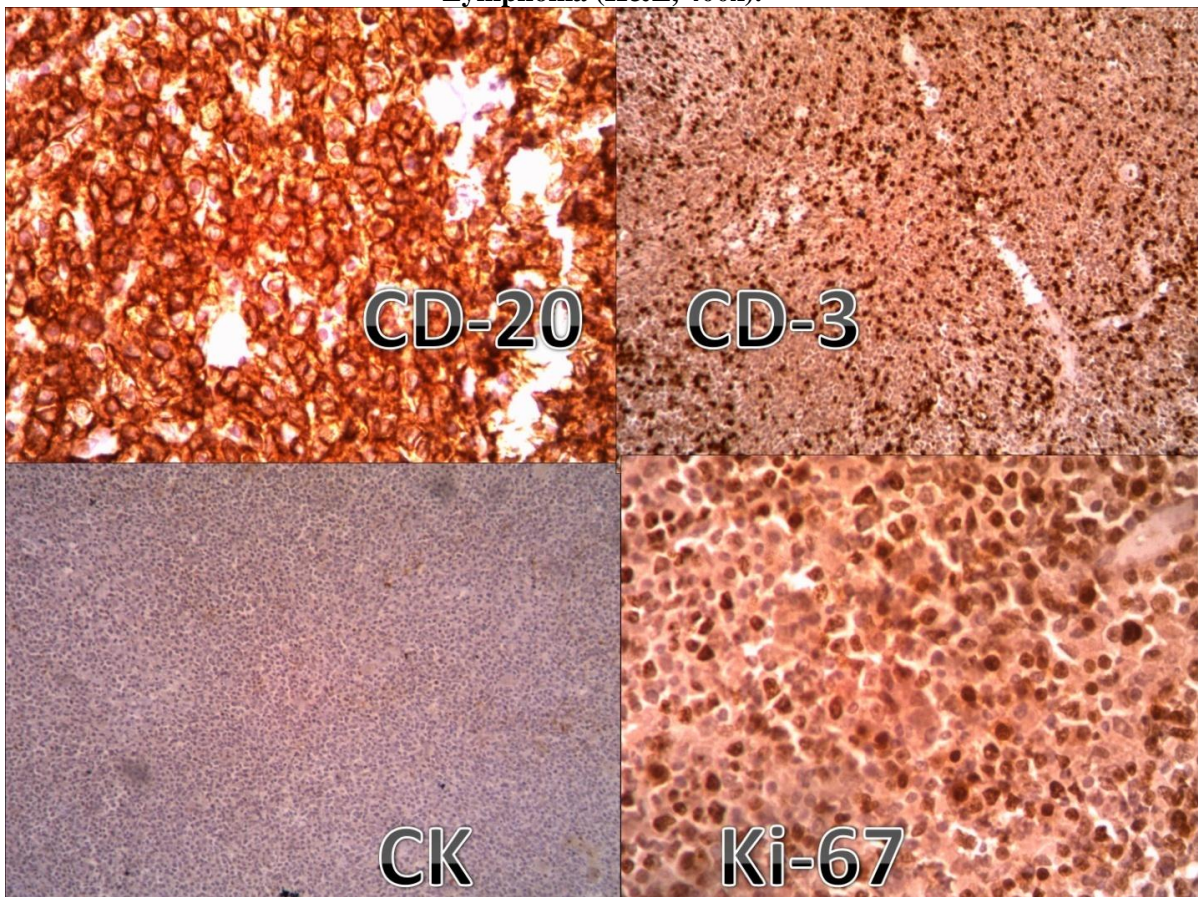


Fig. 2:- Photomicrograph showing IHC on Non Hodgkin Lymphoma breast.