

“Primary Non-Hodgkin’s Lymphoma of the Breast: Cytologic diagnosis .”

Dr. Shirish Nandedkar, Dr. Kamal Malukani, Dr Mohit Bhandari, Dr Mallika Kawatra,

Department of Pathology, Sri Aurobindo Institute of medical sciences,
Indore, Madhya Pradesh, India.

Corresponding Author : Dr. Kamal Malukani

Email Id. kamal.malukani@yahoo.com

Abstract: Primary breast lymphoma is a relatively rare entity, representing 0.04-1.1% of malignant tumors of the breast. The incidence of primary breast lymphoma is increasing. We reported a case of Primary breast lymphoma diagnosed on fine needle aspiration cytology in a 60 yr old unmarried female. Histology and Immunophenotyping were in accordance with Non – Hodgkin’s diffuse large B-cell lymphoma. Treatment and outcome of Primary breast lymphoma and carcinoma are radically different. Early diagnosis of primary breast lymphoma is significant so that unnecessary mastectomies can be avoided. Fine needle aspiration cytology supplemented by Immuno-cytochemistry can be applied as a reliable and cost-effective tool in the early diagnosis of primary breast lymphomas, while Histopathology and Immunohistochemistry are conclusive.

Key Words : Primary Non-Hodgkin’s Lymphoma, Fine needle aspiration cytology, Breast Carcinoma.

Background:

Primary Non-Hodgkin’s lymphoma of the breast is a distinct possibility in the diagnosis of breast malignancies, representing 0.04 -1.1 % of malignant tumors of the breast (1), 1.7-2.2% of extranodal lymphomas and 0.7% of all NHL (2). However it is the most frequent hematopoietic tumor of the breast. Different criterias have been used in the past to define Primary Breast Lymphoma; presently the definition devised by Wisemann and Liao (3) and modified by Hugh and coll.(4) is generally accepted :

- both mammary tissue and lymphomatous infiltrate present in close association in an adequate specimen;
- no evidence of widespread lymphoma by standard staging techniques or preceding extramammary lymphoma, although ipsilateral axillary lymph node involvement is allowed if both lesions are present simultaneously.

We reported here a case of Primary Non- Hodgkin’s lymphoma of the breast in a post-menopausal unmarried female patient diagnosed on fine needle aspiration cytology with subsequent correlation with histopathology and immunohistochemistry.

Case Report :

A 60 yr old unmarried female was admitted in our institute for complaints of swelling and pain in right lower limb. She was a known case of type 2 diabetes mellitus and hypertension under treatment. She had undergone surgery for fracture neck, right femur two months back.

On physical examination, a lump was noticed in the subareolar region of the left breast, more in the upper outer quadrant. The lump was about 8 cm. in diameter, non tender, mobile and not fixed to skin or underlying tissue. Overlying skin was stretched and engorged blood vessels could be seen on the surface. Ultrasonography revealed a hypoechoic mass of 7.5 x 6.7 cm.in left breast with left axillary

lymphadenopathy. No lymphadenopathy was detected in any site other than left axilla. Chest MRI showed a lobulated massive tumor measuring 7.53(AP) X 7.42(LR) X 6.76(HF) cm in the subareolar location, more on the superolateral side. The lymph nodes in the ipsilateral axilla were enlarged. Routine haematological and biochemical investigations were unremarkable except for raised Erythrocyte sedimentation rate (48mm. at the end of 1st hour by Westergreen's method).

Fine needle aspiration cytology (FNAC) :

- Smears were adequately cellular, showed a relatively monotonous lymphoid cell population arranged in a scattered manner in a background of erythrocytes.
- Cells were large round with a lymphoblast like appearance, having a coarse chromatin pattern and hyperchromatic nuclei.
- There were also present some round basophilic cytoplasmic fragments of varying sizes. These were lymphoid globules, a useful indicator of lymphoid nature of accompanying cells.

Cytological features were suspicious of Non Hodgkin's Lymphoma of breast.

Histopathology :

We received the excisional biopsy of the breast lump and axillary lymph nodes for histopathology. Cut section of the lump was lobulated, soft, greyish white. Microscopy revealed a hypercellular tumor with mostly lymphoblasts arranged in a monotonous sheet like pattern with altered N : C ratio, large hyperchromatic nuclei with coarse chromatin. Cytoplasm was scanty, pale and eosinophilic.

Mitotic figures could be seen at places. Few scattered small lymphocytes were also seen. All the 13 lymph nodes showed reactive changes with no evidence of tumor.

Immunohistochemistry :

Immunophenotyping was performed using the antibodies. Lymphoblasts were labelled positive with Anti- CD20 (clone L26) and negative with Anti- CD3 (polyclonal). Few scattered small lymphocytes were positive for CD3. These were not neoplastic cells, but were reactive T Lymphocytes representing tumor immunity.

Based on the histologic and immunohistochemical findings, the case was assigned the diagnosis of Diffuse large B – cell lymphoma, according to the Revised European-American Classification of Lymphoid Neoplasms (REAL).

Discussion :

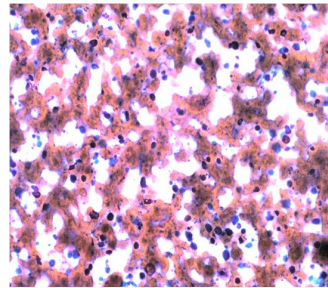
Primary Breast Lymphoma (PBL) is a relatively rare entity. Reports indicate that Primary lymphomas are rare in the breast because the breast contains less lymphoid tissue than other organs, such as lungs and intestine, where primary lymphomas are more common (5). Majority of the PBL are Non Hodgkin's Lymphoma and commonest is Diffuse large B – cell type. Other common types are Mucosa associated lymphoid tissue (MALT) lymphoma and Peripheral T cell lymphoma.

PBL cannot be differentiated from breast carcinoma clinically and radiographically. However some patterns have been reported favoring the diagnosis of breast lymphoma. Primary breast lymphoma tend to be larger at diagnosis, with rapid enlargement than breast carcinoma (6). The mass is usually painless, relatively mobile, generally not adherant to the overlying skin and

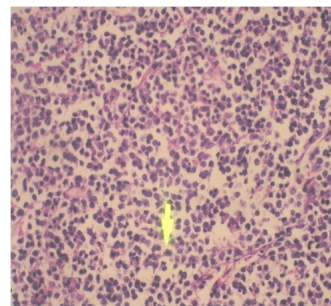
underlying tissue. Skin retraction, “peau d’orange” and nipple retraction are uncommon. Consistent mammographic findings of PNHLB are ; a well rounded mass with a regular, smooth outline surrounded by a thin perimeter of radiolucency (7). Absence of irregular borders, microcalcifications & spiculations favor the diagnosis of lymphoma.

Although primary breast lymphoma and carcinoma may appear similar clinically and radiographically, 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. The diagnosis of lymphoma was suspected on Fine needle aspiration cytology in our patient and was confirmed with the subsequent histologic and immunohistochemical examination. Pseudolymphoma was also considered as differential diagnosis on Fine needle aspiration cytology. In Pseudolymphoma a polymorphic population of lymphoid cells is seen including plasma cells, while in Lymphomas we get a relatively monotonous lymphoid cell population and rare plasma cells. Both in PBLs and in nodal lymphomas with breast involvement, the localization (with unknown reasons) is reported to be predominantly in the right breast (8). Our patient had lymphoma diagnosed in the left breast. Histologically breast lymphomas are difficult to distinguish from poorly

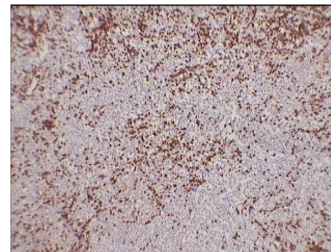
both in PBLs and in nodal lymphomas with breast involvement, the localization (with unknown reasons) is reported to be predominantly in the right breast (8). Our patient had lymphoma diagnosed in the left breast. Histologically breast lymphomas are difficult to distinguish from poorly differentiated breast carcinomas and lobular carcinoma sometimes.



1. FNAC Lymphoma Breast



2. H & E: 40 X



3. IHC : CD 3



4. IHC :CD 20

References :

- (1) Domchek S.M., Hecht J.L., Pinkus G.S., Canellos G.P. : "Lymphomas of the breast : primary and secondary involvement". Cancer. 2002,94,6.
- (2) Wong W.W., Schild S.E., Halyard M.Y., Schomberg P.J.: "Primary non-Hodgkin lymphoma of the breast: The Mayo Clinic Experience". J. Surg. Oncol., 2002,80,19.
- (3) Wiseman C, Liao KT : Primary Lymphoma of the breast. Cancer 1972,29:1705-12.
- (4) Hugh JC, Jackson FI, Hanson J, Poppema S : Primary breast lymphoma. An immunohistologic study of 20 new cases. Cancer 1990, 66:2602-11.
- (5) Ferguson DJP. Intraepithelial lymphocytes and macrophages in the normal breast. Virchows Arch A Pathol Anat Histopathol. 1985; 437 : 369-378.
- (6) Brogi E, Harris NL. Lymphoma of the breast : Pathology and clinical behaviour. Semin Oncol 1999;26:357-364.
- (7) Navas JJ, Battifora H: Primary Lymphoma of the breast. Cancer 1977;39:2025-2032.
- (8) Dixon JM, Lumsden AB, Krajewski A, Elton RA, Anderson TJ. Primary lymphoma of the Breast. Br J Surg 1987;74:214-6.
- (9) Vardar E, Ozkok G, Cetinel M, Postaci H. Primary Breast Lymphoma Cytologic Diagnosis. Arch Pathol Lab Med. 2005; 129(5): 694-696.
- (10) Topalovski M, Crisan D, Mattson JC. Lymphoma of the breast: a clinicopathologic study of primary and secondary cases. Arch Pathol Lab Med. 1999; 123:1208-18.

Source of support: Nil; Conflict of Interest: Nil

Date of submission: 19 Aug.2012

Date of Provisional Acceptance: 24 Aug.2012

Date of Peer review approval: 28 October 2012

Date of final drafting: 27 November 2012

Date of Publication: 2 December 2012