Primary diffuse large B-cell lymphoma of the breast: a case report

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Summary

Mammary non-Hodgkin's lymphomas are uncommon and account for 2% of all extranodal lymphomas. Stringent diagnostic criteria are applied in the diagnosis of primary lymphoma considering that the breast is a recognized site for disseminated extranodal lymphoma. Our case report was established by histology alone.

Key words: Mammary non-Hodgkin's lymphomas; Breast.

Case Report

A 65-year-old woman with a lump in her left breast in the upper outer quadrant was admitted to the University Department of Obstetrics and Gynecology, Alexandroupolis Regional Hospital. On clinical examination the mass was discrete and mobile. There were palpable lymph nodes in the left axilla. Mammographic findings included a relatively circumscribed mass. Ultrasonography showed heterogenous internal echoes. Malignancy was not excluded.

The patient underwent surgical lumpectomy and then was treated by mastectomy and axillary clearance.

Histological examination of the frozen section biopsy specimen and the modified radical mastectomy specimen showed diffuse infiltrate of pleomorphic neoplastic large-sized lymphoid cells around the ductal structures, round, irregular, lobulated or cleft immunoblasts and anaplastic cells. Plasmablastic forms were rare and mitotic figures were frequent (Figure 1).

Immunohistochemically the cells strongly reacted with LCA antigen and Pan-B antigen; Pan-T antigen was weakly expressed but EMA and hormone-receptor antigens were not expressed at all (Figures 2, 3). A diagnosis of diffuse large B-cell lymphoma (DLBCL) according to the REAL classification was made. Microscopic examination of the axillary clearance specimen showed also diffuse infiltration of all 12 excised nodes by neoplastic lymphoid cells with the same cytological and immunophenotypic features. Complementary clinical and laboratory investigation was negative for disseminated disease, but the lesion fulfilled the Wiseman and Liao criteria for a primary breast lymphoma (PBL) diagnosis [1], and the patient was referred to the Anticancer Institute for further management and treatment. Ten months after surgery there has been no recurrence of the disease.

Discussion

There has been an increased report of PBL cases perhaps due to improved awareness of the entity and increased use of immunohistochemistry as a diagnostic tool. Criteria for diagnosis as described by Wiseman and Liao in 1972 are: a) that adequate pathological material is available; b) that the breast should be the site of the primary or the major clinical manifestation of the disease; c) that there is no prior establishment of preceding extramammary lymphoma, and, d) that a close association between breast tissue and the infiltrating lymphoma should be identified. Wiseman and Liao suggested that PBL is a strictly localized disease with no involvement of other body sites.

However, Bobrow *et al.* [2] reported a case of stomach involvement prior to treatment, while the above criteria were fulfilled and also reported another case of thyroid gland involvement, clinically identified, eight months after making the diagnosis of PBL.

Two distinct variants of PBL have been described by Adair and Hermann [3]: Bilateral diffuse disease occurring in young puerperal women and unilateral disease affecting older patients. Subsequent work demonstrated that histology of the former group turned out to be Burkitt's lymphoma, usually diagnosed in African patients [4, 5] and comprises 20% of all PBL. The clinical course is rapid with involvement of the central nervous system, GI tract and ovaries, without lymph node invasion.

The mammographic appearance is unspecific. At mammography, primary breast lymphoma manifests as a relatively circumscribed mass or a solitary, indistinctly marginated, uncalcified mass [6]. Mussurakis *et al.* [7] described MRI findings in primary breast lymphoma. In that study, the precontrast T1-weighted sequence showed several hypo-intense, ill-defined, non-spiculated masses. In the T2-weighted images the masses showed a hyperintense halo. In the dynamic and post-contrast sequences all lesions were enhanced markedly, and a further large mass was discovered. In comparison to mammography and sonography, only MR imaging identified the multicentric extent of the tumor [7].

Revised manuscript accepted for publication January 15, 2001

Fig. 1

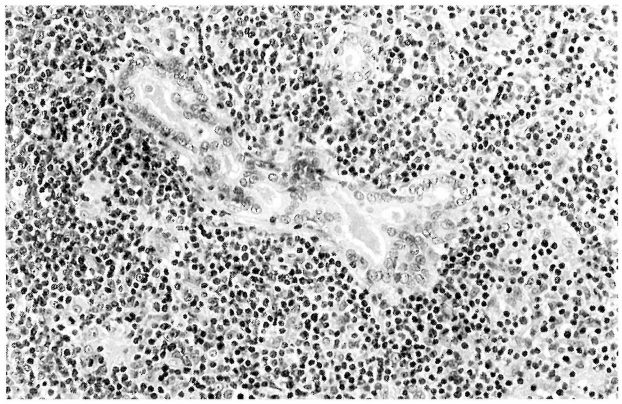

Fig. 2

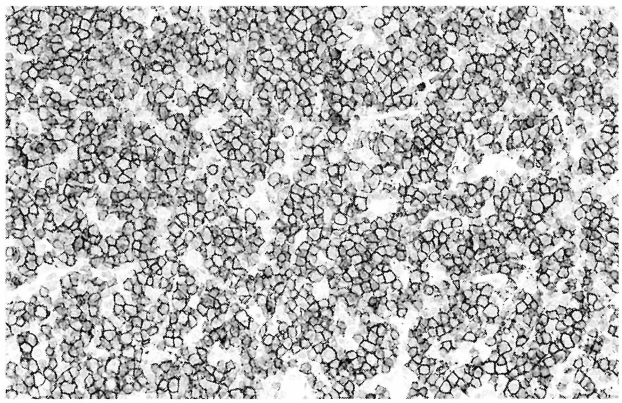

Fig. 3

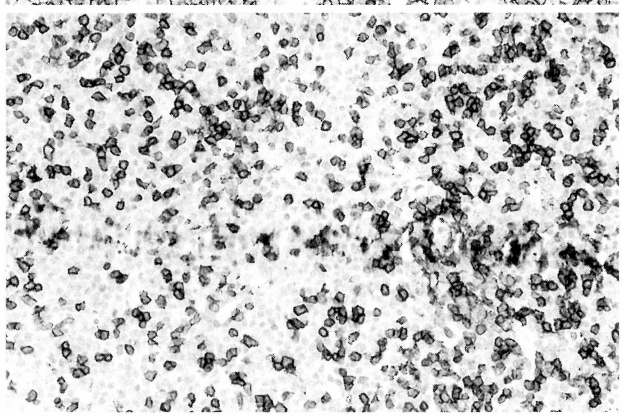

Figure 1. — PBL, H&E x100; Infiltrate around ductal structures.
Figure 2. — PBL: Immunohistochemical stain L26 x100.
Figure 3. — PBL: Immunohistochemical stain CD3 x100 (T-cell marker); Scattered non neoplastic T-cells.

Histologically, most PBL cases are of a B-cell lineage. Behavior is strongly related to the clinical stage and the histological features of the disease. Most cases of PBL are stage IE and IIE, based on the Ann Arbor system [8]. This means that the disease is extranodal (E) without (I) or with (II) nodal involvement in one or more regions on the same side of the diaphragm.

The preponderance of B-cell tumors would suggest an origin for many PBLs in mucosa associated lymphoid tissue (MALT). Some authors have reported lymphoepithelial lesions in association with breast lymphoma, particularly at the periphery of the mass [9-11]. Bobrow *et al.* [2] showed that the lymphoid cells, which infiltrated acini, were morphologically different from the tumor cell population and had a T-cell immunophenotype. In many cases of breast lymphomas, lymphoid cells have been observed infiltrating acini and ducts; Elston, Ellis and Pinder recommend that the morphology and immunoreactivity should be carefully examined to determine whether they are true lymphoepithelial lesions [12].

The lack of a) plasma cell differentiation [11], b) Dutcher bodies and c) reactive germinal centres with follicular colonization [9, 13] do not support the suggestion of a MALT origin. Also the absence of an association with lymphocytic mastopathy is in contrast with a MALT origin [13].

We believe that our case report will be an additional aid to the study of these uncommon malignant tumors of the breast.

Acknowledgments

We thank technicians Bachtsevanidou Agorasti and Kirmizi Giannoula for their contribution.

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