Editorial Articles

Primary lymphoproliferative lesions of the mammary gland

N. Papadopoulos

Asso. Prof in Histology-Embryology Democritus University of Thrace Alexandroupolis (Greece)

Summary

Occasionally, the breast is the site of a localized, primary lymphoma with no evidence of concurrent widespread or preceding extramammary disease at the time of presentation (Stage I) or within 1-6 months thereafter. Cases with concurrent or subsequent ipsilateral axillary node involvement (Stage II) have also been accepted as primary lymphomas by some investigators, and such involvement has been observed in 48.5% of the cases. More commonly, the breast is involved secondarily by widespread lymphoma.

Patients with PML range in age from 9 to 90 years, with a median ranging from 55 to 68 years in various reports.

Clinical symptomatology varies considerably. Most patients present with a breast mass or complain of pain. About 10% of the patients may have night sweats, fever, and weight loss. Occasionally multiple nodules may be present within the breast. These nodules can cause overlying skin changes similar to those associated with carcinoma and may even involve the nipple.

Mammographically, lymphomas form relatively circumscribed masses, focal or diffuse thickening and densities, and discrete nodules with irregular margins; typically, they lack calcification and retraction.

Key words: Lymphoproliferative lesions; Mammary gland.

Primary lymphoproliferative lesions of the mammary gland are rare disorders and include both malignant lymphomas and benign pseudolymphomas. The majority of primary malignant lymphomas of the breast are B-cell lymphomas, and the most common type is diffuse large B-cell lymphoma (40% to 70%) [1]. Bilateral primary breast lymphoma is exceptionally rare [2, 3]. Very few cases of breast lymphomas of T-cell origin have been reported [4] and even fewer cases of breast T-lymphomas have been reported in women who have received breast implants (silicone) [4]. MALT-type lymphoma is a distinct subgroup of primary lymphoma of the breast with a reported incidence between 0% and 44% and is characterized by indolent behavior and good prognosis. Burkitt's or Burkitt-like lymphoma can bilaterally involve the breast of a young pregnant or lactating woman and typically behaves aggressively [1]. Infrequently, the breast is involved by leukemia of either lymphatic or myeloid type [5, 6]. Extramedullary plasmacytoma also occurs at this site, although most of these cases represent extension from a lesion in an underlying rib [6]. More commonly, the breast is involved secondarily by widespread lymphoma. The frequency of primary mammary lymphoma varies from 1/1000 [7] to 1/1300 malignant tumors of the breast [8] and has also been expressed as approximately 0.12-0.53% of all malignant breast tumors [9]. Both non-Hodgkin's and Hodgkin's lymphoma occur in the breast, but the latter is quite infrequent [10].

The origin of primary lymphomas in the breast is of interest. One possibility is that the cell of origin is a migratory lymphocyte, while another is that the tumors have origin in an intramammary lymph node. Both sources may contribute to the variety of lymphomas observed in the breast. Some reports have included breasts among mucosal-associated lymphatic tissue (MALT) sites, despite the paucity of lymphocytes in the breast and absence of native lymphoid tissue of the MALT type found in the tonsils, ileum, and so on in the breast. Low-grade lymphomas of the MALT type could arise in the breast in "acquired MALT" in the setting or background of infection or autoimmune disease, for example, lymphocytic mastitis (lobulitis) [11]. Previously, reported cases of low-grade B-cell lymphoma and, possibly, pseudolymphoma probably reflect MALT lymphomas. The rare evolution of primary mammary lymphoma from a background of lymphocytic mastitis could be interpreted as supporting a MALT system in the breast [11, 12]. Ferguson found lymphocytes within the epithelial cell layers of the duct system in breast biopsy specimens and concluded that lymphocytes are a normal component of the mammary duct system [13]. A more likely source of primary mammary lymphoma is the intramammary lymph node.

Genetic analysis of mammary lymphomas using DNA extracted from paraffin-embedded tissue failed to show any evidence of t(14;18) translocation; this translocation has been observed in extranodal lymphomas rather than in nodal lymphomas.

A good number of the reports on mammary lymphomas appeared in the literaure prior to 1966 and the introduction of the Lukes-Butler classification scheme. The Kiel Working Formulation as well as the Revised European-American Classification of Lymphoid Neoplasms (REAL classification) have been used in subsequent reports.

Pseudolymphoma. Pseudolymphoma [14] is a benign pathological process that morphologically resembles malignant lymphoma. Its occurrence in the mammary tissue has been described but has not been well investigated. In view of a history of trauma, accompanying fat necrosis in some cases, IgG gammopathy, it has been postulated that pseudolymphoma of the breast, probably akin to pseudolymphoma of the lung, may represent an overwhelming local response to an injury. This lesion, reactive in nature, should be differentiated from a malignant lymphoma so that patients are not subjected to unnecessary mastectomy, radiation, or chemotherapy. Clinically, pseudolymphoma of the breast has been described as an enlarging mass giving a dull, aching sensation. Grossly, the tumor is a solid, firm nodule without any evidence of fibrocystic disease. Microscopically, there is a lymphoid infiltrate with a nodular pattern and occasional distinct germinal centers. The distinction between pseudolymphoma and lymphoma has been based on histologic and immunohistochemical analysis.

Prognosis and treatment: Until fairly recently, there was a tendency to treat patients with primary lymphoma clinically limited to the breast and axillary lymph nodes by mastectomy and to reserve local excision for women with systemic disease. However, it has now been demonstrated that excellent local control in the breast and regional lymph nodes can be achieved with radiation after partial mastectomy [15, 16] and, as a consequence, mastectomy is only recommended for specific clinical problems such as bulky local disease or infected, ulcerated lesions. Ross and Eley [17] stressed that prognosis is essentially related to the histological type. Cure, or at any rate survival for ten years or more without disease, is more common in well-differentiated tumors.

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Address reprint requests to:
N. PAPADOPOULOS, M.D.
Democritus University of Thrace
Dep. of Histology Embriology
Dragana - Alexandroupolis, 68 100 (Greece)