



Primary Breast Lymphoma: Case Report

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Abstract

Primary Breast Lymphomas (PBL) are a rare entity of non-Hodgkin's lymphomas which usually appear in women. Usually, the main sign is a palpable mass in the breast, although it can also be asymptomatic. The treatment is mainly chemotherapy and consolidation radiotherapy.

We present a case report of a woman who treated in our hospital for a breast mass and was diagnosed of PBL.

Keywords: Non-Hodgkin lymphoma; Diffuse large B-cell lymphoma; Radiotherapy; R-CHOP; Breast cancer; Primary breast lymphoma

Introduction

Primary Breast Lymphomas (PBL) are a rare but well-defined entity. They represent up to 0.5% of malignant breast tumors [1,2] and up to 0.7% of non-Hodgkin's lymphomas [3,4].

This entity "PBL" is used to define breast lymphoma in the absence of lymphoma in other locations.

Wiseman and Liao [5] were the first to describe the features of this entity using four diagnostic criteria, including the exclusion of patients with concurrent disseminated disease or those with a previous diagnosis of extramammary lymphoma. Ipsilateral lymph node invasion is considered within this entity if its occurrence is concurrent with the mammary gland lesion. These criteria were subsequently revised by Hugh et al. [6].

The choice treatment is the chemotherapy based on Anthracyclines and Rituximab (R-CHOP). Radiotherapy has an important role as consolidation treatment after chemotherapy.

Below we present a report case of PBL in our department.

Case Presentation

An 89-year-old woman was referred to the gynecology department of our hospital, for a painless nodular lesion on the left breast. Clinical examination revealed a palpable mass in the junction of the external quadrants of the left breast, well delimited and not adhered to deep planes or skin. No axillary lymph nodes were palpable.

CEA and CA 15-3 were measured and showed normal values.

The patient was checked with a mammography and breast ultrasound, identifying two retroareolar nodules in the left breast, measuring 37 mm and 24 mm, suggestive of malignancy due to their characteristics.

Subsequently, a fine needle biopsy of the lesions was performed. The anatomopathological study revealed proliferation of large cell CD20+, CK19- which corresponds to large B cell lymphoma.

As a complementary study, a PET-CT scan was performed in which a pathological deposit of 18-FDG in the left breast was described in relation to the suspicious lesion, with a SUV_{max} value of 6.2, ruling out disease at other levels (Figure 1, 2).

With the diagnosis of stage I NHL in the breast, she was referred to hematology and radiotherapy departments.

Due to the patient's comorbidities, including significant cognitive impairment, the chemotherapy treatment was dismissed. So, the treatment was exclusively with radiotherapy, showing very good tolerance to it without acute toxicity.

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Figure 1: Mammography. Two retroareolar nodules are identified in the left breast of approximately 37 and 24 mm with well-defined outlines.



Figure 2: Breast ultrasound. Two lobulated and hypoechoic nodules suggestive of malignancy are identified. No pathological axillary nodes are observed.

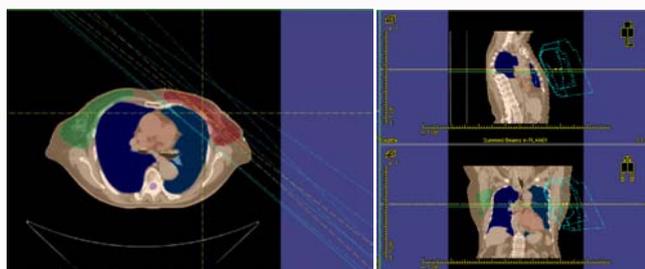


Figure 3: Radiotherapy treatment planning. The patient received radiotherapy treatment with 40.05 Gy on the left breast and a boost to the lesion up to 48 Gy.

She received treatment with Three-Dimensional Conformal external beam Radiation Therapy (3D-CRT), by hypofractionation with integrated boost, a dose of 40.05 Gy on the left breast and a boost to the lesion up to 48 Gy with a fractionation of 2.67 Gy/fraction and 3.20 Gy/fraction respectively, in 15 fractions.

Actually, 22 months after the end of treatment, the patient is free of disease (Figure 3).

Discussion

Non-Hodgkin's Lymphoma (NHL) is the seventh most common cancer in the United States [7].

Primary Breast Lymphoma (PBL) is a rare entity, represents at 0.5% of malignant breast tumors and up to 0.7% of NHL. It usually

appears in women aged between 60 to 65 years; it is extremely rare in men.

They have similar clinical and radiological characteristics to both benign and malignant breast tumors. This entity usually appears as a solitary and non-calcified breast mass with well delimited margins, so an anatomopathological study is essential for the correct diagnosis, as well as to establish the adequate treatment and individual prognosis [8].

The clinical manifestations can be diverse; the most frequent sign is a palpable mass with or without local pain. It is most frequently located in the superoexternal quadrant of the mammary gland. It may also be associated with palpable axillary lymphadenopathy in up to 25% of patients. Other less frequent manifestations are nipple or skin retraction, telorrhoea and erythema, ulceration or “peau d’orange” changes [9]. The usual B symptoms checked in lymphomas, such as fever, weight of loss and night sweats, are very rare in PBL.

Other diagnostic tests are required to classify this entity, like the mammography, breast ultrasound or magnetic resonance [10-12]. Sometimes the study can be completed with a Positron Emission Tomography (PET-CT) [13], which is used for both diagnosis and follow-up, as it evaluates the response to treatment and discriminates between residual metabolic tumor activity, necrosis and fibrosis [14,15].

However, as mentioned above, the definitive diagnosis is made by histopathological examination.

The most frequent primary NHL entity of the mammary gland is Diffuse Large B-Cell Lymphoma (DLBCL), which accounts for 40% to 70% [16,17]. Other entities are mucosa-associated lymphoma, Burkitt lymphoma (frequent in pregnant women or nursing) [18], follicular, lymphoblastic, lymphoplasmacytic, peripheral T-cell, true histiocytic. Anaplastic lymphoma is a T-cell type entity that usually appears in women with breast implants [19,20].

The treatment of PBL is the chemotherapy (Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone (CHOP) +/- Rituximab (R-CHOP) [21] and radiotherapy. Initially the surgery was described as part of the treatment, but nowadays the surgery is performed for diagnostic purposes. Some authors have even associated surgery as a poor prognostic factor as it delays the chemotherapy treatment, which leads to decreased disease-free survival and increased recurrence rate [22-24].

Nowadays there are few studies in the literature on this entity, the most characteristic of which are discussed below.

Avilés et al. [25] performed a prospective analysis in which they included 96 patients with PBL. They were randomized into three groups with different treatments. The first included patients treated with radiotherapy alone (45 Gy in 30 fractions), the second included patients treated with chemotherapy (6 cycles of CHOP), and the third group included patients who were treated with radiotherapy and chemotherapy according to previously described schedules. Complete response rates by group were 66%, 59% and 88%, with a p-value of 0.01; relapse rates were 50%, 43% and 19% respectively, and the most frequent place of relapse was the central nervous system. Overall survival at 10 years was 50% for the first two groups and 76% for the combined treatment group.

The International Extranodal Lymphoma Study Group (IELSG) performed a retrospective analysis involving 204 patients with PBL

[26]. In multivariate analysis they reported that prognostic factors associated with overall survival are related to the International Prognostic Index (IPI), the use of anthracycline-based chemotherapy and the radiotherapy. Overall survival in patients receiving anthracyclines was 73% at 5 years and 58% at 10 years. The best results were obtained in those patients who had received combined chemotherapy and radiotherapy.

A multicentre study of 20 institutions included 84 patients with PBL treated with chemotherapy and radiotherapy with (median dose of 40 Gy). Radiotherapy to the breast showed 95% local control at 5 years with statistically significant results [3].

Other studies have described the significance of radiotherapy in this entity with satisfactory results in relation to overall survival and disease-free survival [27-29].

Conclusion

Primary Breast Lymphoma (PBL) is a rare presentation of Non-Hodgkin's Lymphoma (NHL) but should be considered in the differential diagnosis of a breast mass.

Chemotherapy with consolidation radiation therapy is considered the mainstay in the treatment of PBL. The surgery is mainly performed for diagnostic purposes.

However, it is important to individualize and take into account possible associated comorbidities.

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