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# Primitive Breast Lymphoma about a Case: Literature Review

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## Abstract

Primary breast lymphomas are rare. They are defined by the involvement of one or both breasts. This is the first site affected or mainly affected with the exception of ipsilateral axillary involvement. Due to the absence of specific clinical and radiological signs, the diagnosis is confirmed by histology. The most frequent entity remains diffuse large B-cell lymphomas. The place of surgery remains exclusive in establishing the initial diagnosis. Anthracycline-based chemotherapy with or without Rituximab remains the gold standard in the therapeutic arsenal. We present the case of a 42-year-old woman with no surgical history; nulliparous; followed in nephrology for chronic renal failure, received as an outpatient for a nodule in the left breast in a context of dyspnea. This is a nodule discovered incidentally during a routine examination. Clinical examination of the left breast found nipple retraction without ulceration; a mass 7 cm in diameter located in the left upper outer quadrant. Breast ultrasound and mammography suggest a suspected lesion of malignancy. After a percutaneous micro biopsy; the histological study confirms the diagnosis of a large B-cell lymphoma of the left breast. A TAP CT scan is performed as part of the extension assessment. Chemotherapy based on R-CHOP with local radiotherapy is decided in CPR.

## Keywords

Breast Lymphoma, Diagnosis, Large Bcell Lymphoma, Chemotherapy

## 1. Introduction

Originally described in 1959; Primary breast lymphomas are rare. They are defined by involvement of one or both breasts. This is the first site affected or

mainly affected with the exception of ipsilateral axillary involvement. They represent less than 1% of all non-Hodgkin lymphomas and around 2% of extra-nodal locations. Likewise, they constitute less than 1% of all malignant breast tumors [1]. The classification of Wiseman and Liao defines diagnostic criteria for primary breast lymphomas (PBL): an adequate histological sample, the close association between the mammary tissue and the lymphomatosis infiltration, the absence of diagnosis of extra-mammary lymphoma and the absence of metastasis of the disease except for ipsilateral axillary lymphadenopathy [2].

Due to the rarity of this entity, we report a case of breast B cell lymphoma at the Gabriel Touré University Hospital in Bamako.

## 2. Observation

42-year-old patient with no surgical history; nulliparous; followed in nephrology for chronic renal failure, received on an outpatient basis for a nodule in the left breast in a context of dyspnea. It is a nodule discovered incidentally during a routine examination. The patient mentions painful breast tension that has been evolving for six months.

On physical examination, his Eastern Cooperative Oncology Group Performance:

Status (ECOG-PS) is rated grade II [3]. The conjunctivae are pink without jaundice with discreet edema of the lower limbs.

Clinical examination of the left breast found nipple retraction without ulceration; a mass of 7 cm in diameter located in the left upper-outer quadrant, of firm and hard consistency, fixed to the deep plane; without nipple discharge on pressure. There are multiple homolateral lymphadenopathies. The contralateral breast is unremarkable.

The pulmonary examination in front of dyspnea aggravated by the cough; shows a pleural syndrome with frank dullness on percussion; abolition of the transmission of vibrations with superior-internal concavity and abolition of vesicular murmurs and bilateral pulmonary silence on auscultation. Gynecological examination is normal.

**Bilateral mammography** showed opacity with an irregular polylobed outline, with no focus on micro calcification. **Breast ultrasound** showed a hypoechoic formation of irregular polylobed contours measuring 6.5 cm in diameter; heterogeneous and hyper vascularized on doppler associated with multiple left axillary lymphadenopathy. The lesion is classified BIRADS 4c.

Multiple percutaneous micro biopsies with automatic forceps are performed.

Histological study identifies fragments of breast tissue showing tumor proliferation made up of sheets of small to medium-sized lymphoid cells with abnormal anisokaryosis and mitosis. The stroma is thin.

In immunohistochemical study; markers; CD20 are positive on tumor cells; CD3 positive on normal T lymphocytes. Estrogen receptor (ER) hormone receptors; Progesteron Receptor (RP) and Herceptin 2 (HER2) are negative on tumor cells.

The diagnosis of large B cell lymphoma of the left breast is withheld.

An extension assessment comprising a thoraco-abdomino-pelvic tomodensitometry objective bilateral pleurisy with a pulmonary nodule on the right; which may be of metastatic origin. A bone marrow biopsy is offered to the patient.

R-CHOP-based chemotherapy with local radiotherapy is decided in the CPR for the patient. She will benefit from two courses of CHOP-type chemotherapy (Cyclophosphamide; Doxorubicin; vincristine, prednisone). While waiting for Rituximab for R-CHOP. The radiation therapy will not be performed. As part of the follow-up we were unable to do sonography or mammography after two chemotherapy courses. The patient died in a context of respiratory failure.

## 3. Discussion

The discussion will focus on: clinical and radiological features, histopathology, natural history, prognostic factors, and treatment of primary mammary lymphomas.

Primary breast lymphomas (PBL) are most often defined by a conservation of the general condition; rare general signs and majority localized stages.

Primary breast lymphomas are very rare in humans with an incidence of about 10 cases out of 750. The average age is between 43 and 64 years. Nodal involvement is found in 1/3 of cases with an increase in lactate dehydrogenase in ¼ of the cases. The international prognostic index (IPI) of DLBCL is greater than or equal to 2 in about 20%. In a percentage of 2% - 16%; bilateral breast involvement is found. Studies report neuromeningeal involvement at diagnosis [4] [5].

Several mammographic aspects can evoke a PBL of the breast, namely: an isolated mass with irregular boundaries, a well-limited mass, an increase in parenchymal density with or without skin involvement.

Confirmation of the presence of a solid mass; hypoechoic or even anechoic more or less well limited would be the main role of the ultrasound.

On MRI, lymphoma presents as a poorly defined lesion, but not spiculated; hypo intense in T1 and iso intense in the glandular parenchyma in T2 with the presence of a hyper intense halo. The enhancement is heterogeneous and early with a "wash out" phenomenon. It would be superior to mammography and ultrasound in the detection of lymphomatous foci, the search for tumor characteristics and the search for multicentricity. The CT would keep all its interest in the assessment of extension [6] [7].

In a very large majority of cases, primary mammary lymphomas are diffuse large cell lymphomas of the B phenotype (DLBCL) [8] [9] [10]. The identification and determination of the histological subtypes show a predominance of cell-type lymphomas. activated in at least 75% of cases. The Ki-67 proliferation index is often high with an expression of the Bcl-2 protein in several studies [11] [12]. MALT-type lymphomas (Mucosae Associated Lymphoid Tissue) have also been described alongside these DLBCLs, which carry recurrent karyotypic abnormalities of this entity [13] [14].

According to the various studies, the majority of patients are treated with chemotherapy (CHOP protocol) without Rituximab. Disease-free survival and overall 5-year survival are in the order of 55% to 60%, with a risk of local relapse of 20%, probably depending on whether or not radiotherapy is performed. According to the international extranodal study Group, the risk of neuromeningeal relapse by 5% is not increased in primary mammary lymphomas and patients may be given neuromeningeal prophylaxis [7] [15].

The prognostic factors identified are essentially clinical criteria (PS performance index, the initial stage, the number of extra nodal locations, the LDH level, bilateral breast involvement and IPI) and therapeutic (chemotherapy with or without anthracycline, radiotherapy) [15].

According to a series from the Institut Curie comparing patients with DLBCL to a matched series of patients with the same histology, the initial breast location has no prognostic value for localized stages (IE according to the Ann Arbor classification) but not for the diffuse stages) [4] (**Figure 1**). However, other studies suggest an unfavorable impact of breast location for follicular and marginal zone lymphomas. Lymph node extension would have a negative impact on the prognostic value of the initial breast involvement. The density of the micro-vessels is an unusual histological criterion [11] [16].

Local radiotherapy retains all its prognostic value for localized forms of the disease in terms of "becoming patients" [15] [17].

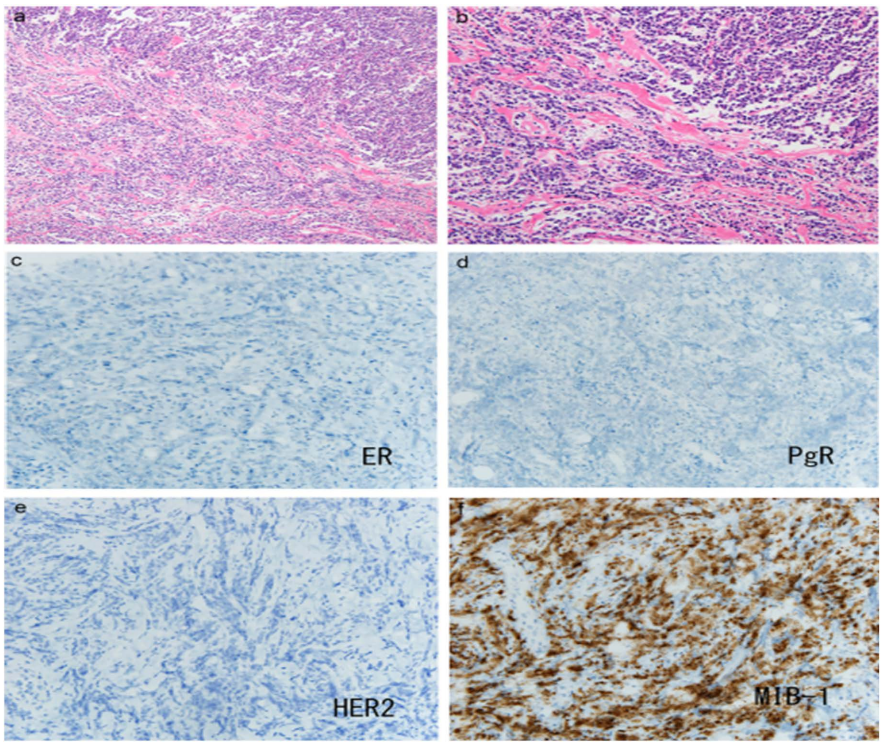


**Figure 1.** Histologically, dense proliferation of typical cells with rounded nuclei and a high N/C ratio is observed (a, b). Immunostaining for breast cancer is negative for ER (c), PgR (d), HER2 (e), with an MIB-1 labeling index of 90% (f).

The treatment of primary mammary lymphomas is defined by the histological subtype of the disease.

For DLBCL, the most frequent entity, anthracycline-based chemotherapy combined with Rituximab remains the protocol of choice in the absence of any contraindication, as for all non-Hodgkin lymphoma ganglionic or extra-nodal [18]. Chemotherapy would not be necessary for MALT-type lymphomas and all low-grade lymphomas of malignancy [7] [13] [14].

The place of surgery remains exclusive in establishing the initial diagnosis [2] [8] [19]. Martinelli G et al do not find any benefit on progression-free survival and overall survival after performing a mastectomy for primary mammary follicular-type or marginal zone lymphomas [20]; however, Jennings WC *et al.* find the opposite [21]. Regarding DLBCL surgery would have no legitimacy [1].

As for the place of radiotherapy in the therapeutic arsenal of DLBCL two large studies are opposed in terms of survival, local relapse after radiotherapy [4] [20].

The Adult Lymphoma Study Group (GELA) reports that it was detrimental in terms of toxicity to combine terminal radiotherapy with conventional chemotherapy [22] [23].

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

[1] Decaudin, D. (2013) Primary Breast Lymphomas: Initial Characteristics and Therapeutic Aspect. *The Oncologist's Letter*, **22**, 172-176.

[2] Laraichi, M., Rahmouni, J., Bensaleh, A., Saoud, M., Mamouni, N., Errarhay, S., Bouchikhi, C. and Banani, A. (2021) Breast Lymphoma: About a Case and Review of the Literature. *International Journal of Academic Health and Medical Research* (*IJAHMR*), **5**, 109-111.

[3] Neeman, E., Gresham, G., Ovasapians, N., Hendifar, A., Tuli, R., Figlin, R. and Shinde, A. (2019) Comparing Physician and Nurse Eastern Cooperative Oncology Group Performance Status (ECOG-PS) Ratings as Predictors of Clinical Outcomes in Patients with Cancer. *The Oncologist*, **24**, e1460-e1466. https://doi.org/10.1634/theoncologist.2018-0882

[4] Validire, P., Capovilla, M., Asselain, B., *et al.* (2009) Primary Breast Non-Hodgkin's Lymphoma: A Large Single Center Study of Initial Characteristics, Natural History, and Prognostic Factors. *American Journal of Hematology*, **84**, 133-139. https://doi.org/10.1002/ajh.21353

[5] Ganjoo, K., Advani, R., Mariappan, M.R., *et al.* (2007) Non-Hodgkin Lymphoma of the Breast. *Cancer*, **110**, 25-30. https://doi.org/10.1002/cncr.22753

[6] Bouffetal, H., Rouchdi, Z., Hermas, S., Noun, M. and Samouh, N. (2010) Primary Non-Hodgkin Lymphoma of the Breast in a Case Report. *Journal de Radiologie*, **91**, 1155-1157. https://doi.org/10.1016/S0221-0363(10)70163-3

[7] Yoneyama, K., Nakagawa, M. and Hara, A. (2021) Primary Lymphoma of the Breast: A Case Report and Review of the Literature. *Radiology Case Reports*, **16**, 55-61. https://doi.org/10.1016/j.radcr.2020.10.039

[8] Njoumi, N., Najih, M., Haqqi, L., Atolou, G., Bougtab, A., Hachi, H. and Benjelloun, S. (2012) Primary Breast Lymphoma: About a Case. *The Pan African Medical Journal*, **12**, Article No. 58.

[9] Taheri, H., Hmila, A., Saadi, H. and Mimouni, A. (2020) Primary Breast Lymphoma: A Case Report. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, **9**, 2187-2190. https://doi.org/10.18203/2320-1770.ijrcog20201833

[10] Chen, M.L., Zhou, J. and Qu, X.C. (2021) Primary Breast Diffuse Large B-Cell Lymphoma in a 42-Year-Old Female: A Case Report and Review of Literature. *Journal of Medical Cases*, **12**, 181-185. https://doi.org/10.14740/jmc3660

[11] Beham-Schmid, C. (2017) Aggressive Lymphoma 2016: Revision of the WHO Classification. *Memo—Magazine of European Medical Oncology*, **10**, 248-254. https://doi.org/10.1007/s12254-017-0367-8

[12] Jabbour, G., El-Mabrok, G., Al-Thani, H., El-Menyar, A., Al Hijji, I. and Napaki, S. (2016) Primary Breast Lymphoma in a Woman: A Case Report and Review of the Literature. *American Journal of Case Reports*, **17**, 97-103. https://doi.org/10.12659/AJCR.896264

[13] Kuper-Hommel, M.J., Schreuder, M.I., Gemmink, A.H., *et al.* (2013) T(14;18)(q32;q21) Involving MALT1 and IGH Genes Occurs in Extranodal Diffuse Large B-Cell Lymphomas of the Breast and Testis. *Modern Pathology*, **26**, 421-427. https://doi.org/10.1038/modpathol.2012.170

[14] Liguori, G., Cantile, M., Cerrone, M., *et al.* (2012) Breast MALT Lymphomas: A Clinicopathological and Cytogenetic Study of 9 Cases. *Oncology Reports*, **28**, 1211-1216. https://doi.org/10.3892/or.2012.1942

[15] Ryan, G., Martinelli, G., Kuper-Hommel, M., *et al.* (2008) Primary Diffuse Large B-Cell Lymphoma of the Breast: Prognostic Factors and Outcomes of a Study by the International Extra-Nodal Lymphoma Study Group. *Annals of Oncology*, **19**, 233-241. https://doi.org/10.1093/annonc/mdm471

[16] Zhao, S., Zhang, Q.Y., Ma, W.J., *et al.* (2011) Analysis of 31 Cases of Primary Breast Lymphoma: The Effect of Nodal Involvement and Micro-Vascular Density. *Clinical Lymphoma, Myeloma & Leukemia*, **11**, 33-37. https://doi.org/10.3816/CLML.2011.n.004

[17] Jeanneret-Sozzi, W., Taghian, A., Epelbaum, R., *et al.* (2008) Primary Breast Lymphoma: Patient Profile, Outcome and Prognostic Factors. A Multicentre Rare Cancer Network Study. *BMC Cancer*, **8**, Article No. 86. https://doi.org/10.1186/1471-2407-8-86

[18] Uenaka, N., Yamamoto, S., Sato, S., Kudo, T., Adachi, S., Naru, K., Tanabe, M., Yamada, A., Ishikawa, T. and Endo, I. (2021) Primary Breast Lymphoma Initially Diagnosed as Invasive Ductal Carcinoma: A Case Report. *Clinical Case Reports*, **9**, e04189. https://doi.org/10.1002/ccr3.4189

[19] Boudhraa, K., Amor, H., Kchaou, S., Ayadi, A., Boussen, H., Chaabene, M., Mezni, F. and Gara, M.F. (2009) Primary Breast Lymphoma in a Subclinical Case. *La Tunisie Médicale*, **87**, 215-218.

[20] Martinelli, G., Ryan, G., Seymour, J.F., *et al.* (2009) Primary Follicular and Marginal-Zone Lymphoma of the Breast: Clinical Features, Prognostic Factors and Outcome: A Study by the International Extranodal Lymphoma Study Group. *Annals of Oncology*, **20**, 1993-1999. https://doi.org/10.1093/annonc/mdp238

[21] Jennings, W.C., Baker, R.S., Murray, S.S., *et al.* (2007) Primary Breast Lymphoma. The Role of Mastectomy and the Importance of Lymph Node Status. *Annals of*

*Surgery*, **245**, 784-789. https://doi.org/10.1097/01.sla.0000254418.90192.59

[22] Reyes, F., Lepage, E., Ganem, G., *et al.* (2005) ACVBP versus CHOP plus Radiotherapy for Localized Aggressive Lymphoma. *The New England Journal of Medicine*, **352**, 1197-1205. https://doi.org/10.1056/NEJMoa042040

[23] Bonnet, C., Fillet, G., Mounier, N., *et al.* (2007) CHOP Alone Compared with CHOP plus Radiotherapy for Localized Aggressive Lymphoma in Elderly Patients: A Study by the Groupe d'Etude des Lymphomes de l'Adulte. *Journal of Clinical Oncology*, **25**, 787-792. https://doi.org/10.1200/JCO.2006.07.0722