

## CASE REPORT

# Non-Hodgkin lymphoma in breast: case report

## *Linfoma não Hodgkin da mama: relato de caso*

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### Keywords

Breast  
Lymphoma, Non-Hodgkin  
Lymphoma  
Core-biopsy

### ABSTRACT

The primary breast lymphoma is a rare tumor, accounting for up to 0.5% of breast cancers. Most primary breast lymphoma is presented as non-Hodgkin lymphoma, the B-cells lymphoma is the most common, and Burkitt lymphoma is the most aggressive. We report the case of a 24-year-old female patient, with global, progressive and rapid increase of the right breast during 30 days with reaction to insect bite and progressive weight loss, fatigue, fever and nocturne sweating. An echo-guided core biopsy was held with injury and showed an atypical lymphoid proliferation, suggestive of high-grade non-Hodgkin lymphoma. Immunohistochemistry confirmed non-Hodgkin lymphoma, B immunophenotype, Burkitt type. Also, the diagnosis of HIV infection was performed during hospitalization. Patient started with multidrug chemotherapy scheme and antiretroviral therapy. Burkitt lymphoma is an exceptionally aggressive subtype and can affect the central nervous system and gastrointestinal tract, and treatment consists of chemotherapy with multiple agents as soon as possible. Radiotherapy has no function in the Burkitt type cases, even in case of only local disease.

### Descritores

Mama  
Linfoma não Hodgkin  
Linfoma  
Biópsia guiada por ultrassonografia

### RESUMO

*O linfoma primário de mama é um tumor raro que corresponde a cerca de 0,5% de todos os cânceres de mama. A maioria dos linfomas primários de mama apresenta-se como linfoma não Hodgkin, sendo o mais comum o de células B e o mais agressivo o linfoma de Burkitt. Relatamos o caso de uma paciente feminina, 24 anos, com aumento global, progressivo e rápido da mama direita observado num período de 30 dias, acompanhado de progressiva perda de peso, fadiga, febre e sudorese noturna. Foi realizada biópsia guiada por agulhamento, que identificou proliferação linfoide atípica, sugestiva de linfoma não Hodgkin de alto grau. A avaliação imuno-histoquímica confirmou o diagnóstico de linfoma não Hodgkin, imunofenótipo B, do tipo Burkitt. O diagnóstico de infecção pelo HIV também foi feito durante a hospitalização. Foi iniciado tratamento com esquema quimioterápico de múltiplas drogas e terapia antirretroviral. O linfoma de Burkitt é um subtipo bastante agressivo e pode afetar o sistema nervoso central e o trato gastrointestinal, e o tratamento consiste em quimioterapia com múltiplos agentes, devendo ser iniciado o mais brevemente possível. A radioterapia não tem papel no tratamento do linfoma de Burkitt, mesmo nos casos de doença localizada.*

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## Introduction

Lymphomas are a group of malignant lymphoid neoplasms that originate in the lymph nodes or any extra nodal lymphoid tissue. They are heterogeneous cancers according to the histopathological, clinical and therapeutical point of view. The two main groups of lymphomas include Hodgkin and non-Hodgkin lymphomas disease<sup>1</sup>. The primary breast lymphoma is extremely rare, about 0.04 to 0.5% of breast cancers<sup>2</sup>, most presented as non-Hodgkin lymphoma and B-cell types<sup>3</sup>. Sexually transmitted diseases, including human immunodeficiency virus (HIV), should be considered on the increase of any lymph node and excluded in differential diagnosis<sup>1</sup>. The objective of this study was to report a case of non-Hodgkin lymphoma in breast.

## Case report

Patient, female, 24 years old, referred to the service in July 2014 by sudden increase of the right breast during a period of 30 days. Family reported the possibility of reaction to spider/insect bite, lesion appearance in forehead (Figure 1), near the scalp, concomitantly with breast swelling. She presented appetite loss, night sweats, fever and weight loss. Patient denied comorbidities or allergies, as well as family history of cancer. The patient history did not show risk factors for breast cancer.

Physical examination identified a large mass occupying the entire right breast, infiltrated with the presence of neovascularization all over the right breast and ipsilateral lymphadenopathy (Figure 2). Ultrasonography was performed and visualized a solid and heterogeneous mass occupying the whole right breast; it was not possible to measure the lesion (Figure 3). The right breast was submitted to core needle biopsy in two topographies: superoexternal and inferoexternal quadrant. They were divided in six fragments with anatomopathological results: "Atypical lymphoid proliferation composed of immature lymphocytes, monotone, numerous mitotic figures and apoptotic cells, suggestive of high grade non-Hodgkin lymphoma. Conclusion of an immunohistochemical study: non-Hodgkin lymphoma, immunophenotype B, Burkitt lymphoma type".

Patient was admitted for staging and early urgent chemotherapy. A bone marrow biopsy was performed: no evidence of lymphoma infiltration was shown. Abdominal computed tomography (CT) scan showed dilatation of the pancreatic duct to the pancreatic body level. A large hypodense mass lobulated involving the structures of the epigastric region was seen in apparent continuity with the gastric body, which was probably related to lymph node enlargement fused, measuring 13x7 cm in its largest diameter.

The conclusion was right breast increased volume, probably a lymphadenopathy mass in the epigastric region and commitment of the pancreas and stomach by the underlying disease. CT scan, neck and chest, respectively, showed no changes, lymphadenopathy level II and V, bilaterally, with the largest 1.5x1 cm. Multiple axillary lymph nodes bilaterally with up 2x1 cm, besides serology with positive result for HIV diagnosis during hospitalization.



**Figure 1.** The ulcer lesion appearance on her right forehead near the scalp concomitant with breast swelling.



**Figure 2.** Note the marked breast asymmetry and the whole right breast disease involvement, including the skin in a frontal view.



**Figure 3.** Ultrasonography shows a solid mass heterogeneous occupying the whole of right breast, it was not possible to measure the lesion.

Immediately chemotherapy was started with doxorubicin + vincristine + etoposide + filgrastim (EPOCH) plus prophylactic MADIT (a combination of methotrexate, cytosine arabinoside, and dexamethasone intrathecal) on central nervous system (CNS). Antiretroviral therapy (tenofovir + lamivudine + efavirenz) was started. Disease rating: stage IVa (stomach and pancreas), Eastern Cooperative Oncology Group (ECOG) 1. Patient underwent chemotherapy, performing five chemo cycles, with abdominal mass regression. New scans made showed significant regression of abdominal lymphadenomegaly compared to a previous study. Main pancreatic duct dilated resolution and almost complete intrahepatic bile ducts.

## Discussion

The non-Hodgkin's lymphoma (NHL) is the most common breast lymphoma, accounting for approximately 1–2% of all extra nodal lymphomas, and tends to be much more likely to present with disease in advanced stage<sup>2</sup>. The most common histological type is the large cell phenotype B, corresponding to 50% of all primary breast lymphomas<sup>4</sup>. Other less common are the follicular type, mucosa-associated lymphoid tumors lymphoma (MALT), Burkitt's lymphoma and Burkitt like. The clinical frame is painless nodule appearance and rapid and widespread increase (about 60% of cases)<sup>5,6</sup>. For uncertain reasons, right breast is more often involved. The ipsilateral axillary lymph node is present in 30 to 40% of cases. In young patients, the disease presents bilaterally and may clinically mimic inflammatory breast cancer. Most are highly aggressive, as in Burkitt type<sup>2,7</sup>.

The clinical presentation may also be associated with systemic B symptoms: fever, weight loss and night sweats. Reactions to insect bites are less common<sup>8</sup>. In mammography, lymphomas are presented as nodules, usually irregular and poorly defined images. Mammography findings, ultrasound and magnetic resonance imaging (MRI) are nonspecific. It can be carried core-biopsy for diagnosis or excisional biopsy.

It will be required supplementation with immunohistochemistry to classify the type of lymphoma<sup>6</sup>. Disease staging is based on Ann Arbor criteria, which use the involvement of lymph nodes above the diaphragm and solid organs to establish gravity. Stages I and II correspond to localized disease, and stages III and IV to advanced systemic disease. The Non-Hodgkin Lymphoma that occurs in extra nodal sites such as the CNS and gastrointestinal (GI) tract is common in HIV-infected patients. Burkitt lymphoma is a highly aggressive B-cell neoplasm, and treatment requires intensive multiagent therapy with CNS prophylaxis<sup>9</sup>.

NHL treatment in general does not have a universal standard, consisting, in most cases, of the combined use of local radiotherapy and polychemotherapy based on the histological subtype and the extent of disease of each patient<sup>10</sup>. The stages III and IV are treated with chemotherapy, and paradoxically high-grade lymphomas tend to be treatable and potentially curable with aggressive chemotherapy, compared to low-grade lymphomas,

which are generally treatable, but not curable. Chemotherapy is usually made by six cycles every 14 days in young patients, with rituximab maintenance performed during two years. In Burkitt's lymphoma, radiotherapy has no function even if it's local disease. Patients with high-grade lymphomas that were refractory or relapsed after initial treatment should be considered for bone marrow transplantation<sup>11</sup>.

## Conclusion

The NHL are rare tumors, with progressive growth and clinical characteristics similar to other breast carcinomas, potentially aggressive in young and immunocompromised patients, whose diagnosis should be made as soon as possible by core biopsy or excisional biopsy and immunohistochemical study, to define the lymphoma type and undertake the differential diagnosis with other malignant breast diseases. The treatment is systemic polichemotherapy specific to each histological type and disease extent. Due to aggressive presentation, extra nodal extension for CNS and gastrointestinal tract, it is important early diagnosis to start systemic treatment as soon as possible.

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