Case Report

Burkitt's Lymphoma of the Breast in an HIV-Positive Patient: A Rare Presentation

Abstract

Introduction: Breast cancer is the most common female cancer worldwide, affecting 13.5–30 per 100,000 women in sub-Saharan Africa. The most common histopathologic variants of breast cancer are those that originate from the glandular epithelium of the breast. Primary breast lymphomas are uncommon, and they represent only 0.04%–0.5% of all breast cancers. Burkitt lymphoma is the least of this rare group.The report intends to present Burkitt's lymphoma, a rare histopathological diagnosis of primary breast tumour in an HIV+ patient. Description of a case of bilateral breast disease and the histopathologic diagnosis. Our case was a 28-year-old HIV+ woman who presented with multiple bilateral breast lumps for 2 months duration, associated with bilateral axillary lumps, weight loss, night sweat, and malaise. Lumps range from 2 to 8 cm in size with multiple axillary lymph nodes. Core tissue biopsy showed a monotonous population of intermediate-sized lymphoid cells with round nuclei, clumped chromatin, and several nucleoli interspersed by numerous tangible body macrophages, presenting a starry-sky appearance. Diagnosis of bilateral primary breast Burkitt's lymphoma was performed, and the patient was referred to oncology. She was placed on antiretroviral therapy and chemotherapy (cyclophosphamide, hydroxydaunorubicin, vincristine sulphate, and prednisone) and clinically responded to therapy. **Conclusions:** Breast lumpiness in immunocompromised patients calls for the suspicion of lymphoma.

Keywords: *Breast lumps, Burkitt's lymphoma, Immunocompromised*

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Introduction

Breast cancer is a major cause of morbidity and mortality in women. The incidence is the highest in the elderly. The most common forms of breast cancer are usually of epithelial origin, arising from the terminal duct lobular unit. Primary breast lymphoma (PBL) is uncommon, representing 0.04%–0.5% of all breast cancers.[1] The most common forms of PBL include diffuse large B-cell lymphoma (50%), follicular lymphoma (15%), mucosa associated lymphoid tissue lymphoma (12.2%), Burkitt lymphoma (BL), and Burkitt-like lymphoma (10.3%).[2]

BL is classified by the World health organization into three subtypes; endemic, sporadic, and immunodeficiency-associated BL.[3] The endemic form is almost always associated with a latent EBV (Ebstein-Barr Virus) infection and occurs mainly in sub-Saharan Africa; some authors have identified a residence in malaria-endemic regions as a risk factor.[4,5] Sporadic BL is not associated with EBV and occurs mostly in Caucasian populations. Lastly, immunodeficiency-related BL (IRBL) is seen in immunocompromised patients, the majority of which are HIV (Human Immunodeficiency Virus) positive or transplant recipients on immunosuppressive therapy.[6,7] It may present similarly to other breast pathologies; benign[8,9] and malignant;[10] thus, it is important to be familiar with its features for proper diagnosis and treatment. Treatment is mainly chemotherapy-based,[6] radiotherapy and/or surgery may be added depending on its clinical presentation.[10] In this case, we try to elucidate the peculiarities of this rare condition.

Case Presentation

Our case was a 28-year-old HIV-positive female patient, who presented to the clinic with multiple bilateral breast lumps. The initial referring diagnosis was for fibroadenoma. She was nullipara

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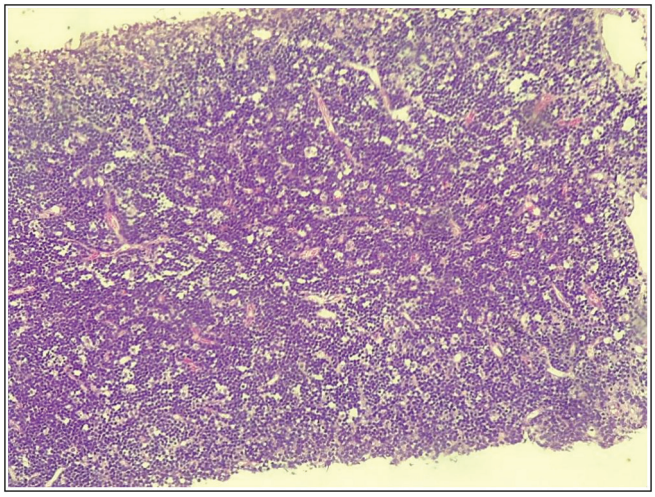

Figure 1: Micrograph of Burkitt lymphoma of the breast with pathognomonic starry-sky appearance (power 1 × 100) H&E

and was on antiretroviral therapy although recent viral load and CD4 titres were not known. The patient had a history of malaise, fever, night sweats and weight loss. On examination, the lumps ranged from 2 cm to 8 cm in size and were hard and irregular in shape. Lumps were also felt in the axillary region. Core biopsies was taken from both breasts which showed monotonous population of intermediate-sized lymphoid cells having round nuclei with clumped chromatin and several nucleoli. Numerous tangible body macrophages are interspersed within these cells giving the section a starry-sky appearance [Figure 1]. A diagnosis of bilateral primary breast Burkitt's lymphoma (PBBL) was made, and the patient was referred to oncology.

Discussion

Breast lymphoma is said to be primary when it presents firstly in the breast, with ipsilateral nodes (if present) that developed simultaneously. There should be neither history of previous lymphoma nor widespread disease. Lastly, histopathology [Figure 1] should show lymphomatous cells in close association with the breast tissue.[11] Our case met all these criteria.

Our patient had previously been misdiagnosed with fibroadenoma. This was most likely due to the rarity of PBBL relative to other breast conditions in this age group. PBBL accounts for about 0.4%–0.53% of all breast cancers.[12] In Nigeria and other low and middle-income countries, the frequency of delayed diagnoses is higher than in the developed world,[13] and many physicians are not afforded the luxury of exhausting all diagnostic options in a bid to rule out rare conditions such as PBBL.

The clinical presentation could range from lumpiness of the breast grossly appearing normal in shape to grossly huge tumour distorting the shape of the normal breast.[6]

Physicians are most times hesitant to perform invasive diagnostic procedures in younger women with breast masses, especially those that show benign morphology on ultrasound and even mammography. This should not be the case as Burkitt's lymphoma may mimic mastopathy findings on ultrasound scanning,[8] and show features on mammography that could be mistaken for other breast conditions. In a case series, mammography identified lymphoma in only two of 26 patients.[10] Although invasive testing is controversial, physicians must rule out breast lymphoma, especially in patients with risk factors such as HIV infection and residence in EBV-endemic regions. Both HIV and EBV infections play a role in the pathogenesis of BL, with 30%–40% of BL in HIV+ patients showing EBV latency I.[14] All these factors must be put into consideration as a delayed or missed diagnosis can facilitate disease spread and worsen patient outcomes. The main investigation tool for rare disease remains core tissue biopsy as obtained in our case report [Figure 1]. The micrograph of the patient showed the classical sheets of monomorphic medium lymphocytes with a high mitotic rate and frequent apoptotic bodies, classically described as a "starry-sky" appearance.

Early detection is a key as BL usually responds well to intensive chemotherapy. One of the common regimens used is CHOP consisting of cyclophosphamide, hydroxydaunorubicin, vincristine sulphate, and prednisone.[6] In contrast to other forms of Burkitt's, patients with IRBL also require immune-reconstitutive therapy. Studies have shown that the prognosis of BL in HIV is related to "the extent of tumour volume and the severity of underlying immunodeficiency".[6,14] Although pre-treatment CD4+ T cell levels and EBV status were not obtained due to the severity of presentation, the patient showed a good response to CHOP and antiretroviral therapy (ART), with shrinkage of the breast and axillary masses. A similar response to chemotherapy and ART was reported by Traoré *et al.*[5]

Conclusion

Breast lymphomas are an aggressive form of cancer that is responsive to treatment if initiated early in the course of the disease. Despite the challenges faced in diagnosing and treating such a rare condition in low-resource centres, physicians must be apt in their response. IRBL should be on the differential of a young immunocompromised female with a breast mass. A high index of suspicion is necessary, especially in EBV-endemic regions, as both EBV and HIV have been implicated in the etiopathogenesis of malignant lymphoma. Treatment should aim to cure cancer and replenish immunity.

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Conflicts of interest

There are no conflicts of interest.

References

1. Hugh JC, Jackson FI, Hanson J, Poppema S. Primary breast lymphoma. An immunohistologic study of 20 new cases. Cancer1990;66:2602-11.
2. Janbabai G, Kayedimajd S, Alian S, Naghshvar F, Rashidi M, Farazmandfar T. Bilateral breast swelling in a 23-year-old woman with Burkitt lymphoma. J Res Med Sci 2012;17:1188-91.
3. Swerdlow SH, Elias C, Pileri SA, Harris NL, Harald S, Reiner S, *et al*. The 2016 revision of the World Health Organization classification of lymphoid neoplasms. Blood 2016;127:2375-90.
4. Fadiora SO, Mabayoje VO, Aderoumu AO, Adeoti ML, Olatoke SA, Oguntola AS. Generalised Burkitt's lymphoma involving both breasts—A case report. West Afr J Med 2005;24:280-2.
5. Traoré B, Fondrevelle ME, Condé M, Chassagne-Clément C, Kourouma T, Keita AM, *et al*. Primary breast Burkitt's lymphoma in an HIV-infected woman. Case Rep Med 2015;2015:792041.
6. Graham BS, Lynch DT. Burkitt lymphoma. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. p. 30844175.
7. Graham BS, Lynch DT. Burkitt lymphoma. In: StatPearls [Internet]. Treasure Island, FL: StatPearls Publishing; 2022. Available from: https://www.ncbi.nlm.nih.gov/books/NBK538148/
8. Asai S, Miyachi H, Ochiai N, Kubota M, Tsumita S, Hotta T, *et al*. Mastopathy-mimicking ultrasonographic appearance in a case with Burkitt's lymphoma. Clin Imag 2001;25:309-11.
9. Janbabai G, Kayedimajd S, Alian S, Naghshvar F, Rashidi M, Farazmandfar T. Bilateral breast swelling in a 23-year-old woman with Burkitt lymphoma. J Res Med Sci 2012;17:1188-91.
10. Giardini R, Piccolo C, Rilke F. Primary non-Hodgkin's lymphomas of the female breast. Cancer 1992;69:725-35.
11. Wiseman C, Liao KT. Primary lymphoma of the breast. Cancer 1972;29:1705-12.
12. Nazário AC, Tanaka CI, de Lima GR, Gebrim LH, Chiferi Júnior V. Primary lymphoma of the breast. Rev Paul Med 1992;110:177-9.
13. Brand NR, Qu LG, Chao A, Ilbawi AM. Delays and barriers to cancer care in low- and middle-income countries: A systematic review. Oncologist 2019;24:e1371-80.
14. Linke-Serinsöz E, Fend F, Quintanilla-Martinez L. Human immunodeficiency virus (HIV) and Epstein-Barr virus (EBV) related lymphomas, pathology view point. Semin Diagn Pathol 2017;34:352-63.