Non-Hodgkin T-cell Lymphoma of Both Breasts: A rare presentation in a teenage Ugandan Woman.

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Abstract

An 18-year-old female presented with hypopigmentation, ulcerative skin changes and masses of both breasts for over a year. She was referred to the Uganda Cancer Institute (UCI) with suspected inflammatory breast cancer. Radiological findings and trucut biopsy were consistent with secondary CD3+ CD20- T-cell NHL of both breasts.

Key words: Bilateral, secondary, breast, lymphoma,

Key clinical messages: Secondary T-cell Non Hodgkin's lymphoma of the breasts is a very rare disease and can be easily missed as inflammatory carcinoma at initial presentation. High index of suspicion and radiological investigations has a big role in identify the primary.

Introduction

Primary or secondary lymphoma of the breast is rare and is usually of non-Hodgkins lymphoma (NHL) sub type (1). Secondary lymphoma of the breast that arise elsewhere in the body is very rare and the reported incidence is 0.07% (2). In the literature, less is known about secondary lymphoma than primary lymphoma of the breast (3). Lymphoma of the breast usually presents as a painless mass. However, T-cell lymphoma could mimic the clinical presentation of inflammatory breast carcinoma (mastitis carcinomatosis) or mastitis and abscess of infectious etiologies (4).

Triple assessment is key for all women presenting with breast masses or suspicious lesions. Breast ultrasound is cheap and rapid allowing early identification of small lesions and guides biopsy sampling for histology – the confirmatory test(5). Majority of the cases of breast lymphomas are unilateral however; secondary and Burkitt's lymphoma tend to be bilateral (6). Herein, we present a case of NHL of both breasts diagnosed in a teenage Ugandan woman.

Case presentation

An 18-year female, from eastern Uganda, with no prior chronic illness and no family history of cancer, was referred to the Uganda Cancer Institute (UCI) with bilateral breast skin areas of hypo pigmentation followed by ulceration and masses for 14 months. They were painless for first eight months but became so painful in the last six months prior to her presentation. She had been treated as a case of a possible bacterial mastitis with topical and oral antibiotics for two months without any significant improvement and was referred to UCI with suspected bilateral

inflammatory breast cancer. However, due to financial challenges the patient didn't reach to the hospital until after a year. By then, our patient had developed nipple discharge, generalized body weakness, weight loss and lower limb swelling up to the knees. She had no cough, chest pain, night sweats or fever. Menarche was at the age of 14 years.

On physical examination, the patient was cachectic and mildly pale with normal vital signs. She had multiple, firm matted lymph nodes in the right posterior triangle of the neck, both axillae and bilateral inguinal regions. There were no supraclavicular enlarged lymph nodes. The breasts had hypopigmentation with visible bleeding in some areas. The nipples and areolae of both breasts were coated with layers of a whitish powder (Figure 1). There were multiple small masses in both breasts that were irregular, tender, and firm-to-hard in consistency. Chest examinations were normal except for right basal crepitation. Both lower extremities demonstrated pitting edema up to the knee.

Complete blood count showed hemoglobin of 10.9gm/dl, total white cell count of 13,680/dl, platelets 460,000/dl. Blood chemistry showed blood urea nitrogen 263mg/dl, creatinine – 1mg/dl, lactic dehydrogenase (LDH) 2,010 U/L, Serum alkaline phosphatase 173U/L.

Breast ultrasound examination demonstrated bilateral tender breasts with multiple hyperechoic and hypoechoic lesions of ill-defined margins, subcutaneous lesions and skin thickening in both breasts. There were multiple matted enlarged hypoechoic lymph nodes with very small hilum in some of the nodes in both axillae (Figure 3Figure 4).

Since inflammatory breast cancer was suspected, a Tru-cut biopsy of the lumps in both breasts was performed. Hematoxylin and Eosin section showed effacement of the normal architecture by a diffuse infiltrate of large, pleomorphic lymphoid cells with vesicular chromatin and prominent nucleoli. Immunohistochemistry showed cluster of differentiation (CD3) positivity and CD20 negative.

Staging ultrasound scan of the abdomen showed hepatosplenomegaly, mesenteric, para-aortic and bilateral inguinal lymphadenopathy, and a well-defined, solid, hypoechoic pelvic mass originating from the fundus of the uterus with no color flow on Doppler. The left kidney was echogenic with dilated calyces but of normal size.

Chest radiographs demonstrated right middle and lower lung zone reticulo-nodular opacities with thickened horizontal fissure. The retrosternal space was filled with homogenous opacity (Figure 2).

Echocardiography demonstrated normal cardiac structure and function. However, multiple matted lymph nodes in the anterior and superior mediastinum were seen during echocardiography examination,

The histopathologic and radiographic investigations confirmed a stage IV non-Hodgkin's (T-cell) lymphoma with secondary extra-nodal involvement of both breast. However, her family unanimously declined medical management and decided to take her back home.

Discussion

Our patient was diagnosed with secondary Non-Hodgkin's (T-cell) lymphoma of the breasts, a rare presentation of NHL and a diagnostic chameleon of breast cancer. To help clinicians to recognize similar case in their clinical practice, we discuss the presentation, investigation and treatment options of breast lymphoma.

Breast lymphomas can be primary or secondary. They rarely affect the breasts, but when they do, they are usually secondary (3). The commonest histological subtype is diffuse large B-cell type (DLBCL) and the age of incidence is between 9 to 85 years with median age range between 55 to 65 years (4, 7). Our patient was 18 years old which is in the age range but with huge gap from median age. There was a delay of over a year in the establishment of the final diagnosis.

Primary breast lymphoma is diagnosed if there is only involvement of one breast with or without ipsilateral axillary involvement however bilateral breast involvement suggests secondary involvement (8, 9). Our patient presented with systemic lymphatic involvement mainly in the neck, anterior mediastinum, mesenteric and para-aortic, and inguinal involvement. Moreover, there were hepatosplenomegaly with echogenic left kidney which was suggestive of systemic lymphoma.

Painless palpable mass is the commonest symptom of breast lymphoma with rare presentation of nipple retraction or discharge and skin change (10). T-cell lymphoma are more commonly associated with skin changes, edema and localized tenderness than the B-cell lymphomas of the breast (4). The patient presented with significant skin changes with palpable masses and nipple discharge bilaterally. The masses were painful even if her vest touched the area.

Breast imaging, especially breast ultrasound characteristics may aid in the diagnosis of breast lymphoma (4). Ultrasound can demonstrate a hypoechoic solid mass with circumscribed or indistinct margins. Bilateral axillary lymphadenopathy or breast edema on ultrasound could

indicate a secondary lymphoma. There are no specific mammographic features for breast lymphoma (4, 11, 12).

It is not easy to distinguish breast lymphoma from various benign or malignant breast diseases on the basis of clinical and radiological findings especially if there is no known systemic lymphoma and patients present with a painful breast lump, erythema, or skin thickening (8). Our patient was initially suspected to have bilateral inflammatory breast carcinoma by her primary physician.

The management of lymphoma of the breast is controversial (13). Secondary lymphoma of the breast is commonly associated with multi organ involvement (14). Treatment options include mainly combination chemotherapy with or without radiotherapy or at times radiotherapy alone (15).

Conclusion

Secondary T-cell NHL of the breasts is a very rare disease and can be easily missed as inflammatory carcinoma of the breast at initial stage of the disease. High index of suspicion and radiological investigations has a big role in identifying the primary systemic lymphoma, as there are no pathognomonic radiologic features.

Declaration:

Consent for publication

We obtained an informed consent from the patient herself and the mother of the patient to publish this case report.

Availability of data and materials

The information used and/or analyzed during this case report is available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contribution

SG, AO, VM, NB, FB participated in the data collection, data follow-up, data analysis and case report preparation. SG participated in data collection. All authors read and approved final case report.

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Figure Legends

Figure 1. A and B demonstrated hypopigmentation of skin in non-uniform pattern with dried whitish powder covering both nipples. The bleed in the left upper inner quadrant is during echocardiography.

Figure 2. A. Frontal chest radiograph demonstrating reticulonodular opacity in the right middle and lower lung zone, B. lateral chest radiograph showed retrosternal homogenous opacity (multiple enlarged and matted lymph nodes as seen during echocardiograph).

Figure 3. A and B, Breast ultrasound of the right breast demonstrated multiple ill-defined more hypoechoic lesions and less hyperechoic lesions at 12 O'clock above the nipple and at 9 O'clock respectively. There were also subcutaneous lesions, skin thickening and posterior enhancement.

Figure 4. A, B and C, Breast ultrasound of the left breast demonstrated multiple ill-defined more hyperechoic lesions and less hypoechoic lesions at 6 O'clock below the nipple, 10 O'clock and 3 O'clock respectively. There was subcutaneous involvement and skin thickening which are lesser that the right breast.