

# Hodgkin's Lymphoma of the Breast

Type of Article: Case Report

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## ABSTRACT

### BACKGROUND

*Non-epithelial neoplasm involving the breast is uncommon. Hodgkin's lymphoma in rare cases present primarily as localised extra-nodal involvement of the breast. This report aims to present a case of Hodgkin's lymphoma of the breast treated by chemotherapy with complete remission achieved.*

### METHOD

*The case records of a 66 years old female who presented with a six-month history of swelling in left armpit and a left breast mass of 4 months duration and a literature review of the subject utilizing existing literature, Medline and google search were utilized.*

### RESULT

*A tissue diagnosis of Hodgkin's lymphoma with typical Reed-Sternberg cells seen after incisional biopsy. The use of cyclophosphamide, vincristine, procarbazine and prednisolone for chemotherapy achieved complete remission.*

### CONCLUSION

*Hodgkin's lymphoma should be considered as a differential for mitotic lesion of the breast as the prognosis is favourable and treatment excludes mastectomy with its morbidity and psychosocial considerations.*

### KEYWORDS

*Breast; Hodgkin disease; malignant lymphoma*

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## INTRODUCTION

Adenocarcinomas are usually the most common malignant breast tumor.<sup>1</sup> Non-epithelial neoplasm involving the breast is uncommon, as only 0.1% of breast cancers are from extra-nodal lymphoma.<sup>2, 3</sup> Malignant lymphoma involving the breast may be primary and localised with or without regional lymphadenopathy, or part of a disseminated spread. Diffuse large B cell lymphoma (Non-Hodgkin's lymphoma) is the most common subtype of malignant lymphoma encountered in several series.<sup>4,5</sup>

Lymphoma rarely involves the breast as a primary lesion in the absence of a previously detected lymphoma localizations.<sup>6</sup> However when it does it is usually of B-cell origin and rarely from T-cell with a common denominator being the presence of Hodgkin Reed-Sternberg cells HRS.<sup>7</sup>

With advances in genetic molecular and immunological biotechniques, five subtypes of Hodgkins lymphoma have been identified as presented in the WHO classification.<sup>8</sup> Classical Hodgkin's lymphoma bear CD30 antigen while nodular lymphocyte predominant Hodgkin's lymphoma carry the CD20 antigen.<sup>9</sup> These CD antigen can be targeted in relapse after treatment with Rituximab or Brentixumab, chimeric monoclonal antibody against the CD 20 and CD30 proteins respectively.

Hodgkin's lymphoma is a highly curable malignancy. It was the first cancer to be cured with radiation therapy alone or with a combination of several chemotherapeutic agents even before the understanding of its biology improved.

Advances in treatment of Hodgkin's lymphoma have led to cure in 90% of all diagnosed patients.<sup>10</sup>

We report this rare case to remind clinicians that Hodgkin's lymphoma is a differential diagnosis of breast masses and to highlight its favourable prognosis.

### CASE REPORT

A 66-year-old woman presented to the surgical clinic with a 6-month history of progressive swelling in the left axilla. The lump was associated with a dull continuous pain. Incidentally, she received Hepatitis B vaccine at the left upper arm two days before onset of symptoms.

Two months later a lump was noticed in the left breast. The lump rapidly increased in size with associated dull pain and soon ulcerated. There was some weight loss but no jaundice, ascites or bone pain.

A physical examination revealed an elderly woman with facial asymmetry- deviation of the mouth to the left (presumably from Bell's palsy). The left breast was enlarged with peaud' orange and a tender fungating firm oval mass 8x10cm in size. There were some firm, tender matted lymph nodes involving the medial and posterior groups of the left axilla. There was also supraclavicular and infraclavicular lymphadenopathy. The liver was enlarged, extending 8cm below the costal margin.

Her packed cell volume (PCV) was 25% while the erythrocyte sedimentation rate was 120mm/hr. She tested positive to HIV 1&11 but Hepatitis B Surface antigen and Hepatitis C antibody were negative.

Incisional biopsy of the lump demonstrated typical Reed-Sternberg cells on histology, confirming the diagnosis of Hodgkin's lymphoma. Her liver and renal function tests revealed no abnormality although abdominal ultrasonography showed enlarged liver. The chest radiograph was also normal.

Her anaemia was corrected with blood transfusions and sequential combined chemotherapy commenced. This comprised four 28-day cycles of intravenous cyclophosphamide 500mg/m<sup>2</sup> days 1&8, intravenous vincristine 2mg days 1& 8, procarbazine tablets 600mg days 1 to 14 and Prednisolone tablets 40mg days 1 to 14. Remission of tumour was achieved following this regimen (Figures 1, 2 and 3). There was non-availability of Positron Emission Tomography PET scan to assess completeness of remission. However the reduction in breast tissue remained after 12 months of follow-up.

**Figure 1:** Patient at presentation



**Figure 2:** Patient after 2nd courses of chemotherapy



**Figure 3:** Patient after 4 courses of chemotherapy



## DISCUSSION

There is paucity of reports on Hodgkin's disease (HD) in African literature with that of the breast being even worse. The median ages reported for primary extra-nodal breast lymphoma are between 40 and 67 years.<sup>9</sup>

According to the WHO classification, there are five subtypes of Hodgkin's disease namely; lymphocyte predominant, nodular sclerosis, mixed cellularity, lymphocyte depletion and nodular lymphocyte predominant.

Mixed cellularity and lymphocyte depleted subtypes of HD are more common in the developing countries probably due to its association with Human Immunodeficiency virus. It is noteworthy that the index patient is retroviral positive

The aetiology of HD like most malignancies is unknown; however, infectious agents, genetic and environmental factors are implicated. The infectious agents include Epstein Barr virus, Hepatitis B and C, Human T-lymphocytic Type-1 virus and Human immunodeficiency virus. In the index case vaccination with Hepatitis B vaccine (live vaccine) preceded the lymphoma.

The stage of the disease is one of the most important prognostic factors. Staging of the disease requires history and physical examination, full blood count, erythrocyte

sedimentation rate, liver and renal functional tests. Others include HIV screening, chest radiograph, abdominal ultrasound and CT scan. Positron Emission Tomography PET is now considered essential where available because it is useful in the evaluation of response to chemotherapy and even predictive of survival.<sup>11-14</sup>

Bilateral bone marrow biopsies are advised due to patchy marrow involvement, while a histological diagnosis of Reed Sternberg cells is pathognomonic.

Lymphoma may present in the breast as part of a widespread disease or after radiotherapy/treatment for a primary nodal or extra-nodal lymphoma. The criteria for diagnosis of primary breast lymphoma include breast tissue and lymphomatous infiltrates in close association, in the absence of concurrent widespread disease.<sup>15</sup>

Hodgkin's disease is a curable malignancy but its treatment can have serious long term complications. The challenges of advances in treatment protocols are twofold: to minimize the treatment given to patients with early stage, low risk disease and to safely minimize the treatment given to patients with disease that is likely to be refractory to standard therapies. There has been a shift in recent times from radiation therapy alone to chemoradiotherapy. Chemotherapeutic regimens include MOPP, ABVD, BEACOPP, Stanford V and COPP. The latter was used in the index case. The choice of this regimen was based on availability with the advantage of eliminating the complication of pulmonary fibrosis associated with bleomycin containing regimens. Radiation therapy is administered to the involved field or regional field to incorporate adjacent lymph nodes to a dose of about 30Gy. The goal of therapy is complete remission with disappearance of all evidence of the disease. It is gratifying to observe there was complete remission of disease without radiotherapy in this patient.

Despite a high cure rate relapse may occur. In such cases salvage chemotherapy, monoclonal antibodies against CD-30 (SGN-35), high dose chemotherapy with bone marrow transplantation are options to be considered.<sup>16</sup>

<sup>17</sup> An adequate follow up is therefore imperative.

Surgery in its modification is an age old modality of treatment for breast cancer. Following surgery are significant morbidities including nerve injury, inadvertent pneumothorax and serious psychosocial problems. In malignant lymphoma of the breast, mastectomy is rarely a treatment option.

### CONCLUSION

Primary breast lymphoma is a rare, more so, Hodgkin's lymphoma of the breast. Chemotherapy alone or chemotherapy with radiotherapy can achieve remission. This favourable treatment outcome without the morbidity of radical surgery underscores the importance of accurate tissue diagnosis before mastectomy.

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