

## PRIMARY NON-HODGKIN'S LYMPHOMA OF THE BREAST: CASE REPORT ON A RARE SITE OF A COMMON DISEASE.

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### ABSTRACT

**Background:** Breast cancer is the commonest malignancy in Cameroon. It contributes to about 18% of all malignancies in both sexes and 32% of all female cancers. The commonest morphological type seen is an invasive duct carcinoma, followed by a lobular carcinoma. Other forms are rare. Non Hodgkin's lymphoma is common in Cameroon and increasing, especially amongst HIV/AIDS patients. A primary breast location of non-Hodgkin's lymphoma is very rare.

**Case:** We report a case of primary NHL of the breast in a 40 years old immune competent female with gigantomatsia treated by bilateral total mastectomy.

**Conclusion:** The patient is alive and well 6 months after treatment.

**Key words:** Breast, Primary, Non-Hodgkin's Lymphoma, Cameroon.

### INTRODUCTION

Cancer is a global health problem leading among the three main causes of death in the developing world. According to the World Health Organization's 2010 projection, cancer caused about 7.6 million deaths in 2005, accounting for 13% of death worldwide and it will result in about 84 million deaths by year 2015 [1]. In Cameroon, cancer has been found to be emerging as a public health problem, in near equal proportions to malnutrition and infectious diseases [2]. According to the National Cancer Control Program, the total cancer burden in the country has increased from an incidence of 12.000 in 2004 to 15.000 in 2010 with a prevalence of about 25.000 cases [3]. Breast cancer is the leading cancer in Cameroon accounting for about 30% of all cancers diagnosed in the community [3].

Non Hodgkin's lymphoma (NHL) is a diverse group of blood cancers derived from lymphocytes that vary significantly in their severity. It resulted in 210,000 deaths globally in 2010 up from 143,000 in 1990 [4]. It is the sixth most common cancer in the United Kingdom (12,800 in 2012) and, the eleventh most common cause of cancer death (4,700 in 2012) [4]. Unlike Hodgkin's lymphoma which is rare in our community, NHL has seen an upsurge in the past 2 decades, coinciding and exacerbated by the HIV/AIDS pandemic. The incidence has increased from 4% in 1985 to 11.9% (third commonest cancer) in 2012[5].

Primary breast NHL is an uncommon disease with poor clinical outcome [6]. The main subtypes of PBL are diffuse large B-cell and peripheral T-cell lymphomas. We present a first histologically confirmed case seen in our community. Bilateral

mastectomy was performed without any adjuvant chemotherapy [7].

## CASE REPORT

AE is a 40 years old African woman with a history of a stroke 12 years earlier complicated by a left hemi paresis and visual loss. In March 2017, she underwent a lumpectomy for a suspected fibroadenoma of the left breast. This was complicated by wound dehiscence and delayed wound healing. Unfortunately, no histological diagnosis was made. A few months later she was referred with a rapidly progressing nodular mass in the same quadrant of the left breast, and associated with throbbing pain. On examination she was clinically well with no constitutional symptoms, anorexia nor weight loss. She had gross bilateral breast hypertrophy, a palpable nodular mass in the upper outer quadrant, and grade IV ptosis.

The tumour measured about 10 cm in diameter, situated underneath the left breast scar and associated with skin thickening. There was fixed left axillary lymphadenopathy. Chest and abdominal examinations were unremarkable. Chest x-ray and liver ultrasonography were normal. She was clinically staged as T<sub>3</sub> N<sub>2</sub> M<sub>0</sub>. A needle core biopsy suggested a carcinoma of the left breast. The differential diagnosis included a phylloides sarcoma. She underwent a left simple mastectomy with axillary clearance of lymph nodes to level II (below axillary vein), and a prophylactic right simple mastectomy. She made good postoperative recovery.

Postoperative histological examination of the specimens revealed a primary non-Hodgkin's lymphoma of the left breast. She was referred to the medical oncologists for chemotherapy.

At the pathology laboratory we received two mastectomy specimens each weighing about 1.2 kg and measured averagely 18x12x10 cm. The left breast showed a tumour of 10 cm diameter situated at 4cm of the surgical plane (figures I and II). The tumour was brownish, elastic and well circumscribed. There were 2 rubbery 2cm average diameter lymph nodes in the axillary clearance tissue. Histological examination of H&E stained,

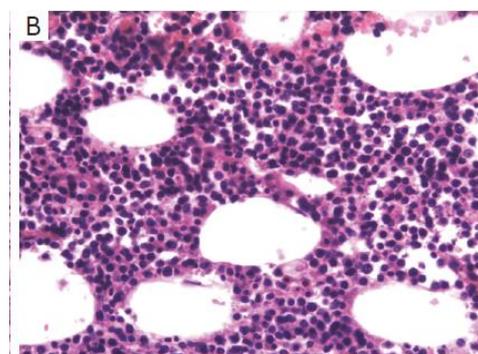
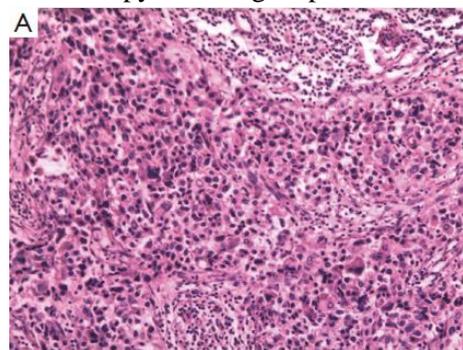
paraffin wax embedded tissue sectioned at 0.5 microns thickness revealed a diffuse large B-cell non Hodgkin's lymphoma (NHL) (figure III) and a diagnosis of primary NHL of the breast was made.



**Figure I:** Macroscopic specimens of bilateral mastectomy.



**Figure II:** Iconograph showing tumour macroscopy in the right specimen.



**Figure III:** Histology of PBNHL

## DISCUSSION

Primary breast lymphoma (PBL) is defined pathologically as the presence of lymphomatous infiltrate in normal breast tissue in a patient with neither previous nor concurrent non-Hodgkin's lymphoma at another site. And it has been defined as the most frequent hematopoietic tumor of the breast [8]. Cancer of the female breast is the top ranking cancer among females as well as amongst both sexes in Cameroon as reported by the Yaounde Cancer Registry. This represented 18.5% of all cancers and 32% of female cancers [5].

In this community, the most common type of breast cancer is an invasive ductal carcinoma (71%) of all microscopically verified cases followed by lobular carcinoma (7.5%). Others are carcinoma unspecified (3.1%), medullary and adenocarcinoma (each 1.2%). Predominantly diagnosed by histology of primary, the cluster of incidence of breast cancer is between 30-50 years with the peak incidence occurring in the age group 45-49 years. The annual average of breast cancer is 174 with Crude Incidence Rate (CIR) and Age Standardized Rate (ASR) at 25.89 and 35.25 respectively [5]. No previous case of PBL has been reported in our community.

NHL increases with age steadily and up to 45 years is more common in males than females [4]. Our case is a 40 years old female. This is similar to reports that majority of breast lymphomas are of the non-Hodgkin's lymphoma type (PBNHL). It usually affects women in their fifth or sixth decade of life [9, 10] though some authors report younger patients [7, 11]. Extra nodal NHL of the breast is a rare entity [11, 12] that reportedly ranges from 0.04-1.1% of all malignant female breast tumors [8] to 0.04-0.5% [6]. It constitutes less than 1% of all patients with non-Hodgkin lymphoma and approximately 1.7-2.2% of all patients with extranodal non-Hodgkin lymphomas [12].

Primary NHL (PNHL) is the most frequent hematopoietic tumor of the breast [8].

It is defined pathologically as the presence of lymphomatous infiltrate in normal breast tissue in a patient with neither previous nor concurrent non-

Hodgkin's lymphoma at another site, although involvement of ipsilateral axillary lymph node enlargement may be present [13]. It is a rare tumor and often presents as an innocuous lump, like in our case [14]. PBL shows a wide age distribution with a bimodal peak; with younger population showing bilateral involvement and older population showing unilateral involvement [14]. In our case the patient was mid age and had a unilateral tumour. The majority of breast lymphomas are of the non-Hodgkin's lymphoma type (PBNHL). It usually affects women in their fifth or sixth decade of life [9, 10]. The most common symptom of PBL is a palpable lump; less frequently, it may present as diffuse breast enlargement. There is usually unilateral involvement, but bilateral cases have also been reported [13] with ipsilateral axillary lymphadenopathy like we found in this case [9]. Wiseman and Liao are credited with first defining the clinical criteria for the classification of PBL [15]. PNHL of the breast is usually right sided [8], unlike our patient who had a left breast involvement, consistent with some earlier reports [7]. Mammography and other radiologic investigations are usually unremarkable [16] as we found in our case. Diagnosis by FNAC is difficult [17] though this could be indicative [10]. The eventual confirmatory diagnosis is by histopathology and immunohistology [10, 17] which concludes the cell lineage and morphological type of NHL [8]. In our case, FNAC misdiagnosed an invasive duct carcinoma, a situation reported by Veena [10] and we did not have the opportunity to carry out immune histological studies.

Management of PNHLB is controversial [11], with limited data on this aspect [18]. It ranges from lumpectomy [19], mastectomy [20], with or without radiation and chemotherapy [21]. In this last situation, CHOP or CHOP-like chemotherapy is followed by field radiation [22]. In either method of treatment, the histological grade of the tumour is a key determining factor [20]. Our patient was treated by total mastectomy with axillary clearance of ipsilateral breast and prophylactic mastectomy of the contra-lateral

breast. No recurrence has been observed one year post operative in our patient.

## CONCLUSION

Primary and secondary lymphomas of the breast, though rare, should be considered in the differential diagnosis of breast malignancies. Diagnosis by FNAC should be confirmed or ruled out by an open biopsy followed by histology and immune histology, where feasible.

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