Case Report

Male Breast Cancer: The Need for High Index of Suspicion and Early Utilisation of Imaging

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Abstract

A 45-year-old man presented to our health facility with a three-month history of right breast mass and bloody nipple discharge. Prior to presentation he was at a peripheral hospital where he was wrongly diagnosed and managed for furunculosis. Breast ultrasound scan and mammography done at our health facility revealed a lobulated right retro-areolar complex mass with spiculated margins, encroaching adjacent breast parenchyma. A Radiological diagnosis of right breast BIRADS 5 Lexicon category lesion was made. He had Auchincloss modified radical mastectomy of the right breast, and the histology of the excised specimen confirmed the diagnosis of right breast mucinous carcinoma. Following satisfactory surgical wound healing, he was further managed with post-operative radiotherapy, chemotherapy and hormonal therapy. He has been on regular follow-up for five over years now, and his response to management is satisfactory.

Keywords: Male Breast Cancer, Furunculosis, Mastectomy, Mammography, Ultrasound Scan.

INTRODUCTION

Male breast cancer is a rare condition accounting for about 1% and 7.2-10.3% of all breast cancers in the United Kingdom and United States respectively.[1],[2] There is no meta-analysis in Nigeria regarding the incidence of breast cancer among men. However, a study in North-Eastern Nigeria by Dogo *et al*[3] noted that 3.7% of breast cancers were found in men, while in Jos North-Central Nigeria, 8.6% of breast cancer cases were found in males with a male-female ratio of 1:10.[4] Breast cancer remains under diagnosed and due to delays in diagnosis, is often also undertreated. In this part of the world, patients often present late due to poverty, ignorance and low index of suspicion.[5] Prolonged duration of symptoms and advanced stage at presentation are important as these factors correlate with decreased survival in male breast cancer (MBC). [6]

Misdiagnosis occasioned by low index of suspicion in view of the rarity of male breast cancer has prompted the writing of this case report.

CASE REPORT

E.J. was a 45-year-old engineer, working with a Road Construction Company in Sokoto, Nigeria referred from a peripheral hospital on account of a "boil" in the right breast that did not respond to several courses of antibiotics therapy. His history dated back to three months prior to presentation when he noticed a painful swelling around the right areolar. There was no fever or other constitutional symptoms. A medical officer he consulted at a

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peripheral hospital made a diagnosis of furunculosis and he immediately commenced him on broad spectrum antibiotics with no remarkable response noted. Patient later had bloody nipple discharge that necessitated padding with clothes. It was at this point that he was referred to our health facility.

When evaluated at our facility, we found a 45-year-old man with a three-month history of right breast mass and bloody right nipple discharge. There was neither family history of breast cancer nor previous history of hormonal drug therapy. Also, no childhood history of mumps, testicular trauma or undescended testis was volunteered. There was also no history of cigarette smoking or alcohol consumption.

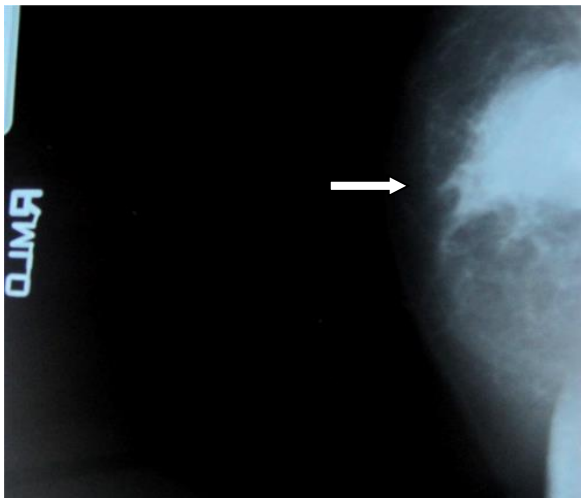

Fig. 1a

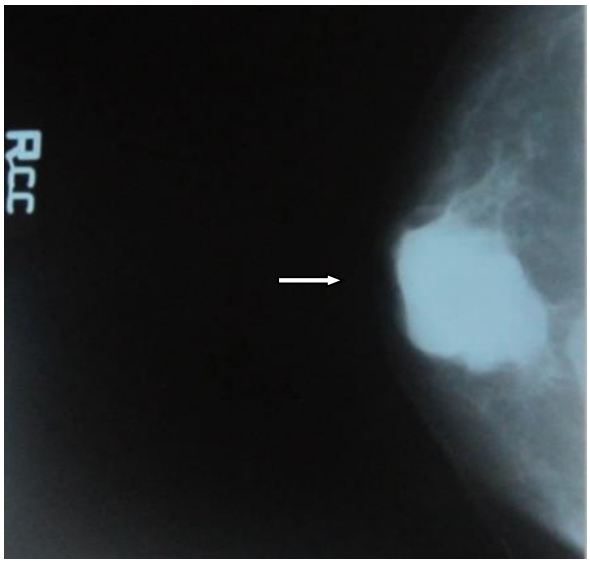

Fig. 1b

Figs. 1a & 1b is the right breast mammogram (mediolateral oblique & craniocaudal views respectively) showing a lobulated opacity of soft tissue density, having spiculated margins in the retro-areola region (arrows), and infiltrating adjacent breast tissues. No micro- or macro- calcifications seen.

Examination revealed a firm to hard right peri-areolar mass which extended to the 9 0' clock position. It was non-mobile, minimally tender, and measured approximately 3 by 4 cm in dimension. The mass was attached to the overlying skin, but no ulceration was noted. There was tethering with peau d'orange and the nipple was retracted. There was no clinically detectable axillary lymphadenopathy and the contralateral breast was preserved. The respiratory and remaining systems were essentially preserved. A clinical diagnosis of right breast carcinoma was made, and he was immediately referred to Radiology Department for Breast Ultrasound scan and mammography. The breast mammogram revealed a lobulated heterogeneously dense mass in the retro-areolar area of the right breast. It had spiculated margins with associated distortion and encroachment of the adjacent fibroglandular tissues (figures 1a & 1b). There was no calcification or area of radiolucency noted within the mass.

Ultrasound evaluation revealed a complex solid mass with central necrosis in the peri-areolar area of the right breast, extending to 9 0'clock position. It was lobulated, taller than wide and measured 3.9 × 2.3cm in dimension (figure 2). The left breast and both axillae were unremarkable. A radiological diagnosis of right breast BIRADS 5 lexicon category lesion was made. A fine needle aspiration biopsy was done and it confirmed the diagnosis of a malignant right breast mass.

Fig 2. Right breast ultrasonogram of the same patient as in figures 1a & 1b showing a lobulated mixed-echogenic mass with central necrosis (white arrow), in the retro-areola region. Infiltration of the adjacent breast tissue is noted.

He had right Auchincloss modified radical mastectomy and histology of the excised tumor confirmed the diagnosis of a right breast mucinous

carcinoma. He later had post-operative radiotherapy, chemotherapy and hormonal therapy (tamoxifen). He has been on regular follow-up for over five years now and his response to management is satisfactory.

DISCUSSION

Though male breast cancer is rare, geographical variation in its incidence has been reported. It is higher in USA and UK than in Finland and Japan.[7] An alarmingly increasing incidence has been reported in the US and Canada when compared with other parts of the world.[8] Data from Africa is scanty, however, in North-Eastern Nigeria, it accounts for 3.7% of breast cancer, and 8.6% in Jos, North-Central Nigeria.[3],[4] 4.6% and 15% were noted in Tanzania and Zambia respectively.[9]

The prevalence of male breast cancer increases with age. Age distribution for male breast cancer is unimodal with peak incidence in the late sixth and early seventh decade. This index case was a 45-year-old man, quite younger than the documented age incidence which is averagely 60 years.[10]

The aetiology of male breast cancer is unknown. However, factors such as alteration in hormonal milieu, family history (first degree relation) and genetic alterations are known to influence its aetiology. Conditions that alter estrogen-testosterone ratio in males predispose such individuals to breast cancer. This is seen in Klinifelter's syndrome which increases the risk of developing breast cancer in men by 50 times and accounts for 3% of all male breast cancers.[11] Increased blood estrogen level as seen in liver cirrhosis and exogenous administration of estrogen (as in therapy for prostatic carcinoma) has been implicated in the aetiology of male breast carcinoma. There were no peripheral stigmata of chronic liver disease in this patient, and he was not on any form of hormonal therapy. Also, Androgen deficiency due to testicular disease like Mumps, undescended testes, or testicular injury, has been linked to the aetiology of breast cancer.[12] None of these was observed in the index case. Occupational exposure to heat and electromagnetic radiation, causing testicular damage and further leading to the development of male breast cancer has also been postulated.[13] This patient was a Construction Engineer working with a road construction company in a hot North-Western state of Nigeria (Sokoto). This may have contributed to the aetiology of the breast cancer in him.

Strong racial predilection and gynaecomastia have also been implicated. An interesting work in the US comparing incidence, pathology and outcomes in male and female breast cancer in a defined population revealed that more black males than white males were affected.[14]

In investigating male breast cancers, ultrasound and mammography have been found useful although, the scanty nature of normal male breast tissue poses challenges in some cases. These were found useful in the index case as classical radiological features were noted which made the diagnosis seamless. Ultrasound-guided fine needle aspiration biopsy which this patient benefitted from is a reliable investigation in male breast cancer and it is helpful in differentiating benign from malignant lesions. It shows sensitivity of 95.3%, specificity of 100% and diagnostic accuracy of 98%.[15]

Mastectomy, chemotherapy, radiotherapy and hormonal therapy are treatment options available for treatment of both male and female breast cancers.[6] This patient had Auchincloss modified radical mastectomy and post-operative radiotherapy, chemotherapy and hormonal therapy. His response was satisfactory, and no recurrence was noted after five years of regular follow-up.

A number of variables have been reported to affect prognosis in male breast cancer. Among these are tumor stage and axillary node status.[16] This patient had an early stage of the disease (T_2 N_1 M_0). A right solitary axillary lymphadenopathy was detected at surgery. The early radiological diagnosis coupled with the early stage of the disease must have contributed to the good response recorded in the patient.

CONCLUSION

A rare case of male breast cancer has been presented. It has further stressed the need for early detection using various radiological modalities such as ultrasound and mammography, and when available, Magnetic Resonance Imaging. High index of suspicion by clinicians and early treatment are key in its management as the index case has continued to do well for over five years.

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