

Male breast malignancy in Jos University Teaching Hospital

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Summary

Background: Male breast malignancies are rare. Cancer of the male breast accounts for about 1% of all breast cancers. Poor level of awareness often results in late presentation and delayed diagnosis in our environment.

Patients and Methods: A retrospective study of all cases of male breast cancer (MBC) managed in Jos University Teaching Hospital over a 17-year period (January 1987-December 2003.)

Results: A total of 302 cases of breast malignancies were managed over the study period. Twenty-six (8.6%) of these were males giving a male:female ratio of 1:10.6. The ages of the 26 MBC cases ranged from 12 years to 85 years, with a mean of 57.9 years and median age of 67 years. The right breast was affected in 15 and the left in 11. Mean duration of symptoms before presentation was 6 months with a range of 3 months to 4 years. All the patients had history of breast lumps, 21 (80.8%) of which were painless. Skin ulceration and axillary node enlargement were present in 19(73.1%) and 24(92.3%) respectively. Five (19.2%) were stage II; 15(57.7%) stage III and 6(23.1%) stage IV.

There were 23 (88.5%) carcinomas, 2 (7.7%) fibrosarcomas and a case of Hodgkin's lymphoma. Invasive ductal carcinoma was the most common histological type in 20 (76.9%) of all breast malignancy and 20 (87.0%) of all breast carcinomas.

Modified radical mastectomy (mastectomy with axillary clearance with or without division of the pectoralis minor muscle) was done in 10(38.5%) patients. Two of these were fibrosarcomas. Simple mastectomy was done in 13 (50%) as toilet procedures for advanced disease. The only case of Hodgkin's lymphoma had chemotherapy.

Bilateral orchidectomy (BO), Tamoxifen, chemotherapy and radiotherapy were offered in 7(26.9%), 13(50%), 17(65.4%) and 7(26.9%) patients respectively.

Wound infection was the most common complication in 14(53.8%) patients. There was no case of hospital mortality.

Conclusion: MBC accounts for 8.6% of all breast cancers in our centre. It affects elderly males. Late presentation with advanced disease and ulceration is a common feature in our environment.

Key words: Male breast cancer, Malignancy, Late presentation.

Résumé

Introduction: Les virulences du sein du sexe masculin sont rares. Le cancer du sein du sexe masculin constitue environ 1% de tous les cas des cancers du sein. Le mauvais niveau de conscience le plus souvent est attribuable à la présentation tardive et la possibilité de faire un diagnostic retardé dans notre milieu.

Patients et Méthodes: Une étude rétrospective de tous les cas du cancer du sein du sexe masculin (CSM) soignés au centre hospitalier universitaire au cours d'une période de 17 ans (janvier 1987 au décembre 2003).

Résultats: Un total de 302 cas des virulences du sein ont été soignés au cours de cette étude. Vingt six soit 8,6% de ces cas étaient du sexe masculin c'est-à-dire un rapport sexe masculin. sexe féminin de 1: 10,6. Les âges de 26 cas de CSM est de l'ordre 12 à 85 ans, avec un moyen de 57,9 ans et âge moyen de 67 ans. Le sein du côté droite était touché dans 15 et du côté gauche dans 11. La durée moyenne des symptômes avant présentation était 6 mois avec un écart de 3 mois au 4 ans. Tous les patients avaient eu une histoire d'une excroissance de sein, 21 soit 80,8% de laquelle était sans douleur. L'ulcération de la peau et l'hypertrophie du noeud axillaire étaient présents en 19 soit 73,1% et 24 soit 92,3% respectivement. Cinq soit 19,2% étaient du deuxième étape; 15 soit 57,7 troisième étape et 6 soit 23,1 quatrième étape. Il y avait 23 soit 88,5% cas de carcinomes, 2 soit 7,7% fibrosarcome et un cas de lymphome d'Hodgkins. Carcinome ductal Invasif était un type histologique le plus courant chez 20 soit 76,9% de tous les cas de la virulence du sein et 20 (87,0%) de tous les cas du carcinome du sein. La mastectomie radicale modifiée (la mastectomie avec une clairance axillaire avec ou sans division du pectoralis muscle inférieur) était effectué chez 10 soit 38,5% des patients dont deux étaient fibrosarcome. La mastectomie simple était effectuée chez 13 soit 50% comme des protocoles de la toilette pour une maladie grave. Le seul cas du lymphome d'Hodgkins avait une chimiothérapie.

L'orchidectomie bilatérale (OB), Tamoxifen, chimiothérapie et la radiothérapie ont été donnés en 7 (26,9%), 13 (50%), 17(65,4% et 7(26,9%) des patients respectivement. Infection à travers la blessure était une complication la plus courante chez 14 (53,8%) des patients. Il n'y avait aucun cas de la mortalité d'hôpital.

Conclusion: CSM constitue 8,6% de tous les cas des cancers du sein dans notre centre. Ça touche les vieux du sexe masculin. Présentation tardive avec une maladie grave et l'ulcération sont des traits très courants dans notre milieu.

Introduction

In developed countries, male breast cancers account for about 1% of all breast cancers¹. This means that breast cancer occur 100 times more often in females in the industrialised world.

In Sub-Saharan Africa, however, available statistics suggest a higher incidence of male breast cancer with figures ranging from as low as 1.3% in Zimbabwe to as high as 12.5% in Kenya². In Nigeria, male breast cancer was reported to account for between 2.2% to 8.0% of all breast cancers²⁻⁶. Differences in study group and period had been suggested as a possible reason for such variation².

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The relative high incidence in some African countries has been attributed to hepatic schistosomiasis with associated hyper-oestrogenaemia³. Late presentation is a major problem in our environment because our patients tend to seek alternative non-orthodox treatment because of poor awareness, cultural and religious reasons^{3,4}. This study highlights male breast cancer in Jos University Teaching Hospital, Jos, Nigeria.

Patients and methods

Over a period of 17 years (January 1987 to December 2003), 26 male patients with malignant breast lesions were managed in Jos University Teaching Hospital, Jos, Nigeria. The clinical, operative and histopathological records of these patients were reviewed with regard to age, clinical presentation, staging, histological type, management modalities and outcome. The information were analysed and presented in relative frequency tables and figures.

Result

During the study period, a total of 302 histologically confirmed breast malignancies cases were managed. Twenty-six (8.6%) of these were males. The ages of these 26 MBC cases ranged from 12 years (A case of fibrosarcoma) to 85 years (a case of invasive ductal carcinoma) with a median age of 67 years, and a mean age of 57.9 years. Figure 1. The right breast was affected in 15 (57.7%) cases while the left breast was involved in 11 (42.3%) cases.

Clinical presentation: Duration of symptoms ranged from 3 months to 6 years with a mean of 6 months. Twenty (76.9%) patients had sought treatment elsewhere before presentation. History of unilateral post-pubertal gynaecomastia preceding the disease was present in 5 (19.2%) patients. All patients had breast lumps and 21 (80.8%) of these were painless. Skin ulceration associated with bleeding and/or seropurulent discharge was observed in 19 (73.1%) patients. Figure 2 shows a male patient with fungating ulcer of the left breast.

Axillary lymph nodes were palpably enlarged in 24 (92.3%) patients, most of which were matted together. Twelve (46.2%) patients had associated weight loss. Details are presented in Table 1. Thirteen (50%) patients had their lesion located centrally around the nipple-areolar complex. This was followed by the upper outer quadrant in 6 (23.1%) of the patients as shown in Table 2. Late presentation was common with 21 (80.8%) patients presenting as advanced disease comprising of stage 3, 15 (57.7%) and stage 4, 6 (23.1%). Details are presented in Table 3.

Histological types: Of the 26 patients, invasive ductal carcinoma was the most common accounting for 20 (76.9%). There were two cases of fibrosarcoma of the breast (12- and 45-year-old males) and a case of Hodgkin's lymphoma in a 45-year-old presenting as multiple breast lumps. When only carcinomas were considered, invasive ductal carcinoma accounted for 20 (87.0%). There was a single case of invasive lobular carcinoma in a 70-year-old man. See Table 4.

Treatment: All patients had surgery after initial tissue diagnosis except the single case of Hodgkin's lymphoma that was treated by the haematologist with chemotherapy using

Table 1 Clinical presentation of 26 men with malignant breast lesions. (JUTH 1987-2003)

Breast lesion	No	%
Painless lump	21	80.8
Painful lump	5	19.2
Skin ulceration	19	73.1
Nipple distortion	8	30.8
Serous nipple discharge	3	11.5
Bloody nipple discharge	2	7.5
Nodal status		
Palpable axillary lymph nodes		
* Mobile nodes	4	15.4
* Matted nodes	20	76.9
Associated features		
Weight loss	12	46.2
Hepatomegaly	5	19.2
Jaundice	3	11.5
Pulmonary metastasis	4	15.4
Ascites	-	-
Bony metastasis	-	-

Table 2 Distribution of malignant breast lesion by quadrants

	Right	Left	Total (%)
Central	8	5	13(50.0)
Upper outer quadrant	3	3	6(23.1)
Upper inner quadrant	1	2	3(11.5)
Lower outer quadrant	2	-	2(7.7)
Lower inner quadrant	1	1	2(7.7)
Total	15	11	26(100)

Table 3 Clinical staging versus treatment modality offered

Stage	SM±BO±CCC	MRM±BP ±CCC	BO alone	CCC alone	Total	%
I	-	-	-	-	0	0
II	-	4	-	1	5	19.2
III	9	6	-	-	15	57.7
IV	4	-	2	-	6	23.1
Total	13	10	2	1	26	100%

Keys

- SM - Simple mastectomy
- MRM - Modified Radical mastectomy
- CCC - Cyclical Combination Chemotherapy.
- BO - Bilateral orchidectomy

Table 4 Histological subtypes of malignant breast lesions in 24 men. (JUTH 1987-2003)

	No	%
Invasive ductal carcinoma	20	76.9
Poorly differentiated carcinoma	2	7.7
Fibrosarcoma	2	7.7
Invasive lobular carcinoma	1	3.8
Hodgkin's lymphoma	1	3.8
Total	26	100

intravenous Nitrogen Mustard 6mg/m² on days 1 and 8, intravenous Vincristine 1.4mg/m² on days 1 and 8, oral procarbazine 100mg/m² daily for 2 weeks and oral prednisolone 40mg/m² daily for two weeks (MOPP regimen). This course was repeated after two weeks for a total of 6 courses. Simple mastectomy (SM) mostly as toilet procedure was done in 13 (50%) patients. Three in this group had bilateral orchidectomy (BO) in addition to mastectomy. Modified radical mastectomy (MRM) was done in 10 patients (38.5%) of whom 2

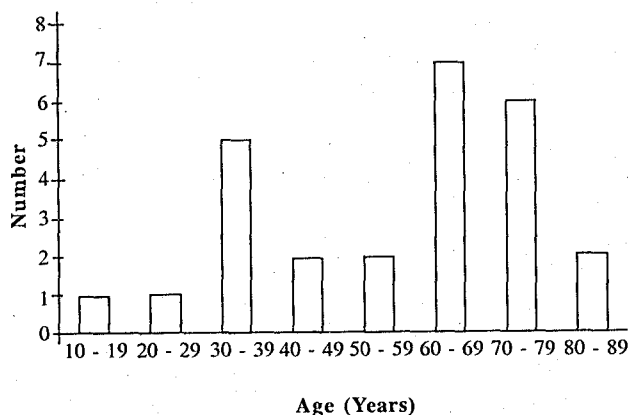


Fig. 1 Age distribution of male breast malignancy (JUTH 1987 - 2003)

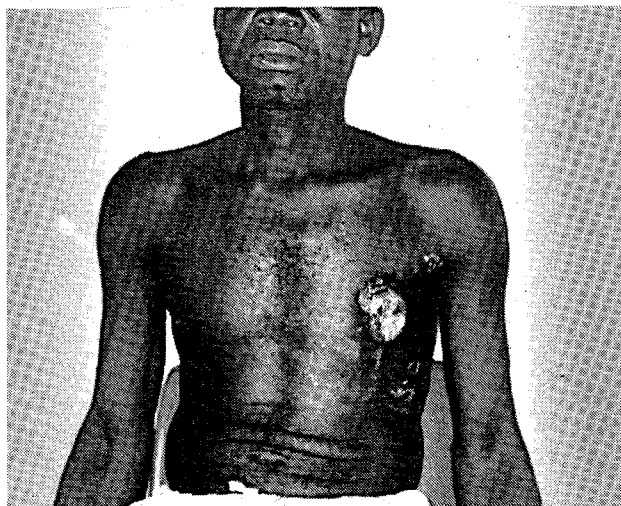


Fig. 2 Advanced carcinoma of the male breast

consented and had BO. Two of these were the two cases of fibrosarcoma. Two patients (7.7%) who presented with metastatic disease had BO only. Overall, BO was done in 7 (26.9%) patients. Table 3 shows details of treatment of the different stages.

Tamoxifen 20 mg daily was administered to the remaining 13 (50%) breast cancer patients who refused orchidectomy until they were lost to follow up or died (maximum duration 4 years). Cyclical combination chemotherapy (CCC) using cyclophosphamide, methotrexate and 5-fluorouracil (CMF regime) was given to 17 (65.4%) patients. It consisted of intravenous cyclophosphamide $1\text{g}/\text{m}^2$, intravenous methotrexate $50\text{mg}/\text{m}^2$, intravenous 5-fluorouracil $600\text{mg}/\text{m}^2$ given the same day along with a litre of 5% dextrose water and intravenous metoclopramide 10mg. The cycle was repeated every 28 days providing that haematocrit was $\geq 30\%$, white cell count was ≥ 4000 and platelets was $\geq 130,000$ until 6 courses were given. Seven (26.9%) patients (in the later period of the study) who could afford were referred and received radiotherapy in addition to surgery and drugs.

Morbidity and Mortality: Wound infection was the most common complication, and this was documented in 14 (53.8%) patients. Available culture results revealed *Staphylococcus aureus* in 5, *Pseudomonas spp* in 3 and *proteus spp* in 2 cases often as mixed infections. There was no case of hospital mor-

tality. Majority were lost to follow up after a median follow up period of 7 months (range 2 weeks to 4 years).

Discussion

This study shows that malignant tumours of the male breast accounts for 8.6% of all breast malignancies in our centre. This compares favourably with 8.0% by Ihezue et al⁵ from eastern Nigeria; higher than the 2.2%, 3.4% and 5.2% from Benin³, Ibadan⁶ and Zaria⁴ respectively, but lower than the 12.5% in Kenya². Unlike in females where the incidence of breast cancer is higher among white compared to blacks, in males the reverse is the case^{1,3}.

The peak incidence in this study was between the ages of 60 to 79 years with a mean age at presentation of 57.9 years. This is in keeping with most reports that male breast cancer occurs a decade or two older than the female counterpart^{1,3,5}.

Men with klinefelters (XXY) syndrome⁵ and XX-males⁷ are more likely to develop cancer of the breast than average men. In Africa liver diseases that result in hyperoestrogenaemia had been suggested as a possible factor leading to a greater number of male breast cancer compared to the western world⁸. Conditions such as orchitis and testicular atrophy associated with reduced testicular function and gynaecomastia which may occur in klinefelters syndrome, XX male syndrome and patients on medication like oestrogen, digitalis and cimetidine have been associated with male breast cancer^{1,5,7}. Koc and Plat⁹ reported that 2 of 11 (18.2%) male breast cancer patients had preceding history of gynaecomastia, one of whom had hyper-prolactinaemia secondary to pituitary microadenoma. Five (19.2%) of our patients had history of post pubertal gynaecomastia but there was no documented hormonal abnormality. As in females, familial history with mutations in BRCA 2 and p53 genes has been shown to play a role in male breast cancer^{1,10,11}.

Late presentation was common with 24 (92.3%) having palpable axillary lymph node enlargement while 21 (80.8%) in advanced stage of the disease. This picture is quite similar with previous reports^{3,5,6} from Nigeria but contrast with those from other parts of the world^{12,13}. Skin ulceration in association with the lump was present in 19 (73.1%) patients while nipple discharge was observed in 5 (19.4%) patients. There was no case of nipple discharge among the 11 and 4 patients reported from Enugu⁵ and Benin³ respectively.

Mammography and fine needle aspiration cytology (FNAC) are useful in differentiating between malignant and benign lesions of the male breast such as gynaecomastia. Mammogram in patients older than 45 years may demonstrate a well-defined mass, spiculations or micro-calcifications in early male breast cancer^{1,14}. None of our patients had pre-operative mammogram and histological diagnoses were obtained by tru-cut needle biopsy, excision biopsy or wedge incision biopsy of ulcer edges.

Invasive ductal carcinoma was responsible for 90% of male breast carcinoma and 75% of all male breast malignancies in this study. Reports from within^{3,5,6} and outside^{12,13} Nigeria revealed predominance of invasive ductal carcinoma in MBC just as in females.

It was believed that radical mastectomy (RM) was the

procedure of choice for invasive male breast cancer because of tendency to early infiltration of skin and underlying fascia/muscles^{5,13}, but Gough et al¹⁵ reported no difference in disease free intervals and survival rates between male breast cancer patients treated by radical mastectomy, modified radical mastectomy or simple mastectomy. The surgical procedure of choice in male breast cancer is currently modified radical mastectomy for invasive carcinoma and simple mastectomy for carcinoma-in-situ¹. In our study, 10(38.5%) patients had modified radical mastectomy and 13(50%) had simple mastectomy mostly as toilet procedures for advanced ulcerated lesions. In previous reports^{3,5,6} on male breast cancer from Nigeria, there was no case of carcinoma-in-situ. This may be related to the absence of national breast screening programme even in women.

Besides surgery, hormonal manipulation, cytotoxic chemotherapy and radiotherapy are offered to male breast cancer patients as adjuncts. Tamoxifen has been shown to increase survival in stage II and III male breast cancer patients¹⁶. This is not unexpected considering the facts that between 65-85% of male breast cancer are oestrogen receptor (ER) positive and 67% are progesterone (PR) positive¹. However, Bruce et al¹⁷ demonstrated no significant difference in survival between ER positive and ER negative male breast cancer patients. Orchiectomy is said to produce a median survival of 56 months in 67% of male breast cancer patients³. It has also been shown to be beneficial in recurrent male breast cancer who failed initial treatment¹³. Seven (26.9%) of our patients who consented had BO in addition to mastectomy (5 patients) or as the sole treatment (2 patients). Orchiectomy has been shown to have a low acceptance rate in our environment for social and cultural reason^{3,5}.

Adjuvant cyclical combination chemotherapy using cyclophosphamide, methotrexate and 5-fluorouracil (CMF regimen) or cyclophosphamide, adriamycin and 5-fluorouracil (CAF regimen) has been shown to increase survival in node positive male breast cancer patients with early disease^{1,18}. In advanced metastatic disease where the aim of management is palliation, tamoxifen constitute the first line of therapy followed by chemotherapy¹⁸. Seventeen (65.4%) of our patients received adjuvant chemotherapy. The place of adjuvant radiotherapy is in locally advanced disease. It has been shown to reduce local recurrence without affecting survival when given post operatively¹. Only seven (26.9%) of our patients received radiotherapy.

Though there was no hospital mortality in this series, most of our patients were lost to follow-up. Of the 4 cases reported from Benin, 2 died in hospital³. A crude 3-year survival rate of 27.2% was reported from Enugu⁵. Gough and colleagues¹⁵ reported a 5-year survival of 57% while Bruce et al¹⁸ reported an overall 5 year survival of 53%.

When compared to females, survival rates in male breast cancer have been controversial. This may be due to different criteria used to evaluate survival rates and the generally small number of patients in various reports^{1,3,5}. Albeit male breast cancer is reported to carry a worse prognosis relative to females^{3,5}, some authors believe that age for age, survival in male breast cancer is no worse than for women with comparable stage of the disease¹³.

In conclusion, male breast cancer accounts for 8.6% of breast cancer cases and tends to present as advanced disease in elderly males in our environment.

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