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**PHENOTYPICAL CHARACTERISTICS OF BREAST LESIONS IN BOWEN
UNIVERSITY TEACHING HOSPITAL (BUTH), OGBOMOSHO, OYO STATE,
NIGERIA**

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ABSTRACT

Background: Breast lesions are major health concern worldwide with significant psychological stress and economic burden.

Objective: To study the characteristics of breast lesions in semi-urban area.

Design: A 2-year prospective study of 100 patients with breast lesions in Bowen Teaching Hospital (BUTH), Ogbomosho, Oyo state, Nigeria, was carried out between November 2014 and October 2016.

Results: Of 100 patients, 96 were females, 4 males. Age ranged from 18 - 86years with mean age at 38.8years \pm 16.8. Breast lesions frequently occurred between age 30-39years, constituting 30% study populace. Benign breast lesions (BBL) constituted 49%, while malignant breast lesions (MBL) constituted 51%. Fibroadenoma was the most common BBL (34%), while invasive ductal carcinoma was the most common MBL (34%). The Right breast had 59% lesions, while the left breast had 39%. Only two patients (2%) had bilateral breast lesions. Seventy-seven percent were pre-menopausal (44% benign, 33% malignant), while 19 (19%) were post-menopausal (3% benign, 16% malignant). Majority (42%) presented in late stage with average breast masses between 5 x 3 x 1 cm and 10 x 4 x 2 cm.

Overall: 71% of patients had breast mass only; 8% had fungating mass with chest wall attachment while another 8% had pseudorange, pain and nipple retraction; 9% had diffuse breast swelling; 2% had breast ulcer, mass and pain; while another 2% had breast mass fixed to the skin.

Conclusion: Malignant breast lesions (MBL) were more common in these communities during the study period.

Keywords: Breast lesions, Phenotypical characteristics, Ogbomosho, Nigeria.

INTRODUCTION

Breast lesions include the benign and the malignant breast conditions. The first recorded case of malignant breast lesions dates back to 1st century, 2500 B.C. in Egypt (1). Ever since, it remains a scourge to human race and a challenge to medical world. Benign breast lesions (BBL) are common in women of reproductive age (2). It encompasses a variety of clinical and histopathological diagnoses such as developmental abnormalities, inflammatory lesions, epithelial and stromal proliferations. Malignant breast lesions (MBL) include: carcinoma-in-situ, ductal carcinoma, lobular carcinoma, inflammatory breast disease, Paget's disease among others.

Breast lesions, especially breast cancers, according to cancer statistics 2016 in United States are on the increase worldwide, with about 189,910 new cases expected among the blacks in 2016 (3). In North America, majority (99%) of breast lesions in female adolescents are benign tumours (4). Breast abnormalities like fibroadenoma, gynaecomastia, and polymastia, were seen in a review article of a tertiary institution in United State of America (5). In Ireland, a recently released article in March, 2016 revealed that among breast lesions affecting women, breast cancer is the most common lesion comprising 28% of all cancer in females (6). However, when compared to Japanese and Caucasian women, the rate was lower (7).

In Africa, reports on benign breast lesions in the blacks showed that from late 20th century, fibroadenoma of female breasts has a bi-peak incidence at ages between late 20s – early 30s and late 40s – early 50s with average size of less than 3.0 cm at presentation (8). Also, a clinico-pathological analysis of 202 benign breast lesions in women revealed that fibrocystic disease of breast was the most frequent breast lesion in both black and white women between 25

and 45 years of age, while fibroadenoma showed a peak incidence at an earlier age in black than in white women (9). Also in a 25-year review of benign breast lesions in an African population, study revealed that the prevalence of benign breast diseases was on the increase and these were mostly fibroadenoma and fibrocystic change, occurring in young females with a peak incidence in the third decade of life (10).

The prevalence of these breast lesions in African population studies and the absence of such data documentation on breast lesions in our Centre, Bowen University Teaching Hospital, Ogbomosho make us to see the need for the study of phenotypical characteristics (which is the physical and clinical distinctness behaviors these breast lesions exhibit) of breast lesions in Ogbomosho and the need for appropriate documentation.

PATIENTS AND METHODS

Hundred (100) patients were managed for breast lesions between November 2014 and October, 2016 at the Bowen University Teaching Hospital (BUTH), a very young teaching hospital with almost 300-beds and 42 hospital consultants, located in a semi-urban area in the South-West of Nigeria (Ogbomosho), in Oyo state, Nigeria. The bio-data, clinical evaluations, operative and histopathological records of these 100 patients were recorded and analyzed. Patients' information were obtained from the surgical outpatient clinics, emergency room, record and histopathology departments and correlated to minimize or avoid duplication. Recruiting criteria for the study included patients with clinically palpable breast lesions, and histologically diagnosed lesions that presented to the hospital (including referrals). Those that were histologically diagnosed but refused surgery (or died before surgery) or refused participation in the study, and those that did

not give consent including the moribund patients with advanced disease state were excluded from the study. Those that withdrew from the study due to religious beliefs or indoctrination, fear or lack of transport fare for follow up were excluded. This process of exclusion left the study with only 100 patients. Verbal and written consents were obtained from all patients and the reason and details for the study including benefits and risks were made known to all the participants. Specimens for histopathology were obtained mostly by incision (54%) and excision biopsy (36%). Few were by fine needle aspiration cytology (FNAC) and a negligible figure by Tru-cut biopsy due to high cost of Tru-cut biopsy needle. The same pathologist reported all the specimens. Statistical package for the social sciences (SPSS version 17) was used in analyzing the results. All the authors

actively participated in one aspect or the other of the study. The study was at no extra cost to the patients. Ethical clearance from Bowen University Teaching Hospital's Ethical committee was obtained before the commencement of the study.

RESULTS

Of the 100 patients, 96 were females and 4 were males with the female to male ratio (F: M = 24:1). The overall mean age at presentation was 38.8 years \pm 16.8 with range between 16 - 86 years. The mean age for females were 38.1 years (with majority in 2nd decade of life) with range between 16-80 years and that for males was 54.8 years \pm 11.7 (with lesions in 3rd - 5th & 8th decades of life) with age range between 31-86 years (Table 1).

Table 1
Sex, Age distribution among the patients with breast lesions (n=100)

Age (In years)	F		M	
	%	No.	%	No.
10-19	6	6	0	0
20-29	30	30	0	0
30-39	19	20	1	1
40-49	20	20	1	1
50-59	9	9	1	1
60-69	6	6	0	0
70-79	4	4	0	0
80-89	1	1	1	1
90-99	0	0	0	0
TOTAL	96%	96	4%	4

Benign breast lesions (BBL) accounted for 49 (49%) of the breast lesions while Malignant breast lesions (MBL) accounted for 51 (51%) of the lesions. Of the BBL, fibroadenoma was the most common, constituting 34 patients (34%) of the lesions, followed by fibrocystic changes (5 patients; 5%), and breast

abscesses (2 patients; 2%). Of the MBL, invasive ductal carcinoma is the most common (34 patients; 34%), followed by malignant phylloide (cystosarcoma phylloides: 3 patients; 3%), and invasive lobular carcinoma, 2 patients; 2%; (Table 2).

Table 2

Distribution of Breast lesion pathology among study population (n=100)

Breast Legion	Frequency	Percentage %
Atypical ductal hyperplasia	1	1%
Breast abscess	2	2%
Complex Fibroadenoma	1	1%
Malignant Phylloides tumor	3	3%
Ductal papilloma	2	2%
Fibroadenoma	34	34%
Fibrocystic changes	5	5%
FoetalFibroadenoma+Epithelia hyperplasia	1	1%
Gynaecomastia	1	1%
Tubular Adenoma	1	1%
Inflammatory carcinoma	1	1%
Invasive ductal carcinoma	34	34%
Invasive lobular carcinoma	2	2%
Moderately differentiated adenocarcinoma	10	10%
Poorly differentiated adenocarcinoma	1	1%
Stromal sarcoma	1	1%
TOTAL	100	100%

Fifty nine percent (59%) of the breast lesions occurred on the right breast, while 39 patients (39%) had the breast lesion on the left breast. The rest of the patients (2%) had their lesions occurring bilaterally (Figure 1a). Majority of the patients presented in late stage i.e. stage 3 & 4 and were premenopausal (Table 3) with the median duration of symptoms of 8months and range between 2 days and 7 years (Table 4). The average tumor sizes at presentation were 4x2x1cm to 6x4x3cm (Table 5). Seventy-one percent (71%) of the patients presented with

breast mass only, 8% with fungating masses and chest wall attachment, 8% with pseudorange, pain and nipple retraction, 9% with breast swelling only, 2% with breast mass, ulcer and pain, while 2% presented with breast mass fixed to the skin (Figure 1b). Majority (54%) of the patients had incision biopsy for the tissue diagnosis while 36% had excision biopsy (Table 6). Table 6 revealed the most common tumor sizes as seen at presentation were 6x4x3 cm and 8x6x4 cm in both benign breast lesion (BBL) and malignant breast lesion (MBL).

Figure 1a
Percentage proportion of breast side affected (n= 100)



Rt = Right Breast
 Lt = Left Breast
 Blt =Bilateral Breast

Table 3
Stages, Age grouping, Histology and their percentage representations of Breast lesions at Presentation (n=100)

Breast Lesion	Stages					Age Grouping (years)					Histology			
		1	2	3	4									
Benign	49	-	-	-	-							Malignant	Benign	
Malignant	51	0	9	42										
		0%	0%	17.6%	82.4%									
Status		(10-19)	(20-29)	(30-39)	(40-49)	(50-59)	(60-69)	(70-79)	(80-59)					
Premenopausal	77	0	6	30	19	18	4	0	0	33%	44%	77		
Postmenopausal	19	0	0	0	0	2	5	7	5	12%	3%	19		
Male	4	0	0	0	1	1	1	0	1	2%	2%	4		
Total	100	0	6	30	20	21	10	7	6	51%	49%	100		

Figure 1b
Percentage representation of Breast lesion physical characteristics at presentation (n=100)

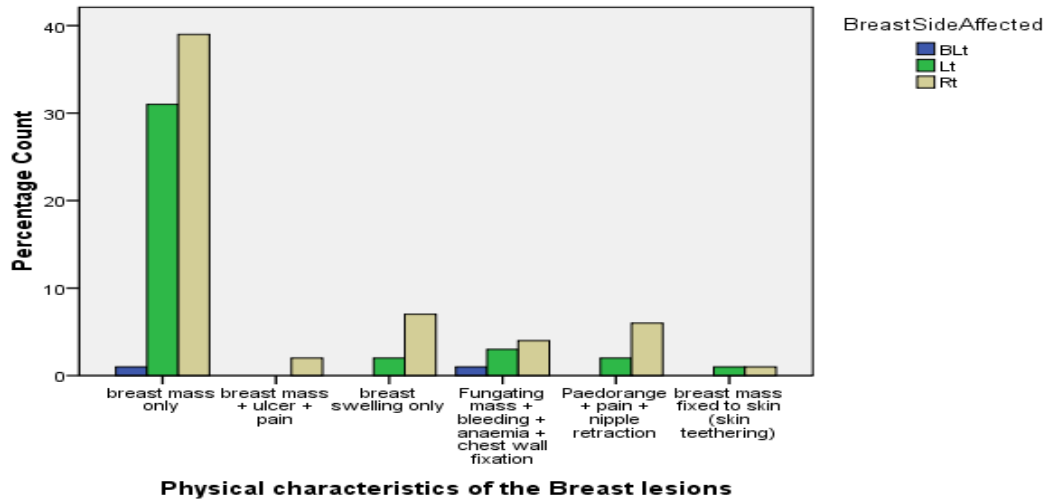


Table 4
Symptoms Durations in study population (n=100)

Duration	Frequency	Percentage (%)
0-5months	34	34 %
6-12months	40	40 %
13-24months	16	16 %
> 24months	10	10 %
Total	100	100 %

Table 5
Breast lesions Tumor Sizes & Lymph nodes at Presentation (n=100)

Lesion	Lymph node	Tumor Sizes (cm) and percentage (%)									
		2x2x2	4x2x1	5x3x2	6x4x3	8x6x4	10x4x2	15x8x6	20x10x8	25x12x10	30x15x10
Benign	49	16 (32.7%)	15 (30.6%)	2 (4.1%)	7 (14.3%)	7 (14.3%)	1 (2.0%)	1 (2.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Malignant	51	18 (35.3%)	22 (43.1%)	2 (3.9%)	24 (47.1%)	17 (33.3%)	6 (11.8%)	4 (7.8%)	4 (7.8%)	2 (3.9%)	1 (2.0%)

Table 6
Percentage representation of surgical procedures for diagnosis (n=100)

Procedure Type	Frequency	Percentage
Incision Biopsy	54	54
Excision Biopsy	36	36
FNAC	14	14
Tru-cut Biopsy	6	6

All the patients had treatment ranging from surgical excision of the breast lumps/masses for benign breast lesions to mastectomy (and chemotherapy, radiotherapy, and tamoxifen therapy) for malignant breast lesions. All patients till date, are being attended to in surgical outpatient department (SOPD). Table 6 depicted that most patients (54%) had incisional biopsy for diagnosis, while only 36% had excision biopsy for confirmation of diagnosis. Fourteen percent (14%) had Fine needle aspiration cytology (FNAC) for histological diagnosis. For most of the FNAC diagnosed cases that were malignant, Tru-cut biopsy was skipped, mainly because of patients' financial handicap.

DISCUSSION

One hundred (100) patients with breast lesions who presented to our center were studied. Analysis revealed majority of the patients with breast lesions were females (96%) while only 4% were males. Of the breast lesions, 49 (49%) were Benign breast lesions (BBL, including 2 breast abscesses) while 51 (51%) were Malignant breast lesions (MBL). The findings is similar to study carried out in Ireland where MBL was the most common breast lesion affecting Ireland's women in 2016 (6). However, this is slightly at variance with other reports from Northern Nigeria and developed countries like Japan where benign breast lesions predominate (4,7,13,14). This difference in our study could be explained by increased level of awareness from health education on the danger of MBL. Low educational level, financial constraints, religious inclination, traditional healers' patronage, and stigmatization of the disease among others, may also be contributory to the previously recorded low level in the previous studies (25).

In our study, fibroadenoma is the most common of the BBL, accounting for 34 (34%)

followed by fibrocystic breast changes (5;5%) and breast abscesses (2;2%). This finding is similar to other studies elsewhere (9,10,11,13,15,16,20,21). Of the MBL, the most common malignant lesion was invasive ductal carcinoma, accounting for 34%, followed by malignant phylloides' tumor (3%) and invasive lobular carcinoma (2%) respectively. This is also similar to previous studies done in other centers (14,17). In our study, it was observed that MBL predominantly affected females as a female disease, accounting for 96% while male counterparts had 4% of the lesions. The male affectation showed a slight variation with the previous study in Lagos where male accounted for 1% (23). The difference may be due to recent increase in intensity for awareness in our environment by the two established teaching hospitals (Bowen University Teaching Hospital and Ladoko Akintola University Teaching Hospital) in the area. Other breast lesions seen in our study included gynaecomastia 1%, inflammatory carcinoma 1%, tubular adenoma 1%, stromal sarcoma 1%, atypical ductal hyperplasia 1%, and ductal papilloma 2%. These have similarity to those that had been found in other studies (22,24).

Majority of patients with breast lesions seen in our study were young (3rd – 5th decades of life; 71%) and accounted for greater proportion of the study population. Majorities were premenopausal and presented in late stage of the disease. These findings are similar to previous studies in African and some Western world (4,8, 9,10,11,12,18,19,21,23). The study also revealed that majority had positive lymph nodes and large breast masses. This is also similar to other previous studies (7,8,11,18,21,23).

All our patients in the study had treatment: BBL had surgical excision of the lumps/masses while the MBL had mastectomies with other adjunct treatments that included chemotherapy.

CONCLUSION

In conclusion, malignant breast lesions were the most common breast lesion that was seen during the study period with the invasive ductal carcinoma being the commonest malignant breast lesion, while fibroadenoma was the most common benign breast lesion. The study also revealed increase in male malignant breast lesion. The majorities of patients that presented with breast lesions were young and were in late stage of the disease with positive axillary lymph nodes. Receptors statuses of patients' breast lesions were not done because of lack of necessary facility in our center during the period of study. This is a limitation of the study.

RECOMMENDATION

We recommend more awareness and establishment of Breast clinic centers to help in early detection and management of breast lesions in Ogbomosho. We also recommend that the Government (federal, state, and local) and well-meaning non-governmental and private organizations help in establishing facilities for receptor status determination of breast lesions which can go a long way in the management outcome of breast disease.

CONFLICT OF INTERESTS

The authors declare no conflict of interests.

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