



HISTOLOGY OF MALE BREAST LESIONS: SERIES OF CASES AND LITERATURE REVIEW

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Abstract

Introduction: Male breast lesions are generally less common than lesions in female breasts. Awareness of this pathology is low, worsened by the embarrassment society wrongly puts on such individuals. The aim is to study the patterns of male breast diseases in the University of Port Harcourt Teaching Hospital, Rivers State Nigeria.

Methods: This is a retrospective study of all male breast specimens histologically diagnosed in the Histopathology Department of the University of Port Harcourt Teaching Hospital over 10 years from January 1, 2013, to December 31, 2022. The specimens included excision biopsies, Tru-cut biopsies and mastectomy tissues. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 17.0.

Results: A total of 29 male patients were encountered in this study series. This comprised 1.9% of all breast lesions during the study period. The age range with the most common lesion was 40-49 years making up 34.6% of cases. Lumpectomy specimens were the most common samples submitted in 79.3% of the cases. Non-neoplastic lesions made up 72.5% of the lesions with gynecomastia being the most common non-neoplastic lesion (90.5%) and the most common male breast lesion (65.5%). Neoplastic lesions comprised 24.1% of all lesions and all were malignant lesions. Invasive breast carcinoma constituted 100% of the malignant lesions.

Conclusion: Awareness of male breast lesions should be raised. This will help reduce the societal stigma associated with it.

Key words: Gynecomastia, male breast cancer, Invasive breast carcinoma, male breast lesions

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INTRODUCTION

The male breast develops analogously to the female breast however it ends up as a rudimentary organ by puberty. Testosterone production with very limited estrogen at puberty causes the involution of the lobules and acini present in the female breast. However, in a few cases of hormone imbalance, there may be few lobules, acini, and an increase in mesenchymal tissues which predisposes males to the plethora of diseases prevalent with the female breast.¹

Male breast lesions are rare compared to female breast lesions due to the poorly developed terminal ductal lobular unit. When present, they are quite like their female counterparts inflammatory, benign, and malignant lesions. Gynecomastia has been noted to be a very common male breast lesion²⁻⁵, while other studies noted it as the only benign male breast lesion in selected cases⁶, and the only male breast lesion within a study period.^{7,8} Gynecomastia is a benign lesion composed of proliferating ducts and stromal components.³ It has a trimodal age distribution: infancy, puberty (13-14 years), and old age (50- 80 years).³ Gynecomastia is due to an imbalance of oestrogens and androgens: this could be physiologic in infancy and puberty it could be due to systemic disorders such as obesity and chronic renal failure, syndromes like carney complex, tumours such as testicular germ cell tumours and certain drugs like finasteride and spironolactone.³

Male breast lesions are usually first noticed by the presence of a lump or a diffusely enlarging breast which is indeed a very perturbing symptom in our environment.^{2,4} Male breast carcinoma is rare with no special type as the most common histological subtype.³

There are several in-depth studies on breast lesions in Nigeria; however, there is a paucity of information specifically relating to male breast lesions in Nigeria, especially in the centre of the study. This 10-year study aims to evaluate the histopathological pattern of male breast lesions at the University of Port Harcourt Teaching Hospital, Nigeria.

MATERIALS AND METHODS

This is a retrospective study of all male breast specimens that were histologically diagnosed in the Anatomical Pathology Department of the University of Port Harcourt Teaching Hospital over 10 years, from January 1, 2013, to December 31, 2022. The specimens submitted by the surgeons included excision biopsies, Tru-cut biopsies and mastectomy tissues. These breast specimens were received in 10% neutral buffered formalin and auto-processed. Paraffin-embedded sections (at 2–3µm) were routinely stained with haematoxylin and eosin stains.

Clinical and demographic data were extracted from the departmental registers, patient request forms and duplicate copies of histology reports of all cases. Information extracted includes age, sex, type of biopsy done and histology diagnosis. Slides were retrieved from the departmental archives and new ones were made where necessary. The neoplasms were classified by 2 independent pathologists using the WHO International Classification of Breast Tumours and graded using Nottingham modification of the Bloom-Richardson method.

Data were analysed using predictive analytical software (SPSS). Simple frequencies were determined for categorical variables and the mean was evaluated for continuous data. Ethical clearance was obtained from the Ethical Committee of the University of Port Harcourt Teaching Hospital to carry out this study.

RESULTS

A total of 1551 breast specimens were eligible for the data entry within the study period and 29 male patients were encountered in this study series. This comprised 1.9% of all breast lesions during the study period. For the male patients with breast lesions, the age range for presentation was between 19 to 82 years (Figure 1) with the age range of 40-59 years being the most common age at presentation (34.5%), closely followed by 20-39 years (31.0%). The year with the highest number of cases was 2022 (24.0%) while the lowest number of cases was seen in 2014 and 2016 (3.4% each) (Table I).

Table I. Annual distribution of male breast tissue specimens received from 2013-2022

Year	Frequency	Percentage
2013	3	10.4
2014	1	3.4
2015	3	10.4
2016	1	3.4
2017	3	10.4
2018	3	10.4
2019	3	10.4
2020	3	10.4
2021	2	6.8
2022	7	24.0
Total	29	100.0

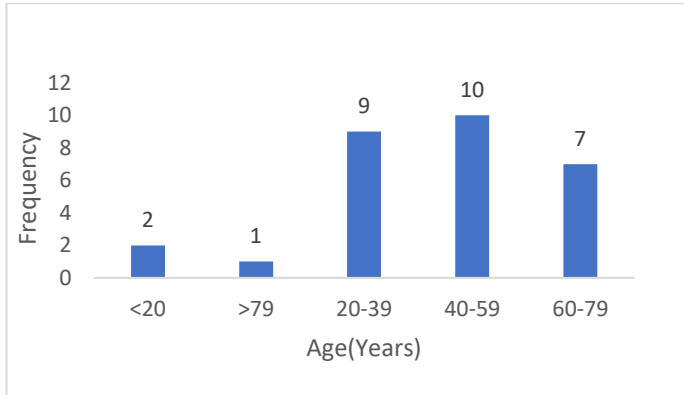


Figure 1: Age distribution of males with breast lesions

An average of 3 cases was seen yearly over the past decade. Excisional biopsy (lumpectomy) specimens were the commonest tissues submitted in 79.3% of the cases (23 patients) while 3 patients had a core biopsy and only 3 patients were subjected to a mastectomy (Figure 2).

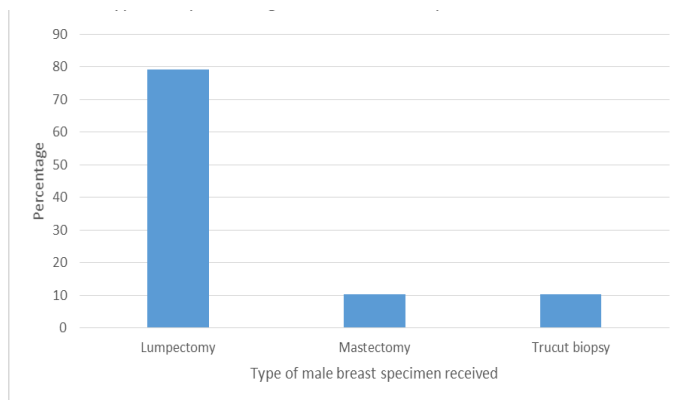


Figure 2. Distribution of male breast specimens received from 2013-2022

Neoplastic lesions comprised 24.1% of all lesions and all were malignant (Table II). All seven neoplastic lesions (100%) were invasive breast carcinoma of which 28.6% were of the papillary subtype while the rest (71.4%) were of no special type (Figure 4). Scarff-Bloom-Richardson grade 2 is the most frequent grade at 71.4% while grade 3 lesions are 28.6% of the malignant lesions

Table II. Histological diagnosis of male breast samples

Diagnosis	Frequency	Percentage
Gynaecomastia	19	65.7
Invasive Breast Carcinoma (NST)	5	17.3
B5 (Invasive breast carcinoma)	2	6.8
B2 (Benign)	1	3.4
Epidermal Inclusion Cyst	1	3.4
Inadequate For Pathology Diagnosis	1	3.4
Total	29	100.0

Malignant lesions only occurred between the 40-59 and 60-79 age groups at 60% and 40% rates respectively (Table III). No malignant lesion was seen below 40 years of age in this series. One mastectomy had lymph node involvement (Figure 5) in 3 of the examined lymph nodes.

All the cases diagnosed with gynaecomastia were lumpectomies while the cases of invasive breast carcinoma were three mastectomy specimens and two samples each from Tru-cut biopsies and lumpectomy (Table IV). Of the 23 lumpectomies done, 19 were diagnosed histologically as gynaecomastia, 2 were invasive breast carcinoma and one was diagnosed with epidermal inclusion cyst and the last case was inconclusive. Of the 3 Tru-cut biopsies 2 were diagnosed with invasive breast carcinoma and the other was benign (B2).

Table III: Diagnosis by age groups

Diagnosis	Age categories (years)					Total
	<20	20-39	40-59	60-79	>79	
Gynaecomastia	2	9	5	3	0	19
Invasive breast carcinoma (nst)	0	0	3	2	0	5
B5 (malignant)	0	0	1	1	0	2
Inadequate for pathology diagnosis	0	0	0	0	1	1
B2 (benign)	0	0	1	0	0	1
Epidermal inclusion cyst	0	0	0	1	0	1
TOTAL	2	9	10	7	1	29

Table IV. Diagnosis by type of specimen received

Diagnosis	Type of specimen received (%)			
	Lumpectomy	Tru-cut biopsy	Mastectomy	Total
Gynaecomastia	19 (82.7)	0 (0.0)	0 (0.0)	19 (65.6)
Invasive breast carcinoma (NST) including B5 (malignant)	2 (8.7)	2 (66.7)	3 (100.0)	7 (17.2)
Inadequate for pathology diagnosis	1 (4.3)	0 (0.0)	0 (0.0)	1 (3.4)
B2 (benign)	0 (0.0)	1 (33.3)	0 (0.0)	1 (3.4)
Epidermal inclusion cyst	1 (4.3)	0 (0.0)	0 (0.0)	1 (3.4)
Total	23 (79.3)	3 (10.3)	3 (10.3)	29 (100)

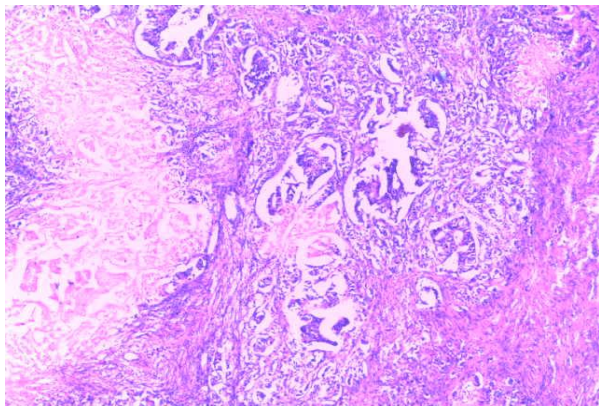


Figure 3. Micrograph of Breast tissue showing gynaecomastia (Haematoxylin and Eosin stain X200)

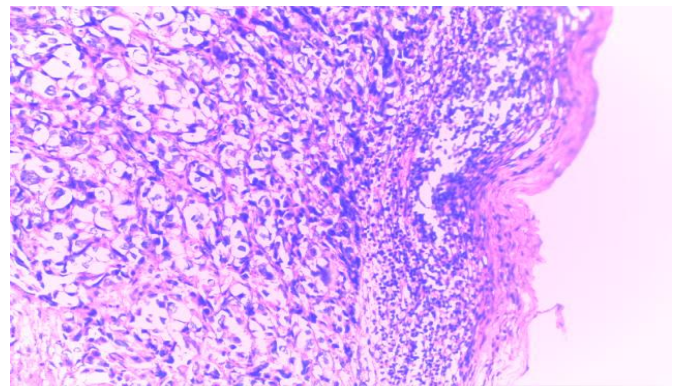


Figure 5. Micrograph of lymph node showing lymph node metastases in a mastectomy specimen of invasive breast carcinoma of no special type (Haematoxylin and Eosin stain X200)

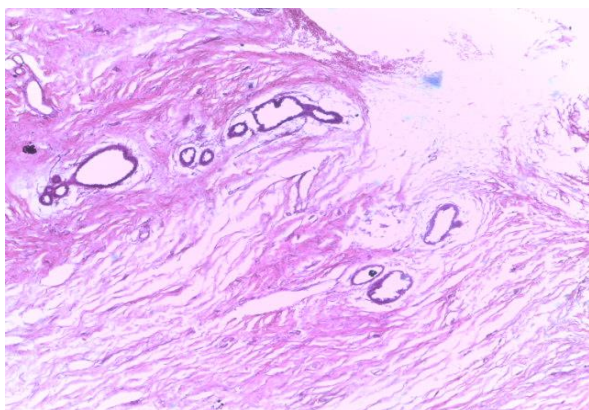


Figure 4. Micrograph of a breast tissue showing invasive breast carcinoma of no special type (Haematoxylin and Eosin stain X200)

DISCUSSION

This study showed there were 29 cases in the last ten years which is like the findings of Oana *et al* in Romania.³ It is well established however that the proportion of breast lesions in males is significantly lower than that of females. This study records a male-to-female ratio of 1:58.7 making it a relatively rare occurrence as seen in other studies.^{2,3,6} There is significant fear associated with the appearance of a breast lump in males. The number of patients willing to present when they have a breast lump may be due to the stigma associated with it.⁹⁻¹¹

Gynecomastia is the most frequent disease of the male breast in this study, and this is replicated in other studies.^{2,3,12} It comprised 90.5% of the non-neoplastic male breast diseases, 65.5% of all male breast diseases, and 1.2% of all breast diseases within the

study period. This is like reports from other parts of Nigeria.^{4-6,8,13} The peak age bracket for gynecomastia was the 20-39 and 40-59 age range. This is comparable to other studies with peaks in the 3rd decade.^{2,6,7}

In this study, male breast cancer accounts for 24.1% of male breast diseases, 0.4% of all breast diseases (in both genders combined), and 1.1% of all breast cancers within the study period. Malignancies of the male breast are comparatively low worldwide with a relative incidence of 0.7-1%.¹² Other studies have shown a diverse range of figures reflecting the burden of male breast cancers to the overall breast cancer burden within a study period and they include 9%¹⁴, 8.6%¹⁵, 6.6%¹³, 4.3%¹⁶, 3.7%¹⁷ and 2%¹⁸ This study has the lowest burden concerning breast cancers burden within a specified period. Males with breast tumours may have an increased unwillingness to present in health facilities in this environment.

As the male breast tissue lacks lobules, most breast carcinomas are invasive breast carcinomas of no special type^{19,20} and often SBR grade 2.¹⁹ In our study, 100% of the cases were invasive breast cancer. Other studies showed invasive breast carcinoma comprising 100%²⁰, 90.9%¹⁶, 65%¹⁸, 76.9%¹⁵, 50%² and lobular carcinoma at 6.1%.¹⁶ In this study, 71.4% of the malignancies were of grade 2 in line with published studies.^{15,16,18} The male breast rarely has lobular carcinoma because the male breast does not form lobular units.

The peak incidence of breast cancer in this study is between 40-79 years with an average age of 60 years at presentation. This is comparable to 51-60 years¹⁴, and 60-69 years¹⁸, in other studies. Other studies have shown that male breast cancers usually present at older ages compared to females¹⁹; rare before 30 years of age¹⁴ and usually peak at 71 years.¹² This agrees with this study where we did not find any case of breast cancer below 39 years of age. In Africa, males with breast cancer present at an average age of 54.6 years which is 7 years later than the female breast cancer average age of presentation.²¹

CONCLUSION

Male breast lesions though rare are more common within the ages of 40 – 59 years. Gynecomastia is the most common and non-neoplastic lesion. Invasive breast carcinoma (NST) is the most common neoplastic lesion with the majority presenting with SBR grade 2. It is therefore recommended that males be targeted alongside females with appropriate information on breast diseases to improve awareness, knowledge base, and health-seeking behaviours when symptoms of breast diseases are noted. Campaign against the stigma people have for male patients with breast lesions should be increased. This will improve the health-seeking behaviour of males with breast diseases.

Conflicts of Interest: The authors declare no conflict of interest

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