

Histopathological characteristics of gynaecomastia in Southwestern Nigeria: A review from a tertiary hospital

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Abstract

Background: Gynaecomastia is a benign proliferation of the glandular tissue of the male breast. It is thought to be present in at least a third of men in the course of their lifetime. This study aims to review the histomorphological characteristics of gynaecomastia seen at the department of Pathology, University College Hospital (UCH), Ibadan, over 10 years period.

Methods: A hospital-based retrospective study was undertaken to review the histopathology reports of all gynaecomastia cases diagnosed at the Department of Pathology, UCH Ibadan, over a 10-year period from 01 January, 2009 to 31 December, 2018. Patient's biodata, histological diagnosis and clinical details were extracted from the surgical day books and laboratory request forms. The data were analysed for the frequency distribution using the SPSS software version 22.

Results: Gynaecomastia accounts for 2.5% of all breast biopsies received within the study period and accounted for 68.1% of all benign breast lesions seen in males. The left breast was the most affected with 48.8% of the cases, whereas 17.2% of the cases were bilateral. The age range of patients with gynaecomastia seen in this study is between 12 and 80 years with a mean age of 43.36 years. The most common histopathological subtype seen in this study is the florid type gynaecomastia.

Conclusion: Gynaecomastia is the most common diagnosis from male breast biopsies. The left breast is the most commonly affected breast. The florid type gynaecomastia is the main histopathological variant seen in this study.

Keywords: Gynaecomastia, Ibadan, male breast, Southwestern Nigeria

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INTRODUCTION

Gynaecomastia is clinically defined as the presence of palpable breast tissue in males. It could be seen in normal individuals, particularly in the neonates, at puberty and in the elderly.¹ The term is derived from two Greek words

‘gyneka’ (woman) and ‘mastos’ (breast).² Gynaecomastia is thought to be present in at least a third of men in the course of their lifetime.³ About 60% of all boys develop transient pubertal breast enlargement, 30%–70% of adult men have palpable breast tissue, with the higher prevalence in

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those with concurrent medical illnesses.¹ Gynaecomastia is present in 60%–90% of neonates and this usually resolves spontaneously within a few weeks.⁴ Most pubertal boys develop gynaecomastia, and by the age of 14 years, 60% of boys have gynaecomastia and this is usually transient in most cases.⁵ The prevalence falls to 5%–15% by 19 years of age.⁶ Beyond the pubertal age, gynaecomastia is present in 33%–41% of normal men aged 25–45 years and in 55%–60% of men over the age of 50 years.⁷ Most of these men are asymptomatic and are unaware that they have breast tissue.⁷ Gynaecomastia has also been found in 45%–50% of men in autopsy studies.⁸

Pseudogynaecomastia, which is seen more commonly in obese men, refers to fat deposition in the breast without glandular proliferation. True gynaecomastia is defined clinically by a rubbery and firm lump of the tissue that extends concentrically from the nipple and consisting of benign proliferation of glandular tissue on histopathological examination.⁹ The primary histological feature of gynaecomastia is ductular proliferation in a background stroma that is composed of fibrous connective tissue.¹⁰ Most cases of gynaecomastia is bilateral, but sometimes, it may also be unilateral or asymmetric.¹ Gynaecomastia is a common presenting complaint causing anxiety and discomfort in males. It may also be the expression of a clinically relevant disease.¹¹ The causes of gynaecomastia includes an excess of estrogens, an altered ratio of estrogens to androgens, hypogonadism, and hormone resistance.^{5,12,13} It may also be a pathological condition caused by drugs of abuse, systemic diseases, some endocrine disorders, neoplastic conditions, and some medications, including methyl dopa, flutamide, captopril, digitoxin and isoniazid.^{9,14} Gynaecomastia increases with age as free testosterone levels decline, and obesity becomes more common.¹⁵ The purpose of the assessment of gynaecomastia should be the detection of underlying pathological conditions and the discrimination from other breast lumps that mimic gynaecomastia, particularly breast cancer.¹⁴ The risk of gynaecomastia and breast cancer coexists in high oestrogenic states. Men with Klinefelter's syndrome also have a 58-fold higher risk than normal males for developing breast cancer, with an absolute risk that approaches 3%.^{14,15}

This study aims at reviewing the histomorphologic characteristics and demographics of gynaecomastia cases seen at the histopathology laboratory of the Department of Pathology, University College Hospital (UCH), Ibadan, and to compare the findings with other similar studies that has been done locally and globally on this disease condition.

MATERIALS AND METHODS

The study is a 10-year hospital-based retrospective review of all histologically diagnosed cases of gynaecomastia at the Department of Pathology, UCH Ibadan, Nigeria, from 1st January, 2009 to 31st December, 2018. The UCH is an 850 bed hospital and the oldest and foremost tertiary health facility in the South-western region of Nigeria. It is a referral centre for other public and private hospitals in Ibadan and its environs. Relevant information such as age, laterality of lesion and specific histologic sub-type was also obtained from the records of the department. Cases with incomplete or missing data were excluded from the study. The data analysis was done using the IBM SPSS Statistics (version 22; IBM Corporation, Armonk, New York, USA) and expressed as frequencies and means. The Chi-square test statistical method was used to determine the associations between the categorical variables. $P \leq 0.05$ was considered statistically significant.

RESULTS

A total number of 1867 cases of benign breast lesions were diagnosed during the study period in both males and females, while 69 of these were cases of benign male breast lesions. Gynaecomastia accounted for 68.1% of all benign breast lesions seen in males, while it accounts for 2.5% of the total number of all benign breast lesion diagnosed in both males and females. There were 111 cases of male breast lesions (both benign and malignant) diagnosed during this study period, with gynaecomastia cases accounting for 42.3% of all male breast lesions.

The left breast was involved in 48.8% of the cases with bilateral lesions in 17.2% of the cases [Figure 1]. The age range of patients with gynaecomastia seen in this study is between 12 and 80 years, with a modal age of 24 years. The third decade was the peak age of diagnosis

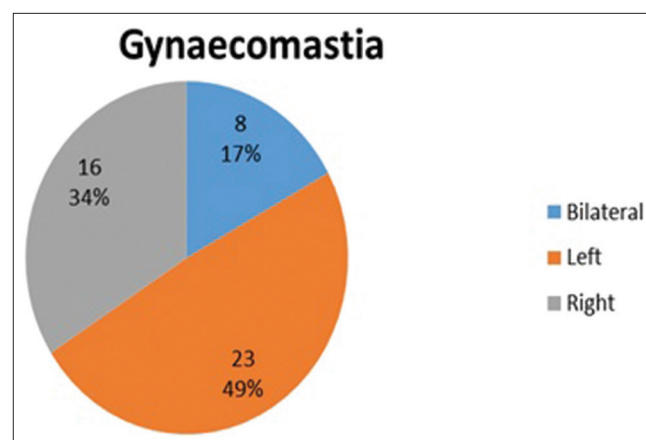


Figure 1: Pie chart showing the laterality of cases

of gynaecomastia, accounting for 19.1% of the cases seen [Table 1].

Out of the 47 cases seen, there were 30 cases of florid type gynaecomastia constituting 63.85% of the cases [Figure 2]. Intermediate type gynaecomastia was 10 cases representing 21.3% and 7 cases (14.9%) were fibrous type gynaecomastia. There was no case of pseudogynaecomastia seen [Table 2]. Figure 3 shows the yearly trend of diagnoses of gynaecomastia.

DISCUSSION

Gynaecomastia is postulated to result from an imbalance in the oestrogen to androgen ratio, causing proliferation of breast tissue cellular components.¹⁶ This condition has a predominantly trimodal peak of age distribution, correlating to times of higher levels of estrogen, comprising the neonatal, pubertal and elderly populations.¹⁷ Adult gynaecomastia is usually rare and requires further evaluation to detect an underlying secondary cause.¹⁶ Gynaecomastia can present either unilaterally or bilaterally. Unilateral gynaecomastia requires an increased investigational workup because unilateral resection specimens may show a higher (though not statistically significant) prevalence of malignancy.¹⁸ This is interesting for our environment as majority of our cases were unilateral affecting the left breast more commonly.

In cases of gynaecomastia, ducts of the breast demonstrate variable degrees of multiplication, elongation or branching within the background of an infiltrate of inflammatory cells.¹⁹ On histopathological examination, three types of gynaecomastia have been described.²⁰ Type 1 (florid type) is characterised by a large number of ducts with irregular

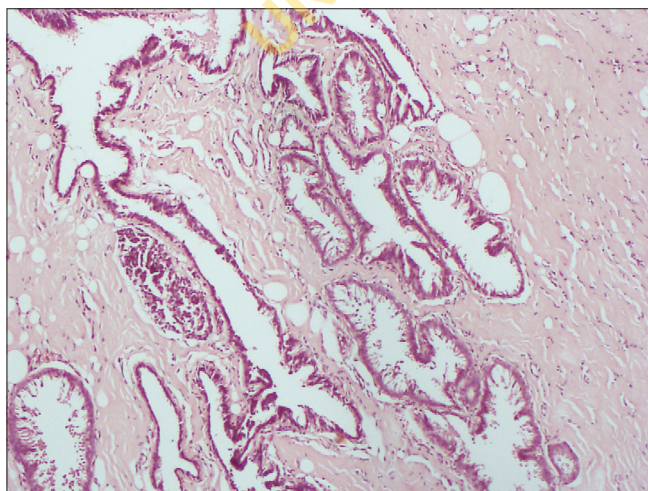


Figure 2: Photomicrograph showing florid gynaecomastia. (haematoxylin and eosin stain, $\times 100$)

lumens and three or more epithelial layers surrounded by loose connective tissue that is well demarcated from the surrounding stroma.²⁰ This type is most common in immature ‘young’ gynaecomastia of <4 months duration. This florid type was the most common histological type in our study, which is similar to what was reported in a 15-year retrospective review done in Canada by Senger *et al.*¹⁶ This is probably because the patients present early enough as the development of gynaecomastia could be really worrisome, necessitating seeking immediate medical care. Type 2 (fibrous type), by contrast, exhibits only a slight increase in the number of ducts with greater stromal fibrosis, and is most common in mature ‘older’ gynaecomastia of >1 years’ duration.^{20,21} Type 3 (intermediate type) appears between 4 and 12 months and is believed to represent the transition from florid type to fibrous tissue.²⁰

This index study found gynaecomastia to be the most common benign tumour of the male breast accounting for 42.5% of all male breast lesions which is similar to the reported prevalence of gynaecomastia in adult men, which is as high as 36%–57%, especially among the elderly.² In an earlier study from our institution by

Table 1: Age distribution of male patients with gynaecomastia

Age group	Frequency	Percentage (%)
10-19	6	12.8
20-29	9	19.1
30-39	7	14.9
40-49	6	12.8
50-59	7	14.9
60-69	3	6.4
70-79	8	17
80-89	1	2.1
Total	47	100

Table 2: Different histological subtypes of cases of gynaecomastia

Histologic subtype	Frequency	Percentage (%)
Florid type	30	63.8
Intermediate type	10	21.3
Fibrous type	7	14.9
Total	47	100

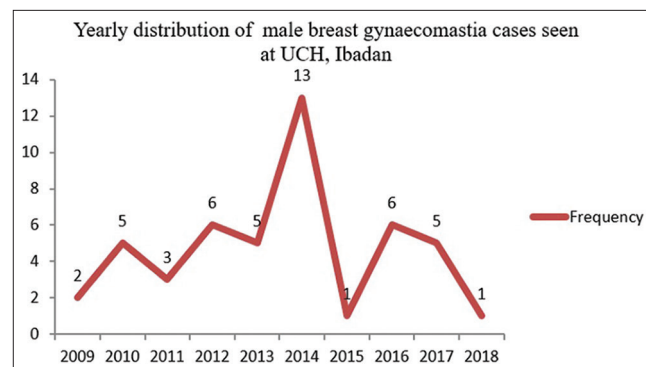


Figure 3: Bar Chart showing the yearly distribution of gynaecomastia cases

Irabor and Okolo, gynaecomastia accounted for 1.9% of all benign breast lesions seen in both males and females, but it constituted up to 60% of male breast tumours.²² This study show a little increase, with gynaecomastia accounting for 2.5% of all benign breast lesions in both males and females and significant drop in the proportion of male breast tumours. This might be due to the fact that the cases we analysed domiciled in the pathology department contain samples from both our institution and biopsies sent from other facilities. The incidence of 2.5% gynaecomastia among benign lesions of the breast is similar to other studies in Nigeria that ranges from as low as 1.4% in Kano by Ibrahim *et al.* to as high as 4.9% of all benign breast lesions in a study by Yusufu *et al.* in Zaria.^{23,24}

None of the gynaecomastia cases seen in this study had any atypical or malignant histologic change. This is also similar to what was reported by Senger *et al.*¹⁶ Some other studies have shown that malignant transformation in gynaecomastia is rare with a negligible risk.^{25,26}

A review article on the etiology of gynaecomastia showed that they were mainly physiological (i.e., puberty or associated with aging) or idiopathic in more than 50% of the patients.²⁷ Routine biochemical testing should evaluate thyroid, liver, and kidney function, along with hormone levels including serum testosterone, estradiol, luteinising hormone, follicle-stimulating hormone, prolactin and b-human chorionic gonadotropin.¹ In men with an identifiable underlying disorder, the treatment of that disorder will often ameliorate the breast enlargement and symptoms.¹ Similarly, if the gynaecomastia is believed to be due to a medication or recreational drug, withdrawal of same would lead to at least some improvement over a period of a few months.¹

This study has some limitations. First, our records did not indicate the risk factors for the development of gynaecomastia. Thus, we were not able to discuss the underlying or predisposing lesions resulting in gynaecomastia in our environment. Second, the research work was a single hospital-based study which partly accounted for the relatively small numbers of cases recruited. Thirdly, we did not have the records of the oestrogen and androgen levels of the patients in this study. The absence of these hormonal levels made it difficult to determine the effects of hormonal control in gynaecomastia in our environment. Despite these limitations the outcome of this study, provides data on the histological profile of gynaecomastia.

CONCLUSION

Gynaecomastia is the most common breast lesion in men of South-western Nigeria. It is more common in the 3rd decade of life and is more often unilateral and commonly affects the left breast. The florid type is the most common histological variant seen in our study.

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Conflicts of interest

There are no conflicts of interest.

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