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Original Research Article

Fibroepithelial tumours of the breast seen in a tertiary health centre in southwestern Nigeria

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ABSTRACT

Background: Fibroepithelial tumours of the breast are mainly fibroadenoma and phyllodes tumour. Our objective was to describe the clinical and pathological features of benign fibroepithelial tumours and then compare our findings with reports from other parts of the world.
Methods: We carried out a retrospective study of all benign fibroepithelial tumours diagnosed in the Department of Morbid Anatomy and Forensic Medicine of Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile-Ife, Nigeria from January 1, 2018 to December 31, 2022.
Results: A total of 538 cases of fibroadenoma were seen during the study period. Only 486 cases met the inclusion criteria and were then subsequently studied. Right sided tumour mass is seen in 203 (41.8%) patients, left sided masses in 173 (35.6%) patients and bilateral masses in 96 (19.8%) patients. The age of the patients ranges from 11 to 75 years. The average duration of symptoms is 16 months. The maximum length of fibroadenoma nodule ranges from 0.9cm to 15cm. The number of nodules seen in a patient range from 1 to 15. There is no association between the size of a fibroadenoma, number of the masses or the duration of symptoms before removal of the mass, and the age of the patient. Nineteen cases of phyllodes tumour were seen during the study period.
Conclusions: Our study shows that fibroadenoma is the most common fibroepithelial tumour of the breast. A sizeable proportion of patients have bilateral tumours. Phyllodes tumour is much less common.

Keywords: Female, Fibroadenoma, Neoplasm, Phyllodes tumour

INTRODUCTION

Fibroepithelial tumours of the breast are mainly fibroadenoma and phyllodes tumour. They are quite unique because they are tumours composed of both epithelial and stroma elements.[1] They are believed to arise from a genetic mutation in the stroma cells that lead to their uncontrolled proliferation. The release of cytokines is believed to cause the proliferation of epithelial cells. Although in many cases, these tumours can be easily distinguished, there are some cases where differentiating them can be difficult.[2]

Fibroadenoma is the most common tumour of the breast in Nigeria that is mainly found in young women.[3–5] Although it is benign, it can co-exist or harbor malignant tumours.[6–8] It is very important as it is a major cause of breast lump and is one of the most common causes of clinically important breast symptoms in women. It commonly presents as a mobile, well-circumscribed breast mass. It has a characteristic whorled cut surface.

Its histological diagnosis is usually straightforward as the section shows abundant commonly myxoid stroma with compression of the breast ducts into slit like structures. It is more appropriate to have histological diagnosis of suspected cases of fibroadenoma as it has been reported by some authors that clinical diagnosis does not have adequate specificity.[9]

Phyllodes tumour is a much rarer fibroepithelial tumour of the breast that can be benign, borderline, or malignant. The benign end of this spectrum of disease can easily be confused with fibroadenoma. It is important to distinguish phyllodes tumour from fibroadenoma as the former has a higher likelihood of recurrence. It is also very important to identify malignant phyllodes which can be rapidly fatal if not adequately resected.

Distinguishing between fibroadenoma and phyllodes tumour can be challenging in core needle biopsies as it is more difficult to appreciate many well-known conventional histological characteristics.[2,9–15] In such cases, information about the clinical presentation, clinical details and sometimes immunohistochemistry can be of value.

In this study we aim to describe the clinical and pathological features of benign fibroepithelial tumours and then compare our findings with reports from other parts of the world.

METHODS

We carried out a retrospective study of all benign fibroepithelial tumours diagnosed in the department of Morbid Anatomy and Forensic medicine of Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC), Ile-Ife, Nigeria from January 1, 2018, to December 31, 2022 (Five-year period). OAUTHC is a tertiary health center in southwestern Nigeria. We obtained approval for the study from the Ethics and Research committee of Obafemi Awolowo University Teaching Hospital. We extracted information on the biodata and duration of symptoms from the departmental records. We obtained the dimension of the tumours from the departmental histology report book. We evaluated each case to confirm the diagnosis seen in the records. We cut and stained the tissue blocks of each case with hematoxylin and eosin.

We included all cases with available histopathology reports in the study. We excluded cases of fibroadenoma diagnosed from core needle biopsies from the study. We studied 486 cases of fibroadenoma and 19 cases of phyllodes tumour seen during the study period. These are all the cases that met the inclusion criteria.

The data was compiled in Microsoft excel and analyzed using Statistical Package for Social Sciences (SPSS) version 20. We used simple descriptive statistics. The age distribution chart was produced using ggplot2 package in the integrated development environment of R studio.

RESULTS

Fibroadenoma

A total of 538 cases of fibroadenoma were seen during the study period. Only 486 cases met the inclusion criteria and were then subsequently studied. Fifty-two cases were diagnosed from trucut needle biopsies and hence excluded from the study.

Right sided tumour mass is seen in 203 (41.8%) patients, left sided masses in 173 (35.6%) patients and bilateral masses in 96 (19.8%) patients. We could not get information on the actual side of the mass in 14 patients.

The age of the patients ranges from 11 to 75 years. Fibroadenoma is most common in age 20-30 years which accounts for 264 cases. The average age is 23.3years. The age distribution of the categories of cases is shown in Figure 1.

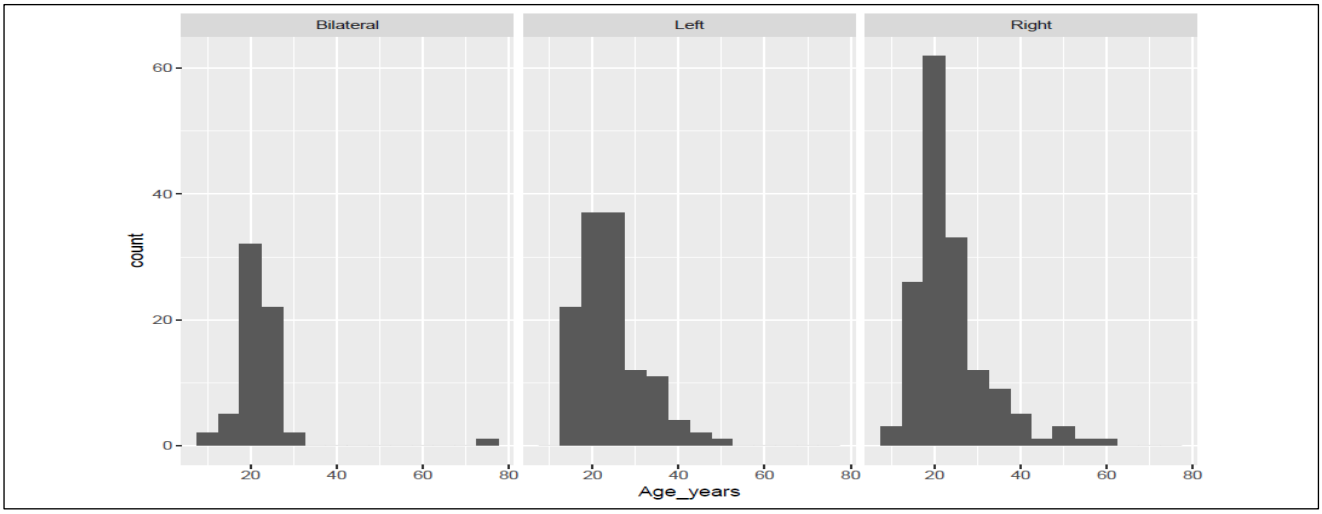

Figure 1: Age distribution of fibroadenoma cases.

Information on the duration of symptoms before presentation to the clinic was obtained in only 366 cases. The duration of symptoms ranges from 1 day to 216 months. The average duration of symptoms is 16 months. There is no correlation between the age of the patient and the duration of symptoms (r=0.141298). The maximum length of fibroadenoma nodule ranges from 0.9 cm to 15 cm. The average length of the biggest nodule on the left breast is 3.040 cm, right breast is 3.185 cm, and the bilateral masses 3.849 cm. The bilateral masses are significantly larger than the other masses (p<0.007). The average length for the largest mass for tumour in all locations is 3.268±1.8950 cm. There is no significant correlation between the maximum width of the masses and duration of symptoms (r=0.07077737) or age (r=-0.008421705).

The evaluation of the relationship between the length of the largest mass and the duration of symptoms is shown in Figure 2. A scatterplot to show the relationship between the length of the largest mass and the age of the patients is shown in Figure 3. Figure 4 shows the variation in the length of the largest mass categorized by the location. The number of nodules seen in a patient range from 1 to 15. Only one mass was found in 264 patients (54.3%). Two masses were found in 101 patients (20.7%). Other patients (25%) had three or more masses. The average number of masses in patients with bilateral tumours (3.88) is significantly higher than the average number of masses in patients with only right (1.66) or left (1.61) sided tumours (p<0.001). Eta Squared is 0.218. This fact is represented in Figure 5.

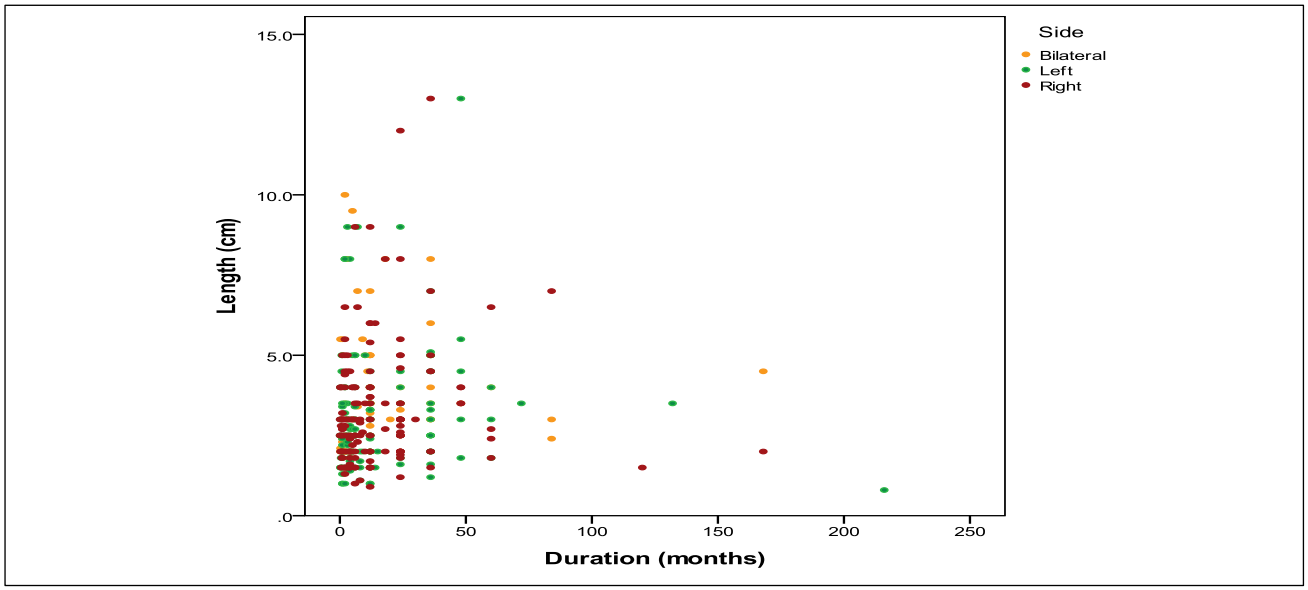

Figure 2: Scatter plot of relationship between the maximum length of the largest mass and the duration of the symptoms.

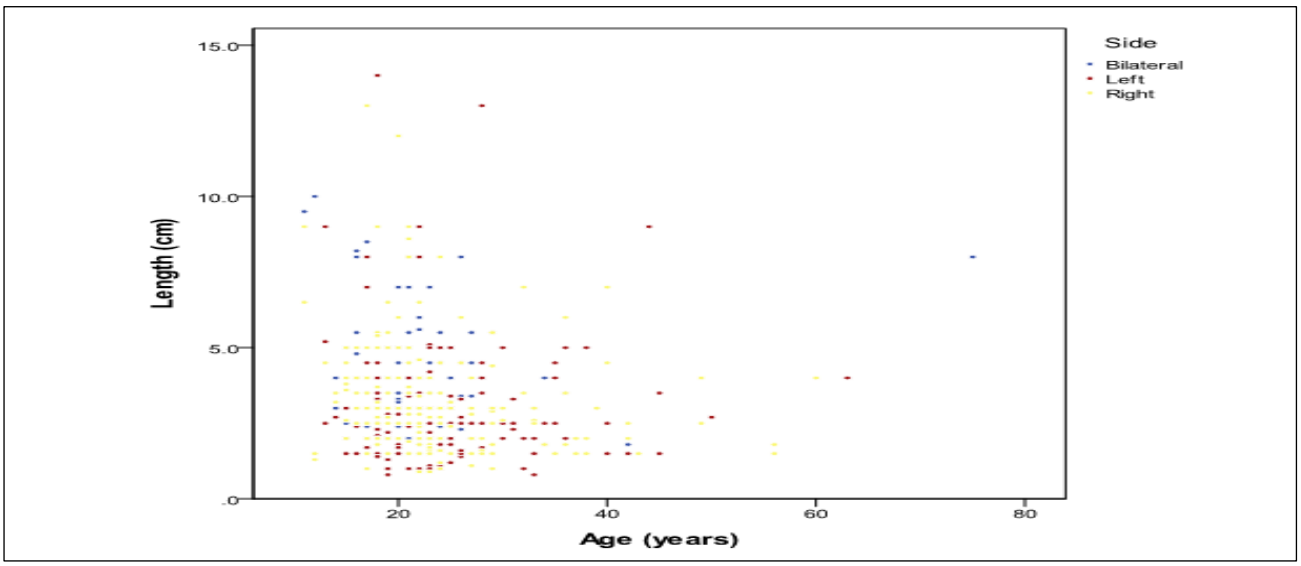

Figure 3: A scatter plot of the maximum length of the mass versus the age.

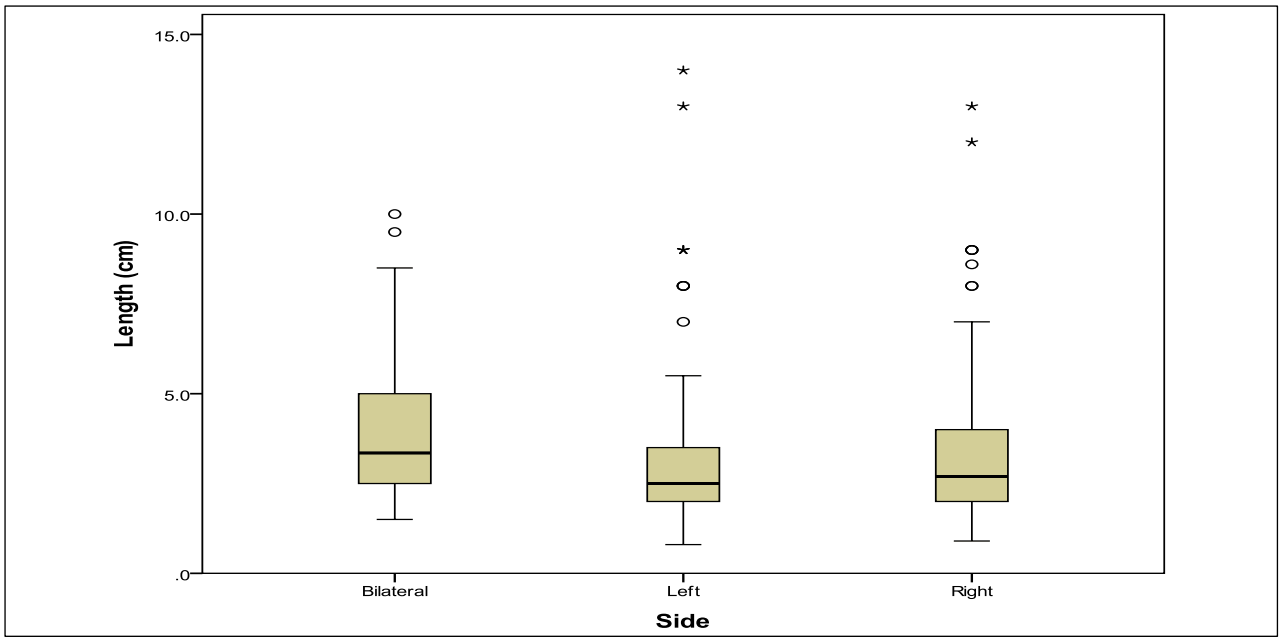

Figure 4: A boxplot of the length versus the side of the lesion.

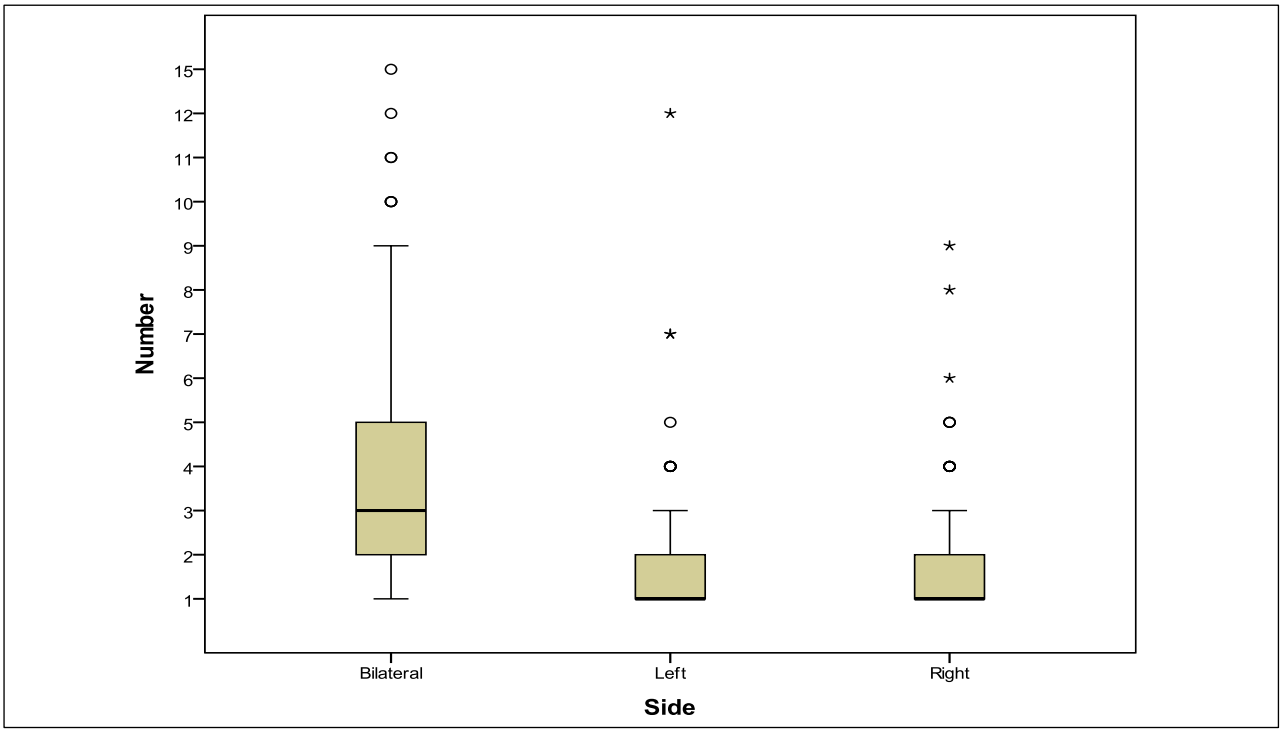

Figure 5: A boxplot of the number of masses versus the side of the lesion.

There was no significant association between the number of masses and the age of the patient (r=-0.0231185). Figure 6 shows the photomicrograph of a typical case of fibroadenoma.

Phyllodes

Nineteen cases of phyllodes tumour were seen during the study period. Ten cases were benign and four were adjudged to be borderline. There were five cases of malignant phyllodes tumour.

The average age of all the phyllodes tumour is 33.8 years with a range of 14 to 83 years. The average age of the benign phyllodes tumour is 29.8 years with a range of 14 to 49 years. The average age of the borderline phyllodes tumour is 25.5 years with a range of 13 to 35 years. The average age of the malignant phyllodes tumour is 48.6

years with a range of 35 to 83 years. Figure 7 shows a photomicrograph of a malignant phyllodes tumour.

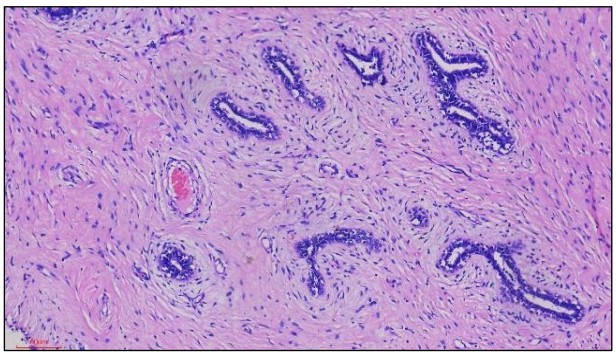

Figure 6: A photomicrograph of a breast lump in a woman with fibroadenoma.

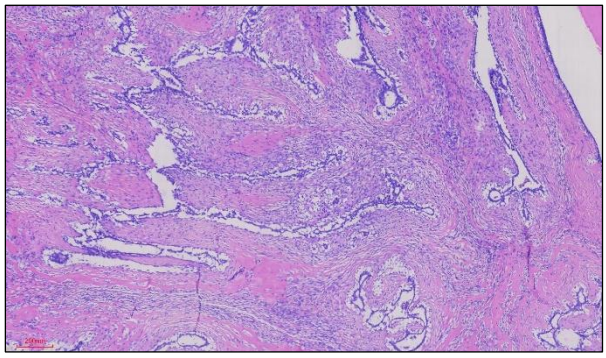

Figure 7: A photomicrograph of a breast lump in a woman with Phyllodes tumour.

DISCUSSION

Fibroadenoma

Our study shows that fibroadenoma is the most common fibroepithelial tumour of the breast. This finding conforms to studies done in other parts of the world. While it is a particularly good fact that its benign, it still accounts for a high number of invasive breast procedures. It is important to continue to study its characteristics as it is often a source of worry to young girls who commonly fear the mass might be a malignant lesion. It is necessary to persistently educate women about the salient clinical features of the tumour, particularly the mobile and well circumscribed nature of the mass, and its disappearing feature. These classical features are known to be found in many cases and awareness of them by women may help to reduce the anxiety associated with breast lumps.[16]

We noted that most of the patients (41.8%) had tumours in the right breast and almost 46% of patients have more than one tumour. Moreover, a sizeable proportion (about 20%) of patients have bilateral tumours. This further reinforces the need to examine the right and left breast for lumps in all cases seen by clinicians. This not only helps to confirm or exclude the presence of lumps in the contralateral breasts but to rigorously evaluate them to rule out more aggressive or potentially aggressive lesions. In resource poor settings where there may be little or no access to imaging support, self-breast examination can be complimentary to examination by a clinician. This can help to facilitate identification of disappearing masses that may be difficult to localise in the clinic.

The mean age of fibroadenoma cases seen in our study is like reports from other researchers.[3–5,9,17] This is evidence of similarity in presentation between the cases seen in our centre and the other centres.

We noted that quite several patients had longstanding symptoms before removal of the mass. We found the average duration of symptoms in the patient before excision of the mass to be 16 months. A patient stayed up to 216 months (18 years) before having the lump removed. All breast lumps should be evaluated whenever they are detected. It is necessary for patients to present to hospitals early to achieve this.[18]

The long delay before removing the mass may be due to the high degree of certainty by the clinicians that the mass is benign as it is well known that fibroadenomas can shrink with time and completely disappear. We need to do further research to elucidate why some of the fibroadenoma lesions were removed late and what steps had been taken by the patient since the mass was first noticed before we can reach a conclusion about the patient behaviour regarding breast masses.

We found that there is no association between the size of the mass and the age of the patient. Neither was there an association between the number of the masses and the age of the patient. Our findings may suggest that the masses do not continually get larger as the patient grow older and there is no increase in the number of masses with age. This conforms with well known facts. Some masses are known to shrink or disappear after some time. The number of masses that shrink are probably few if any to influence the Pearson's correlation coefficient. Patients may need to be counselled that the masses are not likely to become smaller as they get older. A direct study to measure the size changes in fibroadenomas that are not excised at presentation will give a more assertive information on size variation with time.

Our study did not find any significant correlation between the age of the patient and the duration of symptoms before removal of the mass. Many patients are aware of breast cancer and are eager to remove any breast lump as soon as possible.

For fibroadenomas, age does not seem to influence the eagerness of the patient to remove the masses. Cancers are more common in older age groups; hence, one might think older women will be more eager to remove their breast lumps than younger women. This is not the case with fibroadenoma and might be related to the benign

clinical and radiological features that might be associated with them.

Phyllodes tumour

Phyllodes tumour is much less common than fibroadenoma with the ratio of 1:28. Although phyllodes tumour is rare, it is important to study the characteristics of this tumour to understand it better as it is more likely to reoccur after inadequate excision compared with fibroadenoma. As seen in our study, most cases of phyllodes tumour are benign. However malignant phyllodes account for a relatively high percentage (26%) of phyllodes tumour such that the ratio of benign to malignant phyllodes is 2:1. Therefore, when a diagnosis of phyllodes tumour is made, efforts should be made to differentiate the benign category from the malignant category. This is very important as the benign category though capable of recurrence after inadequate excision is much less aggressive compared to the malignant variant.

Phyllodes tumour are generally seen in older patients when compared with fibroadenoma. The average age of patients with phyllodes tumour in our study (33.8 years) is much higher than the average of patients with fibroadenoma (23.3 years). However, the average age of patients with benign phyllodes tumour (29.8 years) is much closer to that of fibroadenoma. This is not surprising as the histomorphology of benign phyllodes and fibroadenoma are very similar such that it may be challenging distinguishing one entity from the other.[19,20] Some researchers believe the lesions share common genetic background.[21]

As shown in our study, benign phyllodes tend to be found in younger patients compared with their malignant counterparts. The average age of benign phyllodes in our study is 29.8 years, which is much younger than the average age of 48.6 years in malignant phyllodes. Our findings suggest the need to have a high index of suspicion in patients with suggestive lesions especially if they are older than 35 years.

The average age of borderline phyllodes tumour (25.5 years) is close to that of benign phyllodes tumour and fibroadenoma. This is probably not surprising as the borderline tumours have similar biologic behaviour with benign phyllodes and fibroadenoma. However, the borderline tumours have a higher propensity to reoccur after excision and must be identified and managed appropriately. It is important to note that due to high interobserver variability, there is historical inconsistency in classification of phyllodes tumour.[22,23] Most of the cases we classified as borderline may be in the benign category.[24]

Our study is limited by our inability to assess the exact time the lump was first noticed and what clinical recommendation, if any, has ever been proffered by a managing physician. This is required to make conclusive statements about patient behaviour. We were unable to directly measure the size of the masses in the patients over time to accurately make a statement about their changes in size with time.

CONCLUSION

Our study shows that fibroadenoma is the most common fibroepithelial tumour of the breast. A sizeable proportion of patients have bilateral tumours. The average duration of symptoms in the patient before excision of the mass to be 16 months. There is no association between the size of a fibroadenoma and the age of the patient. There is no association between the number of the masses and the age of the patient. There is no correlation between the age of the patient and the duration of symptoms before removal of the mass. Phyllodes tumour is much less common than fibroadenoma with the ratio of 1:28. Phyllodes tumour are generally seen in older patients when compared with fibroadenoma. Benign phyllodes tend to be found in younger patients compared with their malignant counterparts.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Ethics and Research Committee of Obafemi Awolowo University Teaching Hospitals Complex

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