

Histopathological Spectrum of Breast Lesions in Abuja, Nigeria: A Three-Year Review from a Private Diagnostic Laboratory

By

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Abstract

Breast lesions pose a significant public health concern worldwide, with variable histological patterns influenced by age, geography, and the dynamics of healthcare systems. This study provides a three-year review of the histopathological spectrum of breast diseases in a private laboratory setting in Abuja, Nigeria. A retrospective descriptive review was carried out on 254 breast tissue specimens received between January 1, 2022, and December 31, 2024. Standard histopathological processing and WHO classification were used. Data were analysed using SPSS v26. The mean patient age was 37.3 years (range: 13–80). Benign lesions predominated (67%), while malignant lesions constituted 33%. Fibroadenoma (35%) and fibrocystic change (27%) were the most common benign entities. Invasive ductal carcinoma accounted for 94% of malignancies. The findings highlight a predominance of benign breast disease among women in their reproductive years, with fibroadenoma and invasive ductal carcinoma as leading benign and malignant lesions, respectively. There is an urgent need for enhanced awareness and screening strategies.

Keywords: Benign, Breast lesions, Fibroadenoma, Histopathology, Invasive ductal Carcinoma, Malignant.

Introduction

Breast lesions constitute a heterogeneous group of pathologies ranging from benign proliferative disorders to malignant neoplasms. Globally, breast cancer remains the most frequently diagnosed malignancy and the leading cause of cancer-related mortality among women, with approximately 2.3 million new cases and 685,000 deaths reported in 2020 alone¹. While malignant lesions dominate public health discourse due to their morbidity and mortality, benign breast diseases (BBDs) are far more common and contribute significantly to clinical presentations and the diagnostic workload.

In Sub-Saharan Africa, the dual burden of late presentation and limited diagnostic infrastructure has historically skewed data towards advanced malignancies, often underrepresenting the true spectrum of benign and early-stage lesions⁴. However, with increasing awareness and access to diagnostic services, a more nuanced histopathological pattern is emerging⁴. In Nigeria, studies from both public and private

institutions indicate a diverse spectrum of breast lesions, with fibroadenoma and invasive ductal carcinoma (IDC) consistently ranking as the most common benign and malignant lesions, respectively⁵⁻⁷.

Despite the growing body of literature, there is a relative paucity of data from private histopathology laboratories in Nigeria, which are playing an expanding role in diagnostic healthcare delivery, especially in urban centres such as Abuja. Documenting the pattern of breast lesions in these settings is crucial for understanding evolving epidemiological trends, optimising diagnostic protocols, and guiding public health interventions⁸.

This study aims to describe the histopathological spectrum of breast lesions diagnosed in a private histopathology laboratory in Abuja, Nigeria, over a three year period (2022–2024), thereby contributing to the national and regional data pool on breast pathology.

Materials and Methods

This was a retrospective descriptive study conducted at a private histopathology laboratory in Abuja, Nigeria. The study reviewed all histopathologically diagnosed breast lesions received between January 1, 2022, and December 31, 2024.

All breast tissue specimens submitted to the laboratory during the study period were processed using standard histopathological techniques. Tissues were fixed in 10% neutral-buffered formalin, routinely processed, embedded in paraffin, sectioned at a thickness of 3–5 µm, and stained with haematoxylin and eosin (H&E). Special stains and immunohistochemistry (IHC) were utilized where necessary to aid diagnosis.

Demographic data (age and sex) and histopathological diagnoses were extracted from pathology request forms and laboratory records. Lesions were categorized as benign or malignant, and classified according to the latest World Health Organization (WHO) Classification of Breast Tumours (5th edition, 2019).

Inclusion criteria encompassed all complete breast tissue biopsy specimens with conclusive histopathological diagnoses. Inadequate, poorly fixed, or inconclusive samples were excluded from the study.

Data were entered into Microsoft Excel and analyzed using SPSS version 26. Descriptive statistics were presented as frequencies and percentages for categorical variables, and means with standard deviations for continuous variables.

Results

A total of 254 breast tissue specimens were histologically analyzed over the three-year period. The age of patients ranged from 13 to 80 years, with a mean age of 37.3 years, a median age of 37.5 years, and a mode of 38 years, indicating a predominance of cases in the reproductive and early perimenopausal age groups.

The 30–39-year age group accounted for the highest proportion of cases (27%), followed closely by the 40–49-year group (25%) and the 20–29-year group (18%) (Table 1). Adolescents (10–19 years) made up 11% of cases, reflecting early onset in some benign lesions. Patients aged 60 years and above contributed only 6.4% of the total, indicating a relatively younger affected population.

Out of the 254 cases, benign lesions predominated, comprising 67% (n = 171), while malignant lesions constituted 33% (n = 83) (Table 2 and Figure 2). Among benign lesions, fibroadenoma was the most common subtype, accounting for 35% (n = 60) of benign cases, followed by fibrocystic change (27%) and sclerosing adenosis (9.1%) (Table 3 and Figure 3). Less common entities included mastitis, atypical ductal hyperplasia, gynaecomastia, and lactating adenoma. Rare findings such as supernumerary breast, keloid, lipoma, and duct ectasia were also documented, underscoring the diagnostic diversity encountered in breast pathology. Among the malignant cases (n = 83), invasive ductal carcinoma (IDC) was the predominant type, constituting 94% (n = 78) (Table 4 and Figure 4). Other rare

subtypes included invasive lobular carcinoma (2.4%), Paget's disease, tubular carcinoma, and mucinous carcinoma, each accounting for just over 1% of cases.

Table 1. Age distribution of breast diseases

Age Group	Frequency	Total (%)
10-19	29	11
20-29	45	18
30-39	70	27
40-49	64	25
50-59	30	12
60-69	13	5
70-79	2	1
80-89	0.4	
Total	254	100%

Footnote:

Mean Age = 37.3years.

Minimum Age = 13years

Maximum Age = 80 years

Median Age = 37.50years

Mode Age = 38 years

Table 2. Type of breast tumours (N=254)

Type of Tumour	Frequency	Total
Benign	171	67
Malignant	83	33
Total	254	100

Table 3: Histological subtypes of benign breast tumours

Benign tumour	Frequency	Total (%)
Fibroadenoma	60	35
Fibrocystic change	46	27
Sclerosing adenosis	16	9.1
Mastitis	9	5.3
Atypical ductal hyperplasia	8	5
Gynaecomastias	8	5
Lactating adenoma	4	2
Supernumerary breast	4	2
Abscess	3	2

Keloid	3	2
Lipoma	3	2
Duct ectasia	2	1
Lymphocytic mastopathy	2	1
Fat necrosis	2	1
Phyllodes	1	0.6

Total	171	100%
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Table 4. Histological subtypes of malignant breast tumours N=83).

Histological	Frequency	Total
Invasive ductal ca	78	94.0
Invasive lobular	2	2.4
Paget's disease	1	1.2
Tabular ca	1	1.2
Mucinous carcinoma	1	1.2
Total =	83	100%

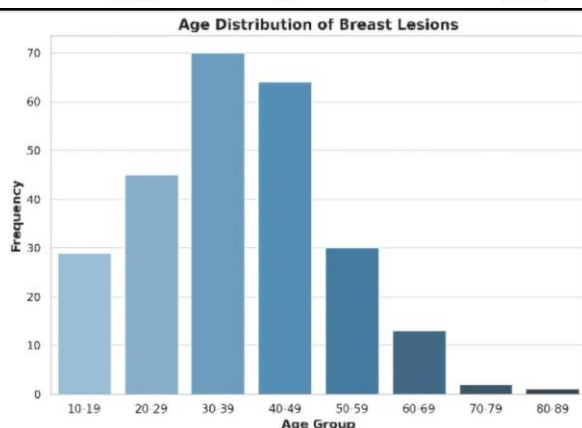


Figure 1: Breast lesions by sex and age group

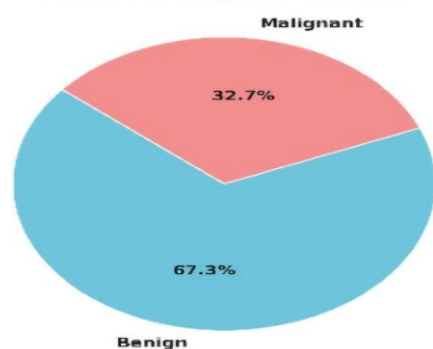


Figure 2: Breast Lesions Benign and Malignant

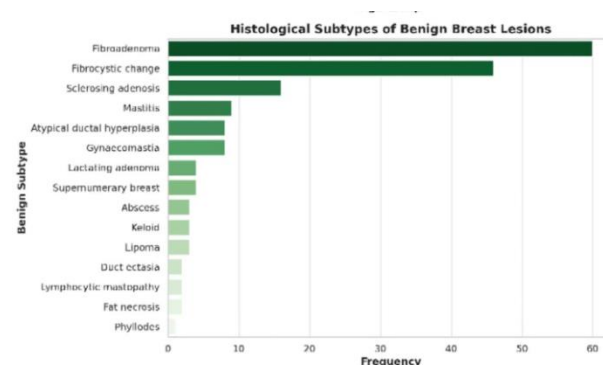


Figure 3: Benign breast lesions histological subtypes

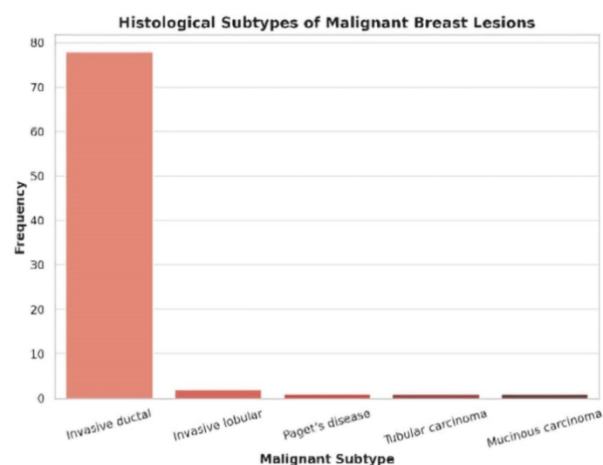


Figure 4: Malignant Breast Lesions histologic subtypes

Discussion

Breast diseases present a significant burden worldwide, with varying histopathological profiles across populations. In this study, benign lesions accounted for 67% of all breast tissue diagnoses, aligning with previous Nigerian and Sub-Saharan African studies, which show a predominance of non-malignant pathologies among women presenting with breast lumps⁹⁻¹¹. The mean age of 37.3 years observed supports the evidence that breast lesions are most common during reproductive years¹²⁻¹⁴.

Fibroadenoma was the most prevalent benign lesion (35%), consistent with global and regional patterns¹⁵⁻¹⁷. In Nigerian studies from Port Harcourt and Zaria, fibroadenoma represented up to 45% of benign lesions, often affecting women under 30 years¹⁸⁻¹⁹. Its high frequency may be related to hormonal sensitivity during the premenopausal phase.

Fibrocystic change (27%) was the second most common benign lesion, a finding comparable to studies in Kenya and Ghana, which documented similar rates of fibrocystic changes among benign biopsies²⁰⁻²¹. Although fibrocystic disease is generally benign, its association with proliferative changes warrants attention, particularly in women with a family history of breast cancer.

Among malignant lesions, Invasive Ductal Carcinoma (IDC) constituted 94%, a finding consistent with international data, which indicate that IDC comprises 70–80% of breast

cancers.²². Similar dominance has been reported in Nigerian series from Lagos, Jos, and Kano^{18,23}. The rarity of subtypes such as lobular, mucinous, and tubular carcinomas supports prior observations that these variants are less common in African populations²³.

The concentration of both benign and malignant cases in the 30–49-year age group underscores the need for early and sustained breast health surveillance in this demographic. Several factors—late presentation, cultural beliefs, limited screening, and access to care—contribute to the delayed diagnosis of malignancies in Sub-Saharan Africa²⁴.

Additionally, the study demonstrates the significant diagnostic role of private histopathological laboratories, especially in urban centres where public tertiary hospitals may be overwhelmed or under-resourced. Encouragingly, the consistent application of the WHO classification and basic immunohistochemistry (where needed) ensures standardization of diagnosis.

Conclusion

This study highlights a predominance of benign breast lesions in young women in Abuja, with fibroadenoma being the most common benign tumour and invasive ductal carcinoma the most frequent malignancy. The findings mirror regional and global trends but also emphasize the youthfulness of the affected population.

Recommendations: Public health campaigns should target young women for early breast awareness and self-examination training. Routine clinical breast examinations and ultrasound-guided biopsies should be integrated into primary care. Establish stronger referral linkages between private and public pathology services for the diagnosis of breast lesions. Further multicentre and molecular studies are needed to evaluate receptor status and therapeutic implications in breast cancers from this region

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Ethical approval: Ethical approval for the study was obtained from the laboratory's institutional review board.

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