RETROSPECTIVE ANALYSIS OF HISTOLOGICAL TYPES AND LATERALITY OF BREAST CARCINOMA IN A TERTIARY HOSPITAL IN SOUTHWEST NIGERIA

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Abstract

Background: Breast carcinoma is the most common cancer among women worldwide and is a leading cause of death among women. It has various histological types, which differ in their clinical and pathological features. In Nigeria, it accounts for over 25% of all cancer cases. The evolving nature of breast cancer calls for a continuous study of the histological types, distribution patterns, and unique characteristics as it may reveal new insights and variations. Therefore, this study aimed to determine the histological types, age distribution, and laterality of breast carcinoma cases at the UNIOSUN Teaching Hospital (UTH) Osogbo.

Methods: This study was a retrospective analysis of all cases of breast carcinoma diagnosed histologically at the UTH Osogbo over 10 years. Information on patients age, laterality, and histological type of breast carcinoma was obtained from the records of the Department of Pathology. The histological types were classified according to the World Health Organization (WHO) classification system and data was analyzed using descriptive statistics.

Results: A total of 519 cases of breast carcinoma were diagnosed histologically. The mean age of the patients was 50.1 years (SD=12.4), with a range of 12-90 years. The highest number of cases (32%) were in the age group of 41-50 years, followed by 29.5% in the age group of 31-40 years. Invasive ductal carcinoma (NOS) was the most common histological type, accounting for 93.6% of cases. Other types were metaplastic carcinoma (2.7%), invasive mucinous carcinoma (1.3%), lobular carcinoma (1%), and medullary carcinoma (0.4%). Regarding laterality, 53% of the cases were in the left breast, 44% in the right breast, and 3% were bilateral.

Conclusion: Invasive ductal carcinoma (NOS) was the most common histological type. Breast cancer was common among those aged 41-50 years and in the left breast. The results of this study could be useful for the development of breast cancer screening programs and treatment strategies in Nigeria.

Keywords: Breast carcinoma, Histological types, Invasive ductal carcinoma, Age distribution, Breast laterality

INTRODUCTION

Breast cancer is a major public health problem worldwide and is the leading cause of cancer death among women[1–3]. The incidence of breast cancer is increasing globally, and it is projected that by 2030, there will be over 2 million new cases of breast cancer diagnosed annually[4–6]. In Nigeria, breast cancer is the most common cancer among women, accounting for over 25% of all cancer cases[4]. Breast cancer has various histological types, which differ in their clinical and pathological features[7,8].

The distribution of histological types of breast cancer varies among different populations and ethnic groups[9,10]. Studies have shown that the most common histological type is invasive ductal carcinoma (IDC), accounting for 70-80% of all cases[11,12]. Histomorphological studies in Africa have reported a higher proportion of aggressive breast cancer subtypes, including invasive ductal carcinoma (NOS) with high histologic grade, invasive lobular carcinoma, and triple-negative breast cancer (TNBC). These histomorphological differences in breast cancer subtypes may have significant implications for prognosis, treatment, and survival outcomes.

The age distribution of breast cancer also varies among different populations. In Africa, breast cancer tends to occur at an earlier age, with a higher proportion of cases diagnosed in premenopausal women[13]. The laterality of breast cancer has also been reported to vary among different populations. Studies have shown that breast cancer is more common in the left breast, although the reason for this is not clear.

Breast cancer is a significant health problem in Nigeria, and the histological types, age distribution, and laterality of breast cancer cases in of cases seen at UTH Osogbo have not been well characterized. Therefore, studying the histological types, age distribution, and laterality of breast cancer cases is important for the development of effective screening, prevention, and treatment strategies for breast cancer in at UTH Osogbo. This study aims to determine the histological types, age distribution, and laterality of breast cancer cases at the UTH Osogbo over a period of ten years. This information will provide useful data to develop effective screening, prevention, and treatment strategies for breast cancer in UTH Osogbo, Nigeria.

METHODS

This was a retrospective study conducted on all cases of breast carcinoma diagnosed histologically at the UTH Osogbo, Nigeria, between January 2012 and December 2022. UNIOSUN Teaching Hospital Osogbo is a tertiary healthcare facility that serves as a referral center for patients from Osun State and neighboring states.

The data was collected from the records of the Department of Pathology. The records of all patients who had a histological diagnosis of breast carcinoma during the study period were included in the study and cases with incomplete or missing data were excluded. Information on patient age, sex, laterality, and histological type of breast carcinoma was extracted from the records. The histological types were classified according to the World Health Organization (WHO) classification system[14].

The data obtained was analyzed using Statistical product and service solutions (IBM-SPSS) version 20. Categorical variables were summarized using frequency distribution tables. The mean and standard deviation were calculated for age. Frequencies and percentages were used to describe the distribution of histological types, age distribution, and laterality of breast carcinoma.

RESULTS

A total of 519 cases of breast carcinoma were identified during the study period giving a prevalence of 25.9%. All the cases were female (100%) and the mean age of the patients was 50.1 years (SD=12.4), with a range of 12-90 years. The age distribution of the patients showed that the highest number of cases (32%) were in the age group of 41-50 years, followed by 28% in the age group of 51-60 years. The least affected age group was below 20 years, which accounted for only 0.2% of cases. The age distribution of breast carcinoma cases is presented in Figure 1.

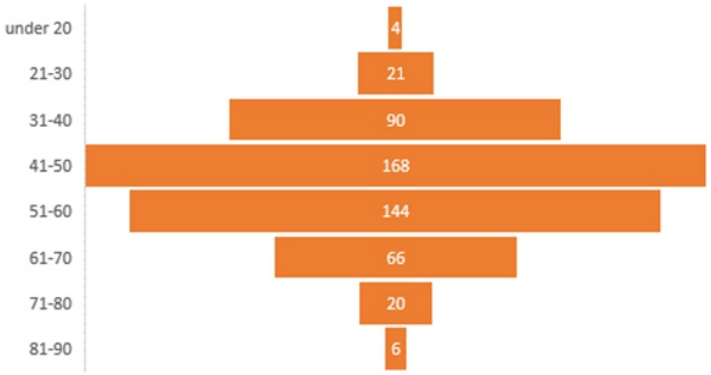

Figure 1: Age distribution of breast carcinoma cases

The most common histological type of breast carcinoma was invasive ductal carcinoma (NOS), accounting for 487 cases (93.6%). Other histological types identified were metaplastic carcinoma (14 cases, 2.7%), invasive mucinous carcinoma (7 cases, 1.3%), lobular carcinoma (ILC) (5 cases, 1%), and medullary carcinoma (2 cases, 0.4%). Table 1 presents the distribution of the histological types of breast carcinoma.

Table 1: Distribution of the histological types of breast carcinoma

Histological type	Number of cases	Percentage
Invasive ductal carcinoma (NOS)	487	93.6%
Metaplastic carcinoma	14	2.7%
Invasive mucinous carcinoma	7	1.3%
Lobular carcinoma (ILC)	5	1%
Medullary carcinoma	2	0.4%
Total	519	100%

Regarding laterality, 53% of the cases were in the left breast, while 44% were in the right breast, while bilaterality was in 3% of cases. The distribution of breast carcinoma according to laterality is presented in Figure 2.

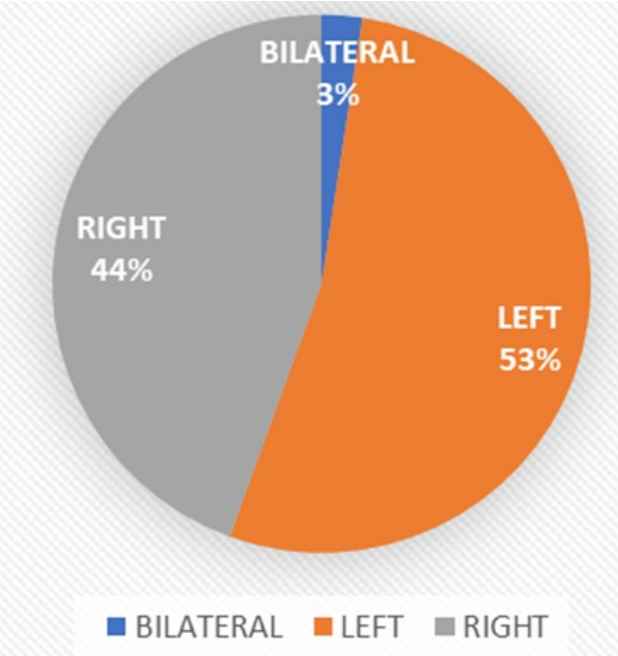

Figure 2: Distribution of breast carcinoma according to laterality

DISCUSSION

Breast carcinoma is a significant health concern for women worldwide, and it is the leading cause of cancer-related deaths among women[15]. In Nigeria, breast carcinoma is the most common cancer among women, with a high mortality rate [16]. The present study found that the mean age of the patients was 50.1 years, and the age distribution showed that the highest number of cases were in the age group of 41-50 years. This finding is consistent with previous studies conducted in other parts of Nigeria, which reported a peak incidence of breast carcinoma in the fifth decade of life[17,18]. However, a study conducted in North Central Nigeria reported a peak incidence in the fourth decade of life[19]. Breast cancer is a heterogeneous disease, and its histological subtypes can vary in prevalence across different populations and regions[20,21]. Invasive ductal carcinoma NOS was the most common histological type of breast carcinoma observed in this study, accounting for 93.6% of cases. This finding is similar to those reported in in Ile-Ife and other Nigeria regions, where invasive ductal carcinoma was the most common histological type[22,23]. ILC accounted for 1% of all breast cancer cases, making it the third most common special type after metaplastic carcinoma and invasive mucinous carcinoma. This finding is consistent with previous studies in both Niger-delta region and northern Nigeria that have reported a relatively low prevalence of 4-6%[24,25]. In contrast, a population-based study conducted in the United States found that ILC had a higher prevalence rate of 10-15% of all breast cancer cases, making it the second most common histological subtype after invasive ductal carcinoma[26]. The differences in the prevalence of ILC across different regions and

populations may be attributed to its genetic and environmental factors[27–29]. Furthermore, the prevalence of ILC may be influenced by changes in diagnostic criteria and classification systems over time, which may have led to variations in the reporting of ILC cases[30,31].

Regarding laterality, the study found that 53% of the cases were in the left breast, while 44% were in the right breast, and 3% were bilateral. This finding is consistent with previous studies, which reported a higher incidence of breast carcinoma in the left breast[32–34]. However, studies conducted in Indian population reported a higher incidence of breast carcinoma in the right breast[10,35].

CONCLUSION

This study provides valuable information on the histomorphological types, age distribution, and laterality of breast carcinoma cases at UTH Osogbo and add to the growing body of literature on breast cancer in Nigeria and provides valuable insights into the distribution of breast cancer cases by age groups. The findings highlight the need for early detection and treatment programs for breast cancer in Nigeria, particularly among young women. Further research is needed to identify the factors contributing to the high incidence of breast cancer among young women in Nigeria, which could inform the development of preventive and early intervention strategies.

Competing interests: We declare no conflicts of interest.

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