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Histopathological Features of Breast Carcinoma in Post Menopausal Women (60 Years and Above): Five Years Experience at a Teaching Hospital in Pakistan

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ABSTRACT

Introduction: Breast cancer is the most common cancer worldwide including Pakistan. **Objective**: To presenting the histopathological features of 125 breast carcinomas in postmenopausal women (age 60 or more). **Design:** Descriptive**,** Cross sectional survey. **Place & Duration of Study:** This study was conducted at Department of Pathology, Fatima Memorial Hospital (Lahore) from September 2015 to June 2016. **Method:** The histopathology reports of all breast carcinomas reported from January 2011 to August 2015 were retrieved, the cases were sorted and the data was reviewed. **Results:** Out of the total 548 cases of breast carcinomas, 125 (22.8%) were in women of age 60 and above. The cancer involved left breast in 54 (43.2%) cases and right breast in 55 (44%) cases. Invasive ductal carcinoma (IDC), with 106 (84.8%) cases, was the commonest histologic type and grade 3 was the most frequent histologic tumour grade found. Among 38 cases with available T staging data, pT2, pT3 and pT4 cases were 13, 3 and 14 respectively. Pathological N staging was available in 24 cases which showed 8, 6, 7 and 3 cases of pN0, pN1a, pN2a and pN3a respectively. Receptor molecular subtyping (n=28) showed 21.4% luminal A, 10.7% luminal B, 39.4% triple negative, and 28.6% HER2 only subtypes. **Conclusions:** Breast carcinomas are found less frequent in women of age 60 and above in our study. IDC is the most frequent type in cancer in these women. The tumours have high histological grade and advanced pathological stage. Triple negative/basal-like is the most common molecular subtype seen.

Keywords: Post-menopausal women, breast cancer, carcinoma, histopathology

INTRODUCTION

Breast cancer is the most common cancer worldwide including Pakistan[1]. Several studies have shown that prognosis of breast cancer depends on certain morphological features including tumor size, tumor grade, histologic type and lymph node metastasis[2]. Age is an important risk factor for breast cancer and the chances of developing the disease increase with age. About 95% of women diagnosed with breast cancer each year are over age 40[3]. In older women, the treatment of breast cancer patients may become a challenge because of multiple comorbidities and the potential toxicity of existing therapies[4]. In this study, we have presented the histopathological features of 125 breast carcinomas in postmenopausal women (age 60 or more).

METHODS

The histopathology reports of a total of 548 female patients diagnosed to have breast carcinoma during the last five years (January 2011 to August 2015) at the Department of Pathology, Fatima Memorial Hospital (FMH), Lahore were retrieved from the departmental record. From this record all cases of breast carcinoma diagnosed in females, 60 years of age or more were selected. These cases

were reviewed for tumour type, tumour size, tumour grade, presence or absence of lymph node metastasis, pathologic T and N staging and molecular subtype. American Joint Commission for Cancer (AJCC) guidelines[5] were followed regarding T and N staging while molecular subtyping was done on basis of tumour expression of estrogen receptor (ER), progesterone receptor (PR) and epidermal growth factor receptor 2 (HER2) determined by immunohistochemistry (IHC)[6]. All the cancers with available IHC studies were categorized into luminal A (ER+, HER2-), luminal B (ER+, HER+), triple negative (ER-, HER2-) and HER2 only (ER-, HER2+) subtypes. The data was entered in Microsoft Excel and frequencies and percentages were calculated for different histopathological features like tumour type, tumour grade and presence or absence of lymph node metastasis etc. The due approval of institutional review board (IRB) was taken.

RESULTS

Out of the total 548 cases of breast cancer, 125 (22.8%) were in women of age 60 and above. Out of these, 98.4% of the women were less than 80 years old. (Table 1)

The number of reported cases of left and right sided breast carcinomas were almost similar i.e. 54 (43.2 %) cases had right sided cancer and 55 (44%) cases had cancer in left breast. In 16 (12.8%) cases, the laterality of breast cancer was not specified in the report because of non-availability of detailed clinical information.

Regarding the type of breast carcinomas observed, the most frequent type found was invasive ductal carcinoma (IDC) with 106 (84.8%) cases. Only 2 (1.6%) cases of mixed ductal and lobular type and 3 (2.4%) cases each of invasive lobular carcinoma (ILC), metaplastic carcinoma and mucinous carcinoma were reported during the study period. Ductal carcinoma in situ (DCIS) only was found in 3 (2.4%) cases, while in 4 (3.2%) cases, the diagnosis was deferred immunohistochemistry (IHC) was recommended for definite typing.

In 122 cases, histologic grading of tumour was reported and three tiered grading system was used. With a total of 68 (55.8%) cases, more than half of the cases belonged to histologic grade 3. Histologic grade 2 was observed in 52 (42.6%) cases and only 2 (1.6%) cases had histologic grade 1.

The data of pathologic T staging was available in 38 cases and that of N staging was available in 24 cases (Table 2). The highest number of cases belonged to pT4 (36.8%), closely followed by pT2 (34.2%). Overall around 80% of the cases were of pT stage 2 or higher. Regarding pN staging, most frequent observation was pN0 i.e. no lymph node metastasis. However, still more than 65% of cases showed lymph node metastasis (pN1a, pN2a, pN3a).

Table 1: Age distribution of patients (n=125).

Age (years)	No. of cases	Percentage
60-65	56	44.8
66-70	32	25.6
71-75	26	20.8
76-80	9	7.2
81 and above	2	1.6

Table 2: Pathologic staging of breast carcinomas.

Pathologic staging	No. of cases	Percentage
pT (n=38)		
pTis	2	5.3
pT1	6	15.8
pT2	13	34.2
pT3	3	7.9
pT4	14	36.8
pN (n=24)		
pN0	8	33.3
pN1a	6	25.0
pN2a	7	29.2
pN3a	3	12.5

Among the molecular subtypes, triple negative was the most frequent and HER2 only was the least frequent subtype. Luminal subtypes collectively represented 32.1% of cases (Fig. 1)

DISCUSSION

Breast cancer is the most common cancer in women worldwide, with nearly 1.7 million new

cases diagnosed each year. This represents 25% of all cancers occurring in women[7]. There is an increase in incidence of breast cancer with increasing age, from an average incidence per million of 1.30 in 15 to 19 years old, to 12.10 in 20 to 24 years old to 81.10 in 25 to 29 years old and so on[8, 9].

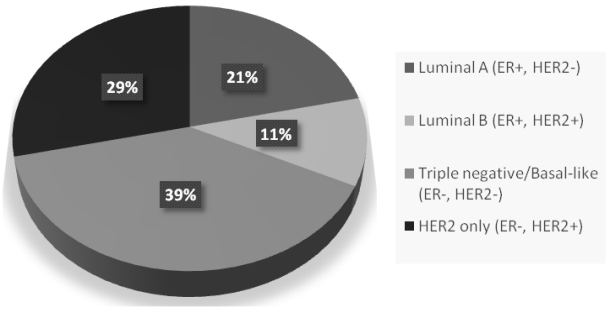

Fig. 1: Molecular subtypes of breast carcinomas.

The breast cancer or carcinomas in older age females is a rarely studied area and, in our study, we found 125 women with age 60 and above and having breast carcinoma. We found the frequency to be 22.7% of the total women suffering from breast cancer during the study period. Similar results were found in a study by Harirchi et al where they found post-menopausal patients of breast cancer to be 19% of total breast cancers[10]. There is sharp decrease in the frequency of breast cancer above the age of 80 and this could easily be attributed to a low average life span of Pakistani women. The equal distribution of the disease on either side found in our study concurs the study of Fatima et al. where similar results were found[11].

The most common type of breast cancer is intra ductal carcinoma (IDC) in the world as shown by various studies to be ranging from 56% to 76% of all breast cancers[10,12] and by the pathology textbooks[13]. It was true in our case too where 84.6% of the patients presented with this type of cancer.

Histological grading revealed a total of 55.7 percent of cases to be poorly differentiated i.e. histologic grade 3, in contrast to some studies. Yang et al found moderately differentiated (histologic grade 2) cancers as the most common type with frequency of 62%[12], while Spitale et al. reported well differentiated (histologic grade 1) breast cancer to be 72%[14]. This could very well be because of the late presentation of the patients to the hospital in Pakistan, as many of the patients fall below the poverty line and unless the disease doesn't hamper their daily routine, they don't seek medical advice. The same local issue is also highlighted by the fact that the breast cancer in our women is not only high grade but also high stage. Most common presentation in our study was pT4 stage with more than 35% cases. In contrast, T2 is the most common type in studies from other parts of world[10,12,14]. Similarly, most of our patient (66%) presented with lymph node involvement pN1a stage or higher. This is again in contrast with the available literature[12, 14].

Molecular subtyping was also done in patients. While triple negative/basal-like was the most common molecular subtype in our patients, it is reportedly the least common type by Yang XR et al[9]. Luminal A subtype is most common in the world with reported frequencies of 73% and 69% by some studies[12,14]. A local study by Sharif et al. found luminal B to be the most common molecular subtype in the breast cancer patients of age group of 50 and above[15]. Another local study documented triple negative phenotype to be the most common in age group 40-60 years, in contrast to our findings[16]. The discordance among our findings from the other studies may be because of a limitation that molecular subtyping is an expensive test and small sample size was available in this regard.

CONCLUSIONS

Breast cancer is found less frequent in women of age 60 and above in our study as compared to the available literature. IDC is the most frequent type in cancer in these women. The tumors have high histological grade and advanced pathological stage. Triple negative/basal-like is the most common molecular subtype seen.

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