

CLINICOPATHOLOGICAL CHARACTERISTICS OF CARCINOMA BREAST PATIENTS PRESENTING TO THE SURGICAL UNIT OF A TERTIARY CARE CENTRE IN PESHAWAR

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ABSTRACT

Objective: To determine the clinical and pathological features of patients with breast cancer presenting to the surgical unit of a tertiary care center in Peshawar.

Materials and Methods: This cross-sectional descriptive study was conducted in Khyber Teaching Hospital, Peshawar from 1st January 2022 to 31st December 2022. Cases referred to the surgical unit for workup of breast cancer were recruited into the study by non-probability purposive sampling. After taking a detailed history and physical examination, a true cut biopsy of the breast lump was taken and sent for histopathology, receptor studies, and Ki67 scoring. Cases that were diagnosed previously in other hospitals were excluded. Data regarding age, menopausal status, histopathological diagnoses, receptor status, and stage of cancer were recorded and analyzed using SPSS version 26. Mean and standard deviation were used for quantitative variables while frequency and percentages were used for qualitative variables.

Results: 230 patients with breast cancer were included in the study. The mean age of the study sample was 43 ± 12.94 (range:17-85) years. 123 (53.5%) cases were premenopausal. Invasive ductal carcinoma was the most common diagnosis which was seen in 175 (76.1%) cases. Receptor status for estrogen and progesterone was positive in 135 (59.4%) and 107 (47.3.5%) cases respectively. 123 (53.3%) cases presented in the early stage of the disease while 34 (14.8%) cases were in the metastatic phase.

Conclusion: Breast cancer presents at an early age in our population. Half of the affected population is premenopausal. Receptor status for estrogen and progesterone was positive in almost half of the population. Invasive ductal carcinoma breast is the most common diagnosis in our setup. Almost half of the population presents with the early stage of the disease.

Keywords: Estrogen receptors, Invasive ductal carcinoma breast, Ki-67, Progesterone receptors.

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INTRODUCTION

Breast carcinoma is a malignant disorder of breast tissue. It usually presents as a palpable mass in breast tissue. Treatment depends on the stage, receptor status, and grade of the disease. With advancements in diagnostic modalities, it is now possible to diagnose the disease in the early phase which results in improved survival.¹ However, most of the patients present when the metastasis has already occurred, in which case, it is associated with poor outcomes.^{2,3} Worldwide, breast cancer is the most com-

mon malignancy of women and a leading cause of death.^{4,5} 2 million new cases are diagnosed every year globally.² Breast carcinoma is the most common malignancy in women worldwide including in Pakistan.^{4,5} Pakistan has the highest incidence of breast cancer where it represents about 40% of all tumors in women.^{5,6} According to surveys, it is the most common cancer in females of Khyber Pakhtunkhwa.^{6,7}

Disease prognosis depends on the age of presentation, stage, grade, and receptor status of the tumor cells. Patients below 40 years of age present with aggressive disease.⁸ The tumor cells express estrogen receptors (ER), progesterone receptors (PR), or human epidermal growth factor receptor 2 (HER 2).⁹ Expression of ER and PR is associated with better overall survival and vice versa.^{10,11} HER2 overexpression is associated with relapsing disease and poor survival.^{12,13} Ki-67, a marker of tumor proliferation, is associated with poor outcomes.¹⁴⁻¹⁶

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Younger patients tend to have high Ki-67 scores and thus poor outcomes. Mutated BRCA1 and BRCA2 genes cause aggressive disease and that too in younger age. ⁸

The population of Pakistan is heterogeneous with diverse ethnic groups living in different provinces. The disease presentation varies from place to place depending on the socio-economic status of the population. Therefore, the current study is conducted to determine the clinical and pathological characteristics of patients with breast carcinoma in Peshawar.

MATERIALS AND METHODS

This cross-sectional descriptive study was conducted in the Surgical unit of Khyber Teaching Hospital, Peshawar from 1st January 2022 to 31st December 2022. Khyber Teaching Hospital is a 1300-bed tertiary care center in northwestern Pakistan.

All patients diagnosed with carcinoma breast at our one-stop clinic as well as the cases diagnosed on core biopsy in other centers and referred to us were included in this study through a non-probability purposive technique. Patients with incomplete work-up or inappropriately managed in the periphery were excluded from this study. TNM staging, receptor status for estrogen, progesterone, and Ki-67, and histopathological diagnosis were determined and recorded on proformas. Data was analyzed using SPSS version 26 and results were drawn accordingly. Mean and standard deviation were used for quantitative variables while frequency and percentages were used for qualitative variables.

RESULTS

230 cases of breast cancer were included in the study. The mean age of the study sample was 43±12.94 (range:17-85) years. Different age groups of the study sample are shown in Figure 1. The menopausal status of participants, histopathological diagnosis, and receptor status are shown in Table 1. Staging is shown in figure 2 and 3

Tis: carcinoma in situ. T1: tumor 2cm or less in greatest dimension. T2:>2 cm and <5cm, T3: > 5cm. T4: tumor of any size, extension to skin or chest wall. N0:no regional lymph node involvement. N1: metastasis to mobile ipsilateral node. N2: metastasis to ipsilateral axillary nodes fixed to one another. N3: metastasis to ipsilateral internal mammary nodes, M0 : No distant metastasis, M1: distant metastatic

Table No 1: Characteristics of study participants (n=230)

Characteristics		n (%)
Menopausal status		
Pre-menopausal		123 (53.5%)
Post-menopausal		107 (46.5%)
Diagnosis		
Ductal carcinoma in situ (DCIS)		11 (4.8%)
Invasive ductal carcinoma (IDC)		203 (88.3%)
Invasive lobular carcinoma (ILC)		12 (5.2%)
Mucinous carcinoma		1 (0.4%)
Squamous cell carcinoma		3 (1.3%)
Receptor status		
ER (n=227)	Positive	135 (59.4%)
	Negative	92 (40.5%)
PR (n=226)	Positive	107 (47.3%)
	Negative	119 (52.6%)
HER-2 (n=216)	Positive	48 (22.2%)
	Negative	168 (77.7%)
Triple negative	-	57 (24.7%)
Ki-67 (n=86)	Low grade (score <14)	21 (24.4%)
	Intermediate grade (score 14-20)	21 (24.4%)
	High grade (score >20)	44 (51.2%)

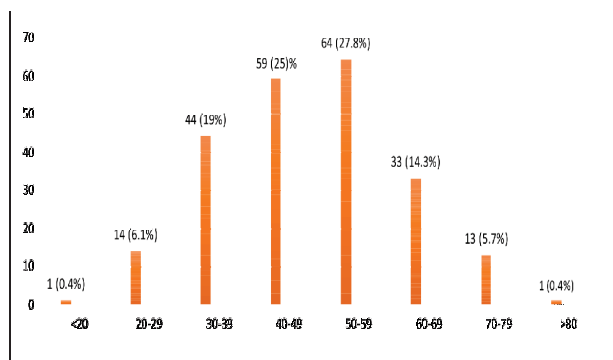


Fig 1: Age groups of breast cancer patients (n=230)

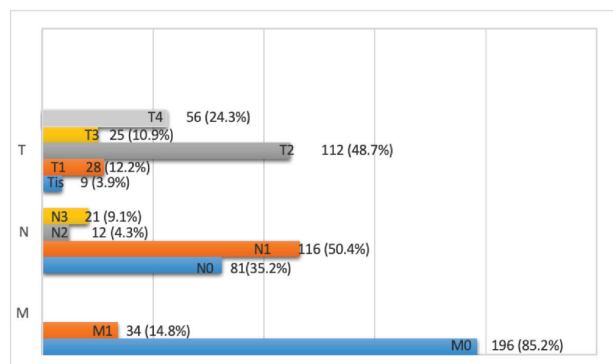


Fig 2: TNM staging of study participants (n=230)

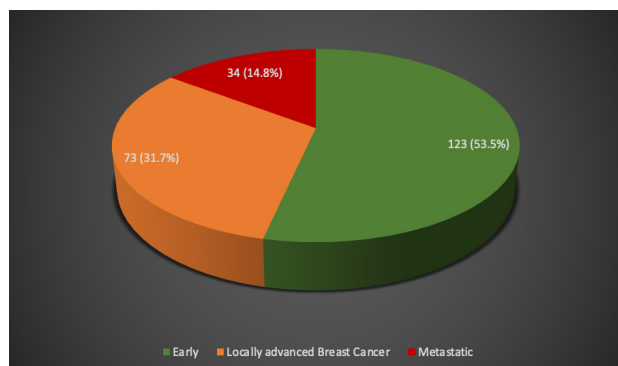


Fig 3: Clinical staging of study participants (n=230)

DISCUSSION

Breast carcinoma is the most common malignancy in women worldwide. It is associated with significant morbidity and mortality. In resource-limited countries like ours, it is a challenge for the healthcare system to cope with the high burden of disease. Although a national screening program seems to be an unattainable solution soon, the importance of breast self-examination is being highlighted in the breast cancer awareness programs at a national level in Pakistan.

In our study, the mean age of females diagnosed with breast cancer was 43 years (mode:44 years). Khan R et al recently reported a similar finding where the median age at diagnosis in breast cancer patients was 45 years.⁴ Similar findings are reported by various local studies.^{5, 7, 18, 19} In contrast to our national figures, the disease appeared at a much later age i.e. 60-70 years ago in the Western world.^{8, 20-23} The reason for breast cancer presenting early in our setup is unclear. However, genetic and environmental factors may play a role.

It was observed in the current study that almost half the patients presenting with breast carcinoma were pre-menopausal. A similar characteristic is reported by Badar F et al from Agha Khan University, Lahore.¹⁸ Invasive ductal carcinoma was the most common diagnosis in patients in our study. Similar data is reported by various local and international studies done so far where invasive ductal carcinoma was the most common type of breast cancer.^{5, 18, 24-26}

TNM staging of the patients in the current study showed that 14.8% of cases were in stage IV of the disease. A study from Faisalabad showed that 21.7% of cases were in stage IV of the disease which is quite high compared to the figures in the current study.⁵ We believe that the initiation of breast cancer awareness campaigns in Peshawar has encouraged a lot of females to seek medical consultation quite early in their disease.

Over the past few decades, tumor biology has been recognized as the most crucial element in determining its potential to spread. It is no longer the size but the receptor status that predicts not just the outcomes but also the response to treatment as well as the risk for recurrence.³ ER and PR receptor status is associated with good outcomes while HER2 expression in breast cancers is associated with increased risk of relapse and poor outcome.^{3, 27} In our study, ER and PR status was positive in almost half of the patients, only 22.2% of patients showed positive HER2 receptor status, while 24% of cases were triple negative. Similar expression patterns are shown by various local and international studies.^{3, 16, 18} However, the Ki67 score in our study was >20 in about 50% of the patients, which is very high as compared to the 29.2% reported by Xueyang et al from China.¹⁶

In the current study, 53.5% of the patients presented with early disease while 31.7% with Locally advanced breast cancer (LABC). The increasing number of patients being diagnosed with early disease in our setup is attributed to the breast cancer awareness program initiated in Khyber Teaching Hospital. The literature suggests that the incidence of LABC is high in Asian countries as compared to Western countries where its incidence is 10-0%.⁴ The reported incidence of LABC in Malaysia is 50-60%, and that in Singapore is 21%.⁴

The current study showed that about 14.8% of patients presented with metastatic disease. This is higher as compared to Western countries where about 5-10% of cases present with metastatic disease.¹⁶ In another study done by Badar F from Lahore, about 4.3% of patients presented with metastatic disease which is quite below that reported in our study.¹⁸ However, in a recent study done by Sohail et al, about 40.% cases presented with metastasis.³ The reason for a higher rate of metastatic disease in our setup is attributed to late presentation to clinics and this in turn depends on lack of knowledge, high illiteracy rate, and poor socioeconomic status of our population.

CONCLUSION

Breast cancer presents at an early age in our population. Half of the affected population is premenopausal. Receptor status for estrogen and progesterone was positive in almost half of the population. Invasive ductal carcinoma breast is the most common diagnosis in our setup. Almost half of the population present with the early stage of the disease while a very scanty proportion of patients present with metastatic disease at diagnosis.

To tackle the high rate of metastatic disease and LABC, it is recommended to initiate campaigns to spread

awareness among the population regarding Breast cancer. The population should be motivated to report any lump in the breast. Initiation of a screening program for the BRCA gene in high-risk populations with a positive family history of breast cancer will further lessen the burden of disease.

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Authors Contribution:

Following authors have made substantial contributions to the manuscript as under

Authors	Conceived & designed the analysis	Collected the data	Contributed data or analysis tools	Performed the analysis	Wrote the paper	Other contribution
Sahar S	✓	✗	✓	✗	✓	✗
Ali IS	✓	✓	✗	✓	✓	✗
Wahid A	✗	✓	✗	✗	✓	✗
Khan M	✓	✓	✓	✗	✓	✓

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethical Approval:

This Manuscript was approved by the Ethical Review Board of Khyber Medical College, Peshawar. Vide No. 807/DME/KMC.

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