Section: Pathology

Original Research Article

HISTOPATHOLOGICAL EVALUATION OF PATIENTS OF CARCINOMA BREAST AT A TERTIARY CARE HOSPITAL

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Abstract

Background: The histopathological evaluation of breast cancer has traditionally served as a foundation for estimating the risk of recurrence and guiding the administration of adjuvant treatments. Hence, the present study was conducted for histopathological evaluation of patients of carcinoma breast. **Materials and Methods:** Sample size for the present study was 200. Direct interview with the patient was done for obtaining a detailed history. Thorough clinical examination was done in all the patients. Relevant investigations were performed over the patients. A pre-tested structured proforma was used to collect this information of individual cases. Under adequate anaesthetic conditions, biopsy specimens were obtained and were sent for histopathological analysis. H and E staining of all the specimens was done for histopathological analysis. All the data was noted down in a pre-designed study proforma. Qualitative data was represented in the form of frequency and percentage. Results was graphically represented where deemed necessary. SPSS software was used for analysis. **Result:** 36 percent and 26 percent of the patients belonged to the age group of 31 to 40 years and 21 to 30 years respectively. Mean age of the patients was 34.5 years. Left side involvement occurred in 67 percent of the patients while right side involvement occurred in 33 percent of the patients. Most common histopathological type was invasive ductal carcinoma found to be present in 34 percent of the patients. Medullary carcinoma was seen in 20.5 percent of the patients. Metaplastic carcinoma and mucinous carcinoma were seen in 14 percent and 12.5 percent of the patients respectively. Cribriform carcinoma and tubular carcinoma were seen in 11.5 percent and 7.5 percent of the patients respectively. **Conclusion:** Histopathology uses a biopsy to obtain images of the diseased tissue. Early identification is significant for illness treatment and a safer prognosis. These pathological features might represent the prognostic factors to determine groups of risk and treatment decisions.

INTRODUCTION

The histopathological evaluation of breast cancer has traditionally served as a foundation for estimating the risk of recurrence and guiding the administration of adjuvant treatments. Commonly recorded characteristics encompass tumor dimensions, classification, grade, and the occurrence of metastases in axillary lymph nodes. Furthermore, the assessment of estrogen and progesterone receptors (ERα and PR) is primarily conducted to determine the potential efficacy of endocrine therapy.[1,2] The histopathological characteristics of breast cancer, similar to global gene expression patterns, are indicative of various biological processes. These processes encompass not only those occurring within cancer cells but also the interactions between cancer and stromal cells, as well as the intricate effects of immune and hormonal factors.[3,4] The predominant histological variant of breast cancer is classified as invasive carcinoma of no special type (NST), which was formerly referred to as invasive ductal carcinoma, not otherwise specified (IDC, NOS). NST encompasses a category of tumors that lack distinctive characteristics that would differentiate them from other histological forms of breast cancer. In addition to NST, there exists a variety of other breast cancer types, many of which are infrequently encountered, such as mucinous breast cancer.[5,6] The National Institute of Oncology in Rabat, received 116 surgical breast specimens with invasive cancer of an unknown nature, resulting in 328 digital slides. These photos were properly classified into one of three types: normal tissue–benign lesions, in situ cancer, or

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aggressive carcinoma. It was shown that, despite the small size of the dataset, the classification model developed in this research was able to accurately predict the likelihood of a breast cancer diagnosis.[7] Hence, the present study was conducted for histopathological evaluation of patients of carcinoma breast.

MATERIALS AND METHODS

The present prospective study was carried on premenopausal and post-menopausal female patients with breast complaints. Sample size for the present study was 200. Direct interview with the patient was done for obtaining a detailed history. Thorough clinical examination was done in all the patients. Relevant investigations were performed over the patients. A pre-tested structured proforma was used to collect this information of individual cases. Under adequate anaesthetic conditions, biopsy specimens were obtained and were sent for histopathological analysis. H and E staining of all the specimens was done for histopathological analysis. All the data was noted down in a pre-designed study proforma. Qualitative data was represented in the form of frequency and percentage. Results was graphically represented where deemed necessary. SPSS software was used for analysis

RESULTS

36 percent and 26 percent of the patients belonged to the age group of 31 to 40 years and 21 to 30 years respectively. Mean age of the patients was 34.5 years. Left side involvement occurred in 67 percent of the patients while right side involvement occurred in 33 percent of the patients. Most common histopathological type was invasive ductal carcinoma found to be present in 34 percent of the patients. Medullary carcinoma was seen in 20.5 percent of the patients. Metaplastic carcinoma and mucinous carcinoma were seen in 14 percent and 12.5 percent of the patients respectively. Cribriform carcinoma and tubular carcinoma were seen in 11.5 percent and 7.5 percent of the patients respectively.

Table 1: Age-wise distribution of patients.

Age group (years)	Number of patients	Percentage
≤ 20	38	19
21 to 30	52	26
31 to 40	72	36
41 to 50	28	14
More than 50	6	3
Total	200	100
Mean ± SD	34.5 ± 12.5	

Table 2: Distribution of patients according to side involvement

Side involvement	Number of patients	Percentage
Right	66	33
Left	134	67
Total	200	100

Table 3: Distribution of patients according to histopathological types

Histopathological types	Number of patients	Percentage
Invasive ductal carcinoma	68	34
Medullary carcinoma	41	20.5
Metaplastic carcinoma	28	14
Mucinous carcinoma	25	12.5
Cribriform carcinoma	23	11.5
Tubular carcinoma	15	7.5
Total	200	100

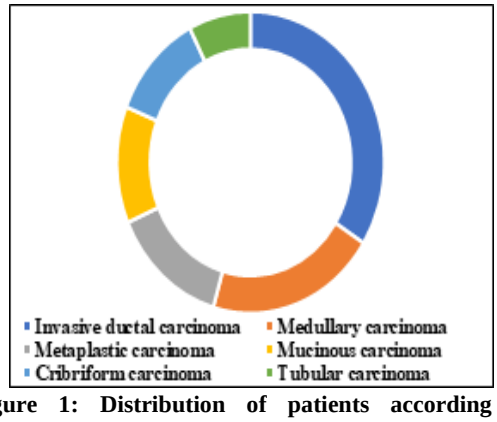

Figure 1: Distribution of patients according to histopathological types

DISCUSSION

Breast cancer has emerged as the most prevalent cancer among women in India, with an age-adjusted incidence rate reaching 25.8 per 100,000 women and a mortality rate of 12.7 per 100,000 women. Comparative analyses of data from various recent national cancer registries have been conducted to assess incidence and mortality rates. The age-adjusted incidence rate for breast carcinoma was reported to be as high as 41 per 100,000 women in Delhi, followed by Chennai at 37.9, Bangalore at 34.4, and Thiruvananthapuram District at 33.7. Furthermore, a statistically significant upward trend

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in the age-adjusted incidence rates from 1982 to 2014 was noted across all population-based cancer registries (PBCRs), including Bangalore (annual percentage change: 2.84%), Barshi (1.87%), Bhopal (2.00%), Chennai (2.44%), Delhi (1.44%), and Mumbai (1.42%).[8] Breast cancer represents a multifaceted disease characterized by significant variability in its clinical presentation, therapeutic responses, and both biochemical and histological characteristics across various subtypes. In terms of histological classification, invasive tumors are categorized into two main groups: special histological types, which are defined by specific diagnostic criteria, with invasive lobular carcinoma (ILC) being the most prevalent, and invasive carcinoma of no special type. The latter, commonly referred to as invasive ductal carcinoma (IDC), constitutes approximately 70% of breast cancer cases. IDC is characterized as an invasive epithelial neoplasm of the breast that does not meet the criteria for any of the special types, resulting in a highly heterogeneous group of tumors.[8-10] Hence, the present study was conducted for histopathological evaluation of patients of carcinoma breast.

In the present study, 36 percent and 26 percent of the patients belonged to the age group of 31 to 40 years and 21 to 30 years respectively. Mean age of the patients was 34.5 years. Left side involvement occurred in 67 percent of the patients while right side involvement occurred in 33 percent of the patients. Most common histopathological type was invasive ductal carcinoma found to be present in 34 percent of the patients. Most common histopathological type was invasive ductal carcinoma found to be present in 34 percent of the patients. Medullary carcinoma was seen in 20.5 percent of the patients. Metaplastic carcinoma and mucinous carcinoma were seen in 14 percent and 12.5 percent of the patients respectively. Cribriform carcinoma and tubular carcinoma were seen in 11.5 percent and 7.5 percent of the patients respectively. Soni S et al gave an insight to overall prognosis, role of molecular markers, various molecular subtypes and better categorization of triple negative breast cancer cases. 500 cases of breast carcinoma were included. Molecular phenotype was determined using expression of estrogen receptor, progesterone receptor, HER2/neu, Ki67, epithelial growth factor receptor (EGFR), and cytokeratin 5/6. Of the 500 cases, maximum number of cases 38.20% were luminal A. Most common histological subtype in all category were Infiltrating duct carcinoma {IDC (NOS)} with higher grade of IDC (NOS) in her2neu and basal type. Unclassified category includes both low grade tumors and high-grade tumors.[11] Li C et al evaluated 135 157 invasive breast cancer cases. Among women aged 50–89 years at diagnosis, lobular and ductal/lobular carcinoma cases were more likely to be diagnosed with stage III/IV, ⩾5.0 cm, and node-positive tumours compared to ductal carcinoma cases. Mucinous, comedo, tubular, and medullary carcinomas were less likely to present at an advanced stage. Lobular, ductal/lobular, mucinous, tubular, and papillary carcinomas were less likely, and comedo, medullary, and inflammatory carcinomas were more likely to be oestrogen receptor (ER) negative/progesterone receptor (PR) negative and high grade (notably, 68.2% of medullary carcinomas were ER−/PR− vs 19.3% of ductal carcinomas). In general, similar differences were observed among women diagnosed at age 30–49 years. Inflammatory carcinomas are associated with more aggressive tumour phenotypes, and mucinous, tubular, and papillary tumours are associated with less aggressive phenotypes.[12] Maffuz-Aziz A et al assessed the clinical and pathological features that play a role as a prognostic factor in a representative population with breast cancer. A total of 4411 patients were included, the average age at diagnosis was 53 years, 19.7% were diagnosed by mammography screening program and 80.3% derived from any signs or symptoms. Regarding the stages at diagnosis, 6.8% were carcinoma in situ, 36% at early stages (I and IIA), 45% locally advanced (IIB to IIIC), 7.7% metastatic and 3.9% unclassifiable. A 79% were ductal histology, lobular 7.8% and the rest, other types. Of ductal carcinomas, 9.1% were grade I, 54.1% grade II, and 34.6% grade III. Regarding the biological subtypes, 65.7% were luminal, 10.9% luminal Her positive, 8.7% pure Her 2 positive and 14.6% triple negative.[13]

CONCLUSION

Histopathology uses a biopsy to obtain images of the diseased tissue. Invasive ductal carcinoma was the most common histopathological type encountered in the present study. Early identification is significant for illness treatment and a safer prognosis. These pathological features might represent the prognostic factors to determine groups of risk and treatment decisions.

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