

## CLINICO-MORPHOLOGICAL SPECTRUM OF CARCINOMA BREAST AT A TERTIARY CARE HOSPITAL IN SOUTH RAJASTHAN, INDIA

Dr. Sonal Agarwal

*1. Assistant Professor, Department of Pathology, Pacific Medical college and hospital, Udaipur.*

\*Email id of the corresponding author- [jsonal77@gmail.com](mailto:jsonal77@gmail.com)

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### ABSTRACT

**Background:** Breast cancer is the leading cause of cancer death in women worldwide. Breast cancer being one of the most dreaded diseases with uncertain cause has gained concern of surgeons and scientific fraternity worldwide. The rates of breast cancer vary amongst men and women of different ages and ethnicities. Our study aims at analysis of cases of carcinoma of breast, study of various histological subtypes and assessment of histological grading of tumor. **Materials and methods:** This prospective and retrospective clinicopathologic study was conducted on 58 patients of Breast Carcinoma at pathology department of Pacific Medical college and hospital, Udaipur. Clinical details were recorded and complete histopathological examination of specimens was done. **Results:** Of the patients of age group 31-84 years, breast carcinoma was most common (37.84%) amongst females of 41-50 years. Females (96.55%) outnumbered males (3.44%) for the disease. The site of breast carcinoma was found to be upper outer quadrant in significantly higher number of cases (65.2%). There was a predominance of Invasive duct carcinoma of NST type (79.3%). Histologically grade III carcinoma (75%) was found to be leading other grades. **Conclusion:** Invasive duct carcinoma is the commonest type of breast carcinoma which was most commonly seen in upper outer quadrant of the breast. Histologically grade III carcinoma was found to be predominant. Maximum number of these tumours was encountered in the fourth decade of life of females. Histopathology plays an important role in the diagnosis of breast diseases. There is a necessity of Breast examination awareness'.

**KEYWORDS:** carcinoma breast, invasive duct carcinoma

### INTRODUCTION:

The breast appears structurally and functionally to be relatively uncomplicated, but it is the site of a surprisingly broad array of pathological alterations, most important among them is cancer. Cancer develops when cells in a part of the body begin to grow out of control. Instead of dying, they outlive normal cells and continue to

Form new abnormal cells. The nature of neoplasia and its sometimes end result, cancer, has been studied by exposition and explanation of the sequential lesions of tumor progression. Traditionally, breast cancer has been viewed as one biologic entity with common etiology. Breast cancer supposedly results from stochastic molecular changes over the long period.

Stepwise molecular alterations are mirrored by histologic progression from normal breast epithelium to atypical hyperplasia to in situ to invasive breast cancer.

Breast cancer is the leading cause of cancer death in women worldwide. Breast cancer is one of the most dreaded diseases with an uncertain cause has gained concern of surgeons and scientific fraternity worldwide. The rates of breast cancer vary amongst men and women of different ages and ethnicities. Breast cancer accounts for 25 to 32% of all cancers in women in cities like Mumbai, Delhi, Bengaluru, Bhopal, Kolkata, Chennai, Ahmedabad, etc. as can be found on the PBCR (Population-Based Cancer Registry) Website. It is the second most common cancer after cervical cancer in women of the rural population. In India, the overall incidence of breast cancer is less as compared to the US. But if you see the actual number of cases, India is not far behind. If current rates of increase in breast cancer remain constant, a woman born today has 1 in 10 chances of developing breast cancer (1) incidence. Similar to female breast cancer, the incidence of male breast cancer increases with age. Men, however, are more likely than women to be diagnosed with advanced disease and thus have poorer survival. Factors that influence breast cancer survival is time since diagnosis, age at diagnosis, stage at diagnosis and race, ethnicity and socioeconomic factors.

The breast contains lobes & ducts, which connect the lobes to the nipples. Depending upon whether the cancer cells develop in the duct or lobules of breast these cancers called ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS). If the cancer has not spread at all, not even in the surrounding breast tissue, this is called non-invasive breast cancer. If the cancer

has spread into the surrounding breast tissue this is called invasive breast cancer.

Histological grading is increasingly accepted as prognostic indication beyond the stage in the breast cancer. Histological grading describes the microscopic growth pattern of carcinoma as well as cytological features of differentiation. The most widely used grading system is based on criterion established by Bloom and Richardson (2). The parameters measured are the extent of tubule formation, nuclear hyperchromasia, pleomorphism, and size mitotic rate. The final grade is determined from sums of the scores.

#### **Our study aimed at:**

1. Analysis of cases of carcinoma of breast
2. Study the various histological subtypes
3. Assessment of histological grading of tumor (according to Bloom Richardson score)

#### **MATERIALS AND METHODS**

A clinicopathological study was conducted on 58 patients of Breast Carcinoma at pathology department of Pacific Medical college and hospital, Udaipur. Ethical clearance was obtained from the institutional ethical committee before the commencement of the study. Informed consent was sought from the patients before enrolling them for the study. Of the total 58 cases, 19 were retrospective that were studied from the clinical data available in the hospital records and their corresponding H & E stained sections were analyzed. Prospective cases were followed clinically along with the discussion with the concerned surgeon. The special investigations (wherever done) were analyzed along with the histopathological and IHC (Immunohistochemistry) (wherever done) findings and a definite diagnosis was established. According to the clinical status and special investigation reports, the patient underwent surgical procedures. Carcinomas were graded

microscopically according to Nottingham scoring system.

Data analysis was done using SPSS software version 17.0. Data were summarized in form of proportions and frequency tables for categorical variables. Chi-square ( $\chi^2$ ) test was used to test for significance for categorical variables whereas independent student t-test was used in continuous variables. Significance was defined as a p-value of less than 0.05.

## RESULTS

Our study showed a significantly higher number ( $p < 0.0001$ ) of patients with a palpable lump. Mammography was done in 35% cases and the diagnosis was suggestive of malignancy in all of them. FNAC was done in 40% of cases. A biopsy was done for rest of the cases.

Patients aged between 31 to 84 years were enrolled in the study of which breast carcinoma was significantly higher in the fourth decade of life ( $p = 0.0377$ ) and that too in females 56 (96.55%) as against males 2 (3.44%).

The most common site of carcinoma was found to be upper outer quadrant in 38 (65.51%) cases. ( $p < 0.0001$ )

Invasive duct carcinoma of NST type (79.31%) predominated all types in our study. ( $p < 0.0001$ )

## DISCUSSION

Breast carcinoma is a disease with tremendous heterogeneity in its clinical behaviour. Commonest clinical presentation in our study was palpable lump (36.20%). Palpable lump with pain and lymphadenopathy was the second common clinical presentation.

In our study, breast carcinoma was significantly higher in fourth decade of life. Most of the cases were postmenopausal. Our study was in agreement with the observation of Hankey BF et

al.(3) The mean age of the patients in their study was 46.6 years, a similar finding to the observation of Mabula JB et al (4) where the mean age of breast cancer patients was 45 years. This is lower than the age reported in western countries where the median age at diagnosis is in the sixth decade of life. (5, 6)

This shows that there is a difference in mean age of patients of breast carcinoma in developed and the developing nation. This suggests need of increasing awareness in patients about the disease in the developing nation over the period of time. (7)

Our study does not concord with many other studies in which majority of patients fall in the second and third decade of life with more than 90% of them being premenopausal. (8, 9)

Of the 58 patients of carcinoma breast, 27 (46.55 %) had left breast involvement whereas 25 (43.10%) had right breast involvement. Rest of the 6 (10.34%) had a bilateral involvement. Quite similar results with 48% and 45% carcinoma in left and right breast respectively were seen by Kanpurwala Shaheen et al. (10)

However, this observation does not go with the observations of Agrawal GP et al and Tulinius H et al who observed increased incidence of breast cancer on left side. (11, 12)

Of 58 malignant breast tumours in present study, 38 cases (65.5%) were seen in upper outer quadrant followed by central (20.68 %), lower outer quadrant (8.62 %), lower inner quadrant (6.8%), diffuse (1.72%) and upper inner quadrant (1.72%) in that order. This data is very close to that obtained by Muqtadir et al and Mudholkar et al who reported 53.03% and 42.05% of involvement of upper outer quadrant of breast (13, 14). Maximal involvement of upper outer quadrant as observed in our study was also in concurrence with the results of Darbre (15). The

possible explanation for the tendency for the cancer in the upper outer quadrant could be the fact that lymphatic drainage of the breast in this region is poor because of not enough support and greater amount of target epithelial tissue.

Invasive duct carcinoma of NST type (79.3 %) predominated all types in our study. According to the National Cancer Registry Program, during 1984-1993 (16), IDC NST is the commonest variant of breast cancer in the hospital-based cancer registries in Mumbai, Bangalore, and Thiruvananthapuram. Saxena et al., (17) and Sandhu et al., (18) also observed similar predominance.

## CONCLUSION

Since the number of cases is rising rampantly, more of the younger women are getting affected, most are presenting only after symptoms develop (so usually stage 2B and beyond, rarely earlier stage) and we cannot prevent this cancer, all we can do is to detect this cancer earlier and treat adequately for a longer survival as well as decreasing the chance of recurrence. Since the Indian society is deep-rooted in myths, alternative treatments, and unusual illogical beliefs, so it is necessary to spread awareness for this disease.

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**TABLE 1- CLINICAL PRESENTATION IN BREAST CARCINOMA**

| Sr. No. | Clinical Presentation  | No. of cases | %     |
|---------|--|--------------|-------|
| 1.      | Palpable lump  | 21           | 36.20 |
| 2.      | Lump+Pain+lymph nodes  | 11           | 18.96 |
| 3.      | Lump+Pain  | 10           | 17.2  |
| 4.      | Lump+Nipple Retraction                                       | 5            | 8.6   |
| 5.      | Lump+lymph nodes   | 3            | 5.16  |
| 6.      | Lump+ Pain+ Nipple discharge+ Nipple Retraction+ lymph nodes | 3            | 5.16  |
| 7.      | Lump+Nipple discharge  | 2            | 3.44  |
| 8.      | Lump+Pain+ Nipple discharge                                  | 2            | 3.44  |
| 9.      | Lump+Pain+Nipple discharge+lymph nodes                       | 1            | 1.72  |

**TABLE 2 -AGE DISTRIBUTION**

| S. No. | Age Groups (In Years) | No of Cases | %     |
|--------|-----------------------|-------------|-------|
| 1      | 31-40                 | 5           | 8.6   |
| 2      | 41-50                 | 22          | 37.84 |
| 3      | 51-60                 | 16          | 27.52 |
| 4      | 61-70                 | 10          | 17.2  |
| 5      | Above70               | 5           | 8.6   |

**TABLE 3- SITE OF CARCINOMA**

| Site         | Upper outer Quadrant | Lower Outer Quadrant | Upper Inner Quadrant | Lower Inner Quadrant | Central | Dif fuse |
|--------------|----------------------|----------------------|----------------------|----------------------|---------|----------|
| No. of cases | 38                   | 5                    | 1                    | 4                    | 12      | 1        |
| %            | 65.51                | 8.62                 | 1.72                 | 6.8                  | 20.68   | 172      |

**TABLE 4- TYPE OF SPECIMEN OF BREAST CARCINOMA**

| TYPE OF SPECIMEN                                    | Number of Cases | %     |
|---|-----------------|-------|
| Modified Radical Mastectomy (Mrm)                   | 49              | 84.48 |
| Lumpectomy Followed By Mrm                          | 4               | 6.89  |
| Simple Mastectomy                                   | 3               | 5.17  |
| Wide Excision Of Breast Lump                        | 3               | 5.17  |
| Lumpectomy With Axillary Clearance                  | 2               | 3.44  |
| Left Breast Mastectomy With Right Breast Lumpectomy | 1               | 1.72  |
| Revision Mastectomy                                 | 1               | 1.72  |
| Bilateral Orchiectomy With Lumpectomy               | 1               | 1.72  |
| Pleural Biopsy                                      | 1               | 1.72  |
| Quadrantectomy                                      | 1               | 1.72  |

**TABLE 5- HISTOLOGICAL TYPES OF BREAST CARCINOMA**

| S.No. | HISTOLOGICAL DIAGNOSIS  | No. of cases | %     |
|-------|---|--------------|-------|
| 1     | Invasive (Infiltrating) Duct Carcinoma of No Special Type (NST) | 46           | 79.31 |
| 2     | Invasive (Infiltrating) Lobular Carcinoma                       | 02           | 3.44  |
| 3     | DCIS High Grade<br>Low Grade                                    | 02           | 3.44  |
|       |   | 02           | 3.44  |
| 4     | Malignant Phylloides Tumor                                      | 01           | 1.72  |
| 5     | Sarcoma Arising In Phylloides Tumor                             | 01           | 1.72  |
| 6     | Colloid And Invasive (Infiltrating) Carcinoma                   | 01           | 1.72  |
| 7     | Low-Grade Mucin Secreting Carcinoma                             | 01           | 1.72  |
| 8     | Invasive (Infiltrating) Lobular And Infiltrating Duct Carcinoma | 01           | 1.72  |
| 9     | Metaplastic Carcinoma   | 01           | 1.72  |
| 10    | Metastatic Adenocarcinoma To Pleura                             | 01           | 1.72  |

**TABLE 6- GRADES AND BREAST CARCINOMA**

| GRADE                   | No. of cases<br>N=58 | %     |
|-------------------------|----------------------|-------|
| I                       | 5                    | 8.62  |
| II                      | 2                    | 3.44  |
| III                     | 45                   | 77.58 |
| I TO II                 | 2                    | 3.44  |
| Could not be determined | 4                    | 6.88  |