CLINICO-MORPHOLOGICAL PROFILE IN BREAST CANCER PATIENTS IN A TERTIARY CARE HOSPITAL IN WESTERN RAJASTHAN

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ABSTRACT

BACKGROUND

Breast cancer is the most common malignancy in females. Data on breast cancer profile of patients in Rajasthan, especially Western region is scant. The clinical and morphological presentation may be different due to which appropriate strategy may have to be employed for screening, diagnosis and treatment purpose.

AIMS

To study the clinical and morphological profile in breast carcinoma patients in a tertiary care hospital in Western Rajasthan.

METHODS

This prospective study was carried out on 50 newly diagnosed cases of breast carcinoma. The cases were confirmed on cytology following which the morphology was examined on biopsies.

STATISTICAL ANALYSIS

Data was analysed by using Statistical Package for Social Sciences (SPSS) version 21 where required.

RESULTS

Mean age of patients was found to be lower compared to western countries. Many of the patients were from rural background and patients often presented with longer duration of symptoms and advanced clinical stage. Left side was more frequently involved. The tumour was commonly of higher grade (Grade 3).

CONCLUSION

Breast cancer occurs in younger age females in India including Western Rajasthan region. Considering the younger age of presentation of patients and decreased affordability of patients, mammography might be a less effective screening test due to higher density of breast in young age, which decreases the sensitivity of mammography. Patients are mostly from rural background and present more frequently with advanced stage breast cancer. The cancer is frequently high grade and increased involvement of lymph nodes is also seen. Awareness campaigns, breast self-examination, improved access to diagnostic resources and health care are important measures that should be undertaken for increasing early diagnosis. To the best of our knowledge, this is the first study examining the clinico-morphological profile of breast cancer patients in Western Rajasthan region.

KEYWORDS

Breast Cancer-Clinical Profile-Stage-Grade-India.

INTRODUCTION

Breast cancer is the most common cancer in women with an estimated 1.38 million new cases in a year (23% of all cancers).[1] It accounts for 15% of cancer mortalities in females.[2] The cases of breast cancer have been increasing over the world in the last few decades.[3,4] and the increase has been especially great in developing Asian countries.[5] India reports roughly 1,00,000 new cases annually.[6] However, these figures are from the National Cancer Registry and the Hospital based Tumour Registry and they do not adequately sample the total population.

The classification and prognosis of breast cancer is based on a large part on histopathological parameters such as tumour size, type, grade and lymph node status.[7-15] However, only few studies from India are present.[16-19] and to the best of our knowledge, no study from Western Rajasthan regarding the clinico-histological parameters of breast cancer is available.

MATERIALS AND METHODS

The study was conducted at Dr. S. N. Medical College and associated hospitals by the Department of Pathology; 50 new cases of breast cancer which were proven on cytology from October 2012 to August 2013 were included in the study. Detailed clinical history relating to age, symptoms, duration of symptoms, menopausal status, family history was taken. All the patients were thoroughly examined and clinically staged according to the TNM classification of carcinomas of the breast.[20] Few of the patients had sonography of abdomen and liver function tests done.

After cytological confirmation, the lump was biopsied and processed and the histopathology was examined. The following pathological features were assessed on the biopsies– tumor type, histological grade, presence or absence of co-existent in situ component. The tumours were typed in accordance with the WHO.[21] They were graded according to the Nottingham modification of the Bloom and Richardson method.[15] Additional histological prognostic information- lymphovascular invasion and presence and extent of tumor necrosis was also looked for. The data was tabulated in Microsoft Excel 2013 and analysed by using Statistical Package for Social Sciences (SPSS) version 21 where required.

RESULTS

A total of 50 new cases of breast cancer from October 2012 to August 2013 were studied. A majority of the patients were in the age group 40-50 years (Table 1). The youngest patient was 27 years and the oldest patient was 78 years old and the mean age of patients was 48.6 years. All the patients in the study were females; 58% of the patients were postmenopausal (Table 2). A total of 33 (66%) patients were from rural background and 17 (34%) were from urban background with the ratio of 1.9:1.

None of the patients had a family history of breast cancer. Two patients (4%) were nulliparous. All the other patients were multiparous and had history of breast feeding. The most common symptom was breast lump, present in all the cases. The lump was seen to be slightly more common on the left side; 27 (54%) patients had a left breast lump and 23 (46%) patients had a right breast lump. Majority of the patients had lump in the upper outer quadrant. None of the patients had bilateral breast lumps. One patient had history of nipple discharge and 8 patients (16%) also had history of associated pain in the lump (Table 3). The duration of the symptoms ranged from 20 days to 4 months; 21 (42%) patients had symptoms for more than 2 months.

Tumour size taken as the maximum diameter on clinical examination, ranged from 1.5cms to 9.5cms in maximum dimension. Maximum number of patients had tumour size in the range of 2 to 5cms (Table 4). Lymphadenopathy was present in 24 (48%) of the cases. All these patients had ipsilateral axillary lymphadenopathy. Clinical TNM staging done of the patients is shown in Table (Table 5). Liver function tests, chest X-ray and ultrasonography of abdomen were done to exclude metastasis. Mammography was done in only few patients. Liver function tests were not altered in any of the patients.

Histological typing of the tumour was done on biopsies (Incision biopsies) subsequently. All the cases were Invasive Ductal Carcinoma, NOS except one case of mucinous carcinoma. Histological grading done by Nottingham modification of the Bloom and Richardson method showed maximum tumours of grade 3 (42%- Figures 1 - 3), 34% of the tumours were grade 2 and 24% were grade 1 (Table 5). Additionally, tumour necrosis was seen in 6% of the biopsies and lymphovascular invasion was seen in 4% of the biopsies.

DISCUSSION

Breast cancer is the most common non-skin malignancy in women.[22] According to the National and Regional cancer registries, it is the commonest cancer in women in Delhi, Mumbai, Ahmedabad, Kolkata and Trivandrum and the second

most common site among women. The age standardized rates range from 9-28.6 per 100,000 women.[23]

The aim of this study was to examine the clinico-pathological profile of breast cancer patients in Western Rajasthan as such studies are sparse. The majority of patients were seen in the fourth to sixth decade of life. Similar figures have been reported from India and other Asian countries.[24-26] as well as Rajasthan.[27] However, female breast carcinoma is predominantly seen in the fifth decade onward in Western countries.[28,29] Of all the patients, 66% of the patients were from rural background. This difference was statistically significant. Similar finding was seen in only one other Indian study.[17] However, other studies in India as well as from the United States show higher incidence in urban population.[24,30] This difference could be due to the fact that our hospital has a large rural periphery and therefore caters to mostly rural population.

Also, women from rural areas often have difficulty in accessing health care services and a large proportion of India's population is from rural areas. All the patients presented with lump in the breast. Few of the patients had associated pain as well. A single patient also had nipple discharge. The lump in breast was more common on the left side and that too in the upper outer quadrant. This is possibly due to bulkier left breast and more breast tissue in the upper outer quadrant. Similar findings have been seen in other studies.[27,31,32,33] Only 4% of patients were nulliparous. This figure is lower than seen in other studies.[17,34,35] The reason for this is not clear and a larger study is needed to confirm this finding.

Only a single patient (2%) presented in stage I. Majority of the patients presented at stage II or more. This could again be delayed access to health care services. Only 27% of patients with tumours belonging to stage T2 or less had lymph node metastasis. In contrast, 76% of patients with clinical stage T3 or more had lymph node metastasis. This direct relationship between tumour size and lymph node status has been established.[36]

Additional investigations done were liver function tests, sonography abdomen and chest X-ray. Chest X-ray and ultrasonography picked up cases of metastasis. However, liver function tests were normal in all the cases, which raises questions regarding the sensitivity of this investigation for metastatic workup. Mammography and bone scan were not routinely done in patients due to decreased availability and economic issues for many patients. Moreover, mammography is largely useful for detecting early stage breast cancer. In our study, patients presented with advanced stage breast cancer. Literature also shows that complete metastatic workup is not necessary in many newly diagnosed breast cancer patients, and may be done for some patients only, such as stage III or advanced disease.[37]

On histological typing, 98% of the cases were Invasive Ductal Carcinoma, NOS. and 2% mucinous carcinoma (Colloid carcinoma). It has been seen that Invasive Ductal Carcinoma, NOS accounts for 47-75% of cases of breast carcinoma and mucinous carcinoma for 1-4% of cases.[10] Other Indian studies have also shown Invasive Ductal Carcinoma, NOS to be the commonest tumour.[38,39] On histopathological grading, maximum number of patients had grade 3 tumour (42%), 34% had grade 2 tumour and 24% had grade 1 tumour. Other studies have also shown similar results.[38,40] Tumour necrosis was seen in 6% of the biopsies and lymphovascular invasion

was seen in 4% of the biopsies. However, these figures is higher in literature.[40,41]

This discrepancy could be due to the smaller size of preoperative biopsies in the current study compared to modified radical mastectomies in the other studies. In conclusion, compared to developed countries, breast cancer occurs in younger age females in India. However, considering the younger age of presentation of patients and decreased affordability of patients, mammography might be a less effective screening test due to higher density of breast in young age, which decreases the sensitivity of mammography. Patients present more frequently with advanced stage breast cancer. The cancer is frequently high grade and increased involvement of lymph nodes is also seen. Awareness campaigns, breast self-examination, improved access to diagnostic resources and health care are important measures that should be undertaken for increasing early diagnosis.

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Age Interval	No. of Patients	Percentage (%)
30 – 40	7	14
40 – 50	17	34
50 – 60	12	24
60 – 70	6	12
70 – 80	8	16
TOTAL	50	100

Table 1: Age distribution of Patients

Menstrual Status	No. of Patients	Percentage (%)
Pre-Menopausal	21	42
Post-Menopausal	29	58
TOTAL	50	100

Table 2: Menopausal Status

Symptoms	Present	Percentage (%)
Breast Lump	50	100
Pain	08	16
Discharge from Nipple	1	2

Table 3: Clinical Presentations

Tumour Size (Cms)	No. of Patients	Percentage (%)
< 2	1	2
2 – 5	28	56
> 5	21	42
TOTAL	50	100

Table 4: Tumour Size

TNM Staging	No. of Patients	Percentage (%)
T1N0M0	1	2
T2N0M0	20	40
T2N1M0	8	16
T3N0M0	4	8
T3N1M0	7	14
T4bN0M0	1	2
T4bN1M0	8	16
T4bN1MX	1	2
TOTAL	50	100

Table 5: Clinical TNM Staging

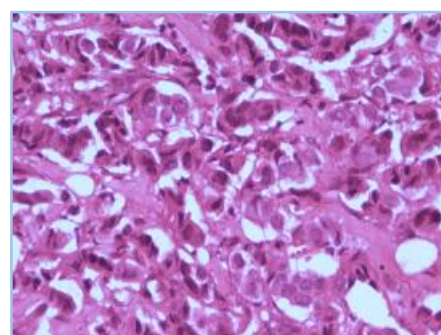| BR Score	No. of Patients	Percentage (%)
BRS 4	2	4
BRS 5	10	20
BRS 6	12	24
BRS 7	5	10
BRS 8	12	24
BRS 9	9	18
TOTAL	50	100

Table 6: Bloom Richardson Score (BRS)
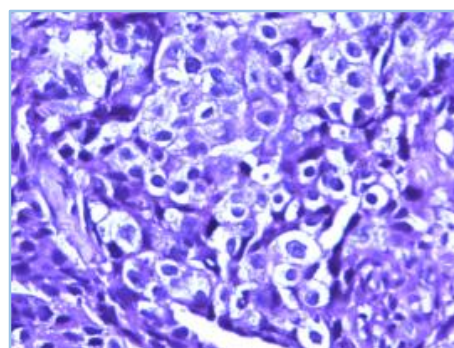
Fig. 1: High grade Invasive Ductal Carcinoma, NOS (40x)
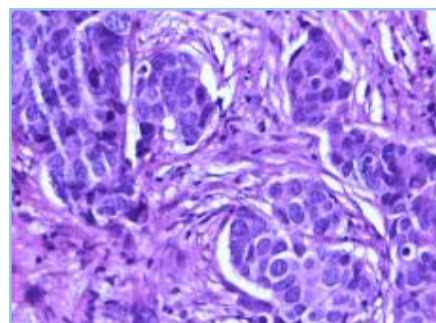
Fig. 2: High grade Invasive Ductal Carcinoma, NOS (40x)

Fig. 3: High grade Invasive Ductal Carcinoma, NOS (40x)