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A Clinicopathological Study of Carcinoma Breast Specimens: Four Year Retrospective Study

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Abstract

Introduction: Cancer is one of the major health issues worldwide including India. Breast cancer is by far the most frequent cancer in females with rising incidence and usually presents at advanced stage at diagnosis making the outcome poor, however aggressive the treatment may be and leading to disproportionately higher mortality rates. *Aims and Objectives:* To study the age, incidence, clinical presentation and histomorphological pattern of carcinoma breast in all mastectomy specimens. *Methodology:* Four year retrospective study of 170 mastectomy specimens received in the department of pathology from Jan 2012 to Dec 2016. All the sections were retrieved and diagnosis were confirmed and the necessary clinical data was obtained from records department. Histological grading were done according to Modified Scraff-Bloom-Richardson Method. *Results:* The commonest presenting symptom was painless lump (65% of patients) with slight left breast predominant involvement (55%). The most common site of location were in upper outer quadrant (35%) and the least in subareolar region (3%). Among the histological varieties invasive duct carcinoma not otherwise specified was the commonest (83%) and the least was tubular carcinoma (0.5%). Majority of the patients were between 41-50 years (45%). 56% of cases showed evidence of metastasis in lymph nodes. In our study, 52.1% of carcinomas were in Grade I, 41.3% were in Grade II, and 6.6% were Grade III. *Conclusion:* Carcinoma breast is affecting young to middle age group and the number of cases increasing every year and we cannot prevent this cancer, all we can do is Breast Awareness and screening programmes is the need of the hour.

Keywords: Breast; Mastectomy; Infiltrating Duct Carcinoma; Tumor Size; Grade.

Introduction

Breast cancer is the most common female cancer worldwide representing nearly a quarter (23%) of all cancers in women [1,2]. The global burden of breast cancer is expected to cross 2 million by the year 2030, with growing proportions from developing countries [3].

The Incidence of invasive breast carcinoma in rural and urban population of india are not documented mainly because of patient's low cancer awareness among women. Breast cancer incidence rates within India display a 3-4 fold variation across the country with highest in the metropolitan cities and north-east states [4]. The factors like age at menarche, marriage, child bearing, breast feeding, socio-economic status and knowledge regarding the cancer growth largely influence the true incidence of the cancer.

It is both ironic and tragic that a neoplasm arising in an exposed organ readily accessible to self examination and clinical diagnosis, continuous to extract such a heavy toll [5].

As breast being constantly under the varying influence of sex hormone, Carcinoma of breast is associated with morbidity and mortality among women of reproductive age group. As a rule all breast lump require assessment. This frequency of disease in women has prompted an intensive study of risk factor (clinical parameter, morphological typing and biological marker) in a developing breast cancer to gain clue to identify modifiable risk factor that would be helpful for assessment of prognosis, prevention strategies and treatment modalities.

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Treatment of breast cancer includes surgery, hormonal therapy, chemotherapy and radiotherapy [6]. So as a pathologist receiving mastectomy specimens must report all parameters of the tumor which includes size of the primary tumor, microscopic grade, axillary lymph node metastases, blood and lymph vessel emboli, tumor necrosis, skin invasion and nipple invasion, which will provide adequate information to the surgeon.

Aim of our study was to study the incidence of various histomorphological malignant lesions of breast, its clinical presentation and age distribution from mastectomy specimens received in our institution.

Materials and Methods

Four year retrospective study of 170 mastectomy specimens received in the department of pathology from Jan 2012 to Dec 2016. All the sections were retrieved and diagnosis were confirmed and the necessary clinical data was obtained from records department. Specimens were received in 10% formalin, analyzed in detail for the parameters like size and external surface. Sections were studied using routine H & E(Eosin and Hematoxylin) stains. Special stains and IHC(Immuno histochemistry) was done wherever necessary. Histological grading were done according to Modified Scraff-Bloom-Richardson Method [7].

The neoplastic lesions were studied according to WHO classification 2002. We had an inclusion and exclusion criteria for our study.

Inclusion Criteria

All carcinoma breast between age group of 20-80 disregard of menstrual status.

Exclusion Criteria

Non-neoplastic lesions of breast, Breast carcinoma in males.

Results

In our study, age of the patients were between 26-78 years (mean age, 45.4 years). In our study majority of persons were in the age group of 41-50 years (45%), while 28.7% cases were between 31-40 years. Lowest incidence was observed in women above 70 years of age (2.5%). The main presenting symptom was painless lump (65%). Other presenting symptoms is illustrated in Table 2.

Table 1:

Age Group in Years	Number of Cases	Percentage (%)
21-30	13	7.4
31-40	49	28.7
41-50	77	45.0
51-60	22	13.2
61-70	5	3.2
Above 70	4	2.5

Table 2:

Symptoms and Signs	Number	Percentage (%)
Painless lump	110	65.0
Nipple Retraction	76	44.7
Peau d' orange appearance	30	17.8
Lump with pain	16	9.8
Lump with ulceration	16	9.8
Lump with nipple discharge	4	2.5

Table 3:

Quadrant	Number	Percentage
Upper outer	60	35.0
Lower outer	40	23.7
Upper inner	24	14.2
Lower inner	18	10.3
All quadrants	12	7.0
Two quadrants	11	6.8
Subareolar	5	3.0
Total	170	100

Table 4:

Histomorphological Types	Number	Percentage (%)
Invasive duct carcinoma(not otherwise specified)	141	83.0
Invasive Lobular carcinoma	12	7.1
Medullary carcinoma	6	3.2
Metaplastic carcinoma	3	1.8
Ductal carcinoma in-situ	3	1.8
Mucinous carcinoma	2	1.3
Invasive papillary carcinoma	2	1.3
Invasive tubular carcinoma	1	0.5
Total	170	100

In our study of 170 specimens, 94 (55%) had lump in the left breast, 76 (45%) had lump in right breast. None had bilateral lumps. The most common site of location were in upper outer quadrant (35%) and the least in subareolar region (3%). Among all the quadrants involvement of the upper outer quadrant was more significant, which is illustrated in Table 3

Among the histological varieties invasive duct carcinoma not otherwise specified was the commonest (83%) and the least was tubular carcinoma (0.5%).

In our study, 88 (52.1%) of carcinomas were in Grade I, 70 (41.3%) were in Grade II, and 12 (6.6%) were in Grade III. Lymphovascular invasion was seen in 88 (52%) cases. 95 (56%) of cases showed evidence of metastasis in lymph nodes.

Discussion

Breast cancer is one of the most frequent cancer in women worldwide and represents over 23% of all malignancies among females [8]. In India, the incidence of breast cancer is increasing and approaching the western world [8,9]. Many population based cancer registry data from India has revealed breast cancer as the commonest cancer in women and has overtaken cervix cancer [10,11]. This malignancy accounts for 19-34% of all cancer among women nationality [8,11].

In our Retrospective study of 170 cases of carcinoma breast analyzed for age incidence, clinical presentation and histomorphological pattern and the data was compared with other studies.

There appears age-specific incidence of breast carcinoma increasing rapidly until the age of 50 years, and then continues to increase at a slower rate for older women, suggesting some key carcinogenic events occur before rather than after menopause [12].

Carcinoma of breast is rare in their 20s or 30s without family history of breast cancer. The germline mutations are responsible for two thirds of familial breast carcinomas or roughly account for 5% of all cases [13].

Carcinoma breast have a complex etiology some of which are hormonal, genetic and environmental factors operating over long period [13,14]. Average age in hospital based cancer registries at Delhi and Jaipur have also reported that the average age of breast cancer cases to be as 46.8 years and 47 years [11,15].

According to the reports of National cancer Registry Project (NCRP-ICMR), average age of patients seen in population based cancer registries (PBCR) were maximum seen at the fifth decades [8,9,10].

In the present study, the youngest patient was 26 years and the oldest was 78 years. The maximum incidence of carcinoma of breast was found in the fifth decade was similar to the studies of Karabi Datta et al [16], Agarwal Kapil et al [17], Laishram et al [18] , Saxena et al [15], Mohapatra et al [19] and reports of National cancer registry.

The observations regarding the age incidence, youngest and oldest age of occurrence in the present study are almost similar to the study by Agarwal Kapil et al [17] and Laishram et al [18].

The average age of outcome of breast cancer among US white females is 61.0 years [12]. In the present study the average age of presentation was found to be 45.4 years. The average age of occurrence in India seems to be earlier compared to western countries. The reason for early age occurrence in India needs to be further studied. Similar findings were reported by Borovanova et al [20] in Czech population and Saxena et al [15] in India population.

Lump in the breast was the chief presenting complaint in a majority of patients (83%), it was usually painless (65%), as reported in various studies [21,22]. No patients presented with an isolated complaint of nipple discharge or pain in the breast.

Several studies have documented the fact that breast carcinoma is slightly more frequent in the left breast than in the right, the possible explanations are left breast is bulkier than the right [23,24].

Similarly, in the present study, 55% were in the left breast and 45% were in the right breast, which is comparable with study by Samir S et al [24] and Sandhu DS et al [25]. In studies of Bemjamin Dle [26], Temidya [27] and Saha [28] had a slight predominance of right breast involvement.

Breast cancers present as an ill defined mass, sometimes adherent to skin underlying muscle. They commonly arise anywhere in the breast parenchyma or accessory breast tissue, although most common in the upper quadrant [13] in 84 cases (49%) is due to the amount of breast parenchyma in each quadrant.

The size determination has a greater prognostic significance when measured microscopically than grossly [13]. Minimal breast carcinoma is defined as all in-situ carcinoma and invasive carcinoma of 5mm or less in diameter. In the present study we had no cases of minimal breast carcinoma, all cases came to medical attention only when they were equal to or more than 1 cms in size.

In the present study, majority were invasive duct carcinoma NOS (83%) which is comparable to the study by New Comer LM et al [29](83.7%), Malik R et al [30] (92.4%), Laishram et al [18] (76.8%), Shahid Siddiqui et al [31] (81.99%).

Our study as well as reports from India and the western world indicate IDC is the most commonly encountered histomorphologically [15,18,29,30]. Ductal carcinoma-insitu(DCIS) accounts for over 20% of breast carcinoma in the western world, due to early detection by screening [32]. However in developing countries like India, most patients presents late, due to lack of screening programs leading to very low incidence of DCIS.

In our study, 88 (52.1%) of carcinomas were in Grade I, 70 (41.3%) were in Grade II, and 12 (6.6%) were in Grade III. Mohapatra [19] found 59.5% cases of Grade II tumors, Shahid Siddiqui [31] 65%, Saha [28] 51.7% cases of malignant tumors in Grade III, Benjamin [26] 59.1% in Grade II.

Lymphovascular invasion was seen in 88(52%) cases. 95 (56%) of cases showed evidence of metastasis in lymph nodes. Most of the study show almost 60-90% cases showing lymph node involvement in the studied cases of mastectomies. Zubair Ahamed [33] 90%, Shahid Siddiqui [31] 85%, Sunita Saxena [15] 80.2%, Mohapatra [19] 58.9%.

IHC was obtained in only 30 cases in our study of which 16 cases were ER positive and 14 cases were PR positive. Women with breast carcinoma have a threefold to fourfold increased risk of developing a new primary cancer in opposite breast. In addition radiotherapy for primary breast carcinoma may also contribute to the development of carcinoma in the contralateral breast [34]. In our study we did not have a even a single case of bilateral breast carcinoma.

So there is a need for developing other cost effective screening modalities for breast cancer in addition to propogating breast self-examination in masses for early detention.

Conclusion

Carcinoma breast is a common cancer affecting young to middle age group with invasive ductal carcinoma being the most commonest histological type. High grade and a late stage presentation should be a major concern. Breast awareness, screening programmes, national and state wide cancer literacy programmes is the need of the hour.

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