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Original Article

A Single-center Clinicopathological Study of Carcinoma Breast

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Abstract

Introduction: Both disease and surgery of the breast evoke a fear of mutilation and loss of feminity. Cosmetic considerations, false vanity, and fear of infertility have hindered early diagnosis and prompt treatment of breast cancer from earliest recorded history to until today.

Materials and Methods: This study is a prospective study of carcinoma breast done at Sri Ramachandra Medical College and Research Institute from June 2014 to August 2016. It comprises 122 cases of cancer breast which presented at the outpatient department.

Results: According to our study, it is quite evident that the peak incidence of carcinoma breast in our semiurban population is in the fifth and sixth decade. Most of our patients were postmenopausal and had a body mass index >35 and had two or more children. The majority of our cases (42.6%) preoperatively were staged as IIA, which was reflected in the postoperative staging as well (Stage IIA - 39.3%). It was also found that Stage IIIC differed vastly in the postoperative staging (16.4%) as compared to its preoperative status (1.6%).

Conclusion: There is a vast difference (50.77%) between the pre- and post-operative staging of the nodes in cancer breast. The pathological nodal staging is marginally higher compared to clinical staging in premenopausal women than in postmenopausal women.

Key words: Risk factors for Ca breast, Nodal staging, Clinicopathological study

INTRODUCTION

Both disease and surgery of the breast evoke a fear of mutilation and loss of feminity. Cosmetic considerations, false vanity and fear of infertility have hindered early diagnosis and prompt treatment of breast cancer from earliest recorded history to until today.

Breast cancer is the most common site-specific malignancy in women and is the most common cause of cancer-related death in women aged 20-59 years. 26% of all newly diagnosed cancers in females are breast cancer. Breast cancer accounts for 15% of all cancer-related deaths in women.[1]

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While about 900,000 women are diagnosed each year, 519,000 deaths/year worldwide are due to this dreaded disease. Mortality from breast cancer is 4.32/100,000 in women and 1.20/100,000 in males. Mortality rates from breast cancer have increased during the past 60 years in every country.[2]

The incidence of breast cancer in India is increasing. It is reported that almost one in 22 women in India is likely to suffer from breast cancer during their lifetime.[3]

It is most often observed anecdotally that due to lack of knowledge and ignorance, patients of carcinoma breast clinically present in a late stage of the disease.

Breast cancer has been classically described as disease of the old age with the peak incidence in the fifth and sixth decades; however, in our country, this disease is commonly diagnosed a decade earlier.[4]

The idea of this study is to do an analysis of the clinical and pathological aspects of cancer breast in a semiurban

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population and to compare it with previous studies if any.

Objectives

- To study presentation, age distribution, incidence of predisposing factors
- To do a clinical and pathological analysis of patients with carcinoma breast in a semiurban population
- To compare and contrast the clinical and pathological staging of carcinoma breast with a special emphasis on analysis of the nodal status both clinically and pathologically.

MATERIALS AND METHODS

This study is a prospective study of carcinoma breast done at Sri Ramachandra Medical College and Research Institute from June 2014 to August 2016.

It comprises 122 cases of cancer breast which presented at the outpatient department.

The exclusion criteria followed in this study were:

- Cases which were operated elsewhere
- Cases in which neoadjuvant chemotherapy was already given.

All the cases underwent a thorough clinical examination, following which a routine blood examination and mammography were done. A preoperative chest X-ray was also done. For a few cases in which there were indications to do so, computed tomography scan of the thorax was done. Ultrasonography abdomen was done as a routine to rule out abdominal metastases as was a whole-body skeletal scan to rule out bony metastases. All patients underwent modified radical mastectomy.

The population of the study ranged from the lower socioeconomic class to the middle class.

RESULTS

In our study, the following observations were noted, certain of which have been compared to previous studies which have been done.

According to our study, it is quite evident that the peak incidence of carcinoma breast in our semiurban population is in the fifth and sixth decade (Table 1). Most of our patients were postmenopausal and had a body mass index (BMI) >35 and had two or more children (Tables 2-4).

The majority of our cases (42.6%) preoperatively were staged as IIA, which was reflected in the postoperative staging as well (Stage IIA - 39.3%). It was also found that Stage IIIC differed vastly in the postoperative staging (16.4%) as compared to its pre-operative status (1.6%) (Tables 5 and 6).

Table 7 reveals the change in the nodal status between clinical and pathological states. About half of the cases did

Table 1: Age distribution of carcinoma breast

Age	*N* (%)
<30	7 (6.25)
31-40	7 (6.25)
41-50	36 (29.5)
51-60	40 (32)
61-70	20 (16)
>70	12 (10)

Table 2: Relationship to menstrual status

Menopausal status	*N* (%)
Premenopausal	30 (24.6)
Postmenopausal	92 (75.4)

Table 3: Relationship to BMI

BMI	*N* (%)
Normal	13 (10.7)
Over weight	31 (25.4)
Obese	78 (63.9)

BMI: Body mass index

Table 4: Relationship to parity

Parity status	*N* (%)
Nulliparous	15 (18.3)
1 child	31 (37.8)
2 or more children	766 (2.9)

Table 5: Pre-operative staging

Stage	*N* (%)
I	10 (8.2)
IIA	52 (42.6)
IIB	30 (24.6)
IIIA	16 (13.1)
IIIB	12 (9.8)
IIIC	2 (1.6)

Table 6: Post-operative staging

Stage	*N* (%)
0	2 (1.6)
I	6 (4.9)
IIA	48 (39.3)
IIB	20 (16.4)
IIIA	20 (16.4)
IIIB	6 (4.9)
IIIC	20 (16.4)

not show any variance in the nodal status, while around one-third of the cases were found to be of a higher grade pathologically compared to their clinical state.

The most common histological type of malignancy was infiltrating ductal carcinoma (84.4%) (Table 8). Tables 9 and 10 reiterate the fact that the larger the tumor, there is a greater chance of having a nodal metastasis both clinically and pathologically.

As per the pro forma followed for this study, established risk factors were taken into account and noted. These findings are noted in Table 11.

Table 12 establishes the fact that in postmenopausal women, the chances of upstaging of involved lymph nodes is marginally lower than in premenopausal women while Table 13 shows that in both obese and normal weight women, the chances of erroneous nodal staging are high (50.8%).

Table 7: Nodal status variance between clinical and pathological states

Nodal status change	*N* (%)
N0 to pN1	6 (4.91)
N0 to pN2	2 (1.63)
N0 to pN3	2 (1.63)
N1 to pN2	14 (11.47)
N1 to pN3	12 (9.83)
N2 to pN3	6 (4.91)
Regression of nodes	20 (16.39)
Same status/no nodal change	60 (49.18)
Upgrading of nodal status	42 (34.38)

Table 8: Histological types of malignancy

Type	Number of cases (122) (%)
DCIS	2 (1.6)
LCIS	0 (0)
Invasive ductal carcinoma	103 (84.4)
Invasive lobular carcinoma	8 (6)
Medullary carcinoma	2 (1.6)
Mucinous carcinoma	2 (1.6)
Tubular carcinoma	1 (0.8)
Papillary carcinoma	2 (1.6)
Metaplastic breast carcinoma	1 (0.8)
Paget's disease	1 (0.8)
Inflammatory breast carcinoma	0 (0)

DCIS: Ductal carcinoma *in situ*, LCIS: Lobular carcinoma *in situ*

Table 9: Relationship between pathological tumour size and clinical node positivity

Pathological Tumor size	N0	N1	N2	N3	N1+N2+N3
pT1 (8)	6	2	0	0	2
pT2 (82)	46	12	8	16	36
pT3 (24)	10	6	4	4	14
pT4 (8)	2	2	4	0	6
Total	64	22	16	20	58

DISCUSSION

The risk factors for the development of carcinoma breast are well known but not for a subset of the Indian population. In our study, it was noticed that 3.2% of the patients had at least one first-degree relative with a previous history of breast cancer, ovarian cancer, or cancer colon, comparatively lower than the west which is around 13.3-21.1%.[5] Concerning alcohol, it is found in literature that 4-10% of women having carcinoma breast were consumers of alcohol, while in our study, it was as

Table 10: Relationship between pathological tumour size to node positivity

Pathological Tumor size	Positive for malignancy	Negative for malignancy
pT1 (8)	2	6
pT2 (82)	36	46
pT3 (24)	14	10
pT4 (8)	6	2
Total	58	64

Table 11: Relationship of carcinoma breast to prior existing risk factors

Risk factor	*N* (%)
Familial history	4/122 (3.2)
Previous breast cancer	0/122 (0)
Alcohol abuse	1/122 (0.8)
Obesity (BMI>30)	78/122 (63.9)
OCP usage	18/122 (14.5)
Nulliparous	15/122 (18.3)
Breastfeeding not done	10/122 (8)
Early menarche (age<12)	14/122 (11)
Late menopause (age>50)	18/122 (14.5)

OCP: Oral conceptive pills, BMI: Body mass index

Table 12: Nodal status variance between clinical and pathological states in pre-and post-menopausal groups

Nodal status change	Number	Pre-menopausal (30)	Post-menopausal (92)
N0 to pN1	6	2	4
N0 to pN2	2	0	2
N0 to pN3	2	0	2
N1 to pN2	14	4	10
N1 to pN3	12	4	8
N2 to pN3	6	2	4
Upgrading of nodes	42	12 (40%)	30 (32%)
Downgrading of nodes	20	14	6
Same status/ no nodal change	60	32	28

Table 13: Nodal status variance between clinical and pathological states with relation to obesity

Nodal status change	*N*	Obese (78)	Overweight (31)	Normal (13)
N0 to pN1	6	3	2	1
N0 to pN2	2	1	1	0
N0 to pN3	2	2	0	0
N1 to pN2	14	8	3	3
N1 to pN3	12	8	2	2
N2 to pN3	6	4	1	1
Upgrading of nodes	42	26	9	7
Downgrading of nodes	20	16	2	2
Same status/no nodal change	60	36	20	4

low as 0.8%. Renehan analyzed 31 studies and discovered a 12% increase in the risk of developing breast cancer for each 5-point increase in BMI.[6] 63.9% of our patients had a BMI >30. Greater numbers are required to stratify the risk involved with different BMIs. 18.3% of our patients were nulliparous and only 8% had not breastfed. A minority of our cases had early menarche (11%) and late menopause (14.5%), which is consistent with many studies.[7]

It is well known that clinical appraisal of axillary nodes is notoriously inaccurate; hence, there is a need for an accurate staging with special relevance to axillary nodes.

According to Cutler and Connelly in 1969, clinically negative nodes become pathologically positive in 37%.[8]

Paik *et al.* in the NSABP trial of 1976[9] revealed his findings that

- Positivity of nodes turning negative was as high as 24%
- Negativity of nodes turning positive was as high as 39%.

In our study:

- Clinically positive nodes turning pathologically negative was 16.39%
- Clinically negative nodes turning pathologically positive was 34.38%.

Ross *et al.* in 1990 revealed that in their study, 17% of T1N0 lesions ended up having positive nodes, while in T2NO lesions, the nodal status pathologically was 27%.[10]

The NSABP trial 06 also revealed that there was a 40% error rate in diagnosing axillary nodes.[9]

In our study, the most common surgical procedure was modified radical mastectomy with axillary clearance.

The reasons for choosing the above procedure were:

Breast conservation and less radical procedures were not tried because of less follow-up and lack of radiotherapeutic facilities at present in our hospital setup.

Guy's hospital in London did a randomized controlled trial between conservative breast surgery and modified radical mastectomy showed there was increased local recurrence following conservative surgery in Stage I disease and the results were worse in Stage II disease and even with radiotherapy, there was decreased local control and decreased survival.[11]

However, the NSABP-06 (8 years) trial showed that there was no difference in local recurrence and survival between conservative and modified radical mastectomy. However, without radiotherapy, there was an increased recurrence.

An Asian study done by Zhang *et al.*,[12] conservative breast surgery along with the radiotherapy and chemotherapy shows good results in early breast cancer but depend on strict adherence to indication of treatment, meticulous surgery, and radiotherapy, the disease-free survival rate was 96% for 5 years.

Savithri *et al.* in 1989[13] showed disease-free survival of 96%, with no local recurrence in 144 patients 5 years after conservation.

Clinical assessment of axillary lymph nodes is inaccurate and observer dependent. Error rates are accepted in all studies.

Axillary clearance is done to achieve basic tenets of surgical oncology and achieve the stated goals. It has been a routine procedure in our management.

Long-term disease-free survival is increased with axillary dissection.

NSABP-04[14] studies state that survival rates is the same, but inordinately high systemic failure rate with axillary recurrences, would suggest that more aggressive local control could many of the failures.

The value of axillary dissection is mainly to provide exact prognostic information for staging and plan for adjuvant treatment.

Snider *et al.*[15] quote sentinel node biopsy for ruling out axillary clearance, and that is, 100% accurate and 88% specific. Positron emission tomography/lymphoscintigraphy can identify patients with clear axillary areas, but it is still not recommended.[16]

This study did not involve the usage of sentinel node biopsy as it did not fall under its purview and might not

help in correlating the comparison between clinical and pathological node staging.

CONCLUSION

- There is a vast difference (50.77%) between the pre- and post-operative staging of the nodes in cancer breast
- The pathological nodal staging is marginally higher compared to clinical staging in premenopausal women than in postmenopausal women
- The pathological nodal staging is marginally higher compared to clinical staging in obese and overweight women than in women with a normal BMI
- Considering the above findings, axillary clearance may be a better option in the management of carcinoma breast rather than offering breast conservation techniques irrespective of stage although it needs further studies to see efficacy of sentinel node biopsy
- Considering the above findings, high-frequency ultrasonogram of the axilla may be beneficial in nodal staging clinically
- Further studies will involve the addition of sentinel node biopsy and high-frequency ultrasonogram to further compare the differences between clinical and pathological staging.

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