Original Research Paper

Surgery

A RETROSPECTIVE STUDY OF CASES OF CARCINOMA BREAST

Dr. Priyanka Singaria	Sr. Resident, Department Of General Surgery, RNT medical College, Udaipur (Raj.).
Dr. Sharad Jain	Sr. Professor & Unit Head, Department Of General Surgery, RNT medical College, Udaipur (Raj.).
Dr. Bheru Singh Hariyawat*	Associate Professor, Department Of General Surgery, RNT medical College, Udaipur (Raj.). *Corresponding Author

ABSTRACT
Introduction: Breast is an apocrine gland - a modified sweat gland derived from ectoderm, acts as secondary sexual organ in females. It is rudimentary in males. It acts as mammary glands in females which produce and secrete milk to feed infants. This study is carried out to find out the correlation of size of tumor with number of positive axillary lymph nodes and metastasis in operated patients.
Methodology: Source Of Data: Among 50 female patients of Breast cancer, from all age group admitted in Department of Surgery, R.N.T. MEDICAL COLLEGE and M.B. Hospital, Udaipur. The patient was subjected to various investigations including – Routine, USG Breast and Axilla, Mammography and Specific to find out any metastasis which included X-ray Chest, Dorsal Spine, pelvis , USG Abdomen and pelvis, CECT Abdomen and pelvis, HRCT- Thorax and MRI Spine if required so as to reach final preoperative clinical stage of disease.
Results: In the present study it was found that as the average size of the tumor increases, so does the average no. of lymph nodes increases both clinically as well as histopathologically positive for metastasis. In this series it was seen that for tumors less than 2cm or 2cm average size 2 cm (in both clinically/HPE), the average number of positive lymph node was zero (clinically), 3.5(HPE). For tumor >2-5cm with an average being size 4.15cm (clinically) and 4.05 cm (HPE), the average number of lymph nodes were found to be 1.13 clinically and 3.92 on the HPE. For tumor 5 cm or >5 cm. with an average being 6.80 cm (clinically) and 6.4 cm (HPE), the average number of lymph node obtained was 2.4 and 8.8 respectively.
Conclusion: The study contains 50 cases of breast carcinoma and it reveals that as the size of breast tumor increases, so does the average lymph node number increases (both clinically and histopathologically positive for metastasis).

INTRODUCTION

Breast is an apocrine gland - a modified sweat gland derived from ectoderm, acts as secondary sexual organ in females. It is rudimentary in males. It acts as mammary glands in females which produce and secrete milk to feed infants.

Breast development and function are initiated by a variety of hormonal stimuli, including estrogen, progesterone, prolactin, oxytocin, thyroid hormone, cortisol, and growth hormone. Estrogen initiates ductal development, whereas progesterone is responsible for differentiation of epithelium and lobular development. Prolactin is the primary hormonal stimulus for lactogenesis in late pregnancy and the postpartum period. It upregulates hormone receptors and stimulates epithelial development. The secretion of neurotrophic hormones from the hypothalamus is responsible for regulation of the secretion of the hormones that affect the breast tissues. Breast lumps are localized swellings that feel different from the surrounding breast tissue. It is a symptom /sign for a variety of conditions which on most occasions are non-malignant. Approximately 10% of breast lumps ultimately lead to a diagnosis of breast cancer.[1]

World-wide breast cancer is the most frequent type of cancer among females with increasing incidence.

In India, it is the second most prevalent cancer in females after cancer of cervix.

The exact cause of breast cancer is not known but certain epidemiologic factors influence its occurrence and predispose to it.

Once thought to be a local or regional disease, breast cancer is now considered a systemic disease in which micrometastasis may have disseminated long before the primary tumour is detected.

The average size of the tumour with which patients presents to the clinician has decreased with time, due to various health and screening programmes but despite improvements in surgery, chemotherapy and radiotherapy during the past few decades mortality rate has remained constant.

Early detection is hampered by ignorance and lack of education of patient and due to the fear of loss of feminity and fertility attached to the organ. The common age of development of breast cancer is usually 45 to 60 years and it most frequently occurs in the left breast and in the upper and outer quadrant. More than half of the cases present with regional lymph node metastasis and a few present with symptoms due to distant metastasis.[2]

The various etiological and predisposing factors for breast cancer are Genetic, Dietary, Hormonal, Obesity, Radiation, Environmental etc.

Two of the most important prognostic indicators in breast cancer are tumour size and the axillary lymph node status; the size of tumour directly correlating with the probability of nodal metastasis i.e. patients with large breast masses or higher clinical stage is more likely to have positive nodes. Node positive patient experiences relapses usually in distant organs and tissues mainly in bones, lungs, pleura, liver and soft tissues.

It is sometime seen that the clinically palpable axillary nodes often turn out to be non-metastatic and clinically non-palpable nodes may be found to be positive for metastasis.

Evaluation of axillary lymph node status is thus an important prognostic factor depending on pathological staging rather

than clinical assessment alone. There is also proved a strong correlationship between the size of tumor and the probability of distant metastasis.[3]

Among all modalities of treatment, surgery has come to accepted as the 'golden standard', to which all other modalities of treatment have to be compared.

Other modalities of treatment such as chemotherapy and radiotherapy are considered as adjuvant to surgery and are incomplete by themselves. Chemotherapy may be given as an adjuvant post operatively, or as Neo-adjuvant chemotherapy where two to three doses are given prior to surgery depending upon the response to chemotherapy, followed by the remaining cycles post-operatively. Occasionally in very advanced cases, chemotherapy alone may be given as a palliative measure,

AIMS AND OBJECTIVES
1. To study the pattern of the disease with staging.
2. To find out the correlation of size of tumor with number of positive axillary lymph nodes and metastasis in operated patients.
3. To study the prognostic factors in breast cancer and to study downstaging of disease by chemotherapy.

MATERIAL AND METHODS
Source Of Data:
female patients of Breast cancer, from all age group admitted in Department of Surgery, R.N.T. MEDICAL COLLEGE and M.B. Hospital, Udaipur.

Sample Size: A total of 50 patients.

Study Design: Retrospective.

Inclusion Criteria:
* All age group.
* Female patients.
* Patients with proven malignancy.

Exclusion Criteria:
* Male patients with breast carcinoma.
* Patients with breast lumps other than carcinoma, proved by history, examination and histopathology.

Protocol Of The Procedure:
1. Inclusion and exclusion criterias were applied to surgical patients admitted to R.N.T. MEDICAL COLLEGE and M.B. Hospital.

2. The evaluation included history, local and systemic examination to search for the metastasis of the disease.

3. The retrospective study was based on case records of all the patients of Breast cancer admitted in various surgical wards of department of surgery, R.N.T. MEDICAL COLLEGE, Udaipur.

4. Diagnosis was established by FNAC, Tru-cut (Core-cut) or Open Biopsy and HPE.

5. The patient was subjected to various investigations including – Routine, USG Breast and Axilla, Mammography and Specific to find out any metastasis which included X-ray Chest, Dorsal Spine, pelvis, USG Abdomen and pelvis, CECT Abdomen and pelvis, HRCT- Thorax and MRI Spine if required so as to reach final preoperative clinical stage of disease.

All these findings were used to establish the final stage of disease.

RESULTS
In this study, the incidence is higher in 4th, 5th and 6th decade,

maximum incidence being between 51-60yrs of age.
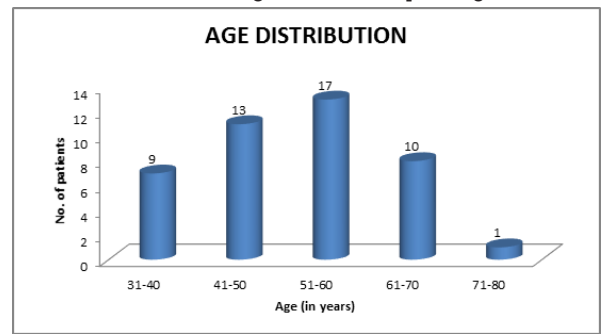
Table 1: Distribution Of Symptoms

Lump was presenting feature in all cases 100%. The next most common presenting feature was pain, which was present in 62% cases. 10%, 18% and 2% cases had nipple discharge, nipple retraction and skin ulceration.
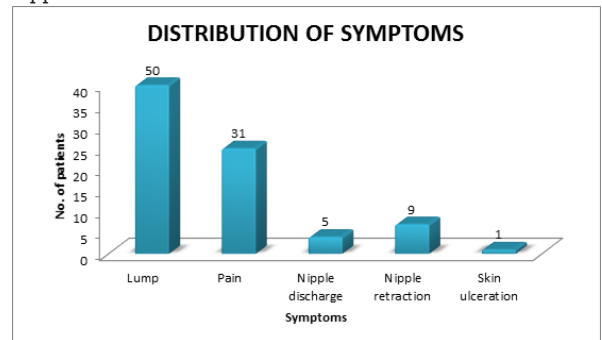
Table 2: Site Of Carcinoma Within Breast

Quadrant	No. of patients	Percentage (%)
Upper outer	21	42
Upper Inner	8	16
Lower outer	4	8
Lower Inner	0	0
Central	2	4
Diffuse	15	30

In majority of patients i.e. the tumor was present in the upper outer quadrant (42%) followed by upper inner quadrant, lower outer and central sector. In diffuse variety include UO+UI, Cen+UO+UI, Cen+UO and Cen.+UI.

Table 3: Relation Between Tumor Size And Lymph Nodes (clinical)

Tumor size (cm)	Clinical Tumour size (cm)			HPE Tumor size (cm)		
	No. of patients	Average clinical size (n cm)	Average clinical lymph node number	No. of patients	Average HPE size (in cm)	Average positive HPE lymph node number
≤2	3	2	0	10	2	3.25
>2-5	29	4.15	1.13	34	4.05	3.92
>5	18	6.80	2.4	6	6.4	8.8

In the present study majority of the patients i.e. 58% had tumor size clinically ranging from 2-5 cms i.e. T2. Pathologically also the maximum number of patients 68% had tumor size ranging from 2-5 cms.).

The relation between the size of the tumor and number of axillary lymph nodes. As the average size of tumor increases (CLINICAL and HPE) the average number of lymph nodes (CLINICAL and HPE) also increase.

Table 4: Relation Between Number Of Lymph Node And Tumor Size (clinical)

Axillary lymph node number (clinical)	Percentage (%)	Average (clinical) size of tumor (cm)
0	40	4.25
1	8	5
2	22	5.55
3	20	5.87
>3	10	7.75

Table 5: Relation Between Number Of Lymph Nodes And Tumor Size (HPE Positive)

Axillary lymph node number (HPE)	Percentage (%)	Average tumor size -Positive HPE (in cms)
0	12	3.2
1-5	56	3.95
6-10	28	4.18
>10	4	4.25

The relation between number of lymph nodes (CLINICAL and HPE) and the size of the tumor (CLINICAL and HPE). As the number of lymph nodes increase so does the average size of the tumor increase clinically as well as HPE.

Table 6: TNM Staging

Tumor size (T)	T1	T2	T3	T4
Number of cases	3	21	12	14
Nodal status (N)	N0	N1	N2	N3
Number of cases	20	15	15	0
Metastasis (M)	M0	M1	-	-
Number of cases	48	2	-	-

TNM STAGE	No. of cases	Percentage (%)
0	0	0
I	0	0
IIA	8	16
IIB	8	16
IIIA	20	40
IIIB	12	24
IIIC	0	0
IV	2	4

In the present study, by TNM staging 32% cases were in stage II , 64% cases were in stage III and 4% were in stage IV.

DISCUSSION

The main route of spread of breast cancer is by way of the axilla. The presence or absence of palpable lymph nodes within the axilla represents one of the important criteria for clinical staging. Two of the most important prognostic determinants of breast cancer are the number of axillary lymph nodes and the size of the breast tumor. Although the histologic grading of malignancy and clinical staging are comparable from prognostic standpoint, a more accurate prediction in this regard may be obtained when both are considered.

The peak incidence of breast carcinoma in this series were in the 4th, 5th and 6th decades. 18% cases were in the age group of 31-40 years and 34% cases were in the age group of 51-60 years, 26% were in the age group 41-50 years i.e. 82% cases were above 40 years of age. It denotes that the maximum incidence of breast cancer is found in perimenopausal period (time before menopause).

In Haagensen series[4] (1963), the maximum incidence (29.3%) was in the age group of 45-55 years, 20.6% in 36-45 and 26.7% in 40-50 years of age group. Cancer below 25 years was just 0.2%. There was a steady increase in incidence of breast cancer after 30 years similar observations have been made by Indian and Western workers viz RK Garg et al[5] (1982), K. Joshi[6]

(1983) and Haagensen[4] (1963). In 1982 Boova et al[7] observed the most commonly breast cancer occurs between 50-59 years (67%) followed by 40-49 years (53%).

The duration between the appearance of first symptom of breast carcinoma and detection is an important factor as far as survival is concerned 52% of the patients in this present study, presented with the disease at 7-12 months after onset and 28% patients within 6 months. R.K. Garg et al[5] (1982) and Haangensen[4] (1963) have experienced similar results.

Lump is the presenting feature in all cases of breast cancer i.e. 100% followed by pain in 62%, nipple retraction in 18% and discharge in 10% cases in the present study, In study of Clayton[8] (1928) 55.5%, Haagensen[4] (1963) 84.5% patients presented primarily with lump in the breast. 40% of the cases in this study had painless lumps. In comparison, Clayton[8] (1926) 39%, Haagensen[4] (1956) 70% cases came with painless lumps.

In this study, the incidence of breast cancer was found to be 64% in the left breast as compared to 36% in the right breast. Harnett[9] (1948) saw similar results, Haagensen[4] (1971), and Ing et al[10] (1979) reported the disease to be equally frequent in left and right breast. R.K. Garg[5] (1982) reported left to right incidence as 48 and 51% respectively.

In present study, the upper and outer quadrant of the breast was involved in 42% cases. 30% cases was present diffusely which involve upper outer (UO), upper inner (UI), and central quadrant. UI quadrant involved in 16% cases and Central quadrant involved 4% cases. The greater incidence of tumor in UOQ is also noted by Clayton[8] (1926) 30.6%, Haagensen[4] 38.5%, R.K. Garg et al[5] (1982) 48% observed tumor in upper outer quadrant of the breast. This may be attributed to greater amount of breast tissue in the upper outer quadrant than other sectors of the breast. In 1983, K. Joshi[6] reported cancer breast present in 50% cases in UO quadrant, 16% in UI quadrant, 12% in LO quadrant, 6% in LI quadrant and 16% in subareolar.

In this study maximum number 64% of cases presented in stage III. In the present series 58% cases clinically presented with tumor size ranging from >2-5 cm, 36% cases with tumor >5 cm and 6% cases with tumor <2 cm. K. Joshi[6] (1983) had the same experience. On the contrary R.K. Garg et al[5] (1982) reported few cases with tumor size <5 cm. in this study 30% cases had tumor size 5 cm. diameter followed by sizes of 7.5 and 10 cm. in 29% and 23% cases respectively.

Clinically palpable ipsilateral axillary lymph nodes were found in 60% cases. Haagensen[4] (1963) also reported incidence of axillary metastasis in 70% of the cases. Fraser said that clinical examination is inaccurate in assessing the significance of axillary lymph nodes; about 26% of the patients with no palpable lymph nodes have histological evidence of involvement with metastasis and a greater percentage of the patients with palpable nodes have no evidence of metastasis. In our study among the 30 cases with clinically palpable lymph nodes, 90% were histologically positive for metastasis and 10% were histologically negative for metastasis and among 20 cases without any clinically palpable lymph nodes 80% were positive for metastasis while 20% were negative for metastasis.

In the present study the maximum number of patients 60% had palpable lymph nodes, 40% had no lymph nodes palpable clinically, 1 lymph node palpable in 8% cases, 2 lymph nodes palpable in 22% cases, 3 lymph nodes palpable in 20% cases while in 10% cases had >3 lymph nodes palpable clinically.

The number of lymph nodes dissected from the specimen

varied. In 12% it was reported 0-5 lymph nodes, in 48% cases 6-10 lymph nodes dissected and in 40% cases 10 or >10 lymph nodes were dissected from the specimen.

The number of lymph nodes, which were positive for metastasis on histopathological examination, was as follows. In 12% cases, no lymph node was found to be positive for metastasis, in 56% cases 1-5 lymph nodes were positive, in 28% cases 6-10 lymph nodes and in only 4% cases 10 or more than 10 lymph nodes were positive for metastasis. In 1980 S. Pal and S.K. Sengupta[11] also found that 60% of the patients presented with a lump in breast with significant axillary lymph nodes. Haagensen[4] (1986) reported axillary metastasis in 70% cases.

In the present study it was found that as the average size of the tumor increases, so does the average no. of lymph nodes increases both clinically as well as Histopathologically positive for metastasis. In this series it was seen that for tumors less than 2cm or 2cm average size 2 cm (in both clinically/HPE), the average number of positive lymph node was zero (clinically), 3.5(HPE). For tumor >2-5cm with an average being size 4.15cm (clinically) and 4.05 cm (HPE), the average number of lymph nodes were found to be 1.13 clinically and 3.92 on the HPE. For tumor 5 cm or >5 cm. with an average being 6.80 cm (clinically) and 6.4 cm (HPE), the average number of lymph node obtained was 2.4 and 8.8 respectively. A similar correlation between tumor size and lymph nodes was also observed by Tubina et al[12] (1984) Christine Carter and Koscielny et al[13] (1989).

Conversely a relation was tried to be derived by first grouping the number of lymph nodes and then finding out the average size of the tumor. It was seen that as the number of lymph nodes increased so did the size of the tumor by both clinical and HPE increases.

CONCLUSION

The study contains 50 cases of breast carcinoma and it reveals that as the size of breast tumor increases, so does the average lymph node number increases (both clinically and Histopathologically positive for metastasis).

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