

Carcinoma Breast: Relation between Size of Tumour, Number of Lymphnodes and Metastasis

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Abstract

Introduction: Worldwide, breast cancer is the most frequently diagnosed life-threatening cancer in women and the leading cause of cancer death in women. Four subtypes of breast cancer (luminal A, luminal B, human epidermal growth factor receptor 2 [HER2]-neu overexpressed, and triple-negative breast cancer [TNBC]) have been identified as a result of the advancement of biomolecular diagnosis.

Material And Methods: The present study was conduct on patients with cancer breast, admitted in various surgical wards of SRG Hospital and Medical College, Jhalawar. Total 50 patients were taken in the study during the study duration of one year after approval of institutional Ethical Committee. We have selected Patients of all age groups and Patients with diagnosis of carcinoma breast submitted for operation.

Result: The various results of this study conducted on 50 patients of breast cancer admitted in various surgical units of SRG Hospital and Medical College, Jhalawar. Lump was presenting feature in all 50 cases. The left breast was affected in majority 58% cases while the right breast was involved in only 42% cases. The left breast was affected in majority 58% cases while the right breast was involved in only 42% cases. As the average size of the breast tumour increased, so did the average number of axillary lymph nodes both clinically as well as histopathologically positive for metastasis.

Keywords: Breast Neoplasms, Immunohistochemistry, Lymphatic Metastasis, Prognosis.

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Introduction

Worldwide, breast cancer is the most frequently diagnosed life-threatening cancer in women and the leading cause of cancer death in women. [1] Four subtypes of breast cancer (luminal A, luminal B, human epidermal growth factor receptor 2 [HER2]-neu overexpressed, and triple-negative breast cancer [TNBC]) have been identified as a result of the advancement of biomolecular diagnosis. Each subtype's unique clinical characteristics and prognosis have been examined. The prognosis for breast cancer has improved thanks to hormonal therapy, the introduction of efficient chemotherapy, and the therapeutic use of trastuzumab, a HER2-neu targeting drug. In the United States, breast cancer accounts for 29% of all cancers in women and is second only to lung cancer as a cause of cancer deaths. [2] The general approach to evaluation of breast cancer has become formalized as triple assessment: clinical examination, imaging (usually mammography, ultrasonography or both), and needle biopsy. Increased public awareness and improved screening have led to earlier diagnosis, at

stages amenable to complete surgical resection and curative therapies. Improvements in therapy and screening have led to improved survival rates for women diagnosed with breast cancer. Many patients with early-stage breast cancer are cured with surgery alone. Adjuvant breast cancer therapies are designed the breast and regional lymph nodes but do not yet have an established identifiable metastasis. Increasing age and female sex are established risk for breast cancer. The effect of age on risk is illustrated in the SEER (Surveillance, Epidemiology and End Results) data, where the incidence of invasive breast cancer for women younger than 50 year is 44.0 per 100000 as compared with 345 per 100000 for women aged 50 year or older. [3] A positive family history of breast cancer is most widely recognized risk factor for breast cancer i.e. Two or more relative with breast or ovarian cancer. Breast cancer occurring in an affected relative younger than 50 years. Relatives with both breast cancer and ovarian cancer. One or more relatives with 2 cancers (breast and ovarian

cancer or 2 independent breast cancers). Late age at first pregnancy, nulliparity, early onset of menses, and late age of menopause have all been consistently associated with an increased risk of breast cancer. [4-5] Prolonged exposure to elevated levels of sex hormones has long been postulated as a risk factor for developing breast cancer, explaining the association between breast cancer and reproductive behaviors. [6-7] Thus, our goal was to assess, by subtype, the correlation between tumor size and the number of metastatic lymph nodes. Furthermore, we sought to assess how nodal metastasis affected overall survival (OS) by subtype.

Material and Methods

The present study was conducted on patients with cancer breast, admitted in various surgical wards of SRG Hospital and Medical College, Jhalawar. Total 50 patients were taken in the study during the study duration of one year after approval of institutional Ethical Committee. We have selected Patients of all age groups and Patients with diagnosis of carcinoma breast submitted for operation.

Patient examination:

1. A detailed history was noted with regards to presenting symptoms, onset of the disease, and duration in chronological order. A detailed interrogation regarding the personal, obstetric, lactational & family history was also taken.
2. Detailed local examination including palpable axillary lymph nodes and size of tumour was

done. (Tumour size was measured using an inchtap.)

3. The examination was include a thorough systemic examination to find the metastasis of the disease. Diagnosis was established by FNAC or open/ trucrut biopsy. The patient was subjected to various investigations – routine and specific to find out any metastasis which included x-ray chest, bones, LFTs USG,X-ray bone/CT scan/MRI(if indicated). All these findings were used to interpret the staging pattern of the disease.

Management:

The fit patients were operated upon and efforts was done to dissect the axilla thoroughly the specimen obtained after surgery were studied in detail regarding the size of the tumour number of lymphnodes and histopathology. The observations were received according to the headings in the profoma, the master chart prepared and a correlation between the size of the tumour, number of axillary lymph nodes and metastasis was tried to be established.

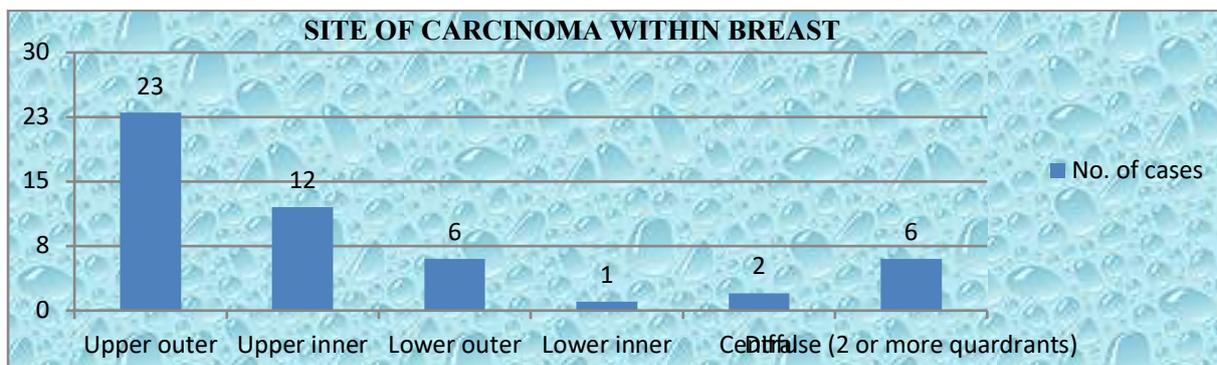
Observations and Results

The following observations are based on a study conducted on 50 cases of breast cancer patients admitted to various surgical units of SRG Hospital and Medical Collage, Jhalawar to establish a correlation between tumour size, axillary lymph nodes and metastasis.

Table 1: Total Duration Of Breast Lump

S. No.	Duration of symptoms	No. of cases	Percentage (%)
	1-3 mth	16	32
2	4-6 mth	23	46
3	7-12 mth	09	18
4	13-24 mth	02	04
5	>24 mth	0	0
Total		50	100

Out of 50% of the patients, the majority of patients i.e. 78% came to attend hospital by 6 months after onset of disease While 32% patients came within 3 months.



Graph 1 : Site of Carcinoma Within Breast

In majority of patients i.e. 46% the tumour was present in the upper outer quadrant followed by upper inner quadrant (24%).

Table 2: Pre Operative tumour Size

S. No.	Tumour size (CM)	No. of cases	Percentage (%)
1	<2	7	14
2	2-5	24	48
3	>5	19	38
Total		50	100

In the present study majority of the patients i.e. (62%) had tumour size < 5cm and 14% had tumour size \leq 2 cm

Table 3: Relation Between Tumour Size (Dissected) And Lymph Nodes (Dissected & Hp-Positive)

S. No.	Size of tumour	No. of cases	Average no. of lymph nodes (dissected)	Average no. of lymph nodes (HP Positive)
1	<2cm	3	8.51	3.55
2	2-5cm	27	9.35	4.20
3	6-10cm	19	9.25	4.10
4	>10cm	1	18	18

In our study as the average size of tumour (dissected) increases the average no. of lymph nodes (dissected & HP-positive) also increase.

Table 4: Relation Between No. of Ln (Metastasis) & Average Size of Tumour (Dissected)

S. No.	No. of LN (metastasis)	No. of cases	Average size of tumour (dissected)
1	0-2	23	4.91
2	3-5	14	5.28
3	>6	13	6.42

In our study as the average size of tumour (dissected) increases, the number of axillary Lymph nodes (metastasis) also increase.

The highest incidence of breast carcinoma was in the 4th decade followed by the 5th & 6th decades. The incidence of breast carcinoma was equal in post-menopausal women & in the pre-menopausal women. Lump was presenting feature in all 50 cases. The left breast was affected in majority 58% cases while the right breast was involved in only 42% cases. While any portion of the breast may be affected, the tumour was most commonly present in the upper & outer quadrant (46%) of the breast followed by upper inner quadrant in 24%. Ipsilateral axillary lymph nodes were palpable in 27 (54%) cases out of which 85.19% were histological positive for metastasis and 14.81% did not show any evidence of metastasis. In 46% cases there was no palpable lymph nodes clinically, while one, two and three lymph nodes were clinically palpable in 16%, 12% and 10% cases respectively.

In 24% cases no lymph node were positive for metastasis histopathologically while one to five nodes were positive in 48% cases and 6-10 nodes were positive in 14% cases. Maximum number of cases (48%) had tumour of size 2-5 cm followed by 38% with tumour size 5-10 cm (both clinically & by pathological examination). As the average size of the breast tumour increased, so did the average number of axillary lymph nodes both clinically as well as histopathologically positive for metastasis.

Conversely more the no. of axillary lymph nodes (both clinically and histopathologically) larger was the size of the tumour.

This study contains 50 cases of breast carcinoma and it reveals that as the size of breast tumour increases, so does the average lymphnode number (both clinically & histopathologically positive for metastasis).

Discussion

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 tumour. Although the histologic grading of malignancy & clinical staging are comparable from prognostic stand point, a more accurate prediction in this regard may be obtained when both are considered.

The duration between the appearance of first symptom of breast carcinoma and detection is an important factor as far as survival is concerned 32% of the patients in this present study, presented with the disease at 1-3 months after onset and nearly 78% presented within 6 months of onset of disease. R.K. Garg et al, S.K. Nair, Lane Clayton, Harington, Bloom & Hagenson have experienced similar results. However M.P. Vaidya reported longer duration of symptoms.

In our present study the upper & outer quadrant of the breast was involved in 46% cases. The second most common was upper & inner 24% followed by lower outer in 12% & diffuse i.e. more than 2 quadrants involved in 12% cases. Clayton 30.6%, Truscot 48%, Haagenson 38.5%, R.K. Garg et al 48% observed tumour 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. K. Joshi reported cancer breast present in 50% cases in upper outer quadrant, 16% in upper inner quadrant, 12% in lower outer quadrant, 6% in lower inner quadrant & 16% sub areolar. M. Merson et al also noted that the tumour was most frequent in the upper outer quadrant (34%) followed by lower outer quadrant 8% and lower inner quadrant 8%.

In the present series 62% cases clinically presented with tumour size less than 5 cm. 38% cases with tumour more than 5cm. K. Joshi, Virginia et al & Fisher et al had the same experience. On the contrary R.K. Garg et al reported few cases with tumour size less than 5 cms in his study 30% cases had tumour size 5cm diameter followed by sizes of 7.5 & 10 cms in 29% & 23% cases respectively. In the present study duration of breast lump when the patients presented to us was 1-3 months in 32% and 3-6months in 46%. Overall 78% patients were presented within one year of breast lump. On the contrary R.K. Garg et al reported that 56% patients presented within one years.

Haagenson 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 27 cases with clinically palpable lymph nodes, 85.19% were histologically positive for metastasis & 14.81% were histologically negative for metastasis & among the 23 cases without any clinically palpable lymph nodes 65.22% were positive for metastasis while 34.78% were negative for metastasis.

In the present study it was found that as average size of the breast tumour increases, so does the average number of lymph nodes increases both

clinically as well as histopathologically positive for metastasis.

A similar correlation between tumour size & number of lymph nodes was also observed by George Crile, James Smith et al, Kocielny, Tubiana et al Christine Carter & Kocielny et al.

In the present series conducted, since the cases selected were those where the local disease was operable & axillary dissection could be performed, patients with advanced disease were excluded from the study. Routine & specific investigations readily available like radiography. LFTs, USG were performed on each patient.

Limitation: The enrolled patients are less, need to increase the duration of study to enroll more cancers patients for better results. In present study conducted in only one center in Jhalawar, need more centers to be better accuracy of the results.

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