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Research Paper

Evaluation of Breast Cancer in Reference to Skin Changes

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ABSTRACT:
Introduction:- *Breast cancer is the most commonly occurring female cancer in the world which is more than double that of the second ranked cancer i.e. cervical cancer. Breast cancer accounts for 23% of all cancer deaths. It is the most frequent cancer death in developing countries of the world. Mammary skin changed in breast carcinoma is categorized as advance stage in breast cancer classification. In the present study we evaluated the correlation of macroscopic, microscopic and no skin changes with axillary lymph node using histologic factor dermal lymphatic involvement.*
Materials and methods: *prospective study was conducted on 42 breast cancer admitted patients of different age groups. Based on degree of skin involvement patients were placed into four groups, i.e. clinical stageT1 toT4. All groups were compared on the basis of percentage of patients involvement according to T1, T2, T3 and T4 stage, tumor size, histopathological dermis and epidermis involvement, dermal lymphatic invasion, tumor size and tumor subtype.*
Results: *Majority of the patients with skin (dermis and epidermis) infiltration by the tumor (94.4%) were of T4 stage (along with dermal lymphatic invasion). Majority of the patients with only dermal lymphatic involvement (87.5%) without dermis and epidermis infiltration were of T2 stage.*
Conclusion: *In our study, most of the patients of stage T2 and T3 with dermal lymphatic invasion had involved node when studied by routine histologic technique even though they were not clinically palpable. The identification of characteristics of the primary tumor like dermal lymphatic invasion that are associated with nodal metastases should encourage the surgeon to perform a more extensive axillary lymph node dissection and the pathologist to use methods of examining the nodes that increase the likelihood of finding metastatic disease. From this we can conclude that patients in early stage breast cancer may also have metastatic axillary lymph nodes. Dermal lymphatic invasion may be regarded as the precursor of nodal involvement, and all patients with nodal involvement can be assumed to have lymphatic invasion in the primary tumors. However the converse may not be true, not all patients with lymphatic invasion have nodal involvement.*
Keywords*: Clinical Evaluation, Skin changes, FNAC/Biopsy, Staging, Management*

I. INTRODUCTION

Breast Cancer cases have doubled in India in the last two decades. The number of woman estimated to be dying of breast cancer every year has also been steadily. Breast cancer is the most commonly occurring female cancer in the world with an age-standardized incidence rate (ASR) of 39.0 per 100,000 which is more than double that of the second ranked cancer (cervical cancer ASR=15.2 per 100,00). Breast cancer accounts for 23% of all cancer deaths. It is the most frequent cancer death in these regions (280, 000 deaths in developing countries) of the world. Although incidence rates are higher in the West, the disability-adjusted life year (DALY's) show the highest burden for breast cancer in middle-income countries (3,144,000 vs. 1,856,000 in high-income and 1,626,000 in low-income countries), where there are increasing incidence rates and a higher proportion with late stage of disease at diagnosis. Male breast cancer is rare compared to female breast cancer, and has a different etiology and epidemiology; this study will focus on breast cancer in women.

As against and estimated 48,170 women who died of breast cancer in 2007, the number breached the 50,000 mark in 2010. The figure for the year was put at 50,821. Uttar Pradesh recorded the highest number of breast cancer deaths among states in 2010 – 8,882 – followed by Maharashtra (6,064), Bihar (4,518), West Bengal (4,095), Andhra Pradesh (3,863), Madhya Pradesh (3,179) and Rajasthan (3,097), Gujrat recorded 2,632 deaths, Kerala 1,618, Haryana 1,118 and Orissa 1,885, Delhi recorded an estimated 810 deaths due to breast cancer in 2010 compared to 779 in 2009 (I).

Breast cancer in urban areas of India is three times higher than in rural parts of the country. A recent report by the Indian Council of Medical Research predict the number of breast cancer cases in India to rise to 106,124 in 2015 and to 123,634 in 2020.

There is wide variation in the availability of facilities for breast cancer treatment in India, which ranges from poorly funded, under-resourced and under-staffed government hospitals with no mammography machines, to medical facilities at per with international standards for medical personnel, diagnostic and imaging services and the full array of surgical, radiation and medical treatment options, which are national comprehensive cancer centre. The majority of women in India receive inadequate and inappropriate treatment due to poor infrastructure, limited financial resources and a social stigma surrounding the disease. Due to the late stage at presentation, radical mastectomy is the most common procedure used for breast cancer patients in India.

Breast- conserving surgery and sentinel lymph node biopsy are rare due to poorly equipped centres and the often late stage at diagnosis. For chemotherapy, low-cost options are more often used (e.g. cytoxan, methotrexate and 5-FU (CMF) combination) than regimens which are found to be more effective (e.g. anthracycline-based combinations) and radiation is expensive and not widely available. For management of metastatic and triple negative breast cancer, a recent survey of 152 practicing nationwide oncologists revealed preferences for use of platinum agents and the use of oral agents (eg. Capecitabine) , despite the lack of evidence from large randomized trials that these should be the standard of care in such settings. These underlie the importance of implementing standardized, evidence-based guidelines in Indian settings.

However the biggest contribution for the fight of against breast cancer is the awareness programmes that have been so aggressive and visible for many years now. The open discussion about this issue instead of hiding it away, as was above centuries ago, has helped millions of women to understand the disease of breast cancer and ways to identify it and address it before it's too serious to treat. The awareness about breast cancer might be at its highest point ever, but we still have work to do in order to find the ultimate cure.

Mammary skin changed in breast carcinoma is categorized as advance stage in breast cancer classification. In the present study we evaluated the correlation of macroscopic, microscopic and no skin changes with axillary lymph node using histologic factor dermal lymphatic involvement.

II. AIMS AND OBJECTIVES

The main objective of this study is evaluation and correlation of clinical staging of breast cancer in relation to associated skin changes in advanced cases that is clinical stage T4 and is early stage T1, T2 and T3 without skin changes.

III. MATERIALS AND METHODS

The Evaluation of breast cancer in reference to skin changes was carried out in Department of Surgery at Rajendra Institute of Medical Sciences, Ranchi. The study was conducted on 42 breast cancer admitted patients of different of different age groups from September 2010-September 2012.

Criteria for selection-

1) Diagnosed cases of breast cancer on FNAC/Biopsy
2) Clinical T4 stage patients
3) Clinical T1-T3 stage patients

Stage T1-T3 included cases that were with or without histologically proven skin involvement but no accompanying clinical changes or had only discrete changes (retraction, dimpling or scaling) to the overlying skin or to the nipple.

i) Clinical stage T4 : Those with clinical obvious skin involvement such as localized inflammation, edema, peau d'orange, ulceration.

All the groups were compared on the basis of :

1) Percentage of patients involvement according to T1, T2, T3 and T4 stage.
2) Tumor size
3) Histopathological dermis and epidermis involvement.
4) Dermal lymphatic invasion
5) Tumor Size
6) Tumor Subtype.

Observations

Table – 1 Distribution Of Patients According To T Staging

Staging	No. Of Patients
T1	**0**
T2	**20 (47.6%)**
T3	**04 (9.5%)**
T4	**18 (42.9%)**
TOTAL	**42 (100%)**

T1 stage included patients having tumor size <2 cm.
T2 stage included patients having tumor size between 2-5 cm.
T3 stage included patients having tumor size >5 cm.
T4 stage included patients having tumor size >5 cm. with obvious skin changes such as fungation, ulceration, edema, peau d'orange.
Stage T1, T2 and T3 included patients with discrete skin changes such as scaling, dimpling, nipple retraction. In our study majority cases were of T2 stage followed by T4.

Table – 2 Distribution Of Patients Of T-Stage According To Age Groups

STAGING	30-40	40-50	50-60
T1	**0**	**0**	**0**
T2	**7 (35%)**	**6 (30%)**	**3 (15%)**
T3	**1 (25%)**	**0**	**3 (75%)**
T4	**5 (27.8%)**	**4 (22.2%)**	**5 (27.8%)**
TOTAL	**13 (31%)**	**10 (23.7%)**	**11 (26.1%)**

STAGING	60-70	70-80	TOTAL
T1	**0**	**0**	**0**
T2	**3 (15%)**	**1 (5%)**	**20 (100%)**
T3	**0**	**0**	**4 (100%)**
T4	**4 (22.2%)**	**0**	**18 (100%)**
TOTAL	**7 (16.6%)**	**1 (2.6%)**	**42 (100%)**

There was no patient in T1 Stage.
All the cases of breast carcinoma were between 35 and 72 years of age. Majority of the patients (81%) were between 30 to 60 years.

Table – 3 Distribution Of Patients With Skin Changes According To T-Stage

Staging	No. Of Patients With Skin Changes
T1	**0**
T2	**4 (16.7%)**
T3	**2 (8.3%)**
T4	**18 (75%)**
Total	**24 (100%)**

There were 4 patients in stage T2 and 2 patients in stage T3 having discrete skin changes dimpling, scaling, which were present in 3 different patients along with nipple retraction and 3 patients had only nipple retraction. There were 18 patients of stage T4 who had obvious skin changes. The ulcer over the tumor were present in 6 patients, 3 had fungating mass, peau d'orange was present in 4 patients and edema in 5 patients.

Table – 4 Distribution Of Number Of Patients Of T-Stage According To Pathological Metastases In Clinically Absent And Clinically Present

STAGING	CLINICALLY ABSENT WITH MATASTATIC NODES	CLINICALLY PALPABLE WITH METASTATIC NODE	TOTAL
T1	**0**	**0**	**0**
T2	**14 (70%)**	**6 (30%)**	**20 (100%)**
T3	**2 (50%)**	**2 (50%)**	**4 (100%)**
T4	**3 (16.7%)**	**15 (83.3%)**	**18 (100%)**
TOTAL	**19 (45.2%)**	**23 (54.8%)**	**42 (100%)**

Majority of the patients with no clinical palpable axillary lymph nodes but with metastases on histo-pathological examination were present in T2 stage (74%)

Majority of the patients with clinical palpable lymph nodes and axillary lymph nodes metastases were of T4 stage (65%)

Table – 5 Distribution Of Patients Of T-Stage According To Tumor Subtypes

Staging	Invasive Ductal Carcinoma	Nos	Invasive Adenocarcinoma
T1	0	0	0
T2	13 (65%)	3 (15%)	1 (5%)
T3	2 (50%)	1 (25%)	0
T4	9 (50%)	3 (16.7%)	0
Total	24 (57.1%)	7 (16.7%)	1 (2.4%)

STAGING	LOBULAR CARCINOMA	MEDULLARY CARCINOMA	TOTAL
T1	0	0	0
T2	1 (5%)	2 (10%)	20 (100%)
T3	1 (25%)	0	4 (100%)
T4	5 (27.8%)	1 (5.5%)	18 (100%)
TOTAL	7 (16.7%)	3 (7.1%)	42 (100%)

Histological examination of breast carcinoma patients showed majority of cases (57.1%) belonged to invasive (infiltrating) ductal carcinoma.

Table – 6 Distribution Of Patients Of T-Stage According To Skin With Dermal Lymphatic Invasion and Only Dermal Lymphatic Invasion

Staging	No. Of Patients With Skin And Dermal Lymphatic Invasion	No. Of Patients With Only Dermal Lymphatic Invasion	Total
T1	0	0	0
T2	2 (12.5%)	14 (87.5%)	16 9100%)
T3	3 (75%)	1 (25%)	4 (100%)
T4	17 (94.4%)	1 (5.6%)	18 9100%)
Total	22 957.9%)	16 (42.1%)	38 (100%)

Majority of the patients with skin (dermis and epidermis) infiltration by the tumor (94.4%) were of T4 stage (along with dermal lymphatic invasion). Majority of the patients with only dermal lymphatic involvement (87.5%) without dermis and epidermis infiltration were of T2 stage.

Table – 7 Distribution Of Patients Of T-Stage According To Number Of Axillary Lymph Node Involvement

STAGING	0	1-3	>4	TOTAL
T1	0	0	0	0
T2	2 (10%)	14 (70%)	4 (20%)	20 (100%)
T3	0	2 (50%)	2 (50%)	4 (100%)
T4	1 (5.6%)	7 (38.8%)	10 (55.6%)	18 (100%)
TOTAL	3 (7.1%)	23 (54.8%)	16 (38.1%)	42 (100%)

In 0 group axillary lymph node metastasis majority of patients were of T2 stage.
In 1-3 axillary lymph node metastasis group majority of patients were of T2 stage.
In >4 axillary lymph node metastases group majority of patients were of T4 stage.

IV. DISCUSSION

The evaluation of breast cancer in reference to skin changes was carried out at Rajendra Institute of Medical Sciences, RIMS, which is tertiary centre in this tribal dominating areas. Approximately, two third population in the rural area and one fourth population in the urban areas are constituted by tribals in Chhotanagpur. Nearly all or most of the cancers are clinically detected in India, with the majority presenting with locally advanced disease. As the time has changed, woman has become aware about the breast cancer disease. In our study out of 42 cases, 18 patients had T4 stage breast cancer and 24 patients were of T2 and T3 stage. In the present series, of 42 patients detailed studies were done in 4 groups. As there was no patient in stage T1, study was confined to stage T2, T3 and T4 with special reference to dermal lymphatic invasion, axillary lymph node metastases, TNM staging, tumor subtype.

T Staging

The tumor size has an important bearing in the present study and tumor size as per TNM classification has been taken into consideration. In the present study 20 (47%) cases reported at T2 stage, followed by T4 (43%), T3-4 cases (10%) and T1 0 cases.

Uwe Guth, et.al (2003) in their studies on 'Non inflammatory Breast carcinoma with skin involvement' recorded 76 breast carcinoma cases of which stage T4 had 50(66%) patients, T1-T3 stage had 26 (34%) patients with histologically proven skin involvement but without clinical skin changes.

Uwe Guth et.al (2005) in their another study on 'Breast carcinoma with non- inflammatory skin involvement (T4b)- Time to abandon from the TNM classification recorded 119 cases in study group of which stage T2 had 60 patients (50%), T3 stage 31 (26%), T4 28 (24%), T1 0 cases.

Kyoung Ju Kim in their study recorded 454 cases (74.3%) of T1 stage and 158 cases (25.7%) of T2 stage, out 612 patients.

Mohamed A alm El-Din et.al in their study recorded 22 cases of which 16 (69.6%) were of T1 stage, 5 (21.7%) were T2 stage, 1 (4.3%) was of T4 stage and 1 was unknown. 7 patients (31.8%) had positive axillary lymph nodes, whereas 15 patients (68.2%) had negative nodes.

Alok Kumar Dwivedi et al in their study recorded 1152 patients. They found that the chance of increased positive nodes was 28 percent higher among patients with 2-5 cm (T2 stage) tumor size, in comparison to patients with 2-5 cm (T1 stage) tumor size. It was again 1.49 times more likely among patients with more than 5 cm (T3 stage) tumor size as compared to less than 2 cm (T1 stage) tumor size.

In the developed countries maximum number of cases are recorded in T1-T2 stage because people of developed countries are highly conscious and suspicious of breast carcinoma and women report for checkup at very early stage. In the present study (graph 1 and table 1) 47% of the cases were in T2 stage, stage T3 had (10%) of cases and 43% of the cases were of stage T4. This can be substantiated by the fact that as transport facilities are increasing and due to literacy people are becoming aware, more cases are diagnosed at early stage in the developing country like India. 48 patients (43%), reported in late stage because in this part of country women of rural areas have their own mysterious customs, belief that diseases are caused & treated by supernatural powers and take inappropriate methods of treatment which leads to late reporting of cases.

In our institution in 1990-92, study was carried on 'Mammary skin changes in breast cancer' which included total 70 patients, T1 stage had 6 (8.57%) patients, T2 stage 15 (21.43%), T3 stage 28 (40%) and T4 stage 21 (30%)

Age Group

In our study (table 2) median age of patients in T2, T3 stage was 47 years and in T4 stage also median age of patients was 47 years. Majority of them were between 30-60 (81%) years of age.

P. Bult et.al (2005) in their study included 482 patients having median age of range 25-93. Their data showed 9 (2%) patients in 25-35 age group, 75 (15%) patients in 36-49 age group, 322 (67%) patients in 50-74 age group, 76 (16%) patients more than >75 age group.

Smigal C et.al in 2006 reported the continuing increase in incidence (all stages combined in breast cancer is limited to White women age 50 and older; recent trends are stable for African American women age 50 or older and White women under age 50 years. Although incidence rates (all races combined) are substantially higher for women age 50 and older (375.0 per 100,00 females) compared with women younger than 50 years (42.5 per 100,000 females), approximately 23% of breast cancers are diagnosed in women younger than 50 years because these women represent 73% of the female population.

Atoum et al. recorded 99 patients, age ranged from 22 to 73 years. Of the 99 enrolled females, 19 (19%) women aged below 41 years, 28 were aged between 41-50 years, 36 (36%) were aged between 51 to 60 years and 16 were aged above 60 years. They found that in female age group between 41-50 years and >61 years, there was no significant difference among the occurrence of the different stages of breast cancer, however in the age group 5160 years, significant differences were observed among different stages (63.9%, 27.8%, and 8.3%) for early invasive, advanced and metastatic cancer respectively.

It is established that breast carcinoma is uncommon below the age of 35, the incidence increasing rapidly between the ages of 35 and 50 years. A slight bimodal trend in the age distribution has been observed with a dip in incidence at the time of menopause. A secondary rise in frequency occurs after the age of 65. Breast cancer not only infrequent in Indian women, but also it occurs in them a decade earlier than in western women. The mean age of occurrence in India is about 42 compared to 53 white women.

Skin Changes

In our study (table 3) of 24 patients with skin changes, 4 (16.7%) patients of T2 stage, 2 (8.3%) patients of stage T3 had discrete skin changes and 18 (75%) patients of stage T4 had obvious skin involvement.

All the 18 patients of stage T4 had metastases in lymph node and all the 6 patients of stage T2 and T3 had axillary lymph node metastases.

P. Bult et.al (2005) in their study recorded 5 (71%) of the 7 cases with cT4/pT4 breast cancer skin involvement and 20 (61%) of the 33 cases with microscopied skin involvement without cT4/pT4 (no skin involvement) they proved that patient with cT4/pT4 have same prognosis as non-cT4/pT4.

Katz A et.al has done cohort study on 1031 patients of stage II & stage III A. They found histo-pathological skin involvement to be of importance for loco-regional recurrence after mastectomy. They recorded that those patients who had no clinical skin changes but had microscopic invasion of skin (n=27) or nipple (n=59) experienced a loco-regional recurrence rate 32% and 50%.

Uwe Guth et.al (2005) done their studies on 491 patients. They divided patients into 4 categories according to stage T1-T3 and T4. Stage T1-T3 was categorized according to tumor size. They excluded clinical/histopathological feature according to current (6^{th}) edition of the UICC/AJCC TNM classification, from their study. They reclassified the tumor according to tumor size and therefore the category T4b was replaced with the categories T1-T3. This opposing classification principle dictates that breast cancer with non-inflammatory skin involvement is a clinical diagnosis and the classical signs must be present (constellation A-

T4 : Constellation B and C-T1-T3).

T Category (%)	T4	T1-T3
Constellation A		
Histological skin involvement Accompanied by unambiguous Clinical skin changes, Such as ulceration and edema	120 (98.4)	2 (1.6)
Constellation B		
Histological skin involvement Accompanied by subtle Or minor clinical changes	89 (73)	33 (27.0)
Constellation C		
Histological skin involvement not Accompanied by clinical changes	86 (70.5)	36 (29.5)
Constellation D		
No evidence of histological skin involvement but suggestive of clinical skin changes	19 (15.6)	103 (84.4)

`They demonstrated that breast cancer cases with only histological skin involvement and no corresponding clinical feature when compared with cases exhibiting the classic advanced local extent, are distinct entities with significant differences in clinical course and prognosis. They found 70% of cases with clinical features had malignant loco-regional extent of TNM stage I/II. They stated lymphatic invasion by tumor to be of pathognomonic significance.

Uwe Guth et al. in Acta Oncological (2006) done their studies on 372 patients of which 119 patients had skin involvement of T4b stage and 81 patients had stage II or stage III non inflammatory skin involvement. They stated that 'classic' T4 patients are however united by poor outcome. They demonstrated that the extent of heterogeneity of breast cancer with non-inflammatory skin involvement goes far beyond the accepted image of the disease. They demonstrated a considerable heterogeneity of the entity with a broad distribution of cases among the subsets of disease stages. A wide variance exist in the T4b category. On one side of the scale are the cases with very advanced disease. 30.3% of patients of the entire group inflammatory skin involvement diagnosed with distant metastases (stage IV) already at the initial presentation. They demonstrated that skin involvement is only an associated symptom without prognostic significance in long term survival.

Alok Kumar Dwivedi et.al reported women with skin changes had 1.39 times more involvement of higher positive nodes as compared to their counterparts.

Clinically Absent And Clinically Present Axillary Lymph Nodes With Pathological Metastases

In our present study, (table 4) out of 20 in stage T2 we found clinical absent lymph node with pathological metastases in 14 (70%) patients, 2 (50%) patients out of 4 in T3 stage and in stage T4 out of 18 patients, 3 (16.7%) patients had clinically absent lymph nodes with metastases in axillary lymph nodes. Clinical palpable lymph node with metastases in it were present in 6 (30%) patients of T2 stage, T3 stage had 2 (50%) patients and in T4 stage – 15 (83.3%) patients.

Polednak et.al in his study recorded slight but significant elevated risk of death from breast cancer, was found for patients with 4-10 verses 20+ nodes examined and there was also a higher (also significant) risk ratio for 1-3 verses 20+ nodes. In 5 year of follow up study of clinically node negative patient treated without axillary surgery, the risk of nodal relapse was 9% for cancer 2 cm or smaller verses 34% for cancers larger than 2 cm. Despite their expectation that avoidance of axillary dissection would have a negligible effect on outcome for patients with small tumors, the association between the number of positive node examined and the risk of death from breast cancer were similar among patients with tumor 2 cm or smaller and among all patients (tumor 5 cm or smaller).

Nariya Cho et.al in their study in 2009 reported 191 cases of breast carcinoma who had no palpable axillary lymph nodes. They found 41 921%) cases had metastases and 150 (79%) did not have metastases, as determined after surgical excision.

Hiroyki et.al in 2008 in their study recorded 144 patients who had no clinical palpable lymph node with negative axillary lymph node on ultrasonographic results, when underwent sentinel lymph node biopsy presented with lymph node metastases in 12 (8.3%) of the 144 patients. Overall, lymph node metastases were histo-pathologically proved in 80 (56%) of 144 patients.

Moore et.al in their study in 2008 recorded 112 patients who had clinically no palpable lymph node. They found histologically proven nodal disease was present in 58 of the patients (52%), 39 patients had metastatic disease in 1-3 nodes (67%) and 19 patients had axillary involvement in >3 axillary lymph nodes.

Tumor Subtypes

In our study (table 5) in stage T2 and T3 stage majority of cases were of invasive ductal carcinoma 13 (65%), 2 (50%) out of 20 and 4 cases respectively, followed by not otherwise specified – 3(15%) of T2 stage and 1(25%) of T3 stage, invasive lobular carcinoma 1(5%) of T2 stage and 1 of T3 stage, medullary carcinoma 2(10%) of T12 stage, invasive adenocarcinoma 1(5%) of T2 stage. In T4 stage, invasive adenocarcinoma 1(5%) of T2 stage. In T4 stage also out of 18 maximum number of cases were of invasive ductal carcinoma 9(50%), not otherwise specified 3(16.7%), invasive lobular carcinoma 5(27.8%) medullary carcinoma 1(5.5%) invasive adenocarcinoma- 0.

Csaba Gajdos in his study in 850 patients recorded invasive ductal carcinoma 616(73%) patients, infiltrating lobular carcinoma 95(11%), tubular or tubulolobular 92(11%), colloid 33(4%) and medullary 13(1.5%). In their study majority of tumor subtype were moderately differentiated.

EI-Mohamed A Alm Din in their study in 2009 of the 28 breast cancers, 21(75%) were infiltrating duct carcinoma (one with mucinous features), 1(3.6%) was infiltrating lobular carcinoma, 1(3.6%) was infiltrating cancer with both ductal and lobular features, and 4(14.3%) were ductal carcinoma in situ, pathological type was unknown for 1 tumor (3.5%).

In young or older women not undergoing mammographic screening, invasive carcinoma almost always present as a palpable mass. By the time a cancer become palpable over half the patients would have axillary lymph node metastases. In our study almost all patients of T2 and T3 stage of different subtype showed axillary lymph node metastases. Medullary carcinoma usually present as well circumscribed mass and may be mistaken clinically or radiologically for a fibro-adenoma. Lymph node metastases are infrequent and rarely invasive multiple nodes.

Skin And Dermal Lymphatic Invasion By Tumor

Casaba Gajdos et.al has done their study on 850 patients and found lymphatic invasion in 181(21.2%) patients and axillary lymph node metastases in 216(25%) patients of T1 stage. They done stepwise logistic regression to identify variables significantly related to nodal involvement. They found lymphatic invasion to be most significant variable related to nodal involvement. Majority (51%) of patients with lymphatic invasion had axillary lymph node metastases, compared with 19% of patients without identifiable lymphatic invasion. Lymphatic invasion was not predictive of degree of nodal involvement because the average number of involved nodes in patients with lymphatic invasion was 3.1 versus 3.2 for patients without lymphatic invasion.

Rosen et-al has noted a correlation between lymphovascular invasion and the risk of recurrence and death. The recurrence rate for women with lymphovascular invasion positive stage I disease was 38% compared with 22% for those with lymphovascular invasion negative disease. They stated lymphatic and vascular invasion does have prognostic significance and is primarily used to make decision for lymph node-negative patients with borderline tumor sizes.

At the St. Gallen meeting in 2005, lymphovascular invasion was added to the prognostics for node negative patients (169) compared to patients having no lymphovascular invasion, a 60% higher breast carcinoma mortality was observed for node negative breast carcinoma patients having positive lymphovascular invasion.

Wallgren et-al. reported on 2250 women with 1-3 positive lymph nodes who were enrolled in 7 International Breast Cancer Study Group trials of systemic therapy. All patients in their study underwent

axillary dissection with the requirement of a minimum of eight lymph nodes removed for study entry. Factors that were associated with increased loco-regional recurrence in their study were high histological grade and vascular invasion, among premenopausal patients and high histologic grade and tumor size 2 cm among postmenopausal patients.

According to our study (graph 6 and table 6) in stage T4 out of 18 patients, 17(94%) had dermal lymphatic invasion with dermis and epidermis infiltration by tumor. In stage T2 out of 20 patients, 16 (89%) patients showed dermal lymphatic invasion, 2 (11%) patients showed tumor infiltrated into dermis. In T3 stage out of 4, 2(50%) patients slide showed dermis infiltration by tumor and in 1 (25%) patient epidermis was infiltrated. All the 4 patients of T3 stage showed dermal lymphatic invasion. In stage T2 18 patients, T3 stage 4 patients and T4 stage 18 patients showed axillary lymph node metastases. In earlier studies it is stated that in the subsets of patients with small tumors the phenomenon of advanced axillary lymph node involvement may be associated with superficial location of tumors. Compared with the breast parenchyma the overlying skin has a greater density of lymphatics and most of the cutaneous lymphatics of the superior, medial and inferior breast including the subareolar plexus, drain laterally to the breast. Therefore tumors that originate form or reach this dense lymphatic network early may have a more rapid and increased drainage to the main lymph node basin in the axilla compared with tumor located in deeper plane or infiltrate the lymphatics late.

Number Of Axillary Lymph Node Metastases

National Surgical Adjuvant Breast and Bowel Project (NSABP) divided patients into 4 groups: negative nodes, 1-3 positive nodes, 4-9 positive nodes, and 10 or more positive nodes. They found the 5 years survival for patients with node-negative disease is 82.8% compared with 73% for 1-3 positive nodes, 45.7% for 4-12 positive nodes and 28.4% for >13 positive nodes.

Wong JS et.al (2002) has done their study in 722 women with clinical stage I or II with clinical negative axillary lymph node. They found that 3% of patients had 4 or more positive nodes on axillary dissection. Variability in the incidence of nodal metastases was related to the number of lymph nodes removed and the histo-pathologic methods were used to found metastases.

Perrucci E et.al in their study in 2004 demonstrated that breast cancer patients with four or more positive axillary lymph nodes are at high risk of developing loco-regional and distant relapses.

In our study (graph 7 and table7) out of 20 in T2 stage 2 (10%) patients showed 0 metastases in axillary lymph node, 14 (70%) patients showed metastases in 1-3 axillary lymph node and 4 (20%) patients showed metastases in >4 axillary lymph nodes. In stage T3 out of 4 there were no patients in 0 group involvement, 2 (50%) patients in 1-3 lymph node involvement and 2 (50%) patient in >4 lymph node group involvement. In stage T4 out of 18, 1 (5.6%) patient showed 0 metastases, 7 (38.8%) patients showed metastases in 1-3 axillary lymph nodes and 9 (55.6%) patients in >4 axillary lymph node metastases group involvement. >4 axillary lymph node metastases are established as adverse prognostic factors in early breast carcinoma.

V. CONCLUSION

The study of "Evaluation of breast cancer in reference to skin changes" was conducted on 42 breast cancer patients in RIMS and results were compared between T1 –T3 stage patients having no or minor (discreet) skin changes with T4 stage patients having major (obvious) skin changes in correlation to axillary lymph node metastases which was diagnosed by routine histopathological examination postoperatively. The patients included in the study underwent modified radical mastectomy with axillary lymph node dissection.

The most significant characteristic of primary tumors (macroscopic and microscopic skin changes) related to nodal involvement in this study was the presence of dermal lymphatic invasion. In this study, in T1 stage there was no patient. In T2 stage there were total 20 patients, dermal lymphatic invasion was in 16 patients out of which 14 patients had clinically no axillary palpable lymph node but metastases was found to be present in the axillary lymph nodes on histopathological examination in 18 patients. In T3 stage, there was total 4 patients, dermal lymphatic invasion was present in all the 4 patients, axillary lymph node was not palpable in 2 patients but metastases were found in all the 4 patients on axillary lymph node histopathological examination. In stageT4, there were total 18 patients, dermal lymphatic invasion was present in all the 18 patients, axillary lymph node was not palpable in 3 patients but metastases in axillary lymph node was present in all 18 patients. This way dermal lymphatic invasion has been reported in 20 patients out of 24 of stage T2 and T3, with only 5 patients having dermis and epidermis invasion by tumor whereas in stage T4, 17 patients out of 18 showed dermis and epidermis infiltration and all the 18 patients showed dermal lymphatic involvement.

In our present study in stage T2, 80% of the patients were having dermal lymphatic involvement, 70% presented with no clinical palpable axillary lymph node but axillary lymph node metastases was found in 90% of the patients. In the same way in T4 stage, 100% patients were having dermal lymphatic involvement, 83% had clinical palpable lymph node but axillary lymph node metastases was found in 100% patients. From this we can conclude that patients in early stage breast cancer may also have metastatic axillary lymph nodes.

Dermal lymphatic invasion may be regarded as the precursor of nodal involvement, and all patients with nodal involvement can be assumed to have lymphatic invasion in the primary tumors. However the converse may not be true, not all patients with lymphatic invasion have nodal involvement.

In our study, most of the patients of stage T2 and T3 with dermal lymphatic invasion had involved node when studied by routine histologic technique even though they were not clinically palpable. The identification of characteristics of the primary tumor like dermal lymphatic invasion that are associated with nodal metastases should encourage the surgeon to perform a more extensive axillary lymph node dissection and the pathologist to use methods of examining the nodes that increase the likelihood of finding metastatic disease.

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