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Malignancy Trends in Breast Carcinoma in North Indian Females

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ABSTRACT

Introduction-Breast cancer is fast becoming the most common cancer among females. Despite being the most amenable cancer for early detection and cure, mortality rates are very high.Therefore understanding its pathogenesis, morphological features , various prognostic, predictive as well as risk factors holds great promise for treatment, early detection and prevention of this cancer. Material and Methods-All the cases diagnosed histopathologically as breast carcinoma were included in this study over a period of five years out of which four years was retrospective and one year was prospective. Results- Out of 332 cases of breast biopsies received 155 cases were diagnosed with malignancy with most common age group of presentation being 41-50yrs(34.8%cases)and Infiltrating ductal carcinoma(NOS) was the commonest type of malignancy (75.5% cases). Conclusion-The rising incidence of breast cancer implies the importance of breast self examination and regular mammography as screening method for early detection and planning of treatment.

INTRODUCTION

Lesions of breast are preponderantly confined to females because of greater sensitivity to endocrine influence and more complex structure. Breast cancer is the most frequent cancer in women worldwide with 1.05 million new cases every year and represents over 20% of all malignancies among females[1]. Epidemiological studies have shown marked geographical variations in breast cancer.The international incidence figures published by WHO showed that the population of Asia and Africa have lower incidence rates as compared to Europeans and Americans[2].However it still ranks as the commonest cancer among women in Asian-African region. Cultural patterns appear to influence the development of disease[3] The age-standardised incidence rates vary between 9-32 per 100,000 women in India and an increasing trend has been reported from various registries of National Cancer Registry Project.[4] Breast cancer has been reported as the commonest cancer among women in various urban metropolies like Delhi, Mumbai, Ahmedabad, Calcutta and Trivandrum based upon population based cancer registry data.[4,5]

Several clinical and morphological parameters such as histological type of tumor, tumor grade, axillary lymph node involvement, bilaterality etc have been established as predictors of tumor behavior in breast cancer patients. The prognostic factors are indicators of the inherent aggressiveness of the tumor as well as of the extent of disease and based on these factors, treatment decisions are being taken.[6]

The aim and objective of the study was to see the histomorphological spectrum of breast malignancies, their prevalence and clinic-pathological correlation in north Indian females.

MATERIAL & METHODS

The total number of specimens received in the histopathology laboratory of the department of pathology were 13,943 over a period of five years. Out of these total number of breast tissues received were 332 which constituted 2.38% of the total specimens.

Thefollowing eligibility criteria were employed for inclusion of cases into the study

a)Female patient
b)patients with complete clinical details
c)Patients being resident Indian
d)Histologically proven cases of breast carcinoma

Of the 332 cases 155 cases satisfied the eligibility criteria and were included for the present analysis. The detailed breakup of 177 cases deferred were as follows: 132 were diagnosed with benign proliferative breast lesion while 30 were inflammatory lesions. 13 were male breast biopsies while 2 were inadequate.

For all the cases who satisfied the eligibility criteria, clinical history and brief information on socio-demographic parameters like age, marital status, and parity were extracted from clinical records.Clinical variables specifically included duration of disease, clinical presentation(lump, nipple discharge, ulceration,) bilaterality and tumor size. Most of the patients had locally advanced cancers with palpable lymph nodes. Axillary clearance was done in most patients. Level 1 lymph nodes were biopsied in small number of patients who did not have palpable lymph nodes and if found positive further management was done.

Statistical Analysis for significant association of various premalignant lesions in breast cancer was done using Gaussian test where *p*value <.05 was taken to be significant.

RESULTS

Age:

In the present series mean age of presentation was 43.1 years . the youngest patient was 21 years of age while the oldest was 72 years old. The commonest age group of incidence was 41-50 years(34.8%) closely followed by 31-40 years(34.1%). 7.7 % cases were below 30 years and 6.4% were above 60 years of age.

Reproductive History:

Out of 155 cases of breast malignancy 2(1.4%) were unmarried,Of whom one was <30 years of age and other was >30 years. Among married females 5(3.2%) were nullipara, of whom one was 21-30 years age group, three were 41-50 years age group and one in >60 year age group.

Laterality and Site:

The tumor was present unilaterally in majority of cases(152, 98.06%). Left breast involvement was seen in 51.0% whereas Right breast was involved in 47.1% cases. Bilateral malignant breast lumps was seen in 1.9 % cases only.2 of these cases were diagnosed as Invasive Lobular Carcinoma and were in their late thirties. O ne had Infiltrating Ductal carcinoma (NOS) with metastatic involvement of another breast asinitially the lump was unilateral. The patient was >60 years of age.

Upper Outer Quadrant(UOQ) was the most common site present in 48.3% cases followed by Upper inner Quadrant UIQ(20.6%), Lower outer quadrant LOQ(10.9%) and Lower inner quadrant LIQ (5.8%). Diffuse involvement was seen in 14.2% cases.

Clinical Presentation, Duration and Tumor Size

A palpable lump was present in all the cases(100%). It was associated with pain in 4.5% cases, with discharge in 3.8% cases, ulceration in 12.9% cases and all the four complaints in 3.2%

cases.

56.1% patients presented within 6 month duration whereas rest presented beyond 1 year.

Maximum patients(48.5%) had lump size between 4-6 cms followed by 7-9 cms(30.3%). 16.1% patients had lump size between 1-3 cms whereas large size>10 cms was seen in only 9.0% cases.

Histomorphological pattern

The various histomorphological types of breast malignancies are outlined as below:

Table 1: Histomorphological Types of Breast Carcinoma with their Frequency and mean age of occurrence:

Histological Type	No. of Cases(%)	Mean Age(yrs)
Infiltrating Ductal Carcinoma (NOS)	117(75.5)	44.5
Invasive Lobular Carcinoma	12(7.7)	38.8
Medullary Carcinoma	11(7.0)	49.1
Comedo Carcinoma	6(3.8)	37.1
Mucinous carcinoma	2(1.3)	40.5
Metastatic Carcinoma	2(1.3)	55.5
Micropapillary Carcinoma	1(0.6)	35.5
Metaplastic Carcinoma	1(0.6)	55.5
Paget's Disease	1(0.6)	35.5
Borderline Phyllodes Tumor	1(0.6)	35.5
Malignant Phyllodes Tumor	1(0.6)	45.5
Total	155(100)	

Significance: The most common histomorphological type of breast carcinoma reported was Infiltrating Ductal carcinoma(NOS) which was diagnosed in 117(75.5%) cases followed by Invasive lobular carcinoma and medullary carcinoma seen in 7.7% and 7.0% cases respectively.

Associated premalignant lesions were seen in 90 (58.2 %) cases. More than one type of patterns were seen in many cases. The following table shows various types of premalignant lesions with their percentage number of cases in which they were seen.

Table 2:Frequency of various premalignant lesions associated with breast carcinoma

S.No.	Premalignant lesions	No. of cases	(%)
1.	Ductal Carcinoma in situ [DCIS]	55	61.1
*	Comedo type	25	27.8
*	Solid type	15	16.7
*	Cribriform type	10	11.1
*	Clinging type	4	4.4
*	Micropapillary type	1	1.1
2.	Lobular carcinoma in situ [LCIS]	2	2.2
3.	Atypical Ductal hyperplasia [ADH]	3	3.3
4.	Atypical Lobular Hyperplasia [ALH]	2	2.2
5.	Florid hyperplasia (HUT)	7	7.8
6.	Fibrocystic disease	9	10.0
7.	Sclerosing adenosis	12	13.3
	Total	90	100

Significance: Ductal carcinoma in situ(DCIS) was most significantly associated premalignant lesion with Infiltrating ductal carcinoma NOS followed by Sclerosing Adenosis (*p<.05).* Among DCIS types Comedo type was most significantly associated ,whereas, no significant difference was seen between other types of DCIS. .

Axillary Lymphnode Status

Axillary dissection was done in 82 cases. Of these, 53.3% were positive for metastases. 48.7% showed metastatic deposites in more than 3 lymphnodes. Pericapsular and extracapsular invasion was also seen.

It is clear from our findings that patients with Infiltrating Ductal Carcinoma(NOS) presented with more advanced disease and their tumor was biologically more aggressive. Results in favour of aggressive tumors are—

*78.0% cases with axillary dissection had positive lymph nodes of which 62.5% had >4 lymph nodes positive.

*83.9% cases had tumor size >3 cms

*Skin involvement with ulceration and fungation was seen in 16.1% cases.

*Lymphovascular invasion was seen in 10.7% cases.

*Perineural involvement was seen in 8.0% cases.

DISCUSSION

Breast cancer in females is showing an increasing trend in the present scenario. This appears to be related to later age at marriage, late birth of first child, fewer children and shorter time of breast feeding which are increasingly common practice among educated urban females.[7] This continuing rise in breast cancer has created an urgent need to develop strategies for its prevention or early diagnosis. Though several risk factors have been elucidated and still much are being studied yet their definite interaction needs to be elucidated. Analysis of newer parameters like family history could be very helpful in screening high risk patients and plan their preventive and treatment modalities.[6]

Age of breast cancer patient is an important factor with regards to its occurence and management. Average age of the patients seen in six hospital based registries in National Cancer Registry Project(NCRP) network for the period 1994-98 was found to range from 44.2-49.6 years across various cities. In the present study the average age of presentation was 43.1 years, which was in agreement with NCRP findings.[8] Among US white females average age of occurrence of breast carcinoma has been reported around 61.0 years.[9]

Various reproductive factors have been associated with breast cancer in many Indian and Western populations.[10,11] A case control study to identify risk factors for breast carcinoma in Mumbai indicated that single woman as compared to married women had 4-5 fold higher risk for developing breast carcinoma in the age group of 40- 55 yrs and above.[12] Rao DN etal [13] showed that nulliparous women have 2.2 fold higher risk than parous women. In the present study , we had 2 patients who were unmarried and 5 among those married were nullipara.

Lump is usually the predominant complaint in all the cases of breast carcinoma which was seen in 100% cases in our study. Bilaterality was seen in 1.9% cases which in an earlier study[14] has been reported in 3.0% cases.

The histological type of carcinoma whether in-situ or invasive denotes the general behavioural pattern of the tumor. In a study conducted by Wynder etal[15] comedo and medullary type carci-

nomas were found to be most frequent in Tokyo, Japan. Tumors of better prognostic types like medullary, colloid and intraductal were seen more in Tokyo than Boston when comparative studies were done.[15] It is important to understand the relationship of histological type to etiology and to allow separation of entities with distinct etiologies. However Infiltrating Ductal Carcinoma (NOS) has been the most common histological type in most of the studies all over the world.

Histology as a prognostic indicator has been well documented in breast carcinoma. Patients with infiltrating Ductal Carcinoma (NOS)[IDC] type have poor survival as compared to other types.[16] In our study IDC was reported to be the most common histological type comprising 117cases (75.5%). Similarily, 1984-93 hospital based cancer registries under the NCRP network revealed 83.3%, 85.0%, and 83.3% cases of infiltrating ductal carcinoma(NOS) in Mumbai, Bangalore and Thiruvanthapuram respectively.[8] The frequency of lobular carcinoma in our study was 7.7% which was higher than those reported by them ie. 2.7%, 1.7% and 1.6% respectively. This reflects the variation in north and south Indian population which can be attributed to environmental, social and dietary practices in these regions.

It is well known that breast cancer cases diagnosed at an earlier stage have more favourable prognosis as compared to those detected at later stages . However , because of lack of awareness, fear of disease, psychological reasons or shyness, patients tend to hide the disease and try to get cured by alternative methods.[6] As a result by the time they come to the hospital the cancer is already advanced. This reflects the need for awareness and initiation programmes for early detection . Studies on breast cancer done in other Asian populations have also reported younger age of presentation and higher grade of breast carcinoma in their females.[17,18,19]

Higher frequency of axillary lymph node metastases and presence of the other poor prognostic factors like size of the tumor, histological gr3 etc have been observed to be present in Asian population of females with breast cancer.[17,18] Further studies need to be done to shed light on this discrepancy between Asian and Western females regarding breast carcinoma. More light needs to be shed on its natural history as well as genetic makeup which plays a role in more aggressive tumor in Asians as well as compared to western females.[19]

CONCLUSION

Infiltrating ductal Carcinoma(NOS) was found to be the most common type of breast cancer in our study which carries poorer prognosis as compared to other variants.High grade of mean tumor size also suggests late presentation which is responsible for delay in treatment and overall higher mortality. It is therefore important to know about the clinicopathological profile and various associated established risk factors of breast carcinoma so as to prognosticate the patient and plan adequate treatment. The importance of screening procedures cannot be undermined.

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