Original Article

Histopathological Profile of Breast Cancer in a Rural Population

S R Reny[1], Apuca Susan Mathew[2], Soumya Gopakumar[3]

[1]Post-graduate Student, Department of Pathology, Dr. Somerwell Memorial CSI Medical College, Trivandrum, Kerala, India, [2]Professor, Department of Pathology, Dr. Somerwell Memorial CSI Medical College, Trivandrum, Kerala India, [3]Assistant Professor, Department of Social and Preventive Medicine, Dr. Somerwell Memorial CSI Medical College, Trivandrum, Kerala, India.

Abstract

Introduction: Breast cancer is the most common malignant tumor. Although the majority of underlying causes and other features are usually uniform worldwide, every region has its own uniqueness for that cancer among females.

Objective: The objective of this study to describe the frequency and prognostic factors related to the extent and biology of the breast cancer in a rural scenario for 13 years.

Materials and Methods: A record-based retrospective study was undertaken and analyzed of all breast cancer cases received in Pathology Department during 2002-2015 at Dr. SMCSI Medical College, Karakonam.

Results: A total of 256 breast cancer cases were received in the Pathology Department. Majority of patients was in postmenopausal age with left sided as common presentation. Pathological staging T_2, Grade 2 and Nottingham prognostic index – good prognosis accounts for majority of the cases in our study.

Conclusion: Despite the fact, breast cancer is the most common cancer among females. The disease shows a significant geographic and ethnic variation in age distribution.

Key words: Breast, Cancer, Population

INTRODUCTION

Breast cancer is the most common malignant tumor among females and is one of the leading causes of death worldwide. The incidence of breast cancer is lower in India compared to western countries, the first being carcinoma (CA) cervix. Global burden of breast cancer is 1.7 million according to the WHO latest statistics. India has 17% of global population suffering from breast cancer. Breast cancer is the leading cancer among all districts in Kerala, showing a proportion varying from 22.2% in Kasargod and 29.2% in Thiruvananthapuram. Mammography and self-examination lead to early detection and thus reduced the mortality of breast cancer in western countries.

However, late presentation, lack of awareness, and sociodemographic status increase the mortality in developing countries. Although the majority of underlying causes and other features are usually uniform worldwide, every region has its own uniqueness for that cancer. In Indian scenario, there is a rising incidence with age shift toward younger women, aggressive tumors, and late presentation. Within India, there are substantial differences in the incidence rates of breast cancer in rural and urban areas.

Objective

The objective of this study was to describe the frequency and prognostic factors related to the extent and biology of the breast cancer in a rural scenario for 13 years.

MATERIALS AND METHODS

A record-based retrospective study was undertaken and analyzed of all breast cancer cases received in Pathology Department during 2002 to 2015 at Dr. SMCSI Medical

Corresponding Author: Dr. S R Reny, Reji Sadanam, Moliyoor, Kattakada - 695 572, Trivandrum, Kerala, India. Phone: +91-8281739596.
E-mail: roselette.spartan@hotmail.com

College, Karakonam. Grading and staging were done according to the Nottingham modification of the Bloom and Richardson Grading System and TNM staging system, respectively. Cases were scored according to the Nottingham prognostic index (NPI). Data obtained were analyzed using SPSS version 16 and value presented descriptively.

RESULTS

During these 13 years, a total of 256 breast cancer cases were received in the pathology department. Of these, 186 cases were of mastectomy and 70 cases were of lumpectomy. Most common presentation was lump. Others include breast pain, nipple discharge, and skin changes.

Majority of patients ranged between the age group 51 and 60 years. Maximum age was 83 and minimum 22 at the time of presentation. 66.9% of patients was of postmenopausal age considering 45 as menopausal age. Most common side of presentation was left side with 53.5%.

Out of 256 breast cancer patients, 222 cases were of infiltrating ductal CA of number special type. Ductal CA *in situ* accounts for 13 cases. Size of tumor varied between 16 and 0.2 cm. Average size of tumor was 4 cm.

T2 accounts majority of our cases that is about 54.7%. Of the lymph node (LN) available in 186 cases, 106 cases showed LN metastasis.

Grading was done to all the 245 cases with invasive breast cancer. Grade 2 was common among our study group (72.7%).

NPI prognostic index was applied to all 245 invasive breast cancer cases and 55.5% (136 cases) showed good prognosis.

We tried to analyze the correlation between menopausal status and grade, LN. Furthermore, among pathological stage, LN involved and grade of tumor.

No statistically significant association found between menopausal status and grade, LN.

Statistically significant association was found between pathological staging and LN also the grade but not between LN and grade (Tables 1-4 and Figures 1-7).

DISCUSSION

Despite the fact, breast cancer is the most common cancer among females. The disease shows significant geographic and ethnic variation in age distribution. Our study shows

Table 1: Diagnosis

Diagnosis	Frequency (%)
IDC NST	222 (86.7)
DCIS	13 (5.1)
Mucinous CA	10 (3.9)
Invasive lobular CA	3 (1.2)
Metaplastic CA	3 (1.2)
CA with apocrine different	2 (0.8)
CA with medullary features	2 (0.8)
Intracystic micropapillary CA	1 (0.4)

CA: Carcinoma, DCIS: Ductal carcinoma *in situ*, NST: No special type

Table 2: Relation of grade, pathological stage, and LN status with age

Parameters	Age<45	Age>45	*P* value
Grade 1	6	12	0.424
Grade 2	55	123	
Grade 3	30	29	
T1	18	29	0.646
T2	45	95	
T3	14	26	
T4	4	14	
LN present	56	78	0.589
LN absent	24	28	

Table 3: Relation of pathological stage and grade with LN status

Parameters	LN present	LN absent	*P* value
T1	15	18	0.013
T2	62	45	
T3	15	15	
T4	14	14	
Grade 1	4	8	0.205
Grade 2	79	58	
Grade 3	23	14	

LN: Lymph node

Table 4: Relation of pathological stage with grade

Parameters	Grade 1	Grade 2	Grade 3	*P* value
T1	7	21	5	0.002
T2	1	86	20	
T3	2	22	7	
T4	2	8	5	

that the majority of patients was between 51 and 60 years (30.9%). Furthermore, menopause also plays an important role in the distribution of cancer. In our study, 66.9% comprises postmenopausal females. Most common side of presentation is left side. This is similar to studies by Ahmed A. Zeeneldin *et al.* and R.T. Senie *et al.* with a suggestion that breast size and volume is attributing to this laterality in breast cancer.[1,2] Most common histological variant in our study was invasive ductal CA of number special type which is similar to Forae *et al.*, Godwin A. Ebughe, and Saxena *et al.*[3-5] Various studies showed the importance
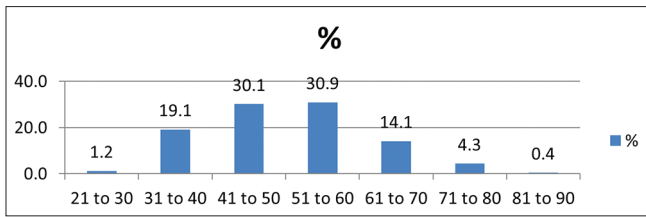
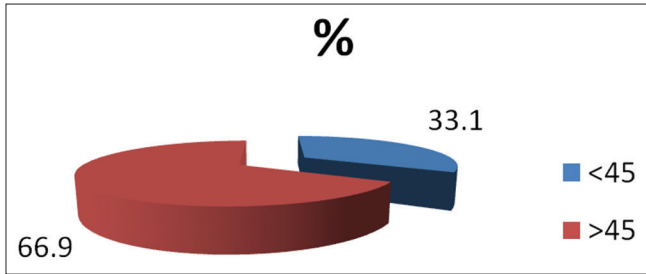**Figure 1: Age-wise distribution of cases**
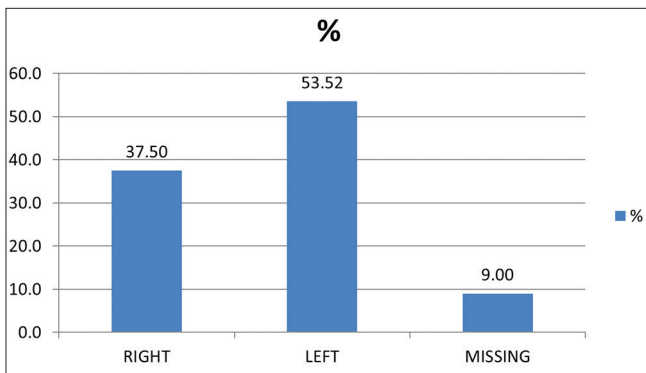

Figure 2: Menopausal status

Figure 3: Side-wise case distribution

Figure 4: Scarf-Bloom-Richardson grading

Figure 5: Pathological stage distribution
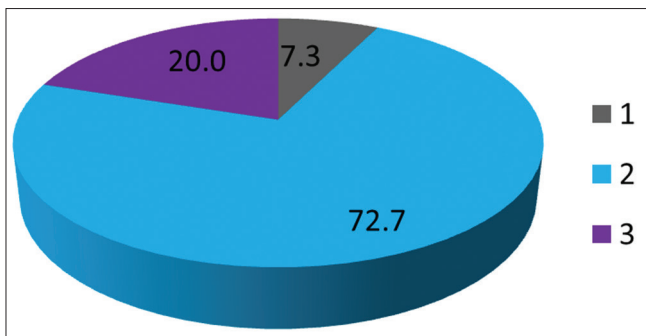

Figure 6: Menopausal status

Figure 7: Nottingham prognostic index

of Modified Scarf-Bloom-Richardson grading in the prognostic factor of breast cancer. Grading is based on mitosis, pleomorphism, and tubule formation. Our study shows majority of cases with Grade 2. This is similar to study by Ahmad *et al.* However, studies by Forae *et al.* and Ebughe showed majority of cases in Grade 3 category.[3,4,6]

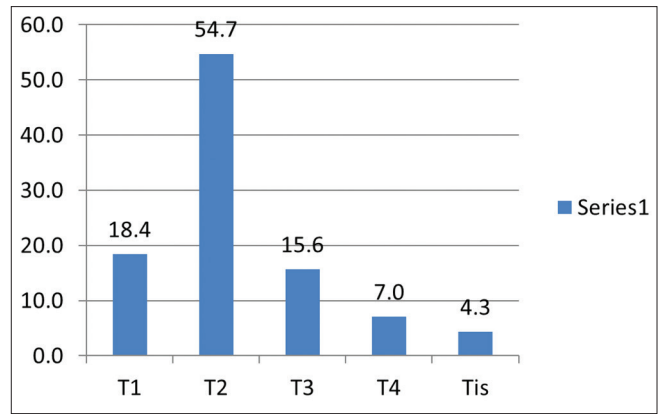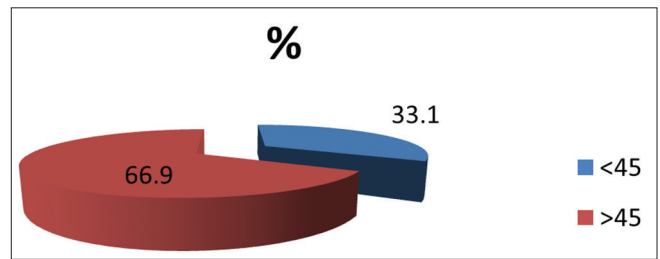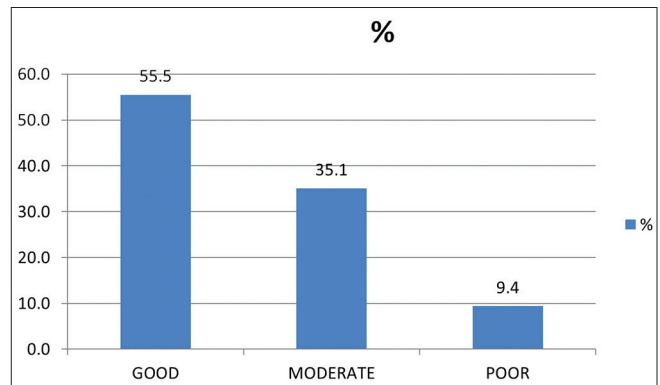Gross size of tumor is one of the significant prognostic factors in breast cancer. There will be increased LN metastasis and decreased survival as size of tumor increases. Thus, TNM staging plays an important role in the staging, treatment, and outcome of patients. Our study shows majority fall into T2 (54.7%). This is similar to the study byAhmad *et al.*[6]

Of the total invasive breast cancer, 106 cases LN metastasis (excluding unavailable data, CA *in situ* and not present) out of 186 cases recovered. NPI was applied to 245 invasive cancer cases and majority of cases were of good prognosis (136 cases).

REFERENCES

1. Senie RT, Rosen PP, Lesser ML, Snyder RE, Schottenfeld D, Duthie K. Epidemiology of breast carcinoma II: Factors related to the predominance of left-sided disease. Cancer 1980;46:1705-13.

2. Zeeneldin AA, Ramadan M, Elmashad N, Fakhr I, Diaa A, Mosaad E. Breast cancer laterality among Egyptian patients and its association with treatments and survival. J Egypt Natl Canc Inst 2013;25:199-207.
3. Forae G, Nwachokor F, Igbe A. Histopathological profile of breast cancer in an African population. Ann Med Health Sci Res 2014;4:369-73.
4. Ebughe GA. Histological type and tumour grade in Nigerian breast cancer: Relationship to menarche, family history of breast cancer, parity, age at First birth, and age at menopause. IOSR J Dent Med Sci 2013;7:58-63.
5. Saxena S, Rekhi B, Bansal A, Bagga A, Chintamani, Murthy NS. Clinico-morphological patterns of breast cancer including family history in a New Delhi hospital, India-A cross-sectional study. World J Surg Oncol 2005;3:67.
6. Ahmad Z, Khurshid A, Qureshi A, Idress R, Asghar N, Kayani N. Breast carcinoma grading, estimation of tumor size, axillary lymph node status, staging, and nottingham prognostic index scoring on mastectomy specimens. Indian J Pathol Microbiol 2009;52:477.