

“Breast cancer trends in a Tertiary Care Teaching Institute of South India”

Running title: “Breast cancer trends in South India”

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Abstract

Introduction: *The Incidence of breast cancer has been found to increase gradually especially among younger women. This could be due to two reasons first is it may be reflecting the true incidence of the tendency of younger women to develop breast cancer or second could be due to increasing awareness and availability of modern screening methods which has led to the detection of cancers in early ages.*

Methods: *We in this cross-sectional study screened n=125 women for breast cancer at RVM Institute of Medical Sciences, Mulugu, Telangana from January 2019 to Dec 2019. A total of n=120 cases were screened for breast cancer.*

Results: *Out of n=125 women screened n=21 cases were detected with breast cancers. The incidence rate was calculated as 21%. Out of the total n=21 cases, n=7(33.33%) cases were found to malignant, n=14(66.67%) cases were benign lesions. Among the malignant lesions diagnosed the Invasive duct cell carcinoma was found in 71.43% of out of the total n = 7 cases of malignancy. In non-neoplastic lesions out of n=14 cases, fibroadenoma was diagnosed in 38.09% cases, followed by proliferative breast disease with atypia 14.28% and Phyllods in 9.52% cases.*

Conclusion: *There is an urgent need for organized breast cancer screening programs especially in rural areas. A multidisciplinary approach is required to create awareness, screening, detection, and treatment. This can help reduce the incidence and mortality in cases of breast cancers.*

Keywords: *Breast Cancer, Tertiary Care Hospital, Young Females, South India*

Introduction

Breast cancer is the common non-cutaneous cancer of adult females across the world and is the second leading cause of cancer death.^[1] In the US one in three cancer diagnosed among women is breast cancer.^[1, 2] The worldwide burden of breast cancer has doubled by the year 2000 and one of the factors attributable is the widespread adoption of westernized lifestyle and increasing life expectancy.^[3] About 6.6% of all breast cancers are diagnosed in women with an age of less than 40 years. 2.4% in ages of below 35 years and 0.65% below the age of 30 years.^[4, 5] In the Indian scenario about 75,000 new cases of cancer are diagnosed in women every year.^[6] However, the data must be viewed against the backdrop of the National Cancer Registry and Hospital-based tumor registry which hardly sample about 3% of the total population.^[7] Although western countries have rampant cases of breast cancers there is a rising trend of this cancer in the Asian countries which could be probably due to increasing awareness and screening programs. The life-time probability of developing breast cancer in India is 1 in 22 as compared to 1 in 8 in the US.^[8] The majority of studies have shown a higher prevalence of breast cancers in the fourth and sixth decade.^[7] As far as death rates are concerned there is decreasing trend owing to early detection and improved treatment.^[9] Despite this, the breast cancers of young women remain a great challenge to the patients, families, and health care providers. While compared to older counterparts the breast cancer incidence is lesser in younger however when it is diagnosed it is usually found in later stages and tends to be more aggressive and have a poorer prognosis.^[10, 11] One of the reasons for more aggressive cancers in young women is due to subtypes such as triple-negative or HER2-positive breast cancer and likely to be in an advanced stage because of an aggressive subtype of low index of suspicion and delayed diagnosis.^[12] This may lead to regional recurrences and distant metastasis, one of the factors for poor outcomes in young women. Genetic factors are important affecting the rates of early onset of breast cancers in different areas across the world. In the UK, approximately 3% of all breast cancers are due to mutation of BRAC1 and BRAC2.^[13] In Jews, the number increases to 40%. TP53 mutation is the causative agent of breast cancer in Li-Fraumeni syndrome usually affects women between the age of 20 – 40 years.^[11] Hormonal factors also play a crucial role in different populations and ethnicities. Since the situation remains unclear in the South Indian population especially the rural areas. Various camps in urban and rural India in recent years and availabilities of tertiary care hospital like our in this area has led to providing access of higher health care facilities. This study tried to evaluate the situation of breast cancer in our group population.

Material and Methods

This cross-sectional study was conducted at RVM Institute of Medical Sciences, Mulugu, Telangana state. Institutional Ethical committee permission was obtained for the study. Written consent was obtained from all the participants of the study after informing them about the purpose, method, and possible discomforts related to the study. A total of n=120 women of various groups were examined during the study period from Jan 2019 to Dec 2019. Out of n=120 n=21, were detected with various breast lesions. Complete demographic profile of the patients including the name, age, history of lesions, family history of similar lesions BMI, use of hormones estrogen and progesterone, and age at first delivery which is considered as an important risk factor were recorded based on the structured questionnaire. The diagnosis was based on Diagnosis of breast cancer was based on clinical examination,

imaging, and histopathology. All the descriptive data were analyzed after entering the results in MS spreadsheet by SPSS version 19 on windows format.

Results

Out of n=125 women screened n=21 cases were detected with breast cancers. The incidence rate was calculated as 21%. The commonly screened age group was 31 – 40 years followed by 21 – 30 years and 41 – 50 years. The youngest patient detected with breast lesion was 26 years and the oldest was 60 years. The mean age was calculated as 37.5 ± 5.5 years given in table 1.

Out of the n=21 cases detected in the study n=13 (61.9%) were below the age of 40 years and n=7 of them were with right-sided tumor and n=5 were with left side breast tumor. In the 41 – 60 years, age group n=8(38.09%) cases showed n=4 cases of the right side and n=3 cases of left side tumor and n=1 case had a bilateral tumor. The anatomical location of lesions was carefully recorded and the following observations were made. The highest number of lesions were located in the lateral upper quadrant with n=7 (33.33%) cases and the lateral lower quadrant was involved in n=5 (23.80%) of cases, The medial upper quadrant was found to involve in n=4(19.04%) cases the medial lower quadrant was involved in n=3(14.28%) the least involved quadrant was the central area with n=2(9.52%) of cases (figure 2)

Out of the total n=21 cases, n=7(33.33%) cases were found to malignant, n=14(66.67%) cases were benign lesions. Among the malignant lesions diagnosed the Invasive duct cell carcinoma was found in 71.43% of out of the total n = 7 cases of malignancy. In non-neoplastic lesions out of n=14 cases, fibroadenoma was diagnosed in 38.09% cases, followed by proliferative breast disease with atypia 14.28% and Phylloids in 9.52% cases depicted in table 2.

The most common location of IDCC in our study was the lateral upper quadrant with SEER coding for IDCC was 2.Lobar carcinoma in situ was the histological presentation in one case. One case of Medullary carcinoma was responsive to hormone treatment. Patients underwent treatment procedures such as modified radical mastectomy, excision biopsy, and complete mastectomy. Breast conservative surgery is practiced in western countries. It has not been used however due to lack of facilities and patient's choice of mastectomy lack of follow-up and preference of radiations post-surgery would not serve the purpose.

Discussion

India, the US, and China collectively account for about one-third of the global burden of breast cancers.^[14] The situation in India is challenging due to an 11.54% increase in the incidence of breast cancers and a 13.82% increase in mortality due to breast cancers in the years 2008 – 2012. ^[1] In this study, we found the overall incidence rate was 21% and below the age of 35 the incidence was 13% per. Gogia A et al; have shown an incidence of 5.5% in women aged below 35 years. ^[15]Umesh Das et al; in their study of breast cancers below 35 years of age women showed a relative incidence of 11.3%. ^[16]The important fact to remember is that our samples were obtained by stratified random sampling technique although, the population size is small still we may have good corresponding results. The important fact to

consider here is the tendency of younger women to get breast cancers. According to ICMR reports in metropolitan cities from 1982 to 2005 the incidence of breast cancers has doubled. [16] They have also found that Indian women tend to have breast cancers a decade younger as compared to their western counterparts. [17-20] Studies from various registries have found increasing AAR for breast cancer with age intervals of (15-34, 35-44, 45-54, 55-64, and > 64 years). Studies from Nagpur, Mumbai, and Chennai have found in the age group of 15 – 34, APC of 4.24%, 1.60%, and 0.80% respectively. [21] It has been shown that after the age of 25 years with an advance of 10 years the age-specific rates start increasing steeply and ultimately reached a level of more than 400 per 100,000 women above the age of 65 years. [22] Out of the total n=21 cases, n=7(33.33%) cases were found to malignant. n=14(66.67%) cases were benign lesions. Among the malignant lesions diagnosed the Invasive duct cell carcinoma was found in 71.43% of out of the total n = 7 cases of malignancy SEER scores was 2. According to various studies, the majority of carcinoma in breast cases in western countries are reported in stages I and II, however, in India, 47.5% have been found in advanced stages which also cause of increased incidence of mortality in India. [18, 21, 23] In cases of breast cancers, we used multiple therapies the most preferred treatment type was surgery or chemotherapy in combination with radiotherapy. Although this being a small study may not show the true picture of the disease. But the fact which cannot be ignored is that there is a tendency of the increasing burden of breast cancer especially among younger women and priority should be given for early detection and treatment of the disease.

Conclusion

The incidence of breast cancer is increasing in India which may due to rapid urbanization, population growth, age, BMI, breastfeeding, low parity, obesity, lack of exercise, and other environmental factors. There is an urgent need for organized breast cancer screening programs, especially in rural areas. A multidisciplinary approach is required to create awareness, screening, detection, and treatment. This can help reduce the incidence and mortality in cases of breast cancers.

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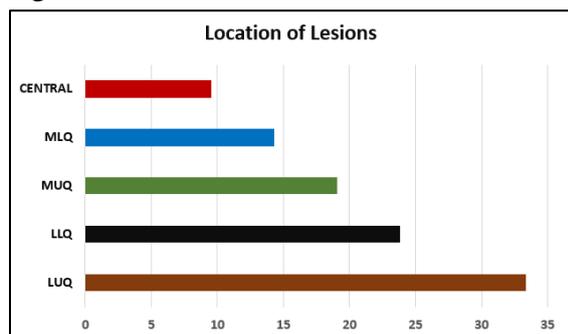
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Legend: Tables and figures

Table 1: Showing the age group-wise distribution of cases in the study

<i>Age Group</i>	<i>Total screening</i>	<i>Percentage</i>	<i>Breast Lesions</i>	<i>Percentage</i>
21 – 30	32	25.6	5	4.0
31 – 40	55	44.0	8	6.4
41 – 50	28	22.4	6	4.8
51 – 60	10	8.00	2	1.6
<i>Total</i>	125	100	21	16.8

Figure 1: Anatomical locations of breast lesions



MUQ: Medial Upper Quadrant; MUL: Medial Lower Quadrant; LLQ: Lateral Lower Quadrant; LUQ: Lateral Upper Quadrant

Table 2: Showing the distribution of lesions in the study

<i>Malignant Lesions</i>	<i>Frequency (n=20)</i>	<i>percentage</i>	<i>Neoplastic (Benign) lesions</i>	<i>Frequency</i>	<i>percentage</i>
Invasive duct cell carcinoma	5	23.81	Fibroadenoma	8	38.09
Lobar carcinoma	1	4.76	PBD with atypia	3	14.28
Medullary Carcinoma	1	4.76	Fibrocystic disease	1	4.76
Metaplastic Carcinoma	0	0	Phyllodes	2	9.52