ISSN: 0975-3583, 0976-2833 VOL15, ISSUE12, 2024

A CLINICO PATHOLOGICAL STUDY OF BREAST CANCER IN YOUNG WOMEN AT VIMS BALLARI

Navyashree S kattimani [1], Govindaraja E [2] ,Abhayaratna Mogha[3], Santosh kumar[4]

[1]Assistant Professor Department of general medicine, Navodaya medical College and research center , Raichur.

[2] Professor Department of general surgery VIMS, Bellary.

[3] Resident Department of general surgery Navodaya medical College and research center.

[4] Assistant Professor Department of general surgery Navodaya medical College and research center , Raichur

Corresponding Author : Dr.SANTOSH KUMAR

Assistant Professor,Department of general surgery ,Navodaya medical College and research center, Raichur.

ABSTRACT:

Introduction: Breast cancer represents the most common malignancy in urban Indian females and the second most common in rural women. Young women with breast cancer face unique challenges, including more aggressive disease patterns and distinct treatment considerations. This study aimed to analyze the clinicopathological characteristics of breast cancer in young Indian women at a tertiary care center.

Methods: A prospective study of 30 breast cancer patients aged 25-40 years was conducted at VIMS Ballari from November 2015 to September 2017. Clinical parameters, pathological findings, surgical outcomes, and hormonal receptor status were analyzed.

Results: The study revealed 40% of patients in the 35-40 age group, with 60% from rural areas. T2 stage (36.6%) and N1 nodal status (50%) were predominant presentations. Modified Radical Mastectomy was performed in 53% cases, while 47% underwent breast conservation surgery. Triple-negative status was observed in 23% of cases, with 30% each showing ER+PR+Her2- and ER+PR-Her2- profiles.

Conclusion: Young breast cancer patients demonstrated more aggressive disease patterns, with higher rates of triple-negative status compared to elderly patients. The study highlighted the importance of early detection and comprehensive treatment approaches in young women, emphasizing the need for increased awareness and targeted interventions in this age group.

Keywords: Young breast cancer, Clinicopathological study, Triple-negative, Breast conservation surgery, Hormonal receptor status, Indian women, Early-onset breast cancer.

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INTRODUCTION

Breast cancer is the most common cancer in urban Indian females, and the second most common in the rural Indian women.[1] About a third belongs to the operable subgroup. The incidence of breast carcinoma in India is 19.1 per 100,000 women.[2] Breast cancer in young women is a significant issue around 6.6% of all breast cancer cases are diagnosed in women less than 40 of age, 2.4% in women less than 35 age, and 0.65% in women less than 30 age.[1,2] Breast cancer is the second leading cause of cancer death around the world.[3,4] However, with significant improvements in medical treatment, more women are surviving longer. Young women with breast cancer face significant and unique challenges, including a higher likelihood of biologically aggressive disease and metastatic disease at diagnosis, leading to poorer prognosis, more aggressive treatment and long-term treatment-related toxicities, and unique psychosocial concerns. Interestingly, breast cancer risk factors, clinical outcomes, and tumor biology are somewhat different in the subgroup of women below 40, suggesting that breast cancer in young women represents a distinct entity. The definition of a 'young woman' in the field of breast oncology varies, with most articles referring to women under either age 35 or 40 years as 'young'.

Thus the need for this study is to know the clinic-pathological presentation of breast cancer in younger women, arising in young women may be a distinct clinical entity Despite public perception that young women are at little to no risk of breast cancer, the reality is that they are vulnerable. In fact, breast cancer is the most commonly diagnosed cancer among younger women (those aged 20 to 49) (Canadian Cancer Society, 2010). In 2010, 4,450 women under the age of 50 were diagnosed with breast cancer (Canadian Cancer Steering Committee, 2010). The incidence of breast cancer in younger women differs according to race. Overall, breast cancer is more common in Caucasian women than in African Americans; however in women under the age of 35, breast cancer is more than twice as common in African American women. Premenopausal African American women are more likely to have hormone receptor negative tumors (and even more specifically tumors of the basal phenotype) compared to Caucasian women. Young African American women are more likely to be diagnosed at a more advanced stage than young Caucasians; however, after adjusting for stage, survival appears equivalent between races.[5]

Delayed childbirth (first child after age 30 years) is known to be a risk factor for breast cancer in women older than 35. Conversely, early childbearing seems to be a risk

ISSN: 0975-3583, 0976-2833 VOL15, ISSUE12, 2024

factor for developing breast cancer before the age of 35. This discrepancy could possibly be explained by the transient increase in breast cancer risk that occurs around 2 to 7 years following a pregnancy, but more information is needed about this association. The characteristics of tumors that arise in women under the age of 35 differ from those that arise in premenopausal women who are older than 35. Women younger than 35 have a lower rate of ductal carcinoma in situ, likely due to detection bias (women in this age range do not typically have screening mammograms).[5] Tumors in women younger than 35 are more likely to be of a higher histological grade [5] and to be classified as estrogen receptor (ER) and progesterone receptor negative.[6,7] In addition, young women are more likely to have local recurrences, to be diagnosed at a more advanced stage, and to have an inferior 5 year survival compared to their older premenopausal counterparts.

METHODOLOGY

The study was conducted at VIMS Ballari between November 2015 and September 2017, focusing on women aged 25-40 years with breast carcinoma. All cases included were clinically diagnosed and confirmed through perioperative and postoperative histopathological examination.

The researchers excluded patients below 25 years and above 40 years of age, as well as those who had been previously treated elsewhere or had recurrent breast carcinoma. After obtaining written informed consent, the researchers collected data using a self-designed questionnaire that captured various parameters including patient age, marital status, parity, breastfeeding history, oral contraceptive pill intake, and family history.

Clinical evaluations included FNAC of breast lumps, breast ultrasound, and abdominal ultrasound. The researchers assessed tumor-related variables such as cancer stage (TNM), maximum tumor size, quadrant of breast involvement, and whether the tumor was in the right or left breast. They also documented the type of surgery performed, histopathology reports, ER-PR-Her2 status, and follow-up visits. Through this methodology, they were able to study the clinicopathological presentation of breast cancer in younger women at their institution.

RESULTS

A prospective study was conducted at VIMS Ballari between November 2015 and September 2017, analyzing 30 breast cancer patients aged 25-40 years. Data was collected through a structured questionnaire and clinical evaluations including FNAC, ultrasound, and histopathological examination.

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Table 1 demonstrates the demographic distribution, showing a predominance of patients in the 35-40 years age group (40%), with majority being from rural areas (60%). Notably, 36.7% were nulliparous. Table 2 reveals tumor characteristics, with most patients presenting at T2 stage (36.6%) and N1 nodal status (50%). Table 3 shows that Modified Radical Mastectomy was the most common surgical procedure (53%), and significant pathological findings included lymphovascular emboli (32%). Table 4 illustrates hormonal receptor status, with 30% showing ER+PR+Her2- and ER+PR-Her2- profiles each, while 23% were triple-negative.

Table 1: Patient Demographics (n=30)

Characteristic	**Category**	**Number (%)**
Age Group	**25-30 years**	10 (33.3%)
	30-35 years	8 (26.6%)
	35-40 years	12 (40%)
Locality	**Urban**	12 (40%)
	Rural	18 (60%)
Parity	**Nullipara**	11 (36.7%)
	P1	6 (20%)
	P2	10 (33.3%)
	P3	3 (10%)

Table 2: Tumor Characteristics (n=30)

Characteristic	**Stage/Type**	Number (%)
T Stage	**T2**	11 (36.6%)
	T3	9 (30%)
	T4a	9 (30%)
	T4b	1 (3.3%)
N Stage	**N0**	14 (46.6%)
	N1	15 (50%)
	N2	1 (3.3%)
Laterality	**Left**	16 (53.33%)
	Right	14 (46.66%)

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Table 3: Surgical and Pathological Findings (n=30)

Parameter	Type	Number (%)
Surgery Type	**MRM**	16 (53%)
	BCS+ALND	10 (34%)
	BCS+LD Flap	4 (13%)
Pathological Findings	**Lymphovascular Emboli**	32%
	Perineural Infiltration	15.9%
	Nodal Extra Capsular Spread	26.6%

Table 4: Hormonal Status (n=30)

Receptor Status	Number (%)
Triple Positive (ER+, PR+, Her2+)	3 (10%)
Triple Negative (ER-, PR-, Her2-)	7 (23%)
ER+ PR+ Her2-	9 (30%)
ER+ PR- Her2-	9 (30%)
ER- PR- Her2+	2 (7%)

DISCUSSION

Comparative analysis with worldwide studies showed similar T-stage distributions, except for a higher percentage of T4a and T4b cases (6%) in our study. Young patients demonstrated more aggressive tumor characteristics, with 23% showing triple-negative status compared to 15% in elderly patients. This aligns with studies by Hanna Fredholm et al.[8] and Qingli Zhang et al.[9], who reported similar findings regarding aggressive disease patterns in younger patients.

Breast Conservation Surgery (BCS) acceptance was notably higher among younger patients (47%) compared to elderly patients (30%), primarily due to cosmetic concerns. This trend corresponds with international studies, though our NACT adoption rate (30%) was lower, possibly due to treatment-related apprehensions.

The study revealed comparable nodal status and hormonal receptor patterns with international data, though 30-35% of advanced-stage cases were excluded during initial screening. Notable variations were observed in triple-negative status between age groups,

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suggesting more aggressive disease behavior in younger patients, consistent with findings from S.P. Deshmukh et al.[10] and other international studies.

Table 5: Comparison with worldwide studies

Study	T1	T2	T3	T4a	T4b	N1	N2	M	Hormone receptor +	Hormone receptor -
Fredholm et al.[8]	0	36%	7%	0	0	25%	18%	0	46.5%	33%
Zhang et al.[9]	0	51%	12.7%	0	0	26%	15.5%	0	32%	18%
Aryandono et al.[11]	0	66%	21%	0	0	24%	30%	0	37%	63%
Sharmin et al.[12]	0	58%	28%	0	0	48%	37%	0	39%	26%
S P Deshmukh et al.[10]	0	43%	31%	0	0	43%	19%	0	34%	45%
Our study	0	36%	30%	3%	3%	50%	3.3%	0	40%	53%

CONCLUSION:

This clinicopathological study of 30 young breast cancer patients at VIMS Ballari revealed several significant findings. The study demonstrated more aggressive disease patterns in younger patients, particularly regarding hormonal receptor status, with higher rates of triple-negative cases. Breast conservation surgery was more readily accepted by younger patients, emphasizing the importance of cosmetic outcomes in this age group.
The study highlighted the need for improved awareness, early detection, and comprehensive treatment approaches specifically tailored for young breast cancer patients. Further research is warranted in the Indian population subset to better understand disease patterns and optimize treatment strategies. The findings underscore the importance of addressing both clinical and psychosocial aspects of breast cancer management in young women, while emphasizing the need for enhanced healthcare accessibility and education in both urban and rural settings.

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