Pattern of Breast Cancer in Women at Child-bearing Age, its Risk Factors and Clinicopathological Evaluation in Tertiary Level Hospital

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Abstract:

Background:
Carcinoma breast is the leading cancer in female in Bangladesh, increasing significantly due to urbanization and adoption of western life style.

Objective:
This study aimed to systematically understand the pattern of breast cancer, its risk factors and clinicopathological evaluation in women at their childbearing age.

Methods:
A cross sectional observational study, data was collected from 50 patients of histopathologically confirmed breast cancer in the department of Surgery, Combined Military Hospital, Dhaka from 2022 to 2023.

Results:
The majority of the cases were 41-45(42%) years age with mean presentation was 43.55 (SD-/+9.63) years. Invasive ductal carcinoma was the most common subtype 86%, followed by ductal carcinoma in situ (8%). Of the cases 2% were nullipara and 46% had two children. Median age of at 1st birth was 21 years. A significant proportion (16%) had family history of breast cancer. 98% patients gave history of breast feeding.

Conclusions:
Breast cancer is increasingly occurring in younger age groups in Bangladesh, results suggested a mixture of different factors in women like age of menarche, age of first child birth, parity, history of breast feeding and family history poses higher risk for breast cancer.

Keywords: Breast cancer, Risk factors, Child bearing age

Introduction:

Having replaced lung cancer as the most commonly diagnosed cancer globally, breast cancer today accounts for 1 in 8 cancer diagnoses and a total of 2.3 million new cases in both sexes combined.[1] Representing a quarter of all cancer cases in females, it was by far the most commonly diagnosed cancer in women in 2020, and its burden has been growing in many parts of the world, particularly in transitioning countries.[2] An estimated 685,000 women died from breast cancer in 2020, corresponding to 16% or 1 in every 6 cancer deaths in women. Previously insufficient public health response to this development has led to the recent launch of the Global Breast Cancer Initiative by the World Health Organization (WHO).[3] However, women of childbearing age (15- 49) are most vulnerable to developing breast cancer possessing an occurrence rate of 19.3 per 100,000 and the death rate was 21% in 2010 in Bangladesh.[4]

All women will go through the reproductive process during their child bearing age, such as menstruation, pregnancy, childbirth, and breastfeeding. All these reproductive processes are factors that can affect the incidence of breast cancer, where the first menstruation (menarche) at an early age causes the body's exposure to the hormone estrogen to be faster. Pregnancy at an age that is too old >30 years causes the period between the age of menarche and the first gestational age to occur hormone discontinuity and breast tissue is very sensitive to this as protection against breast cancer. Meanwhile, slow menopause (>55 years) causes estrogen to remain high in a woman's body so that she is at risk of developing breast cancer.[5]

Therefore, in Bangladesh, we estimate an annual new breast cancer case burden of 30,000 women. The prevalence of breast cancer is expected to grow in South Asia due to a combination of increased life expectancy, population growth and adoption of "Western" lifestyles (higher fat diets, reduced activity, reduced parity, delayed child bearing, and decreased breast feeding). It is projected that global breast cancer cases will grow from 1.4 million in 2008 to over 2.1 million cases in 2030. While high-income countries celebrate significant progress toward curing women with breast cancer, low-income countries like Bangladesh are only beginning to recognize the extent and severity of the disease.[6]

Methods:

The cross-sectional observational study was conducted in the Department of Surgery, Combined Military Hospital, Dhaka from February 2022 to January 2023. After obtaining approval from the Institutional Ethical Committee, the cases of all female breast cancer during the period were included. An informed written consent was taken from all the participants. After making an appropriate clinical diagnosis, one or more of the special investigations ultrasonography, FNAC, mammography and or core needle biopsy carried out for the confirmation of diagnosis.

A total of 50 patients were included, data were collected through face-to-face interviews on a predesigned using a pre-tested semi-structured questionnaire. All the relevant collected data was compiled on a master chart first then organized by scientific calculator and standard appropriate statistical formula. Percentages were calculated to find out proportion of findings. The results are presented in tables.

Results:

The youngest patient of the carcinoma of breast was 23 years and the eldest was 49 years. Highest incidence in this series was in the age group of 41-45(42%) years. (Table-I)

Table-I: Age incidence of breast carcinoma (n=50)

Age group (years)	no. (%)
20-25	01(02)
26-30	02(04)
31-35	05(10)
36-40	07(14)
41-45	21(42)
45-49	14(28)
Total	50(100)

Palpable breast lump was noted in 96%(48) patients, among them involvement of left breast was predominant (54%). 48% of cases was in upper & outer quadrant of breasts. 36% of patients complaints of pain and palpable axillary lump was found in 64% case. (Table-II)

Table-II: Distribution of Patients by Clinical Presentation (n=50)

Clinical Feature	no. (%)
Breast Lump	48(96)
Pain in Breast	18(36)
Nipple Discharge	09(18)
Ulceration of Overlying Skin and/or Nipple & Areola	06(12)
Weight Loss	14(28)
Nipple Retraction	06(12)
Skin Fixation to Lump	06(12)
Fixation to Underlying Muscle	03(06)
Palpable axillary lump	32(64)
Left Breast	27(54)
Right Breast	22(44)
Bilateral	01(02)
Upper & Outer Quadrant	24(48)
Upper & Inner Quadrant	10(20)
Lower & Outer Quadrant	04(08)
Lower & Inner quadrant	02(04)
Central	09(18)
Whole Breast	01(02)

The most of the cases 43(86%) histological type of tumour was invasive ductal carcinoma and 3(6%) were ductal carcinoma in situ and rest of 4(8%) cases were invasive lobular carcinoma. (Figure-1)

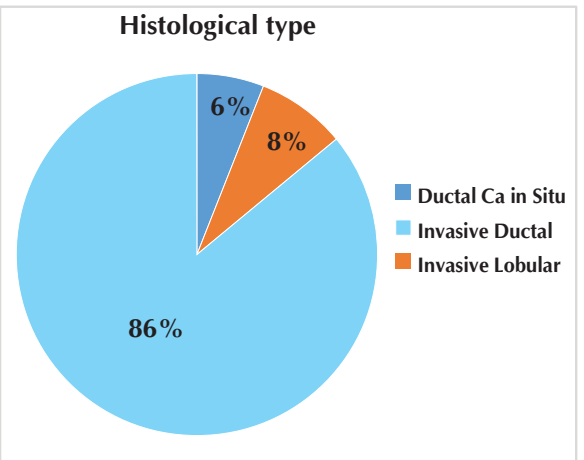

Figure-1: Histological type of breast cancer

The age at menarche ranged from 10 years to 14 years, the most common being 12 years. The mean age of menarche was 12.15 years. Histology of breast cancer in first degree relatives in 8(16%) patients and in remaining 42(84%) patients have no significant family history of breast cancer. (Table-III)

Table-III: Distribution of risk factors among patients (n=50)

Events of Life	no. (%)
Age at Menarche	
10 Years	02(04)
11 Years	12(24)
12 Years	24(48)
13 Years	08(16)
14 Years	04(08)
Age at Marriage	
< 18 Years	12(24)
18-20 Years	32(64)
> 20 years	06(12)
Use of Contraceptives	
Absent	06(12)
Oral Pill	37(74)
Depot	07(14)
Age at 1st Childbirth	
18-21Years	17(34)
22-25Years	31(62)
26 Years or More	02(04)
Number of Child	
0	01(02)
1	03(06)
2	23(46)
3	16(32)
4	06(12)
5	01(02)
Duration of Breast Feeding	
Absent	01(02)
< 2 Years	17(34)
> 2 years	32(64)
Family History of Breast Cancer	
Present	08(16)
Absent	42(84)

Discussion:

In, Bangladesh 13 to 15 lakh cancer patients in Bangladesh, with about 1,56,775 patients newly diagnosed with cancer each year, among them female patients is 68,700. Total number of death 1,08,990. Every year in Bangladesh approximately 35,000 women develop breast cancer.[7]

Age of the cancer patient in an important factor. Goel A, et al (2003) in five year clinic-pathological study between 1997 to 2002 in India found breast Cancer most Common in 30-40 years age group[8] and Saxena S et al (2005) also in India found the average age was 47.8 years.[9] These Indian studies are in agreement for my study which found breast cancer to be most common in age group 41-45 years. The mean age of the Cases was 43.55 (SD -9.63) years. Greater part (28%) of the population was in 41-45 years group.[10] The reason for early age of occurrence amongst Bangladeshi female needs to be farther studied.

In this study 96% patents presented with breast lump and 18% of cases with bloody discharge from nipple. While major signs were pain in all patients (36%), retraction of nipple 12%, ulceration of overlying skin and/or nipple and areola 12%, fixation with overlying skin in 12% ,fixation with underlying muscle 6%, palpable axillary lump in 64%.These result were supported by okobi and Omise[11] and Malik[12].

In my study the most frequent site involved was upper outer quadrant 48%. In 18% cases it was central, lower and outer quadrant was 8%, upper and inner quadrant was 20%, lower and inner quadrant was 04% and whole breast 02%. A study in clinical presentation of breast carcinoma of 50 case carried in Chattagram Maa-O Shishu Hospital Medical College[13] showed near about same result as my study.

Regarding tumour size the present study showed that the tumour size was between 2.1 to 5 cm in 28 cases (56%), >5cm in 20 cases (40%) and <2cm in 2 cases (41%) patients. This result was supported by Ma-moon et al,[14] while this study remolds were differed from Stephen et al.[15]

Histology as a prognostic factors has been well documented. Patients with histology of infiltrating duct carcinoma have a poor survival compared to other types. In this study, the most common type was Invasive Ductal (86%), followed by invasive lobular carcinoma (6%) and duct carcinoma in situ is (8%). This study was similar to Saxena et al.[9] Early menopause, parity and late menarche reduce risk of all carcinoma except lobular carcinoma. Late age at 1st birth, family history and oral contraceptive increased the risk of development of

breast carcinoma. This study is similar to Sarah J. Nyante et al.[16]

In present study staging showed that stage-II constituted 30%, stage–III in 44%, stage-IV-in 22% and stage-I in 4% of cases. This result was observed variation with the study of Alam S[17] it might be due to report to the physician at late stage. But in studying on clinical presentation of breast carcinoma of 50 cases at Chattagram Maa-O Shishu Hospital reported near about same result and showed stage III & IV were more frequent staging of breast cancer.[18]

In this study significant reduction of the risk of developing breast cancer was observed among women whose age at marriage was 18 years or less compared with women whose get age at marriage more than 18 Years. The result was similar to the study of Bhadoria et al.[19]

The age at which a women gave birth to her first alive child is predictive of breast cancer and the risk increased with age at first birth. Nalliparous women are at more of a risk of breast cancer then parous women.[20]

In this regards a significant increase of the risk of developing breast cancer was observed in this study among women whose age during delivery of 1st child was 22-25 years compared with women whose age was 19 years or less, this result was in agreement with the study of mushroom et al.[18]

In my study a significant reduction of the risk of developing breast cancer was observed among women who was parous compared with women who was nulliparous. A higher number of births in consistently related of lower risk of breast cancer each additional birth beyond the first reduces long term risk of breast cancer. In addition to a protective effect of higher parity more closely spaced birth are associated a lower lifetime risk of breast cancer.[21]

The overall evidence from case-control and cohort studies supported reduction in risk with longer duration of breast feeding. The most extensive pooled analysis from almost 50 studies, 30 studies showed an overall 4% reduction risk per 12 months of breast feeding for all parous women.[22]

In the present study a significant reduction of the risk of developing breast cancer was observed among women whose total duration breast feeding was 2 years or more compared with women has less than one year of breast feeding or absent of breast feeding.

In this study a significant increase risk of developing breast cancer was observed among women who used oral contraceptives compared with women without use, that supported by Barańska A, et al.[23] This result was correlated with the study of RS Lodha et al.[24]

Family history is another risk factor of breast cancer and first degree relatives with breast cancer have a risk 2-3 times. In a study conducted in New Delhi Hospital by Saxena has found 20.2% patients with a position family history where as in this study 16% of cases.[9] Another study on relationship between family history of breast cancer and clinico-pathological features in Moroccan patients by Tazzite et al[25] showed that 18.4% patients having a family history of breast cancer in which 76.2% had one affected relatives, 16.2% had two relatives affected, 5.7% had three relatives affected and only 12.9% had four relatives with breast cancer.[24]

Conclusion:

The results indicate that reproductive factors in women (age of menarche, age at first birth, parity and history of breast feeding) are associated with breast cancer. Based on the results of this study, women must get married immediately if they have entered the ideal age for marriage and do not delay having children so that they can immediately carry out the breastfeeding process to minimize risk factors to avoid breast cancer. From this study and the studies in other regional countries, it is clearly evident that breast cancer is common among relatively younger age group. In the current study majority of the patients were between 41-45 years. We should formulate our own protocol for early detection of breast cancer. Another very important finding is that patients of breast cancer are coming to a tertiary level hospital very late, with clinical features of advanced disease. Social awareness is very important in this aspect.

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