

# A retrospective study of clinico-pathological spectrum of carcinoma breast in a West Delhi, India

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## Abstract

**Background:** Data on the demographic profile of breast cancer patients from Delhi is scarce and whatever is available is from higher referral center. Our hospital caters to patients from an urban population of the lower socioeconomic strata and is a representation of cases at a tertiary care hospital in west Delhi. In Delhi, breast cancer (26.8%) is commonest cancer among the female followed by cervix (12.5%), gallbladder (7.2%), ovary (7.1%), and uterus (3.3%). **Aims and Objectives:** A retrospective audit of breast cancer patients presenting at a tertiary referral center from 2004 to 2011. **Materials and Methods:** A total of 328 cases diagnosed as carcinoma breast on histopathology from year 2004 to 2011 were retrieved and studied retrospectively with regards to demographic profile and their histological features with estrogen receptor (ER), progesterone receptor (PR), and Her2neu status. **Results:** The median age of presentation was 49 years of age. Infiltrating ductal carcinoma (IDC, not otherwise specified (NOS)) was the commonest histopathological variant (81.40%) followed by medullary carcinoma (10.36%) and mucinous carcinoma (2.74%). Triple negative were found to be the commonest group comprising 39.4% of all the cases followed by ER and PR both positive. Pathological tumor, node, and metastasis (TNM) staging showed most common group was T<sub>2</sub>N<sub>0</sub>M<sub>0</sub> (19.5%) followed by T<sub>2</sub>N<sub>1</sub>M<sub>0</sub> (17.1%) and T<sub>2</sub>N<sub>2</sub>M<sub>0</sub> (14%). **Conclusion:** The incidence of breast cancer in the India and include a higher incidence of ER, PR, and Her2neu negative disease in west Delhi.

**Key words:** Breast cancer, demography, triple negative, West Delhi

## Introduction

In urban areas of developing countries, breast cancer is the most common cancer in women and due to increase in life expectancy, urbanization, and western lifestyles; the incidence has been rising up in low- and middle-income countries steadily in the last few years.<sup>[1]</sup> Due to lack of awareness on early detection and barriers to health services, most women with breast cancer are diagnosed in late stages in low- and middle-income countries.<sup>[1]</sup> The greatest increase in incidence of breast cancer has been in Asian countries.<sup>[2]</sup> The incidence of breast cancer is low in India as compared to developed countries, but the total number of cases and the net mortality is high probably because of the large population, inadequate screening programs, and lack of education.<sup>[3]</sup> Over 100,000 new breast cancer patients are estimated to be diagnosed annually in India and premenopausal patients constituting about 50% of all patients.<sup>[4]</sup> Breast cancer incidence peaks among women in forties in Asia and it peaks in sixties in the western world.<sup>[4]</sup> By 2020, breast cancer incidence will overtake cervical cancer as the most common cancer in women in India and 70% of the world's cancer cases will be in poor countries, with a fifth in India.<sup>[5]</sup> In Delhi, trends over time for all sites of cancer in female, a significant decrease annual percentage change (−0.64) is observed between 1988 and 2009, but statistically significant increase in annual percentage change (1.11) has been observed during the same period.<sup>[6]</sup> In all regions of India rise in incidence of breast cancer is 0.5-2% per annum and more in < 45 years age group.<sup>[7]</sup> Breast cancer is most prominent cancer among the females in Bangalore, Mumbai, Delhi, Bhopal, and Delhi has one of the highest incidences of breast cancer.<sup>[8]</sup> In Delhi, breast cancer (26.8%) is commonest cancer among the female followed by cervix (12.5%), gallbladder (7.2%), ovary (7.1%), and uterus (3.3%).<sup>[9]</sup>

## Materials and Methods

A total of 328 cases diagnosed as carcinoma breast on histopathology from year 2004 to 2011 in Deen Dayal Upadhyay (DDU) Hospital, Harinagar, New Delhi were retrieved and studied retrospectively with regards to demographic profile and their histological features with estrogen receptor (ER), progesterone receptor (PR), and Her2neu status. Demographic data, reproductive history at the time of presentation and histopathological details were analyzed. Data were collected and evaluated.

## Results

Most common age of presentation was in 4<sup>th</sup>-5<sup>th</sup> decade of life and the median age of presentation was 49 years of age (range 19-88 years). Majority of patient (79%, 259/328) had presentation more than 10 years after last child birth and 54.6% (179/328) of patients were postmenopausal. Eleven patients were nulliparous, three were lactating, and one case was diagnosed during pregnancy. Although most of the patients were from urban background, only 15.24% (50/328) of the patients were educated. Familial breast cancer was observed in two patients, while five patients had first degree relative with cervical, endometrial, ovarian, and lung cancers. Most common presentation was that of a breast lump, with slightly left side dominance (50.9%, 167/328). Upper outer quadrant was the most frequently involved quadrant (49%, 161/328) followed by central quadrant (18%, 59/328). Histopathology showed that infiltrating ductal carcinoma (IDC, not otherwise specified (NOS)) was the commonest variant comprising of 81.40% (267/328) of cases followed by medullary carcinoma (10.36%, 34/328) and mucinous carcinoma (2.74%, 9/328). Other variants included infiltrating lobular carcinoma (2.44%, 8/328) and mixed ductal-lobular type (6/328, 1.83%). Carcinoma with neuroendocrine differentiation, metaplastic carcinoma—with squamous differentiation, osteoclast giant cells, and spindle cells were seen in one case each. The evaluation of the immunohistochemical markers—ER, PR, and Her2neu was done in 142 cases. Triple negative (ER, PR, and Her2neu negative) were found to be the commonest group comprising 39.4% (56/142) of all the cases followed by ER and PR both positive (34.50%, 49/142) and triple positive (ER, PR, and Her2neu positive; 26.06%, 37/142.)

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Most common pathological nodal stage was N1 (34.37%) followed by N0 (33.6%) and N2 (21.1%). Most common pathological T stage was T2 (54.68%) followed by T1 (44%), T3 (19.53%), and T4 (2.35%). Seven cases showed distant metastasis, the sites included supraclavicular lymph node, liver, and bone (femur and clavicle). Pathological tumor, node, and metastasis (TNM) staging showed most common group was pT<sub>2</sub>N<sub>0</sub>M<sub>0</sub> (19.5%) followed by pT<sub>2</sub>N<sub>1</sub>M<sub>0</sub> (17.1%) and pT<sub>2</sub>N<sub>2</sub>M<sub>0</sub> (14%) [Table 1]. Twenty-four patients presented back with recurrence and the most common site of involvement was post-mastectomy surgical scar (54.1%) followed by contralateral breast (16.66%).

## Discussion

In India, the strategies for prevention of breast cancer are required as breast cancer incidence is increasing among women in many regions and has overtaken cervix cancer.<sup>[10]</sup> The average age of the patient at presentation is between 45 and 50 years<sup>[10-12]</sup> and similarly observed in present study. The peak age of breast cancer is 60-70 years in western countries and 40-50 years in Asian countries.<sup>[13]</sup> In present study, nearly 31.69% were below 40 years of age, while 22% cases observed in the study by Saxena *et al.*<sup>[10]</sup> In comparison to developed countries in Asia and the rest of the world, the incidence of breast cancer is lower; but mortality is significantly higher in developing Asian countries and patients are about 1 decade younger in developing countries than in developed nations.<sup>[4]</sup> Larger tumor size, metastatic lymph nodes, high tumor grade, low hormone receptor status, and low survival rates are associated with younger patient.<sup>[14,15]</sup> Majority of patients are married and multiparous (96.64%) and it in concordance with Wani *et al.*<sup>[16]</sup> Women with low parity, late age at first child birth, and history of having used oral contraceptives and hormone replacement therapy are associated with increased risk of breast cancer.<sup>[16]</sup> However in present study, majority of patients are postmenopausal (54.6%) followed by premenopausal. Meshram *et al.*, observed that women who had menopause after 50 years had risk of breast cancer more as compared to women who

had menopause before 45 years of age.<sup>[17]</sup> Gajalakshmi *et al.*, observed that lack of or less duration of breast feeding is associated with increased risk of breast cancer and lifetime duration of breast feeding is inversely associated with breast cancer risk among premenopausal women.<sup>[18]</sup> National Cancer Registry Program revealed that during 1984-1993, IDC NOS is commonest breast cancer followed by lobular carcinoma in the hospital-based cancer registries in Mumbai, Bangalore, and Thiruvananthapuram.<sup>[19]</sup> Saxena *et al.*,<sup>[10]</sup> and Sandhu *et al.*,<sup>[11]</sup> also observed same, but in present study IDC NOS (80.79%) is commonest breast cancer and medullary carcinoma (8.60%) was second most common variant (81.40%) is commonest breast cancer and medullary carcinoma (10.36%) was second most common variant. Kakarala *et al.*, observed that incidence of ER, PR negative breast cancer were increased in India and Pakistan.<sup>[20]</sup> Triple negative (ER, PR, and Her2Neu negative) breast cancer is biologically aggressive, resistant to conventional cytotoxic chemotherapy treatment, and associated with reduced survival compared to other subtypes of breast cancer.<sup>[20]</sup> In the present study, T2 followed by T1, N1 followed by N2 were the most common tumor (T) and nodal (N) staging, respectively. Wani *et al.*, also observed N1 is most common nodal stage followed by N2; but in tumor stage, T2 is followed by T3.<sup>[16]</sup> Most common pTNM stage observed was stage IIIA (28.1%) followed by stage IIA (27.3%) and stage IIB (19.5%) in present study, and distant metastasis was observed in 5.5% cases. Wani *et al.*, observed stage IIB is commonest followed by stage IIIA and stage IIIB.<sup>[16]</sup> Saxena *et al.*, observed stage IIIB is commonest followed by stage IIIA and stage IIB.<sup>[10]</sup> Majority of breast cancer patients present at relatively late stage in the developing countries probably due to lack of awareness, lack of funding, lack of infrastructure, and low priority in public health schemes.<sup>[4]</sup> This study was only based on records of department of pathology.

## Conclusion

The incidence of breast cancer in India is increasing and basic education and awareness of the women's health, self breast examination, and clinical breast examination may help increasing awareness and help to identify breast cancer at early stage in developing countries.

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**Table 1: TNM staging among the breast cancer patients**

	No. of cases	Percentage
Stage 1		
T1N0M0	33	10.1
Stage 2A		
T0N1M0	00	00
T1N1M0	26	7.9
T2N0M0	64	19.5
Stage 2B		
T2N1M0	56	17.1
T3N0M0	8	2.4
Stage 3A		
T2N2M0	46	14
T3N1M0	18	5.5
T3N2M0	28	8.5
Stage 3B		
T4 any NM0	13	4
Any T N3M0	18	5.5
Stage 4		
Any T any N M1	18	5.5

TNM=Tumor, node, and metastasis

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