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Results of clinical breast examination in the rural women of west Lucknow, India

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Abstract

Problems: Though the breast cancer is not common in rural women of India, we had an opportunity to conduct clinical breast examination (CBE) in 5137 women attending camps for cervical cancer screening in the villages of west Lucknow.

Experimental Approach: The 5137 women who attended camps between May 2013 to February 2020 showed different breast abnormalities such as lump, fibroid cyst, nipple discharge and other minor complaints which were analyzed in relation to associated risk factors.

Major Findings: The lump in the breasts was seen in only 72 women (1.4%) and other abnormalities were also found very low. All the abnormalities were found higher between 31-40 years and were mostly seen in the nulliparous and literate women. A definite association was seen between late menopause and breast abnormalities. As marriages are performed early in the villages, maximum number of first child birth were seen upto 30 years of age and definite relationship was seen between breast abnormalities with minimal 1 year duration of breast feeding.

Conclusion: The occurrence of breast lump and other abnormalities were lower in rural women and it appears correlated with their hard, tuff and simple life.

Keywords: Clinical breast examination, breast lump, fibroid cyst, nulliparity, early menarche, late menopause, breast feeding

Introduction

Breast cancer is the most common cancer causing the largest burden of cancer deaths in women worldwide. It accounts for 19-34% of all cancers among women in India ^[1]. Region wise according to the National Cancer Registries, it is the commonest cancer among women in India. Approximately 27% of all cancer cases diagnosed in both men and women every year are the breast cancer and accounts for deaths, the magnitude of which is higher than any other cancer among both genders ^[2]. This may be attributed to the lack of awareness among rural women regarding the risk factors of the disease and breast cancer screening program are most negligible ^[3]. Consequently, almost 70% of the breast cancer cases report for diagnostic and treatment services in advance stages of the disease which results in poor survival and high mortality ^[4].

The easiest mode of prevention of breast cancer is the detection of the disease in its pre-invasive phase by clinical breast examination (CBE). Early cases of lump in the breast, fibroid cysts, nipple discharge or any other abnormality in the breast can be easily detected and their timely treatment is possible to check the burden of the disease. Cervical cancer screening is in progress in the rural women population of west Lucknow, under the auspices of Era's Lucknow Medical College and Hospital, Lucknow since May 2013 through camp approach and breast cancer detection has been incorporated in the program in women attending the camps. In fact, nearly all women attending the camp consented for undergoing the breast assessment for the presence of any lump or other abnormalities in the breast. These women knew about these abnormalities in the breast and since the CBE is a simple and non invasive procedure, the women readily accepted this. It was found that literate and young women were more enthusiastic about CBE. The results of CBE carried out in 5137 women are presented in the paper in relation to different risk factors of the disease.

Materials and methods

During cervical cancer screening in the villages of west Lucknow, a total of 5137 women attending camps have undergone CBE between May 2103 to February 2020.

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All the data regarding age, parity and risk factors of the breast cancer were recorded on the breast examination form. Informed consent was obtained from each patient in the form of thumb impression if illiterate or signature if educated. The risk factors of the disease recorded on the form were-Family history of breast cancer, age at menarche and menopause, age at first child birth and duration of breast feeding. All the women were also given pamphlets of Breast Self-Examination (BSE) explaining the mode of breast lump assessment though it was self-explanatory. They were advised to perform the BSE every month and if they suspect any lump or other abnormality, they were advised to consult a gynecologist. In fact, they have not heard about BSE before.

Ethical clearance was obtained from the Ethical Committee of the College prior to starting the Breast Cancer Screening Program. As in the present study, breast lumps and other abnormalities in the breasts were found low in number, there was no utility of subjecting the collected data to the statistical analysis.

Results

Most of the women knew about lump in the breast and readily accepted CBE. The exercise performed in 5137 women attending the camps revealed following abnormalities in the breast. However, no case of breast cancer was seen.

1. Breast Lump (in one or both breasts) - 72(1.4%)
2. Fibroid cyst - 5(0.09%)

3. Nipple discharge - 3(0.05%)
4. Lymph node in the breast - 3(0.05%)
5. Enlarged breast (one or both) - 3(0.09%)
6. Tenderness in the breast - 3(0.09%)(1 had pus point)
7. Swelling in the breast - 2(0.05%)
8. Painful breast - 4(0.06%)

Different abnormalities were found to be very low in the breast of rural women. Lump in the breast was seen in only 72 cases (1.4%) of the total 5137 examined.

Variables like age, parity and education status were analyzed in the 5137 women who underwent CBE and above defined abnormalities have been detected in their breasts.

Age

Different abnormalities seen in the breast in relation to age is shown in Table 1. The occurrence of breast lump was found higher in the middle aged women between 31-40 years (2.1%) followed by younger and sexually active women between 16-30 years (1.4%) and was lowest in the older women beyond 40 years of age (0.6%). All the 5 cases of fibroid cyst were seen in the younger women between 16-30 years (0.1%). Two of the three nipple discharge cases were in the younger women (16-30 years) while the third was in the age group of 31-40 years (0.07%). All the other abnormalities in the breast were also found higher in the middle age group (0.4%) followed by younger women (0.3%) and lowest in the older women (0.1%).

Table 1: Incidence of different abnormalities in the breast in relation to age

Age group	No. of cases (5137)	Breast lump (72)	Fibroid cyst (5)	Nipple discharge (3)	Other abnormalities (15)
18-30 years	2524	36(1.4%)	5(0.1%)	2(0.07%)	8(0.3%)
31-40 years	1298	27(2.1%)	-	1(0.07%)	5(0.4%)
Above 40 years	1325	9(0.6%)	-	-	2(0.1%)

Parity

Abnormalities in the breast seen in 5137 women of the study were also investigated in relation to parity (Table 2). Maximum number of breast lump and fibroid cyst cases were seen in the nulliparous women (1.9% and 0.2% respectively).The

multiparous women showed lump in the breast in 1.4% of the cases followed by parity 1 and 2 respectively (1.1% each).All the three nipple discharge cases were associated with multiparity (0.09%).The other abnormalities in the breast were evenly distributed between para 1, 2 and multiparity.

Table 2: Incidence of different abnormalities in the breast in relation to parity

Parity group	No. of cases (5137)	Breast lump (72)	Fibroid cyst (5)	Nipple discharge (3)	Other abnormalities (15)
Nulliparous	359	7(1.9%)	1(0.2%)	-	-
Parity1	625	7(1.1%)	1(0.1%)	-	2(0.3%)
Parity2	858	9(1.1%)	1(0.1%)	-	4(0.4%)
Parity 3 and above	3295	49(1.4%)	2(0.06%)	3 (0.09%)	9(0.2%)

Educational status

Abnormalities in the breast were also analyzed in relation to the illiteracy in 5137 women (Table 3). Illiteracy was very high in the rural women (64.1%) and only 35.9% were literate. As the breast cancer is associated with lifestyle, the literate women showed breast lump twice higher (1.9%) than 1.0% in the illiterate women. This trend was also seen with fibroid cyst, nipple discharge and other abnormalities in the breast. In the literate women, the breast lump was seen in 4.3% of cases who had secondary level of education than 1.3% who had primary

level of education. The changes in the lifestyle associated with literacy like use of cosmetics and oral contraceptives might be the reason for high occurrence of abnormalities in the breast in the literate women especially who have attained secondary level of education.

Different risk factors related to the breast cancer have also been investigated in detail in 5137 women studied. These are any family history of breast cancer, early menarche and late menopause, late child birth and duration of breast feeding.

Table 3: Incidence of different abnormalities in the breast in relation to in educational status

Educational status	No. of cases (5137)	Breast lump (72)	Fibroid cyst (5)	Nipple discharge (3)	Other abnormalities (15)
Illiterate	3292(64.1%)	36(1.0%)	3(0.09%)	2(0.06%)	10(0.3%)
Literate	1845(35.9%)	36(1.9%)	2(0.1%)	1(0.05%)	5(0.2%)
a) Primary level	1661(32.3%)	28(1.6%)	1(0.06%)	-	5(0.3%)
b) Secondary level	184(3.5%)	8(4.3%)	1(0.5%)	1(0.5%)	-

a) Any family history of breast cancer

Incidentally, no women in the study had any family history of breast cancer as informed by them.

b) Age at menarche

Only 10.2% of women had early menarche at the age of 12 years while majority (35.9%) had late menarche at the age of more

than 14 years. The number of breast lump cases showed rising trend with increasing age of menarche till 14 years after which it declined (Table 4). The fibroid cyst cases showed identical incidence at 12, 13 and 14 years of menarche. The three cases of nipple discharge were seen one each who had menarche at 13, 14 and 15 years. Other abnormalities in the breasts were maximum with early menarche.

Table 4: Incidence of different abnormalities in the breast in relation to age at menarche

Age at menarche	No. of cases (5137)	Breast lump (72)	Fibroid cyst (5)	Nipple discharge (3)	Other abnormalities (15)
12 years	525(10.2%)	5(0.9%)	1(0.1%)	-	4(0.6%)
13 years	1526(30.6%)	19(1.2%)	2(0.01%)	1(0.05%)	7(0.4%)
14 years	1187(23.1%)	21(1.7%)	2(0.1%)	1(0.1%)	1(0.1%)
>14 years	1849(35.9%)	27(1.4%)	-	1(0.05%)	3(0.1%)

c) Age at menopause

Only 646 women (12.5%) were menopausal out of total 5137 registered (Table 5). Of these, 567 have attained menopause between 41-45 years (87.7%) and remaining 79 (12.3%) after 45 years of age. Only 7 cases of breast lump were seen in menopausal group, of these 5 were in the 41-45 years age group

(0.9%) and remaining 2 in the late menopause after 45 years (2.5%). Hence, there is some relationship between late menopause and breast lump. No case of fibroid cyst, nipple discharge and other abnormalities (except 2 cases) were seen in the menopausal women.

Table 5: Incidence of different abnormalities in the breast in relation to age at menopause

Age at menopause	No. of cases (646)	Breast lump (7)	Fibroid cyst (0)	Nipple discharge (0)	Other abnormalities (2)
Upto 45 years	567(87.7%)	5(0.9%)	-	-	2(0.3%)
>45 years	79(12.3%)	2(2.5%)	-	-	-

d) Age at first child birth

Relation to abnormality in the breast and age at first child birth was also analyzed (Table 6). Since 359 women in the study were nulliparous, age at first child birth was investigated in the remaining 4778 women. Only 4 women had first child birth between 31-40 years while remaining 4774 had their first child

birth between 16-30 years and the maximum abnormality was seen in this group. Hence, no relationship between breast lump cases and late child birth was seen. In rural women, marriages are performed at an early age and hence majority of the first child birth were between 16-30 years.

Table 6: Incidence of different abnormalities in the breast in relation to age at first child birth

Age at first child birth	No. of cases (4778)	Breast lump (72)	Fibroid cyst (5)	Nipple discharge (3)	Other abnormalities (15)
16-20 years	2216(46.3%)	30(1.3%)	3(0.1%)	3(0.1%)	8(0.3%)
21-30 years	2558(53.5%)	42(1.6%)	2(0.07%)	-	7(0.3%)
31-40 years	4(0.08%)	-	-	-	-

d) Duration of breast feeding

Relation between abnormality in the breast and duration of breast feeding was also investigated (Table 7). A high

percentage of women showing lump in the breast had minimal duration of breast feeding of 1 year and showed declining trend with increasing duration of breast feeding.

Table 7: Incidence of different abnormalities in the breast in relation to duration of breast feeding

Duration of breast feeding	No. of cases (4778)	Breast lump (72)	Fibroid cyst (5)	Nipple discharge (3)	Other abnormalities (15)
1 years	1127	23(2.0%)	2(0.1%)	1(0.08%)	7(0.06%)
2 years	2229	32(1.4%)	3(0.1%)	1(0.04%)	8(0.3%)
3 years	1426	17(1.2%)	-	1(0.07%)	-

Follow up studies

The current follow up status in four types of breast abnormalities carried out through home visits are given below.

A. Breast Lump cases (72): On follow up 1-2 years later the lump was found to subside in 41 cases after Homeopathic treatment taken by the patient. Lump was found to persist in 17 cases. In 5 of these 17, Fine needle aspiration cytology (FNAC) has been performed which revealed fibro-adenoma in 3, normal findings in 1 and RBC masked sample in 1. FNAC has been planned in the remaining 12 persistent cases. Of the remaining 14 lump cases in whom follow up status was not available, 5 had refused for re-evaluation for the presence of lump, 4 had moved out of village and 5

were not traceable.

B. Fibroid cyst (5 cases): On follow up the cyst was found to have subsided after some treatment in 2 cases. In, 1 the cyst persisted and FNAC revealed fibroadenoma FNAC is planned in 1 another case while the remaining 1 case is not traceable. In the 3 lump and 1 fibroid cyst cases in whom FNAC examination had revealed fibroadenoma, the patients were given FNAC reports and were told regarding the line of treatment and to approach to the Hospital for the same.

C. Nipple discharge (3 cases): The cytology reports of the nipple discharge cases showed normal findings in 2 and inflammatory smear in 1. The patient showing inflammation in the nipple discharge had also lump in the breast and is

taking treatment.

- D. Other abnormalities (15 cases):** On follow up, available in 8 women, the breast abnormalities were found to subside in 6 and persisting in 2. Both the persistent cases have been referred to the Hospital for treatment. The remaining 7 cases were not traceable.

Discussion

In our camp study, most of the women especially literate ones had knowledge about the occurrence of lump in the breast and also about breast cancer. But no one had idea of breast self examination test (BSE). Our nursing staff told them of the technique of BSE and supplied them the pamphlets giving pictorial view of sequence of performing BSE. In rural Telanga, Jothula, K Y *et al.* have also found that the majority of women were aware of breast cancer but do not have clue regarding BSE and only few were practicing BSE^[5].

In the rural women screened, the clinical breast examination revealed a very low incidence of breast abnormalities; only breast lump showing an incidence above 1 percent. The breast lump cases to the high tune of 18.3% were also reported by Siddharth R, *et al.* in the urban population of Central India^[6]. Reddy, N *et al.* in a selective urban camp have reported 32.5% of cases in the lump below 40 years than 36% above 40 years.^[7] On the contrary, we have found very high rate of benign lump in the breast in the younger women below 40 years (62 cases) and 0.6% above 40 years of age (9 cases). Breast cancer is not so common in the rural women as compared to their urban counterparts as the rural lifestyle of living decreases the risk of breast carcinoma (Nagrani, R T *et al.*)^[8]. Malivia S *et al.* in a review of epidemiology in Indian women have suggested that the availability of the breast cancer screening program and treatment facilities can cause a favorable and positive clinical picture in the country^[9].

The present study revealed the lump in the breast occurring at the young age increasing from 1.4% between 16-30 years to 2.1% between 31-40 years and was lowest in older women beyond 40 years (0.6%). All the 5 cases of fibroid cyst were also noticed in younger women between 16-30 years of age. Chopra, B *et al.* have also reported incidence of breast cancer in the younger women.^[10] Thangjan, S *et al.* and Das, ULK *et al.* have suggested that younger females below 40 years have more denser breast tissues which make them less amenable to the routine screening program resulting in presenting them with large palpable mass with tumor with possible nodal involvement^[11, 12]. However, SEER cancer statistics review has shown that the incidence of breast cancer is extremely low below the age of 30 years after which it increases linearly till the age of 80 years.

As regards parity, the incidence of breast lump and fibroid cyst was found higher in the nulliparous women. This also raises the urgent need of treatment of primary infertility commonly prevailing in rural young women. Nelson, HD *et al.* have also found in a meta-analysis of 17 studies of parity, nulliparous women at a significantly high risk for breast cancer than parous women. The risk was significantly reduced after 3 or more births^[13]. Saxena, S *et al.* have also found 0.7% of nulliparity in their series of 569 breast cancer cases in India^[14]. The Briton studies have also demonstrated if a women was nulliparous, risk of breast cancer was higher^[15].

In the present study, the incidence of breast lump and fibroid cyst cases was higher in the literate women and was almost double than seen with the illiteracy. Since the breast cancer is related to lifestyle education might have changed the lifestyle in

these women especially those who had secondary level of education resulting in the high occurrence of breast abnormality than in their illiterate counterparts.

All the risk factors related to breast cancer have been investigated in detail. Though family history of breast cancer was not reported by any patient in the present study, in an analysis of data from 52 epidemiological studies, it was seen that breast cancer risk was significantly increased for the women with the first degree relatives in breast cancer (Nelson, HD *et al.*). Though we have found no case of breast lump occurring in women with family history of breast cancer in the rural women, Tripathi, N *et al.* have seen that the awareness, attitude and practice score of women having cancer in the family or relatives was significantly higher than in women without any family history of breast cancer^[16].

When the data of age at menarche was analyzed, it was seen that maximum number of lump cases occurred at menarche of 14 years, just double noticed than early menarche at 12 years. However, the number of breast lump cases subsided at 15 years menarche. Nelson HD *et al.* have also found that menarche at the age of 15 years or older are associated with the reduced risk of breast cancer compared with the reference age of 13. Briton *et al.* have also shown that the women who began menstruating below the age of 12 years were at an increased risk of breast cancer compared to those who began menstruating after the age of 15 years^[17]. Malvia, S *et al.* have also seen in Indian women menstruating at the age below 12 years have increased risk of breast cancer than those menstruating above 12 years.

Late menopause was found to be a great risk factor for development of breast cancer. In the present study, the incidence of breast lump was higher when the menopause occurred after the age of 45 years. Brinton *et al.* have also found an increased risk of breast cancer who did not reach menopause until the age of 55 years or after than those who experienced menopause below the age of 45 years. Based on their data, Vogel, V G (1998) has suggested risk of breast cancer associated with number of ovulatory menstrual cycles that a woman undergoes during her lifetime^[18]. Murthy, NS *et al.* and Surakasula A *et al.* have also suggested that longer time of menstruation leads to high lifetime exposure of hormone- estrogen and progesterone^[19, 20].

In the present series, the breast lump and other abnormalities have been found in women with first child born before 30 years of age. No case of any abnormality in the breast was seen beyond 30 years. This is because in the rural setup, the marriages are performed at an early age and hence the first child is born at quite an early age before 30 years. Brinton *et al.* have found risk of breast cancer increased if a woman experienced her first child birth at or after the age of 30 years compared to woman with first live birth at an age less than 20 years (16). Nelson, HD *et al.* have also found first child birth at the age of 30 years or older was associated with 1.5 fold increased risk of breast cancer.

The present study showed relationship between duration of breast feeding with breast abnormalities. The incidence of breast lump was higher when the breast feeding was minimal

(1 year) than 2 or 3 years of breast feeding. The duration of breast feeding ranging from 2 to 3 years was seen in the majority of women in the present screening of rural women in North India. Nelson, HD *et al.* have also reported the reduced risk of breast cancer with increased duration of breast feeding. In a study from North India, Malvia, S *et al.* have also seen a strong association of breast feeding with breast cancer.

Conclusion

Breast cancer is increasing at continuous rate in India but it is restricted to only urban level. We have found no case of breast cancer in 5137 women attending 186 camps between May 2103 to February 2020 in the villages of west Lucknow. Only breast lump and fibroid cyst cases have been detected. It appears that living conditions of the rural area decrease the risk of developing breast cancer. Lifestyle factors prevalent in the rural areas such as having first child birth below the age of 25 years, controlling obesity and education for early detection can prevent burden of breast cancer in the urban women. Further the factors like hard work, tuff life, long walking, mostly low fat diets, minimal or no alcohol, high parity and long breast feeding time go in favour of low incidence of malignant breast diseases in North India rural women population. Popularizing the concept of Breast Self Examination (BSE) through pamphlets as we have been doing may also help urban women in diagnosing breast lump and reporting the disease in time to the clinician for treatment. Further, advertising the concept of BSE on the social media like internet, television and radio by the Government may also help in detecting the disease in time. Further, regular CBE especially in postmenopausal women may serve important preventive measure to control the menace of breast cancer and associated mortality in the cities. There is also a need of identifying high risk group of women- those showing family history of breast cancer and also other related risk factors. Hence, the detection of the disease at an early stage and its effective treatment may control the rising incidence of breast cancer especially in the urban population of India.

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