

Evaluation of risk factors, diagnosis and treatment in carcinoma breast - A retrospective study

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Abstract

Background: Breast cancer is becoming more common in societies that hitherto enjoyed a low incidence of the disease. In countries like Nepal, it is one of the common malignancies in females, and its incidence is increasing with changing lifestyles, demographic and socioeconomic profiles. Ignorance on the part of the patient, lack of screening programmes and diagnostic facilities combine to increase the morbidity and mortality. This study was done to determine the risk factors, assess common modes of presentation in breast malignancies, and to evaluate treatment modalities commonly employed to manage them.

Methods: A retrospective analysis of new cases of carcinoma breast admitted to BP Koirala Institute of Health Sciences over a period of 5 years (April 2000 - February 2005) was carried out. A total of 75 cases were studied to collect data on risk factors, clinical profile and treatment. Old cases and those with inadequate documentation were excluded.

Results: There were 70 females and 5 males; the mean age was 62.6 years in males and 45.7 years in females. The age at menarche ranged from 11-16 years, the mean being 13.47 years. Among the females, 45.71% were post-menopausal. History of breast carcinoma in first-degree relatives was present in 6.67% of the patients. The mean duration of symptoms before presentation was 13.6 months, most patients presenting with a painless lump. The majority of tumours were in the upper outer quadrant (36%), with 88% of patients presenting in Stage III and IV. Surgery was performed in 46 patients, 65.22% underwent Modified radical mastectomy, and chemotherapy was provided to 33 patients. Combination therapy was given to 16 patients.

Conclusion: Breast cancer occurred mostly in middle-aged, married, multiparous females, most of whom presented at an advanced stage. Modified radical mastectomy was the most commonly performed operation.

Key words: Breast cancer, risk factors, treatment

With over 1 million new cases in the world each year, breast cancer is the commonest malignancy in women (23% of all cancers), ranking second overall when both sexes are considered together^{1,2}. It is the second most common cancer in females in Nepal^{3,4}, and has become more common with changes in demographic profile, socioeconomic status and lifestyle. There are several established risk factors for breast cancer, including female gender⁵, increasing age^{2,5-8}, early menarche^{2,5-9}, late menopause^{2,5-7,9}, obesity^{1,2,5,6,10,11}, alcohol use^{1,2,5,6}, family history of breast cancer^{1,2,5-8}, oral contraceptives^{1,2,6,12,13}, hormonal replacement therapy^{1,2,6} and certain clinical conditions like benign breast disease^{2,5-7} and other neoplasms⁷. This study was done to find out the risk factors, the common modes of presentation, and to evaluate the treatment modalities offered to breast cancer patients at our hospital.

Materials and methods

A retrospective study of breast cancer patients admitted to our hospital from April 2000 to February 2005 was carried out. A total of 75 cases were included in the study, old cases and those with inadequate documentation were excluded. The patients' case sheets were studied for presenting complaints and their duration, various risk factors, i.e. age, sex, marital status, parity, age at first childbirth, history of breast-feeding, age at menarche and menopause, family history, smoking and alcohol habits, use of oral contraceptives, obesity and any history of association with other neoplasms. The site of tumour location, the disease status (tumour, node and metastasis staging) and mode of treatment received by them were evaluated.

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Results

Age and Sex

There were 70(93.33%) females and 5(6.67%) males. The female: male ratio was 14:1. The youngest

patient was a 22 years old female and the oldest patient was a 78 years old male. The mean age was 62.6 years in males and 45.7 years in females More than one-third of the patients were in their forties.

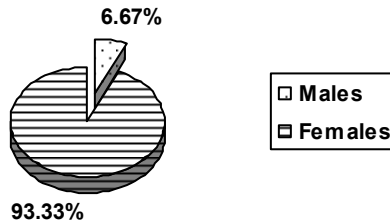


Fig. 1 : Sex Distribution

Marital status, Parity and Breast-feeding

Out of the 70 female patients, 65(92.86%) were married and 5(7.14%) were widowed. There were no unmarried females. In our female study population, 61 were multiparous, 7 were uniparous and 2 patients were nulliparous. The mean number of children per

woman was 3.4. The most common age group at first childbirth was 20-25 years in 40 patients (58.8%), and the mean age at first childbirth was 21 years. Among the parous females, 65 (95.59%) breast-fed their children, and 3 (4.41%) did not do so, due to some reasons.

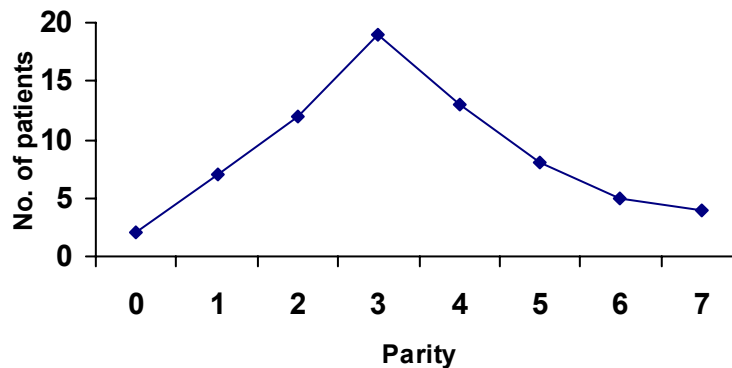


Fig. 2 : Parity(females only)

Age at menarche and menopause

The age at menarche ranged from 11 yrs to 16 yrs, the most common age being 14years. The data could not be obtained from four women due to uncertainty regarding the time. The mean age at menarche was 13.47years. There were 32 (45.71%) females who

were post-menopausal. At the time of attainment of menopause, the most common age was 45-50 years. One female was not quite certain regarding her age at menopause.

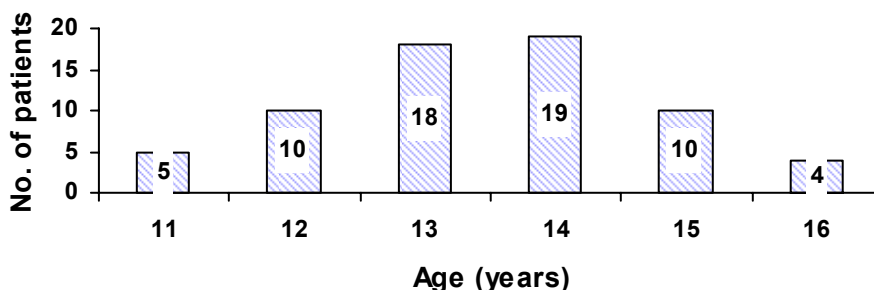


Fig. 3: Age at menarche

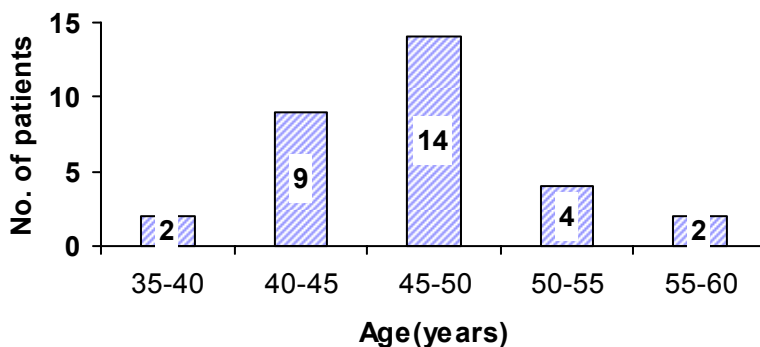


Fig. 4: Age at menopause

Family History of Breast Carcinoma

History of breast cancer in first-degree relatives was present in 5 patients (6.67%). The mean age in these patients was 37 years, as compared to the overall average age of around 47 years. In the remaining 70 cases (93.33%), no significant family history could be elicited.

Miscellaneous

There were 25 (33.33%) smokers/ex-smokers and 50 (66.67%) non-smokers. Twenty (26.67%) patients gave history of alcohol use. Only 11(15.71%) of the women used oral contraceptives. Twenty (26.67%) patients had a Body Mass Index of greater than 25, and were obese. The remaining 55 (73.33%) cases had a Body Mass Index of less than 25.

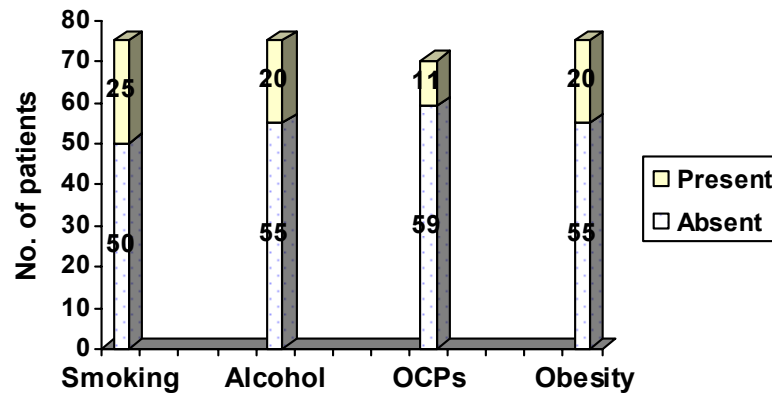


Fig. 5: Smoking, Alcohol, Oral Contraceptives (OCP) use and Obesity in Breast Cancer

History of other Neoplasms

In our study, only 3 (4%) patients, all of them women, had a history of other neoplasms in the past. One had an ovarian cyst, one a uterine fibroid and the third patient had a benign lump in the same breast, which had been removed 15 years previously.

Presenting Features

Painless lump was the most common presenting complaint with 42 (56%) cases, followed by painful lump in 13 (17.33%) cases, ulceration in 12 (16%) cases and nipple discharge in 8 (10.67%) cases. The duration of symptoms before first presentation ranged from 1 month to 2¹/₂ years, with the mean duration being 13.6 months.

Table 1: Presenting complaints of Breast Cancer (n= number of patients)

Presenting complaints	n = 75	Percentage
Painless lump	42	56%
Painful lump	13	17.33%
Ulceration	12	16%
Nipple discharge	8	10.67%

Location of Primary Tumour

The location of breast cancer in different cases is shown in Table 2. The most frequent sites were the upper outer quadrant (36%) and overlapping lesions (36%), followed by the upper inner quadrant (12%),

lower outer quadrant (6.67%), central (6.67%) and lower inner quadrant lesions (2.67%). The tumour occurred in the right breast in 34 (45.33%) patients and in 40 (53.33%) patients on the left side, while one had bilateral breast carcinoma.

Table 2: Location of Breast cancer (n = number of patients)

Location (Quadrants)	n = 75	Percentage
Upper outer	27	36%
Upper inner	9	12%
Central	5	6.67%
Lower inner	2	2.67%
Lower outer	5	6.67%
Overlapping	27	36%

Staging of Breast Cancer cases

The patients were grouped according to tumour, node, metastasis staging in the first presentation. The majority of patients were found to present at an advanced stage. We found a maximum of 34

(45.33%) patients in Stage IIIB, followed by 20 (26.67%) patients in Stage IIIA, 12 (16%) patients in Stage IV, 4 (5.33%) patients each in Stage IIA and IIB and 1 (1.33%) patient of Carcinoma in situ (Fig. 5).

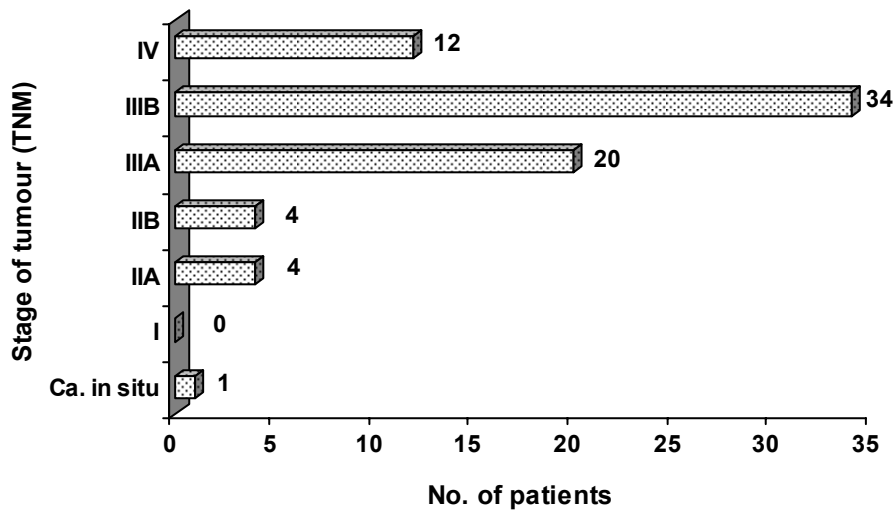


Fig. 6: TNM Staging

Treatment

Surgical procedures were carried out in 46 (61.33%) patients: The commonest operation performed was Modified Radical Mastectomy in 30 cases (65.22%), and other procedures were lumpectomy in 4 (8.7%), simple mastectomy in 2 (4.34%) and toilet mastectomy in 10 (21.7%) patients. Chemotherapy was received by a total of 33 (44%) patients, where Cyclophosphamide, Methotrexate, and 5-Fluorouracil

were provided to 24 patients and 9 patients received Cyclophosphamide, Adriamycin, and 5-Fluorouracil combination. Combination therapy in the form of surgery followed by adjuvant chemotherapy was carried out in 13 patients. On the other hand, neoadjuvant chemotherapy followed by surgery was planned in 15 patients, but the complete treatment regimen was received by 3 cases only. Tamoxifen was prescribed in a total of 41 (54.67%) cases. The

total number of patients who either refused or discontinued treatment was 21 (28%).

Discussion

Our study showed an unusually high percentage of males (6.67%), with the female: male ratio being 14:1. This was in contrast to other studies, where only 1% of all breast cancer cases are found to occur in males^{3,5,14}. This could be due to males presenting at a tertiary care centre earlier than females because of earlier detection of a breast lump owing to scanty amount of breast tissue. Females in our country tend to detect and report breast lumps at a late stage due to ignorance and lack of breast self-examination^{3,15}. In addition, social taboo connected with examination by a male doctor plays an important role in prohibiting women with a breast lump or other abnormality from seeking medical advice, especially in rural Nepal^{3,15}. These are reflected in the average duration of symptoms before first presentation (13.6 months) and the proportion of patients (88%) who presented at advanced stage of the disease. Painless lump was the most common presenting feature, which was in concordance with other studies on breast cancer^{3,5,16}, as was the high proportion of breast cancer situated in the upper outer quadrant of the breast. Up to 60% of breast cancers are known to occur in the upper outer quadrant⁵, while in a study by Sayami et al, 29.3% of breast cancers were situated in the upper outer quadrant³. In our study, tumours that were overlapping over two or more quadrants were also very common with 36% of patients, probably due to the late stage of presentation of many patients, by which time the cancer had progressed to involve more than one quadrant.

Genetic factors, including the major susceptibility genes (BRCA1, BRCA2), may account for up to 10% of all breast cancer cases^{1,2}. In our study, history of breast cancer in first-degree relatives was found in 6.67% of all patients. As might be expected, these patients did present with breast cancer at an earlier age than other patients. This suggests that there could be a significant role for cancer screening in these high-risk patients for early diagnosis and hence better outcome. A body mass index of over 25 was found in 26.67% of our patients. Obesity results in an increased risk of carcinoma breast in postmenopausal women, most probably due to increased estrogen levels, whereas this relationship is less clear in premenopausal women, having been variously described as resulting in decreased or increased risk, with popular opinion favouring the former^{2,5,10,11}. History of previous neoplasms obtained in 3 women - ovarian cyst, uterine fibroid and benign breast lump - could all point at hormonal imbalance (estrogen

excess) in these women as a contributory factor for breast carcinoma.

In our study, most patients were multiparous, with an average of 3.4 children per woman. With a few exceptions, parous women were found to have breast fed their children, and the mean age at first childbirth was quite low. These findings were in contrast to most other studies which state that the risk of breast cancer decreases with early childbearing, high parity and breastfeeding^{2,5-9}. The risk of breast cancer in women who have their first child after the age of 30 is said to be about twice that of women who have their first child before the age of 20², but this was not seen in our study. Although early menarche (younger than 12 years) and late menopause (over 55 years) are accepted risk factors^{2,5-9}, we found only 7.14% of the females to have attained menarche before 12 years of age, while only 6.25% of post-menopausal women had menopause after 55 years of age, and none after 60. Also, oral contraceptive use was found in only 15.71% of all women patients. Recent studies suggest that the use of oral contraceptives results in a small increase in the risk of breast cancer (relative risk 1.24) in young women (<35 years), while there is no association between the pill and breast cancer in older women^{2,12,13}.

Alcohol consumption is an established risk factor for carcinoma breast^{2,5,6}, while the role of smoking is controversial^{2,17}. In our study, history of alcohol use was present in only in 26.67% of patients, while 33.33% were either smokers or ex-smokers. This is comparable to the prevalence of smoking in the general Nepalese population, which is around 29% in adult females and 48% in adult males¹⁸.

In our series, Modified Radical Mastectomy was the most common surgery performed, and there were very few breast-conservation surgeries, which was in tune with the low number of cases presenting at an early stage. Previous studies in our country reveal a similar scenario^{3,16}. Of great concern is the refusal or discontinuation of treatment by 28% of the patients, which could be due to financial reasons, ignorance, superstition and other reasons not known to us.

Conclusion

Breast cancer was found to occur most commonly in middle-aged, married and multiparous females, presenting mostly at an advanced stage. This highlights yet again the dire need of activities to instil awareness among the lay-public, as also the requirement of screening programmes in order to detect cases at an early stage. Patients are being treated mostly with surgery, Modified radical

mastectomy being the commonest operation performed. Many patients refuse or discontinue treatment midway, due to various reasons.

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