RETROSPECTIVE ANALYSIS OF BREAST CANCER CASES AND SURGICAL TREATMENT IN A PERIOD OF TEN YEARS

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ABSTRACT

Retrospective analysis of 321 cases of breast cancer diagnosed in T. U Teaching Hospital in a period of 10 years, from May, 1991 to April, 2000 was carried out. There were 317 cases (98.8%) females and 4 cases males (1.2%). The youngest patient was 22 year old female and oldest patient was 92 year old female. The most common age group according to frequency was in forties (34.6%) followed by in thirties (25.5 %). Mean duration of symptoms before coming to doctor was 8.3 months and mean size of tumor was 6 cm. Out of 317 females, 310(97.2%) were married and average number of children was 3. Out of 289 cases diagnosed as malignancy with fine needle aspiration cytology (FNAC) 279 (96.5%) was also diagnosed as malignancy in biopsy and the remaining 10 cases as non malignant diseases were diagnosed as malignancy in biopsy with a false negative rate of 3.5%. The histological types of breast cancer cases were Infiltrating Ductal Carcinoma 280 cases (87.2%), Medullary Carcinoma 11 cases (3.4%), Infiltrating Lobular Carcinoma 5 cases (1.6%), Mucinous Carcinoma 4 cases (1.2%), Sarcoma 4 cases (1.2%), Squamous Cell Carcinoma 4 cases (1.2%), Papillary Carcinoma 3 cases (0.9%), Tubular Carcinoma 2 cases, Adenosquamous Carcinoma 2 cases (0.6%), Intraductal Carcinoma 2 cases (0.6%) and Non-Hodgkins Lymphoma 1 case. Out of 305 operated cases, the types of operation performed was Modified Radical Mastectomy in 208 cases (68 %) and palliative mastectomy in 72 cases (23.5%), only lumpectomy in 24 cases (7.9%) and others in 2 cases. Among 246 cases with available axillary lymph node biopsy, there was metastatic diseases in 146 cases (60%) of cases. The Breast cancer was diagnosed in advanced stages in 63% of cases. Stage IIIA (24%), Stage IIIB (21.5%) and Stage IV (17.4%). Breast cancers were diagnosed in advanced stages in below 40 age group in 65 out of 90 cases (72.2 %) compared to 137 out of 231 cases (59.3 %) in above 40 age group.

Key Words: Breast cancer, Advanced stage, FNAC, Surgery.

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INTRODUCTION

Breast cancer is one of the major cancer in females and the second most commonly diagnosed cancer in Nepal.¹ The mortality and incidence of breast cancer are high in Western industrialized countries and relatively low in developing countries in Asia and other parts of the world. There are many predisposing factors of breast cancer like genetic, racial, environmental, age and a number of endogenous hormonal factors including age of menarche, age of menopause and age of first full-term pregnancy.² However, in 50% of the cases no predisposing factors are found.³ Breast cancer screening program has made it possible to detect a large proportion of small breast cancers and resulted in a 30% reduction in breast cancer mortality.⁴ In Nepal, because lack of knowledge of breast cancer, most of women do not perform self examination of breast and lack of facility for mammogram, breast cancers are often diagnosed in advanced stages. On the top of that, the women with breast lump do not go to doctor, because breast cancer lumps are painless and they are too shy to be examined by a male doctor. This retrospective analysis was done to find out age distribution of breast cancer, mode of presentation, staging of breast cancer and mode of surgical treatment. Fine needle aspiration cytology (FNAC) is a simple inexpensive procedure for diagnosing breast cancer with accuracy of up to 96%.⁵ The co-relation of FNAC with histopathology was also carried out. Early diagnosis and surgery is the only way to cure breast cancer and in Stage I and II breast cancer is curable. In locally advanced breast cancers, a combination treatment has been advocated to improve the disease free survival.⁶

PATIENTS AND METHODS

There were 366 breast cancer cases diagnosed in T. U. Teaching Hospital, from period of May, 1991

to April, 2000, in a total period of 10 years. Complete data was not available in 45 cases and therefore they were excluded from the study. In remaining 321 cases, age of patients, age of menarche, age of menopause, history, physical findings and FNAC diagnosis / histopathological diagnosis were analysed. All patients underwent chest X-Ray examination, abdominal ultrasound for evaluation of distant metastasis. Bone Scan was not available and could not be done. Mammogram was available in last 4 years of study period and reports of only 109 cases were available. Out of 321 cases, there were histological diagnosis of malignancy in 307 cases and only fine needle cytology diagnosis in 14 cases. Co-relation of FNAC with histology done. Out of 321 cases, there were 317 females (98.8%) and 4 males (1.2%). The youngest patient was 22 year old female and oldest patient was 92 year female. The mean age of menarche was 14 year of age and mean age of menopause was 51 year of age. Out of 317 females 14 did not have any children (9 unmarried and 5 had no children). The number of children was ranging from 1 to 11 with a mean of 3 children among data available in 242 patients. One hundred and twenty eight patients were from Kathmandu valley (40%) and 193 (60%) patients were from outside Kathmandu valley. Since axillary lymph node metastasis in different levels has prognostic value, in second half of study period, systemic dissection of axillary lymph nodes level I, II and III were performed and analysed. Level I is group of lymph nodes lying lateral to Pectoralis minor, Level II behind it and Level III medial to it. While doing Modified Radical Mastectomy, Pectoralis Minor muscle was also not removed in later period of study to protect the nerve supply of Pectoralis Major. Detail data of follow up and adjuvant chemotherapy, radiotherapy and Hormone therapy was not available in all cases and therefore could not be analysed. TNM staging was done in all cases and analysis of operative methods was performed.

In last two years of study, advanced cases of breast cancer cases were treated with preoperative (Down staging) chemotherapy with 2 to 3 cycles of Cyclophosphamide, Adriamycin and 5-FU and operated. Response to Neoadjuvant chemotherapy was analysed and appropriate operation performed according to response.

RESULTS

Duration of symptoms before presentation was 15 days to 3 years with a mean of 8.3 months. Mean diameter of tumor at the time of presentation was 6.3cm (1 cm to tumor invading whole breast). In 164 patients, history of birth control measures was available, out of which 26 patients had oral contraceptives (13.6%), 5 patients had Depopova, 10 had IUCD, 2 had minilap tubal ligation and 121 patients had no history of birth control measure. Thus, majority of patients were not taking any oral contraceptives.

Table I. Main Presenting features of Breast Cancer cases

Presenting features	No.	(%)
Painless lump	278	(87.6%)
Nipple discharge	14	(4.4%)
Pain with lump	8	(2.5%)
Ulceration with lump	19	(5.9%)
Nipple disappearance	2	(0.6%)
Total	321	(100%)

Table I shows presenting features of the 321 breast cancer cases. Painless lump was the most common presenting feature 277 cases (87.6%), followed by ulceration with lump in 19 cases (5.9%), nipple discharge in 14 cases (4.4%), pain as the main presenting feature in 8 cases (2.5%), nipple disappearance in 2 cases (0.6%) and 1 patient was asymptomatic with suspicious malignancy in mammogram on routine screening.

Table II. Mammogram findings (no=109 cases)

Findings	No.	(%)
Mass (Suspicious of Ca.)	100	(91.8%)
Micro-calcification (Suspicious of Ca.)	2	(1.8%)
Benign mass	5	(4.6%)
Normal Mammogram	2	(1.8%)
Total	109	(100%)

** Mammogram was only available during last 4 year of the study.*

Mammogram reports was available in 107 cases (Table II) of later part of the study. Five cases were reported as benign mass 2 cases as normal and 100 cases as suspicious of malignancy. Therefore, in 7 cases (6.4%) the reports were false negative.

Table III. Locations of breast cancer cases in different quadrants.

Quadrants	No.	(%)
Upper outer	94	(29.3%)
Upper inner	39	(12.1%)
Lower inner	17	(5.3%)
Lower outer	6	(1.9%)
Central	18	(5.6%)
Any two quadrants	121	(36.6%)
All quadrants	26	(8.1%)
Total	321	(100%)

Table III shows location of tumor in different quadrants of breast. The tumor was located in upper outer quadrant in 94 cases (29.3%), upper inner quadrant in 39 cases (12.1%), lower inner quadrants in 17 cases (5.3%), lower inner quadrant in 6 cases and central in 18 cases (5.6%). In 121 cases (36.6%) the tumor was involving 2 quadrants and in 26 cases (8.1%) the tumor was diffusely involving whole breast. Breast cancer was located on left side in 164 cases (51%), on right side in 150 cases (46%) and bilateral in 7 cases (2.8%). Thus breast cancer involving more than one quadrant was the most frequent findings (44.7%).

Table IV. Breast cancer in different age group

Age	No.	(%)
21 to 30	8	(2.5%)
31 to 40	82	(25.5%)
41 to 50	111	(34.6%)
51 to 60	67	(20.9%)
61 to 70	32	(10%)
71 to 80	17	(5.3%)
>80	4	(1.2%)
Total	321	(100%)

Table IV illustrates frequency of breast cancer in different age group. Breast cancer was most common in forties (34.6%), followed by in thirties (25.5%) and fifties (20.9%). In twenties breast cancer was diagnosed in 8 cases (2.5%). The mean age of patients was 48.3 years.

Out of 321 patients, only 306 patients underwent surgical treatment, 1 case only tru-cut biopsy and in 14 patients only FNAC diagnosis was available because of various reasons. Potentially curative operation was performed in 208 cases (68%), out of which the types of operation performed were Patey's modified radical mastectomy in 69 cases pectoralis minor preserving modified radical mastectomy in 139 cases and Halstead's radical mastectomy in 1 case. In remaining 113 cases, only palliative operation was performed, because they were inoperable. Among them, simple mastectomy was performed in 37 cases (12.1%), simple

Table V. Types of operation performed (n=306 cases)

Types of Operations	No.	(%)
MRM (Patey's)	69	(22.5%)
MRM (Pectoralis minor preserving)	139	(45.4%)
Simple Mastectomy	37	(12.1 %)
Simple mastectomy with axillary sampling	35	(11.4%)
Lumpectomy	24	(7.8%)
Halstead's radical mastectomy	1	(0.3%)
Bilateral Mastectomy	1	(0.3%)
Total	306	(100%)

mastectomy with axillary sampling in 24 cases (11.4%), lumpectomy in 24 cases (7.9%) and bilateral mastectomy in 1 case (Table V).

Table VI. Histological types of breast cancer cases

Types	No.	(%)
Infiltrating ductal carcinoma	280	(87.2%)
Medullary Ca.	11	(3.4%)
Infiltrating Lobular Ca.	5	(1.6%)
Mucinous CA.	4	(1.2%)
Papillary Ca.	3	(0.9%)
Tubular Ca.	2	(0.6%)
Sarcoma	4	(1.2%)
Squamous Cell Ca	4	(1.2%)
Others	11	(3.4%)
Total	321	(100%)

In 289 cases preoperative FNAC was performed, the diagnosis was compatible with ductal carcinoma in 225 cases, carcinoma (type mentioned) in 38 cases, malignant tumor in 7 cases, lobular carcinoma in 1 case, mucinous carcinoma in 1 case, papillary carcinoma in 1 case, sarcoma in 1 case, squamous cell carcinoma in 2 cases, highly suspicious of carcinoma in 2 cases and negative for malignancy in 10 cases. Malignancy was confirmed by biopsy in 279 cases with accuracy of 96.5%. and the remaining 10 cases diagnosed as benign diseases by FNAC were finally diagnosed as carcinoma of breast with biopsy. In another 32 cases the diagnosis was done by biopsy without FNAC. Among 10 false negative cases, FNAC diagnosis was atypical ductal hyperplasia in 3 cases, fibroadenosis in 3 cases and non diagnostic in 4 cases. Therefore, there was 3.5% false negative cases. Table VI describes histological typing of breast cancer cases. In 307 cases diagnosis of cancer was obtained biopsy and in remaining 14 cases only FNAC report was available because biopsy was not done for various reasons. Overall types of 321 cases of breast cancer were Infiltrating Ductal Carcinoma 280 cases (87.2%), Medullary

carcinoma 11 cases (3.4%), Infiltrating lobular carcinoma in 5 cases (1.6%), Mucinous Carcinoma 4 cases (1.2%), Papillary Carcinoma 3 cases (0.9%), Tubular Carcinoma 2 cases (0.6%), Sarcoma 4 cases (1.2%), Squamous Cell Carcinoma 4 cases (1.2%), Intraductal carcinoma 2 cases (0.6%), Adenosquamous carcinoma 2 cases (0.6%) and Non-Hodgkin's Lymphoma 1 case.

Table VII. Patients according to T staging

T staging	NO	%
Tis	13	0.6
T1	13	4
T2	87	27.1
T3	117	36.4
T4	102	31.7
Total	321	100

Table VII shows distribution of breast cancer cases according to T stage. There were 13 cases in T1 group (4%), 87 cases in T2 group (27.1%), 117 cases (36.4%) in T3 group, 102 cases in T4 group (31.7%) and 2 cases in Tis group (0.6%). Thus, majority of patients presents when then tumor is in T3 or T4 stage.

Table VIII. Staging of breast cancer cases

Stages	No.	(%)
Ca. in Situ	2	(0.6%)
Stage I	9	(2.8 %)
Stage IIA	33	(10.3%)
Stage IIB	75	(23.4%)
Stage IIIA	77	(24%)
Stage IIIB	69	(21.5%)
Stage IV	56	(17.4%)
Total	321	(100%)

Table VIII describes distribution of cancer according to stage. There was two cases of Intraductal Carcinoma in Situ. There were 9 cases in Stage I (2.8 %), 33 cases in Stage IIA (10.3%), 75 cases in Stage IIB (23.4%), 77 cases in Stage

IIIA (24%), 69 cases (21.5%) in Stage IIIB and 56 cases (17.4%) in Stage IV. Thus, majority of patients (63%) were in advanced stages (Stage III or Stage IV). Out of 90 cases in younger age group (<40), 65 cases (72.2%) were in advanced stage compared to 137 cases out of 231 cases (59.3%) in remaining group (>40).

In later 5 year period of this study, systemic axillary dissection of lymph nodes Level I, II and III was performed and analysed separately. In operable cases of breast cancer in 133 cases, out of which in 23 cases (17.3%), there was metastatic lymph nodes

Fig.1. Status of lymph node metastasis in level I, II and groups of axillary lymph nodes (n=133)

only in Level I, in 16 cases (12%) in Level I and II, in 22 cases (16.3%) in Level I, II and III and there was no metastatic lymph nodes in all level lymph nodes in rest of the cases (Fig.1). Therefore, even in operable cases in 46% of cases there is metastatic

Fig. 2

Fig. 2. Levels of axillary lymph node dissection (Level I, II and III). Groups of lymph nodes lateral to Pectoralis minor is level I, behind it is level II and medial to it is level III.

lymph nodes. In remaining 198 cases, axillary lymph node was positive for metastasis in 105 cases, negative in 18 cases and not done in 75 cases. Overall, lymph node positivity in 166 cases out of 246 cases with lymph node biopsy. If inoperable cases with clinically metastatic lymph (in which lymph node biopsy was not done) was added to above figure, the lymph node positive for metastasis will be in 221 cases out of 307 cases. Thus, in Nepal in 72 % of cases of breast cancer, there is lymphatic metastasis at the time of presentation.

DISCUSSION

The incidence and mortality of breast cancer are high in the Western world and relatively low in the Asian developing countries.⁷ In Nepal, it is the second most common cancer among women after cervical cancer.¹ Breast cancer is known to be hormone-related and various trials of hormonal preventive chemotherapy are currently under way.² There are several clearly defined risk factors for breast cancer. Age at menarche has been inversely associated with risk of breast cancer; menarche at a relatively early age is associated with increased risk.⁸ Because there is a prolonged exposure to estrogens in early menarche and at higher levels than for those with later menarche. Similarly, it has been shown that the earlier the age at natural menopause, the lower the risk of breast cancer.⁹ However, in our series, the average age of menarche and the age of menopause were 14 years and 51 years, respectively which is similar to normal females in Nepal (14 and 51 years). Parity and age at first birth are also associated with the risk of breast cancer because in women of high parity are more likely to have had their first child at a relatively early age. One of the large international case-control studies pointed out that women who first gave birth after the age of 35 had a risk of breast cancer which was about three times that of women who had their first child before the age of

18, while the risk for nulliparous women was approximately the same as that for women who had a first full-term pregnancy between the ages of 30 and 35 years (10). Lactation has been associated with a reduction in the risk of breast cancer.² In the present series, the majority of patients with breast cancer were married, multiparous and gave birth of the first child at an early age and there was history of breast feeding. In general, there is a little evidence to suggest an overall increase in the risk of breast cancer associated with use of oral contraceptive pills (OCP).¹¹ In our series, only 14% of the breast cancer patients had used OCP for >2 yrs of duration.

Like in our series, the majority of breast cancer patients present with a painless breast lump. The patients were not aware of the disease for long time with a mean duration of 8 months. This could be one of the important reason why female breast cancer patients presented with advanced disease. With the widespread use of mammography, a large proportion of early breast cancer has been diagnosed and resulted into a significant reduction of breast cancer mortality.⁴ At present, mammography is not available even in all central level hospitals, mammographic screening is not feasible in our country. Mammography can be used in diagnosis, treatment planning and in follow-up of women who have had breast cancer treated.¹² Negative mammograms should not delay further investigation of a clinically suspicious lump since up to 7% of breast cancer patients with normal mammogram, which is consistent with our result.¹³ Therefore, combined approach of clinical examination, imaging (mammogram, ultrasound) and cytology allows a definite diagnosis of either malignant or benign breast lesions.

FNAC is found to be more useful in the evaluation of both palpable breast masses and non-palpable lesions detected by mammography.^{14,15} The

accuracy rate of diagnosing breast cancer by FNAC is very high, which is similar to our results up to 96% and is superior to Tru-cut needle biopsy.⁵ However, FNAC does not differentiate reliably invasive cancer from non-invasive one. Biopsy has been the standard technique for the diagnosis of breast cancer. It allows a complete evaluation of the tumor size and its histologic characteristics before selecting definitive therapy.

After the diagnosis of breast cancer was made, staging investigations like USG abdomen and chest X-ray were routinely done to find hepatic or pulmonary metastasis. Bone scan is not justified as <1% is only positive.¹⁶ Most of our patients were with advanced breast cancer (63% with stage III or IV). Carcinoma in situ or stage I breast carcinoma was rarely detected in our setup (only 3.4%).

Early breast cancers are generally treated by breast conservation surgery (BCS) plus radiotherapy (RT) or modified radical mastectomy with or without reconstruction. However, BCS was not the procedure of choice in our series due to various reasons. As modified radical mastectomy adequately treats the breast and axilla in one operation, it avoids the need for adjuvant RT in all cases and is associated with a very low loco-regional recurrence rate. In the present series, the majority of patients (68%) were undergone modified radical mastectomy with or without pectoralis minor preservation. Although axillary dissection is an area of great controversy, it offers the stage and prognosis of the disease as well as the necessity for adjuvant therapy.¹⁷

Axillary dissection should include en bloc removal of level I and II nodal tissue as well as level III node with or without division of the pectoralis minor muscle (Fig.2). In the present series, complete level III nodal dissection was done in 133

cases, where almost half of the patients were positive lymph nodes and almost 3/4th of breast cancer patients were presented with lymphatic metastasis. Adjuvant therapy is routinely recommended to all high-risk breast cancer patients.¹⁸

Locally advanced breast cancer is usually treated with multi modality treatment which is called as 'sandwich' approach.⁶ Induction chemotherapy is followed by local treatment (surgery and/or RT) with a subsequent period of adjuvant chemotherapy.¹⁹

CONCLUSIONS

In conclusion, breast cancer is common in younger age group in Nepal, that is in forties and thirties. Majority of patients were married and multiparous and had breast feeding. Breast cancer was diagnosed in advanced stages in younger age group. The accuracy of diagnosis breast cancer with FNAC is 96.5%. More than 60% of breast cancer cases were diagnosed in advanced stages. Moreover, breast cancer screening by breast self examination and physical examination by doctors should be promoted in order to reduce the breast cancer mortality.

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