

Sentinel Lymph Node Biopsy in Early Breast Carcinoma

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ABSTRACT

Objective: The objective of this study is to determine the success rate of sentinel node dissection and sensitivity of sentinel node to determine the presence of axillary node metastasis in women with clinically node negative breast cancer.

Study Design: Observational / descriptive study.

Place and Duration of Study: This study was conducted at the Department of Surgery, Liaquat University Hospital Jamshoro from January 2014 to December 2014.

Materials and Methods: Thirty (30) female patients admitted with biopsy proven early breast carcinoma with clinically negative axillary lymph nodes were prospectively enrolled in the study. All patients underwent complete general and local physical examination. All routine and specific investigations were carried out and after obtaining informed consent, patients were prepared for surgery. A proforma was filled-in including clinical data and all the data was analyzed on SPSS 16.0.

Results: Thirty female patients with mean age of 45.8 ± 1.10 and 60% patients having pain with lump in the breast was found in the study. The family history of breast carcinoma was found positive in 20% of cases while 26% women having history of oral contraceptives. The left breast was more frequently involved and found in 76.6% of cases. Majority of the patients (93.4%) underwent mastectomy. In 53.44% of the cases, 3 to 4 sentinel lymph nodes were detected. In postoperative histopathology, invasive ductal carcinoma was found in 46.6% of the cases with grade II was in 56.7% of the patients.

Conclusion: The sentinel node notion in breast cancer has been broadly validated & is the standard care for lymphatic staging in early breast carcinoma.

Key Words: Breast carcinoma, Sentinel node, Mastectomy

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INTRODUCTION

Over the past 10 years, armpit lymph nodes was generally acknowledged as the most specific predictive device accessible in accessing armpit nodal status & henceforth breast malignancy staging¹⁻³. In account of breast cancer treatment, sentinel lymph node biopsy (SLNB) is proved to be less invasive loom⁴⁻⁵. The adverse effects concerned with ALND are associated with extensive complications i.e. post surgical lymphedema, seroma formation, neuropathy, paresthesia, chronic shoulder pain, joint distraction, weakness & immobility^{2,3,6-8}. That's why SLNB is preferred in females with breast cancer needing full dissection⁹, for better quality of life & less hospital time. Though SLNB method have side effects, but with fewer risks as compared to ALND^{10,11}.

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As breast cancer ration has increased in Malta, with highest ranking in Europe at 34.4/100,000 million¹², staging procedures with less difficulties were being specified. The SLNB was commenced in May 2009. With the notion of the organized chain of lymph node metastasis, which involve one or few lymph nodes (sentinel node/s, (SN/s)) primarily approached by metastasizing cells from tumour dessimation^{13,14}. To reduce morbidity, all SNs must be surgically cropped while SLNB to stage the cancer. Presence of more than 1 sentinel node is considered as milieu of breast cancer as it could give rise to multiple lymphatic channels from existing lesion¹⁵⁻¹⁷. In 75% to 95% of cases, the lymphatic drainage of the breast (SN) is restricted to the ipsilateral axilla, even though disparity in the lymphatic flow is present^{11,18-19}.

The purpose of my study is to determine the importance of sentinel lymph node biopsy in early carcinoma of breast at Liaquat University Hospital Jamshoro.

MATERIALS AND METHODS

This study was carried out in Department of Surgery of Liaquat University Hospital Jamshoro. All patients with unifocal biopsy proven carcinoma of breast < 5cm in diameter, clinically positive axillary lymph nodes,

multifocal tumours of breast, any previous axillary or breast surgery, neoadjuvant therapy, pregnancy and inflammatory carcinoma were excluded from the study. After ethical committee approval, informed written consent after explaining the patient about the procedure, thirty female patients were included in the study. All patients underwent complete general and local physical examination. All routine and specific investigations were carried out, patients were prepared for surgery. A proforma was filled-in including clinical data and all the data was analyzed on SPSS 21.0.

RESULTS

Total 30 patients were included in the study, mean age of 45.8 ± 1.10 , in these women, age of menarche was 12.8 ± 1.37 and age of menopause in our series was detected with mean 48.12 ± 3.07 years, while lactation period was noted as 14.4 ± 10.6 . (Table: 1). According to the complaints, most patients (60%) having pain with lump, while 40% only presented with lump. (Table: 2). In the 20% of the patients, family history found to be positive for breast carcinoma while in 26% history of contraceptive pills was found positive. According to the site, left breast involvement was found in the 76.6% of the women, right breast involvement was noted in 23.4% of the cases. Mostly tumours were found in the upper quadrant of the breast with the percentage of 73.4%, lower quadrant were found with tumour 20% and only 6.6% women having tumour in the region of the breast (Table: 3).

Table No. 1: Age distribution of the patients n=30

Age	Mean \pm SD
Age of Women (years)	45.8 ± 1.10
Age of Menarche (years)	12.8 ± 1.37
Age of Menopause (years)	48.12 ± 3.07
Lactation Period (months)	14.4 ± 10.6

Table No. 2: Presenting complaint of the patients n=30

Complaint	Frequency (%)
Lump with pain	18 (60.0%)
Lump without pain	12 (40.0%)

Table No. 3: Assessment of the breast n=30

History	Frequency (%)
Breast Involved	
Left	23 (76.6%)
Right	07 (23.4%)
Tumour Site	
Upper quadrant	22 (73.4%)
Lower quadrant	06 (20%)
Central region	02 (6.6%)
Tumour Size	
Index=AP+T(Mean \pm SD)	11.32 ± 5.4

Table No. 4: Operative analysis of the cases n=30

Operative analysis	Frequency (%)
Injecting Site	
Intradermally	19 (63.3%)
Peritumoural	11 (36.7%)
Type of Surgery	
Breast Conservative	02 (6.6%)
Mastectomy	28 (93.4%)
Number of SLN detected	
1 – 2	12 (40%)
3 – 4	16 (53.4%)
< 4	02 (6.6%)
Berg's Level of SLN	
Level I	30 (100%)
Level II	00
Analytic Method of SLN	
Methylene blue	30 (100%)
Other	00

Table No. 5: Histopathological findings of tumour n=30

Finding	Frequency (%)
Ductal carcinoma in situ	01 (3.3%)
Ductal carcinoma	03 (9.9%)
Invasive intraductal cell carcinoma	01 (3.3%)
Infiltrating ductal carcinoma	07 (23.3%)
Invasive ductal carcinoma	14 (46.6%)
Invasive lobular carcinoma	04 (13.3%)
Total	30 (100%)

Table No. 6: Grading of the tumor and ER-PR score n=30

History	Frequency (%)
Grading of the tumour	
I	13 (43.3%)
II	07 (56.7%)
Score	
ER Score	5.6 ± 3.06
PR Score	3.4 ± 3.02

Table No. 7: Complications of SLNB n=30

Complications	Frequency (%)
Allergic reaction	00
Pain or discomfort	04 (13.3%)
Fluid collection	00
Skin discoloration	01 (3.3%)
Infection	02 (6.6%)
Bleeding	02 (6.6%)
Necrosis	01 (3.3%)
Abscess formation	02 (6.6%)

Out of Thirty, Nineteen (63.3%) cases were selected for intradermally injecting site while Eleven (36.7%) were selected for peritumoural injection (Table: 4). Majority of the cases 93.4% were underwent mastectomy and only 6.6% women were underwent breast conservative surgery. In the majority of the cases

53.4%, 3 to 4 SLN were detected, 1 to 2 were detected in the 40% of the cases while 6.6% of the cases were found with more than 4 SLN detected. According to the Berg's level of SLN, completely patients were found with level I (Table: 4).

According to the histopathology of the removal tumour, invasive ductal carcinoma was found in 36.6% of the cases, second most common variety was infiltrating ductal carcinoma which accounts for 20% of the cases (Table: 5). In the grading of tumour, grade II was most common and accounts for 56.7% while 43.3% tumours found in grade I. Total ER score was found as (Mean \pm SD) 5.6 + 3.06. and total PR score was noted as (Mean \pm SD) 3.4 + 3.02 (Table: 6).

The complications of SLNB was described in table: 7.

DISCUSSION

The world's most widespread female's cancer accounting for almost 1/4th of all cancers is the breast cancer^{20, 21}. females of all races, ethnicities & geographic areas are affected. nonetheless, ethnicity & area based disparities in breast cancer pathology is an well-known trait²²⁻²⁴. The frequency, clinical appearance & endurance rates differ in dissimilar geographic areas, races & ethnicities²⁵. In developed countries there is higher occurrence & decreased mortality rates have been reported. 45% of all cases & 55% of all mortalities are occurring in the poor & average income countries.

The mean age of 47 \pm 12 years in the patients with breast cancer reported by Khokhar S, et al²⁹. In our series, mean age was found as 45.8 \pm 1.10. Mean age has been accounted as 48 years by Malik, et al²⁷, and Sharif, et al²⁸ also reported as findings.

Nulliparity augment lifetime occurrence of breast cancer. As compared to meta-analysis from Nordic countries, It was related to 30% raised risk²⁹. Pregnant females have 2/3 folds less likelihood of mounting breast cancer. with every consecutive nativity, there is 7% decrease risk is renowned. There are less chances of cancers when child parity occurs earlier than 30 years of age³⁰. In a Pakistani study, it was illustrated that in women who had no issue (12.06%) breast cancer was common, & (9.37%) in women who deliver infants after 30 years of age³¹. In this study, majority (60%) of tumours were found in the women with low parity.

In One third of the population, familial breast cancer cases are due to BRCA-1 gene mutation on chromosome number 17. In 4-47.3% positive familial record of breast tumors were instituted in Pakistan.²⁷. there is 2/4 fold increased risk of cancer in females having first degree relative (mother, daughter/sister) with breast cancer³². Risk of cancer dramatically amplified If family member developed cancer before 50 years of age³². Positive familial history was found in 25% of our population. Similarly in this study, family history was found in the 20% of the patients.

There is increased risk of BRCA-1 mutation carriers with the use of oral contraceptives.³² premenopausal breast cancer is noted in young ladies who utilize oral

contraceptives for four years or more before first time parity. There is contrary alliance was renowned among oral contraceptive & breast cancer³³. In our study, 26% of women were found with the history of use of contraceptive pills. In finding of another study from Pakistan stated that oral contraceptive utilization is radically related with breast cancer³⁴.

In the study of Hajrah Doutani et al³⁵, reported that right breast in 44.8% of cases, the left breast in 47% and bilateral involvement in 8% of cases with breast cancer. In our study, according to the site, left breast involvement was found in the 76.6% of the women,, right breast involvement was noted in 23.4% of cases. Mostly tumors were found in the upper quadrant of the breast with the percentage of 73.4%, lower quadrant were found in 20% and only 6.6% women having tumour in the central region of the breast.

In the study of Hajrah Doutani et al³⁵ suggested the histomorphological types seen among 272 breast cancer patients indicated that there were 212 cases (78%) with histology of invasive ductal carcinoma which was found to be the most common type. According to Muhammad et al³⁶, infiltrating ductal carcinoma with nonspecific features was the commonest type, found in 38 patients (82.6%). Similarly in the present study histopathology of the removal tumour, invasive ductal carcinoma was found most common and accounts for 36.6% of the women, second most common variety is infiltrating ductal carcinoma and was found in 20%.

CONCLUSION

The sentinel node notion in breast cancer has been broadly validated. It is the standard care for lymphatic staging of breast & facilitates accurate, less invasive lymphatic staging in avoiding the morbidity of regular lymph node dissection for node negative breast cancer females.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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