

## Outcome Following Breast Conservative Surgery for Early Breast Cancer at NICRH

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### Abstract

### Original Research Article

**Introduction:** Breast cancer is diagnosed at an early stage as a result of population screening programs, which facilitate the possibility of organ-preservation. One of the methods of breast cancer control is a breast conserving surgery (BCS). **Aim of the study:** The aim of this study was to assess the early outcome following breast conservative surgery for early breast cancer. **Methods:** This observational study was conducted in the Department of Surgical Oncology at National Institute of Cancer Research and Hospital, Dhaka from January 2018 to December 2019. Within the period, total 46 cases of early breast cancer that has the inclusion criteria were taken as sample after informed consent. All the data were compiled and sorted properly and the quantitative data were analyzed statistically by using Statistical Package for Social Science (SPSS-26). **Result:** In present study, mean ( $\pm$ SD) volume of resected specimen was 49.54( $\pm$ 8.51) cm, mean ( $\pm$ SD) volume of tumor 20.22( $\pm$ 5.04) cm and mean ( $\pm$ SD) margin was 0.65 (40.24) cm. Only 2 (4.35%) subjects had developed wounds infection, 1 (2.17%) had hematoma and 2 (4.35%) had seroma. All of study people were treated conservatively. Among the study subjects, disfigurements of breast were developed in 7 (15.22%) cases. Locoregional recurrence was noted in 3 (6.52%) cases and locoregional with lung metastasis was noted in 1 (2.17%) case. Of the 46 patients was assessed using BRA, the scores were good to excellent, fair and poor 30 (65.22%), 15 (32.61%) and 1(1%) respectively. ND scored 19 (41.30%) as good to excellent, 13 (28.26%) as fair and 14 (30.43%) as poor. Using panel assessment 26 (56.52%) scored good to excellent, 16 (34.78%) scored fair and 4 (8.69%) scored poor. **Conclusion:** It can be concluded that breast conservative surgery gives satisfactory outcome in early breast cancer.

**Keywords:** Breast cancer, Breast conservative surgery and cosmesis.

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## INTRODUCTION

Breast cancer is a heterogeneous disease comprising multiple entities with different histological and molecular features characterized by distinctive clinical behavior and response to treatment. Thus, a central component of the treatment of breast cancer is the knowledge of its extent and biological properties [1]. Breast cancer is the most prevalent cancer among women worldwide. It is also most common among

women in Bangladesh. In Bangladesh 22000 women were affected every year by breast cancer and 17000 (77%) of them died [2]. Various epidemiological factors impact both breast cancer risk and clinical prognosis, including sex, age, genetic background, previous chest radiotherapy, a positive family history, BRCA1/2 mutations, breast density, obesity, oral contraceptive pills and reproductive factors. Females have a greater than 100-fold higher risk of developing breast cancer

than men [1, 3, 4]. As a result of population screening programs and developments in diagnostics, breast cancer is increasingly diagnosed at an early stage. In our country breast cancer detection rate at early stage has been increased due to increased general population awareness about breast cancer. In NICRH outpatient department about 45% of newly diagnosed breast cancer cases are early breast cancer (EBC). Early detection has brought patients the hope of full recovery, which is supported by increased knowledge of the molecular background of breast cancer and developments in histology and radio-and drug therapy [5, 6]. Tumor stage is determined by the TNM staging system, wherein tumor size and local invasion (T), lymph node involvement, and presence of metastatic disease are synthesized to evaluate tumor stage. Factors associated with recurrence stage, primary tumor size, presence of nodal involvement, are hormone receptor status and human epidermal growth factor receptor 2 (HER 2) status, histologic grade and proliferative rate, vascular invasion and response to primary therapy [7]. Higher tumor grade or tumor stages are each associated with a poor prognosis. Both grade and stage are critical components in determining the proper clinical management for a particular breast cancer patient [8]. Breast-conserving surgery (BCS), adjuvant chemotherapy with or without hormone therapy and whole-breast radiotherapy (WBRT) have become the gold standard for the vast majority of patients with early-stage invasive breast cancer though no significant differences in local control, disease-free survival, or overall survival have been observed, even after 20 year of follow-up, indicating that survival in these patients is not dependent on the choice of mastectomy versus BCT. The main goal of BCS would be the resection of the tumor with adequate surgical margins and preserving glandular function. The main factor influencing breast deformities following conventional BCS is the large volume of the resected specimen relative to the total breast volume producing asymmetry, retraction, and volume changes in the breast as well as fibrosis of the open cavity during healing [5, 9]. Patients treated with BCS followed by radiotherapy had an improved outcome compared to radical mastectomy alone. Specifically, local control, distant control, and overall survival were significantly better using the conservative approach [10]. Therefore; present study was done to assess the outcome following breast conservative surgery in early breast cancer.

## OBJECTIVES

### General objective

- To assess the early outcome following breast conservative surgery for early breast cancer.

### Specific Objectives

- To find out the post-operative complications of BCS.
- To see the frequency of recurrence after

conservative surgery in early breast cancer patients within two years.

## METHODOLOGY & MATERIALS

2. This was an observational study and was conducted in the Department of surgical oncology, National Institute of Cancer Research and Hospital, Mohakhali, Dhaka, Bangladesh during the period from January 2018 to December 2020. Forty six samples were taken from early breast cancer patients admitted in NICRH for breast conservative surgery. The patients were diagnosed clinically, radiologically and histopathologically. A structured case record form was used to interview and collect data. Outcome of BCS was measured in terms of rate of development of complication, recurrence and cosmesis. All the data were compiled and sorted properly and the quantitative data were analyzed statistically by using Statistical Package for Social Science (SPSS-26). The results were expressed as percentage and mean  $\pm$ SD and were presented as tables and charts.

### Inclusion criteria

- Diagnosed case of early breast cancer ( $T_2/T_1$ ,  $N_0/N_1$ ,  $M_0$ )

### Exclusion criteria

- Patients unwilling for BCS.
- Patients with locally advanced breast cancers.
- Recurrent carcinoma of breast after BCT
- Patients unwilling to follow-up at this hospital.
- EBC having unplanned lumpectomy outside the NICRH.

## RESULT

Table-I shows that, majority of the patients 22(47.85%) were in age group of 31-40 years. In this study majority 93.48% were married. Among study population, 24 (52.17%) house wife, 10 (21.74%) were businessmen, 9 (19.51%) were service holder and only 3 (6.52%) were student in their occupations. In this study, majority of study subjects came from middle (65.22%) and only 3(6.52%) study subjects came from upper socioeconomic condition. Majority (45; 97.83%) of the tumor were ductal infiltrating types and only 1 (2.17%) were lobular infiltrating type. After BCS every patient has to take radiotherapy as it is mandatory. Margin positive subjects were treated with cavity shaving (1; 2.17%) and mastectomy (1;2.17%) followed by chemotherapy and radiotherapy  $\pm$  hormone therapy (Table- II). In this study, only 2 (4.35%) subjects had developed wounds infection, 1 (2.17%) had hematoma and 2 (4.35%) had seroma. All of these resolved by conservative measures. Among the study subjects, disfigurements of breast were developed in 7 (15.22%) cases (Table-III). Locoregional recurrence was noted in 3 (6.52%) cases and Locoregional recurrence with lung metastasis was noted in 1 (2.17%) case (Table-IV). Of the 46 patients assessed using BRA, the scores were good to excellent, fair and poor 30 (65.229%), 15

(32.61%) and 11%) respectively. ND scored 19 (41.30%) as good to excellent, 13 (28.26%) as fair and 19 (30.43%) as poor. Using panel assessment 26

(56.52%) scored good to excellent, 16 (54.78%) scored fair and 4 (8.69%) scored poor (Table-V).

**Table-I: General characteristics of study population (n=46)**

Parameter	Study subjects (%)
<b>Age (years)</b>	
20-30	6 (13.04%)
31-40	22 (47.83%)
41-50	16 (34.78%)
51-60	2 (4.35%)
Mean $\pm$ SD	43.35 $\pm$ 12.12
<b>Sex</b>	
Female	46 (100%)
<b>Marital status</b>	
Married	43 (93.48%)
Unmarried	3 (6.52%)
<b>Occupation</b>	
Housewife	24 (52.17%)
Businessman	10 (21.74%)
Service Holder	9 (19.57%)
Student	3 (6.52%)
<b>Histological Type</b>	
Ductal Infiltrating Type	45 (97.83%)
Lobular Infiltrating Type	1 (2.17%)

**Table-II: Distribution of study subjects according to surgical plan (n=46)**

Variable	Study group
BCS with chemotherapy and radiotherapy $\pm$ hormone therapy	44(95.66%)
Cavity shaving following BCS with chemotherapy and radiotherapy $\pm$ hormone therapy	1(2.17%)
Mastectomy after BCS with chemotherapy and radiotherapy $\pm$ hormone therapy	2(2.17%)

**Table-III: Distribution of study subjects according to complication (n=46)**

Variable	Study group
Non complications	30 (65.22%)
Complications	16 (34.78%)
Wounds infection	2(4.35%)
Hematoma	1(2.17%)
Seroma (axillary)	2(4.35%)
Disfigurements of breast	7(15.22%)

**Table-IV: Distribution of study subjects according to rate of local recurrence (n- 46)**

Variable	Study group
Locoregional (ipsilateral breast with axilla)	3(6.52%)
Locoregional (ipsilateral breast with axilla) recurrence with lung metastasis	1(2.17%)

**Table-V: Distribution of study Subjects according to cosmetic outcome (n=46)**

Variable	Score	Study group	
<b>Breast Retraction</b>			
<b>Assessment (BRA)</b>			
Excellent to good	<3.1 cm		30(65.22%)
Fair	3.1-6.5 cm		15(32.61%)
Poor	>6.5 cm		1(2.17%)
<b>Nipple Deviation (ND)</b>			
Excellent to good	Difference of <5%		19(41.30%)
Fair	Difference of 5-10%		13(28.26%)
Poor	Difference of >10%		14(30.43%)
<b>Panel assessment</b>			
Excellent to good	Excellent: no visible difference between two breasts, 9-10 Good: slight difference, score 7-8		26(56.52%)
Fair	Obvious difference but no major distortion, score 4-6		16(34.78%)
Poor	Major distortion; score<4		4(8.69%)

## DISCUSSION

The present study was undertaken to assess the outcome following breast conservative surgery for early breast cancer. For this study, a total number of 46 female patients of early breast cancer that meet the inclusion criteria were selected. The results of current study demonstrate that most of the early breast cancer patients diagnosed within 31 years to 40 years (48%) married population. Maslach *et al.* [11] and Chauhan and Sharma [12] also showed similar findings. But Wang *et al.* [13], Corradini *et al.* [10] and Wang [14] demonstrate that most of the patients were within 50 years to 60 years. In present study majority of study subjects came from middle and lower socioeconomic condition and rural areas. But Maslach *et al.* [11] reported that women living in urban areas were affected more than rural area. Margin positive subjects were treated with cavity shaving and mastectomy followed by chemotherapy and radiotherapy  $\pm$  hormone therapy. Almost similar findings were found by Chauhan and Sharma [12]. In this study majority of the patients had no complication throughout the course of the study. Only few cases had developed wounds infection (2 patients), hematoma (1 patient) and seroma (2 patients). All of these resolved by conservative measures. Among the study subjects, disfigurements of breast were developed in 7 cases mostly lower quadrant. Loco-regional recurrence was noted in 3 cases and loco-regional with lung metastasis was noted in 1 case. Almost similar to the findings observed by Chauhan and Sharma [12]. In present study cosmetic outcome following breast-conserving surgery was assessed using a combination of subjective and objective methods. The subjective method used a panel of members from different backgrounds to assess overall cosmesis. The objective methods, which mainly compared the position of the nipple, were easy to reproduce but do not take into account skin changes and gave poor assessment of

cosmesis for lower quadrant tumors. In present study good to excellent results were found in 56.52% of the patients by the panel assessment. Similar findings were observed by Chartare *et al.* [15]. The two objective methods of cosmetic assessment (BRA and ND) that were used to assess upward retraction of nipple had been found to be a very good determinant of cosmetic outcome and were easy to reproduce according to Fujishiro *et al.* [16]. Furthermore, evaluation of nipple position had also been shown to be moderately representative of overall cosmetic result [15]. BRA is a two-dimensional measurement of nipple position and some cosmetic factors such as volume, shape or skin changes cannot be accurately assessed [16]. This is probably the reason why BRA shows a better cosmetic outcome when compared with subjective assessment by panel members. In present study only one (1%) patient was deemed to have a poor cosmetic outcome using BRA compared with 4 (8.69%) using panel assessment. Similar findings were observed by Chartare *et al.* [15]. ND scores majority had good to excellent results in present study. Similar findings were observed by Chartare *et al.* [15].

### Limitations of the study

Although optimal care had been tried by the researcher in every steps of the study, but there were some limitations. The study was conducted in a selected hospital. So, the study population might not represent the whole community. The sample was taken purposively. So, there may be chance of bias which can influence the results. The study and follow-up period were short in comparison to other studies. Sample size was small. The queue for radiotherapy was long.

## CONCLUSION AND RECOMMENDATIONS

3. After analyzing the results of present study, it can be concluded that breast conservative surgery

gives satisfactory outcome in early breast cancer in terms of minimum rate of development of complications, recurrence and retained cosmesis. To make more conclusive results similar type of study can be done with large sample size and long period of follow-up.

#### Funding

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#### Conflict of interest

None declared

#### Ethical approval

The study was approved by the Institutional Ethics Committee

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