Section: General Surgery

Research

# COMPARISON OF RATE OF BREAST-CONSERVING SURGERY VS MASTECTOMY IN BREAST CANCER PATIENTS

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## Abstract

**Background:** To compare rate of breast-conserving surgery vs mastectomy in breast cancer patients. **Materials and Methods:** Eighty- four breast cancer patients were clinically staged using the American Joint Committee on Cancer (AJCC) TNM staging. All patients were offered BCS. For large operable breast cancer (LOBC) and locally advanced breast cancer (LABC), neoadjuvant chemotherapy (NACT) followed by BCS was offered to these patients who wish to conserve their breast. **Result:** Right side was involved in 52% and left in 48%. There were 64% pre-/perimenopausal and 36% post-menopausal patients. Upper outer quadrant was involved in 55% and upper inner in 45%. Early breast cancer (EBC) was involved in 72%, large operable breast cancer (LOBC) in 15% and locally advanced breast cancer (LABC) in 13%. The difference was significant (P< 0.05). Mastectomy was performed in 30 and breast conserving surgery on 54. Lumpectomy in 24, quadrantectomy in 10, revision of positive or unknown margins post-lumpectomy in 12 and wire-guided wide local excision of non-palpable lump in 8 cases. The difference was significant (P< 0.05). Common subtype ER+/PR+/HER2- in T1 was seen in 7, in T2 in 18, in T3 in 20 and in T4 in 18. ER+/PR+/HER2+ in T1 was seen in 2, T2 in 4, ER-/PR-/HER2+ was seen in 3 in T1 and 2 in T2 and triple negative 2 in T1 and 10 in T2. Mastectomy was performed in 61% ER+/PR+/HER2-, 47% ER+/PR+/HER2+, 78% ER-/PR-/HER2+ and 56% triple negative subtypes and BCS in 39% ER+/PR+/HER2-, 53% ER+/PR+/HER2+, 22% ER-/PR-/HER2+ and 44% triple negative subtypes. The difference was significant (P< 0.05). **Conclusion:** Majority of the women presented with early breast cancer which makes them suitable for breast conserving surgery.

## INTRODUCTION

The incidence of breast cancer has been rising steadily and for the first time in 2012, breast cancer was the most common cancer in women in India. Breast cancer seems to be more common in the younger age group as a significant number of patients are below 30 years.[1]

Over the past 2 decades, the management of localized breast cancer has changed substantially. The increased use of screening mammography has permitted earlier detection of breast cancer and an increase in the number of node-negative and in situ cancers observed.[2] The validation of a variety of new prognostic indicators including estrogen and progesterone receptors, biochemical markers, flow cytometry markers and oncogene markers has increased our ability to identify groups of patients at high risk for distant recurrence.[3]

Breast conservation surgery (BCS) is the complete removal of the breast cancer with a margin of normal tissue surrounding the tumour. This is usually followed by radiation therapy (RT). In terms of loco-regional recurrences rates and overall survival rates, BCS is comparable to total mastectomy (TM).[4] Most reports indicate that the majority of women who present with breast cancer do not have contraindications to conservative surgery. Reasons for underutilisation of breast conservation include patient preference, age and poor prognostic factors. Medical comorbidity is rarely a major factor in the underutilisation of breast-conserving surgery.[5] The present study was performed with the objective to compare rate of breast-conserving surgery vs mastectomy in breast cancer patients.


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## MATERIALS AND METHODS

After considering the utility of the study and obtaining approval from ethical review committee of the institute, we selected eighty- four breast cancer patients.

A thorough clinical examination, preoperative bilateral mammogram and core biopsy of the breast lump was performed. All cases were clinically staged using the American Joint Committee on Cancer (AJCC) TNM staging. All patients were offered BCS. For large operable breast cancer (LOBC) and locally advanced breast cancer (LABC), neoadjuvant chemotherapy (NACT) followed by BCS was offered to these patients who wish to conserve their breast. Breast-conserving surgery included wide local excision quadrantectomy, wire-guided localisation and excision of non-palpable lumps and revision of margins of previous lumpectomy. Patients were classified as ER+/PR+/HER2−, ER+/PR+/ HER2+, ER-/PR-/HER2+ and triple negative based on the immunohistochemistry (IHC) analysis on core biopsy specimen preoperatively. The results were compiled and subjected for statistical analysis using Mann Whitney U test. P value less than 0.05 was set significant.

## RESULTS

Right side was involved in 52% and left in 48%. There were 64% pre-/perimenopausal and 36% post-menopausal patients. Upper outer quadrant was involved in 55% and upper inner in 45%. Early breast cancer (EBC) was involved in 72%, large operable breast cancer (LOBC) in 15% and locally advanced breast cancer (LABC) in 13%. The difference was significant (P< 0.05) [Table 1].

Mastectomy was performed in 30 and breast conserving surgery on 54. Lumpectomy in 24, quadrantectomy in 10, revision of positive or unknown margins post-lumpectomy in 12 and wire-guided wide local excision of non-palpable lump in 8 cases. The difference was significant (P< 0.05) [Table 2].

**Table 1: Assessment of parameters**

| Parameters | Variables | Number | P value |
|---|---|---|---|
| Side | Right | 52% | 0.81 |
| | Left | 48% | |
| Menopausal | pre-/perimenopausal | 64% | 0.02 |
| | Post-menopausal | 36% | |
| Quadrant | Upper outer | 55% | 0.93 |
| | upper inner | 45% | |
| Type | EBC | 72% | 0.05 |
| | LOBC | 15% | |
| | LABC | 13% | |

**Table 2: Type of surgery performed**

| Parameters | Variables | Number | P value |
|---|---|---|---|
| Mastectomy | | 30 | 0.05 |
| BCS | Lumpectomy | 24 | |
| | Quadrantectomy | 10 | |
| | Revision of positive or unknown margins post-lumpectomy | 12 | |
| | Wire-guided wide local excision of non-palpable lump | 8 | |

**Table 3: Molecular subtypes of various T stages who underwent BCS**

| Molecular subtype | T1 (12) | T2 (34) | T3 (20) | T4 (18) |
|---|---|---|---|---|
| ER+/PR+/HER2- | 7 | 18 | 20 | 18 |
| ER+/PR+/HER2+ | 2 | 4 | 0 | 0 |
| ER-/PR-/HER2+ | 3 | 2 | 0 | 0 |
| Triple negative | 2 | 10 | 0 | 0 |

**Table 4: BCS vs mastectomy rates across molecular subtype**

| Molecular subtype | Mastectomy | BCS | P value |
|---|---|---|---|
| ER+/PR+/HER2- | 61% | 39% | 0.01 |
| ER+/PR+/HER2+ | 47% | 53% | 0.12 |
| ER-/PR-/HER2+ | 78% | 22% | 0.01 |
| Triple negative | 56% | 44% | 0.17 |

Common subtype ER+/PR+/HER2- in T1 was seen in 7, in T2 in 18, in T3 in 20 and in T4 in 18. ER+/PR+/HER2+ in T1 was seen in 2, T2 in 4, ER-/PR-/HER2+ was seen in 3 in T1 and 2 in T2 and triple negative 2 in T1 and 10 in T2 [Table 3].

Mastectomy was performed in 61% ER+/PR+/HER2-, 47% ER+/PR+/HER2+, 78% ER-/PR-/HER2+ and 56% triple negative subtypes and BCS in 39% ER+/PR+/HER2-, 53% ER+/PR+/HER2+, 22% ER-/PR-/HER2+ and 44% triple negative subtypes. The difference was significant (P< 0.05) [Table 4].


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## DISCUSSION

Systemic adjuvant therapy with cytotoxic agents, the anti-estrogen tamoxifen, or a combination of both has improved the survival for subsets of node-positive and node-negative patients.[6] Additionally, during this 20-year period, the concept that mastectomy was the sole effective local treatment for all types of breast cancer has also come into question with the increased use of breast-conserving techniques involving local excision followed by radiation therapy.[7] The most common cancer in women is breast cancer with an estimated 1.67 million new cancer cases diagnosed worldwide in 2012.[8] In India, there is a significant increase in the incidence and cancer-associated morbidity and mortality in Indian subcontinent as described in many Indian studies. When compared to the west, Indian women diagnosed with breast cancer were a decade younger, many being premenopausal.[9,10] The present study was performed with the objective to compare rate of breast-conserving surgery vs mastectomy in breast cancer patients.

Our results showed that right side was involved in 52% and left in 48%. There were 64% pre-/perimenopausal and 36% post-menopausal patients. Upper outer quadrant was involved in 55% and upper inner in 45%. Early breast cancer (EBC) was involved in 72%, large operable breast cancer (LOBC) in 15% and locally advanced breast cancer (LABC) in 13%.

We observed that mastectomy was performed in 30 and breast conserving surgery on 54. Lumpectomy in 24, quadrantectomy in 10, revision of positive or unknown margins post-lumpectomy in 12 and wire-guided wide local excision of non-palpable lump in 8 cases. Ali et al,[11] performed study of 401 patients who underwent breast cancer surgery. All early breast cancers (EBC) were offered BCS. For large operable breast cancer (LOBC) and locally advanced breast cancer (LABC), neoadjuvant chemotherapy (NACT) followed by BCS was offered to these patients who wish to conserve their breast. The mean age was 45 years. A total of 163 patients underwent BCS. Yearly, BCS rates were 38.8% in 2015, 36.7% in 2016 and 46.5% in 2017. Majority had EBC 310 (77.3%) of which 62.7% of T1 lesions (n = 51) had BCS, and 45.7% of T2 lesions (n = 258) had BCS of which 5 patients had to undergo NACT to preserve their breast whereas 100% Tis patient (n = 1) had mastectomy. Fifty patients had LOBC and only 2 (4%) patients had upfront BCS whereas 9 of them had to undergo NACT (18%). cT4 lesions had NACT followed by BCS in 2 patients. The rates of BCS have been increasing in India over the past few years. The majority of the women presented with EBC which makes them suitable for BCS.

We found that common subtype ER+/PR+/HER2- in T1 was seen in 7, in T2 in 18, in T3 in 20 and in T4 in 18. ER+/PR+/HER2+ in T1 was seen in 2, T2 in 4, ER-/PR-/HER2+ was seen in 3 in T1 and 2 in T2 and triple negative 2 in T1 and 10 in T2. We found that mastectomy was performed in 61% ER+/PR+/HER2-, 47% ER+/PR+/HER2+, 78% ER-/PR-/HER2+ and 56% triple negative subtypes and BCS in 39% ER+/PR+/HER2-, 53% ER+/PR+/HER2+, 22% ER-/PR-/HER2+ and 44% triple negative subtypes. Lichter et al,[12] in their study mastectomy versus excisional biopsy (lumpectomy) plus radiation for the treatment of stage I and II breast cancer was compared. The minimum time on the study was 18 months and the median time on the study was 68 months. No differences in overall survival or disease-free survival were observed. Actuarial estimates at 5 years showed that 85% of mastectomy-treated patients were alive compared with 89% of the lumpectomy/radiation patients. The probability of failure in the irradiated breast was 12% by 5 years and 20% by 8 years according to actuarial estimates. Of 15 local breast failures, 14 were treated with and 12 were controlled by mastectomy; the ultimate local-regional control was similar in both arms of the trial.

## CONCLUSION

Majority of the women presented with early breast cancer which makes them suitable for breast conserving surgery.

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