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Outcomes of Oncoplastic Breast Surgery Compared to Breast-Conserving Surgery in Breast Cancer Patients in a Developing Country

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INTRODUCTION

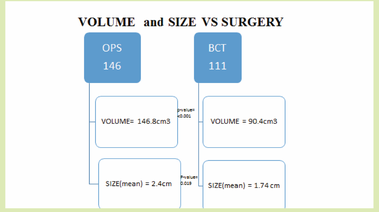
Breast-conserving therapy (BCT) has replaced mastectomy as the standard treatment for early breast cancers because it has the added advantage of preserving the breast while ensuring comparable oncological safety as mastectomy (1, 2, 3). However, larger tumor size (4), a greater volume of resection and medial tumor locations (5) are associated with suboptimal aesthetic outcomes. The need for satisfactory cosmetic results without compromising oncological safety has paved the way for oncoplastic surgery (OPS). OPS is an amalgamation of breast-conserving surgery and plastic surgery, making it an alternative treatment option for larger breast tumors that would otherwise be treatable via mastectomy. OPS incorporates plastic surgery strategies such as decreasing scar visibility, volume displacement (removing the breast tumor and approximating the remaining tissue to reshape the breast using mastopexy techniques) and volume replacement (removing a large volume of the breast, and reconstructing it using autologous flaps or implants) to achieve better cosmetic outcomes (6). Literature comparing OPS with standard breast conservation has shown similar results in terms of recurrence rate and surgical margins (7, 8) and better cosmetic outcomes (8).

Oncoplastic breast conserving surgery is a new concept in Pakistan as there are few trained Oncoplastic Surgeons. So far, no study addressing the outcomes of OPS has been done in Pakistan. With this study, we sought to compare surgical outcomes of OPS to BCT in terms of volume of tumor resected and margin positivity in patients with early stage breast cancer in Pakistani population.

METHODS

A retrospective multi-institutional cohort study was conducted from August 1st 2016 to August 31st 2018 and identified patients with newly diagnosed breast cancer Stage I through Stage III who underwent OPS or BCT. Patient and tumor characteristics, volume of tumor resected, and margin positivity rates were evaluated. A tumor free inked margin was considered negative. We compared operation performed for those undergoing re-excision and 30-day re-admissions rates secondary to complications. Data was analyzed using SPSS version 22. Chi square test was used to evaluate significance between variables. A P value of <0.05 was considered significant.

RESULTS



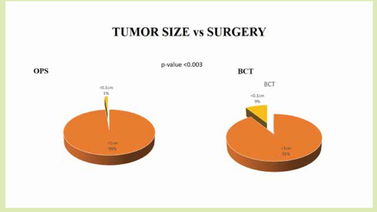


Table 1: Patient and Tumor Characteristics

Characteristic	Total (N=257)	OPS (N=146)	BCT (N=111)	*P* Value
Age, median (range) in years	50	49 (25-78)	51 (20-86)	0.513
Histology, n				
IDC	235	135	100	0.42
ILC Metaplastic DCIS	1 6 15	0 2 9	1 4 6	
Tumor Size, median (range), cm	0-4.9 (2.4)	2.06	1.74	.019
Size Distribution, n (%)				
Pot NAC no tumor identified	27	15(10.3)	12(10.8)	
T1 (<2.0 cm)	110	55(37.7)	55(49.5)	
T2 (2-5 cm)	120	76(52.1)	44(39.6)	
T (>5 cm)	0	0	0	
Lymph Nodes Status n(%)				
N0		126(86.3)	92(82.8)	
N1		20(13.6)	19(17.1)	
Mean Tumor Volume cm^3		146.8	90.4	.001
Positive Margins, n (%)	10 (3.9)	0	10 (9)	.001
Re-excision, n (%)	5(2)	0	5(50)	
Cancer in re-excision, n/N (%)	3(1.1)	0	3(60)	
Neo-Adjuvan Treatment, n(%)	50(19.4)	24(16.4)	26(23.4)	
RE-admission rate (30 Days)	0	0	0	

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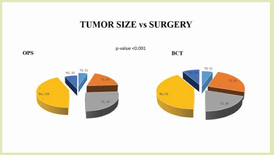

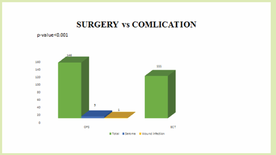

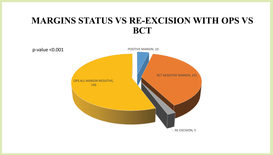

DISCUSSION

In our study, the difference in mean volume of tumor resected between the two groups was 56.4 cm3 (p= <0.001). Furthermore, the median tumor size in the OPS group was 3.2 mm greater than the BCS group. Although this result was statistically significant, the slight difference in size may not be clinically important when determining the type of procedure to be performed.

Our results indicate that oncoplastic surgery has better oncological outcomes when compared to breast conserving surgery in terms of margin positivity and volume of tumor resected, which is in congruence with other studies (9, 10). A meta-analysis comparing OPS to BCT by Losken et al demonstrated a positive margin rate of 12.3% in the OPS group, which was significantly lower than the 20.6% rate in the BCS group (11). In our study, positive margins and tumor recurrence were found only in the BCS group (p= < 0.001) which was identical to the results of Chauhan et al. OPS has a higher number of short term complication, with the most commonly reported rate being 20% (12). This may be due to the larger volume resection, longer operating time and greater skill required to perform the procedure. In a nutshell OPS enables breast conservation with excision of larger volumes of breast tissue, and no re-excision for larger tumors when compared to BCT.

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