

*Research Article***Oncoplastic breast surgery in comparative study with standard conservative breast surgery****Asmaa R. Mohammed Mohammed; Ayman M. Hassanen; Yasser M. Abdel Gawad and Doaa A. Saad**

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**Abstract**

**Objective:** To know the techniques of BCS and OPS and its outcomes and compare between BCS and OPS and known which of them is best as regard pathological surgical margins; wound complications and patient satisfaction. **Methodology:** This study is a prospective study. It was performed in the period from January 2018 to January 2020. This study was conducted on patients from Minia University Hospital and Minia Oncology Center. Patients enrolled in this study were scheduled for conservative breast surgery and oncoplastic breast surgery latissimus dorsi (LD) flap. **Results:** Our study included 20 patients with breast cancer who underwent conservative breast surgery or oncoplastic breast surgery latissimus dorsi (LD) flap .Only 5% of total patients has positive free margin and also 5% developed post-operative wound complication. **Conclusion:** oncoplastic BCS can achieve satisfactory results regarding the final aesthetic appearance and tumor control. The latissimus dorsi flap not only is a safe and cosmetic method of reconstruction in this clinical scenario but also is associated with favorable patient-reported outcomes.

**Keywords:** conservative breast surgery; oncoplastic breast surgery; latissimus dorsi flap**Introduction**

The 2<sup>nd</sup> major cause of cancerous deaths among women worldwide is breast cancer. Breast cancer has three major types; non-invasive, invasive and other as Paget's disease which represent 1-4% of breast cancer. (Amjad et al., 2018)

Breast cancer develops more and more over time and may start as an insitu phase. Whether invasive or in situ; they may be found during routine self-breast examination, mammography screening or once symptoms or signs have developed. Initially, almost times there are no symptoms or signs associated with breast cancer until developing of a palpable, or visible mass within the breast (Lakshmanaswamy, 2017).

Risk factors of breast cancer are age, menarche history, race, reproductive patterns, using hormones, breast characteristics, physical activity, tobacco ,alcohol, diet, and body habitus. (Lakshmanaswamy, 2017).

Painless palpable breast mass is the common physical sign in examination of breast cancer. During early stages of metastasis, the

enlargement of lymph nodes may be presented during the axillary examination. Evidence of heaviness ,bloody nipple discharge, swelling, redness, retraction or breast deformity are less common symptoms and signs, but this may be indicator for malignancy and may be more clear with advanced stages of metastasis (Lakshmanaswamy, 2017).

Conservative breast surgery (CBS) and radiotherapy had become the standard of management in the treatment of early breast cancer because it has the same survival rate comparable with mastectomy(Yiannakopoulou and Mathelin, 2016).

The goal of breast conserving surgery is resection of breast mass with adequate surgical margins and preserving normal breast tissue. Balancing the need for wide local resection and improving the aesthetic result can be challenging, with reported suboptimal aesthetic result occurring in up to 30% of patients with BCS (Breast conservative surgery). (Crown et al., 2019).

Oncoplastic BCS techniques increase oncologic results with preserving breast cosmosis by

using plastic techniques and immediate reconstruction after tumor resection.(Crown et al., 2019).

### Patients and methods

After approval by hospital ethical committee and taking consent, this cross-sectional study was conducted on 20 patients with breast cancer, during the period between January 2018 to January 2020.

The patients classified into 2 equal groups; group A (10 patients) who underwent standard conservative surgery and group B (10 patients) who underwent oncoplastic surgery by LD flap.

### Inclusion criteria

1. Young age < 60 y
2. The size of mass less than 50% of breast volume
3. monocentric tumors
4. Patient able and accept to take neo-adjuvant radiotherapy

### Exclusion criteria

1. Age >60 years old
2. previous breast surgeries
3. patients with collagen disease
4. Locally advanced disease
5. Multicentric tumors
6. Diffuse (malignant) micro calcifications by mammography or MRI
7. first or second trimester

8. Patients with mutations on BRCA1 and 2 genes proved by Tru cut biopsy
9. Already irradiated thoracic wall

### Radiological investigation

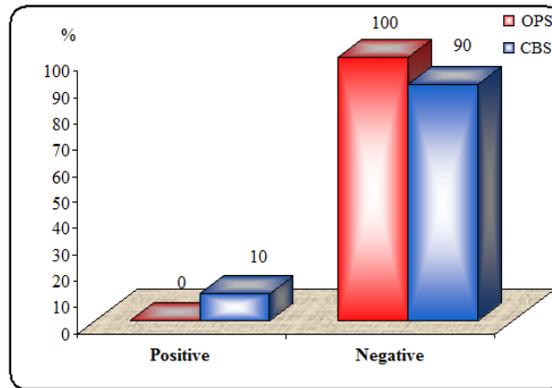
1. Chest X ray
2. X ray on vertebrae
3. Bilateral breast ultrasound
4. Tru cut biopsy
5. Abdominal ultrasound
6. Bilateral mammography
7. Bilateral MRI breast ( if age <40y)
8. PET scan

**Data Analysis:** Statistical analysis of the study was conducted using the mean, standard Deviation, Student t-test [Unpaired] and chi-square tests by (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.).

**Unpaired Student T-test was used to give the comparison between two groups in quantitative data Group 1 (CBS), Group 2 (OPS)** P-value was considered significant if it was <0.05 >0.05 Non significant significant <0.001\*\* High significant.

### Results

In our study only one case has positive free margin in group 1 (CBS) and all other cases (19 cases ) have negative free margin.



**Fig (1):** Comparison between two groups regarding the margin

Only one case 5% in our study developed surgical wound complication in form of ecchymosis at the suture line of the flap.

surgical wound complication	CBS (No.=10)		OPS (No.=10)		Total	
	N	%	N	%	N	%
<b>Positive</b>	0	0	1	10	1	5
<b>Free</b>	10	100	9	90	19	95
<b>Total</b>	10	100	10	100	20	100
<b>Chi-square</b>	<b>X<sup>2</sup></b>	1.053				
	<b>P-value</b>	0.305				

**Discussion**

The aim of our study is a comparison between CBS and OPS according to pathological safety margin and postoperative wound complications. In our study, we have low rate of complication in both groups. As the percentage of positive margin is 5% of all patients and the percentage of postoperative wound complications is 5% of all patients.

In our study there is very low rate of complication in comparison with other studies due to good selection of our patients in this study. A lot of factors were considered in our selection beside the inclusion criteria as the age of patients less than 60y without chronic illness (as hypertension

or DM). This help use to reduce the rate of complication in the both groups.

The 1<sup>st</sup> complication presented in our study as one cases had positive free margin in group 1 (CBS) as 10% of cases in group 1 and 5% of total cases which required resection again, re-excision was done. All cases in group 2 (BCS) had free margin.

In Kelemen et al., 2019's study, the lower rate of completion and positive surgical margins were found in OPS group compared to the CBS group by 16.6%. Completion surgeries were performed 5.4% reexcision and 2.6% mastectomies in the OPS group, whereas in the CBS group, 10.9% of patients need re-excision and 5.7% of patients

needed mastectomies, resulting in 16.6% of total patients reoperations.(Kelemen et al., 2019).

But in Mericli et al., 2019's study, 12.7% of patients needed reexcision of positive margins after excision of mass and reconstruction with LD flap.(Mericli et al., 2019) .

Previous studies have shown many factors associated with positive margins, as ductal carcinoma in situ, lymph node metastasis, later stage disease, younger patient age and lympho-vascular invasion. (Losken et al., 2017, Lovrics et al., 2009, Jorns et al., 2017) .

There are a lot of surgical wound compli-cations specially with oncoplastic techniques as surgical site infection, ecchymosis, wound dehiscence, seroma, hematoma, partial flap loss and complete loss of flap. (Crown et al., 2019, Chen et al., 2018, van la Parra et al., 2019, De Lorenzi et al., 2020).

In our study, the 2<sup>nd</sup> complication presented in our study was surgical wound complication inform of ecchymosis along the suture line. This complication presented in one case in the group 2 (OPS) along the suture line of the LD flap as 10% of cases in group 2 and 5% of total cases. The ecchymosis in this case was treated by topical antioedmatous for 2 weeks and give good response.

There is no hematoma, seroma or wound dehiscence happened in our patients. No surgical wound infection in the group 1(CBS).

There were 3 cases (as 9%) of post-operative complication in OPS group. Amongst them, there was only one incidence for hematoma, surgical site infection also partial necrosis of nipple areolar complex. All of these was treated by conservative management. In CBS, peri-operative complication was reported in 5 patients (11%). Amongst these, two cases had surgical site infection, infection of seroma cavity in two cases and one case had skin flap necrosis.(Chauhan and Sharma, 2016)

In the study performed by Crown et al., 2019; 8.0% of patients developed surgical site

complications in the OPS group compared with 17.9% of patients in the CBS group. There was a significantly higher rate of infection in the CBS group (CBS 8.4% vs OPS 1.7%) and seroma formation (CBS 4.4% vs OPS 1.7%) compared to patients in the OPS group.(Crown et al., 2019) .

In study of De Lorenzi et al., 2020 showing that the most frequent complications were skin flap necrosis (as 6.7%) and seroma formation (as 3,6%). (De Lorenzi et al., 2020) .

In De Lorenzi's study formation of seroma in the donor area occurred in 61.3% of patients which wasn't considered as a complication; but it was considered as drawback of technique. Also, hematoma formation was founded in 3,6% of patient. All of them was treated conservatively inform of aspiration at outpatient clinic.(De Lorenzi et al., 2020).

There are a lot of variation in complications between different studies as there are a lot of factors can effect on the results mostly in oncoplastic surgery.

According all previous results, it has been proven that the most safe and cosmetic method of reconstruction is the latissimus dorsi flap but also is associated with high patient-reported outcomes.

The rate of patient satisfaction after onco-plastic BCS was higher than the rate of patient satisfaction with CBS.

All the patients were cosmetically satisfied. Higher rate of patient satisfaction with oncoplastic surgery was reported in study performed by Yazar et al., 2018 when compared to BCS(Yazar et al., 2018) .

Several studies performed by Losken 2017 and Tenofsky 2014 have reported that the rates of patient satisfaction after partial breast reconstruction about 72 to 92 %.(Losken et al., 2017, Tenofsky et al., 2014).

Comparing the types of local flaps for partial reconstruction, Lee and colleagues studies found that latissimus dorsi flap has the greatest rate for the satisfaction of patient.(Lee et al., 2014).

## Conclusion

Incorporation of oncoplastic BCS techniques into surgical breast oncology practices maximizes the oncologic and cosmetic advantages of oncoplastic BCS. Higher rate of patient satisfaction undergoing oncoplastic BCS was reported when compared to conventional BCS.

Another advantage of this approach to BCS is the increase in the surgical exposure during the tumor resection. We believe that the exposure and the resection of the tumor was much easier and wider excision was possible when compared to conventional BCS with the implementation of oncoplastic breast reduction.

We believe that oncoplastic BCS can achieve satisfactory results regarding the final aesthetic appearance and tumor control. Breast reconstruction with the LD flap is beneficial for several reasons. It is associated with few complications; it does not require microvascular anastomosis. From an aesthetic perspective, the use of the LD musculocutaneous flap allows for the recruitment of additional skin to mitigate the tightening and fibrotic effects of the chest wall radiation, leads to high rates of patient satisfaction and maximize breast symmetry.

**Ethical statement:** The material has not been published anywhere. Authors of the manuscript have no financial ties to disclose and have met the ethical adherence.

**Disclosure of interest:** The authors declare that they have no competing interests.

**Declaration of authorship:** All authors have directly participated in the planning, execution, analysis or reporting of this research paper. All authors have read and approved the final version of the manuscript.

**Conflict of interest:** None

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