

Round block technique and modified round block technique as a cornerstone of oncoplastic breast surgery for early breast cancer

Original Article

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ABSTRACT

Background: A level II volume displacement oncoplastic breast surgery method, the round block, and modified round block procedures entail sufficient tumor removal with a good esthetic result. Peripheral and periareolar lesions are treated with them. Wide local excision could be carried out with ease and a satisfactory safety margin, and the breast tumor was excised with a sufficient macroscopic safety margin. The goal of contemporary breast surgery is to treat patients by repairing and maintaining breast tissue, producing favorable physical and psychological results.

Aim: To evaluate the application of modified and round block procedures in oncoplastic breast surgery for early-stage breast cancer.

Patients and Methods: Twenty-one patients with breast cancer who were scheduled to have surgery between June 2019 and June 2020 utilizing round block and modified round block procedures were included in the research. Our study's sample age ranged from 25 to 61 years old, with an average age of 46.

Results: The mean age is 46 (range, 25–61 years old) and the tumor size ranges from 1 to 4 cm. Inflammation, wound infection, and gap and local dermatitis are the main postoperative complications and three (14.28%) patients were affected. All specimens were free safety margins with no recurrence. The cosmetic results are excellent in nearly all patients (90.47%), except three (14.28%) patients who had good cosmetic results.

Conclusion: Round block and modified round block provide good tumor access and oncological control around the breast with little scar formation and safety. There were neither subsequent changes in the shape nor the position of the areola.

Key Words: Breast cancer, breast, oncoplastic breast surgery, round block and modified round block mammoplasty.

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INTRODUCTION

Breast-conserving surgery (BCS) is the standard therapy for breast cancer. The main aim of BCS is to provide patient-acceptable cosmetic outcomes while controlling cancer as successfully as mastectomy and obtaining good cosmetic impacts. However, it might occasionally be challenging. Important factors that affect cosmetic results include glandular density, excision volume, and tumor site^[1].

Numerous oncoplastic volume displacement treatments for partial mastectomy have been reported^[2], and even after large excisions of breast volume, oncoplastic techniques can allow for adequate cosmesis.

One of the oncoplastic displacement techniques utilized in BCS is the round block. It is a mastopexy method sometimes referred to as periareolar or doughnut mastopexy^[3]. The most suitable candidates for this procedure are those with small-to-medium-sized breasts,

no significant ptosis, and perhaps no need for contralateral breast surgery for symmetrization. The initial two periareolar scars are concentric during the procedure. This method can reposition the nipple–areolar complex (NAC), depending on the distance between the outer and new areolar incisions^[4].

Since dermal arteries on both sides supply NAC, the dermis is only sliced on the side of the tumor in the initial round block technique (RBT). This makes using this procedure challenging for individuals whose malignancies are at the breast's periphery. On the other hand, Zaha and colleagues described the removal of malignancies in the breast's periphery using the modified round block technique (MRBT). MRBT makes it simple to conduct breast contouring as well. When a breast tissue excision was necessary under the NAC, we carried out the original RBT; in peripheral instances, when this was not necessary, we conducted the MRBT^[5].

PATIENTS AND METHODS:

This study involved 21 female patients with early-stage breast cancer who were seen at the Mansoura Oncology Center outpatient clinic between June 2019 and June 2020. Patients' mean age ranges from 25 to 61 years, and their breast cup sizes range from a to c. Every patient met the required standards for breast conservation treatment. Multicentric carcinoma, inflammatory breast cancer, failure to acquire tumor-free safety margins despite reasonable measures, and contraindication to radiation were the oncologic exclusion criteria. Centrally placed tumors, comorbidities, and the patient's personal choice were nononcologic exclusion factors. All patients were briefed about the procedure's steps and gave their permission. (Table 1) summarizes the characteristics of the patient and the tumor.

Table 1: Patients and tumor characteristics

Patients age (year)	
Mean	46
Range	25–61
Tumor pathology [<i>n</i> (%)]	
Invasive ductal carcinoma	19 (90.47)
Invasive lobular carcinoma	1 (4.76)
Mixed invasive ductal carcinoma and invasive lobular carcinoma	1 (4.76)
Tumor stage [<i>n</i> (%)]	
PT1	6 (28.57)
PT2	12 (57.14)
PT3	3 (14.28)
PN0	15 (71.4)
PN1	6 (28.57)
Grading [<i>n</i> (%)]	
G1	0
G2	16 (76.19)
G3	3 (14.28)
Breast size and ptosis [<i>n</i> (%)]	
Cup a	1 (4.76)
Cup b	8 (38.9)
Cup c	8 (38.9)
Cup d	4 (19.04)
Ptosis 1	6 (28.57)
Ptosis 2	11 (52.38)
Ptosis 3	4 (19.04)
Tumor location [<i>n</i> (%)]	
Upper pole	15 (71.4)
Lower pole	3 (14.28)
Central	4 (19.04)

Preoperative marks were made while the patient was standing up. The first place to be stated is the tumor site. Next, two concentric circles are drawn, one of which shows the final nipple size and the other the anticipated position of the NAC in the future. The tumor size and the distance between the two circles increase with increasing mastopexy levels. De-epithelialization of the space between the rings is necessary to obtain NAC vascular supply (Figs 1 and 2).

The de-epithelialized area atop the tumor will be cut through to gain complete access to the tumor, while the remainder of the area will be left undamaged (Figs 3–6). If the patient has no nodes, SLND is started first; otherwise, formal axillary clearing in node-positive individuals can be done after the tumor has been removed (through a separate axillary incision) (Fig. 7).

The defect is filled by mobilizing the surrounding parenchyma. The parenchyma flaps are secured with absorbable sutures, and the two circles are approximated with inverted 3-0 or 4-0 absorbable sutures. Intradermal 4-0 suture followed (Figs 8–10).

Based on the tumor stage, each patient was referred to the Clinical Oncology and Nuclear Medicine Department, where they had adjuvant chemotherapy and radiation treatment (evaluation: Table 2).

Table 2: Overall complication rate

Complication	<i>n</i> (%)
Local dermatitis	1 (4.76)
Inflammation	1 (4.76)
Wound infection and wound gap	1 (4.76)



Fig. 1: Preoperative marking.



Fig. 2: De-epithelialization between two circles.

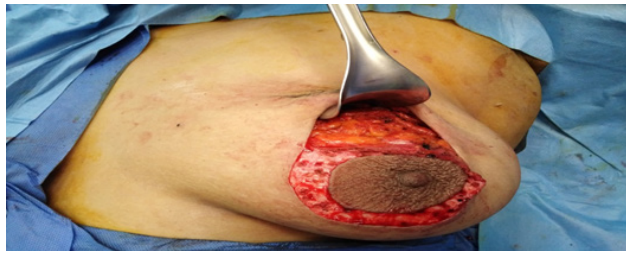


Fig. 3: Intraoperative incision.

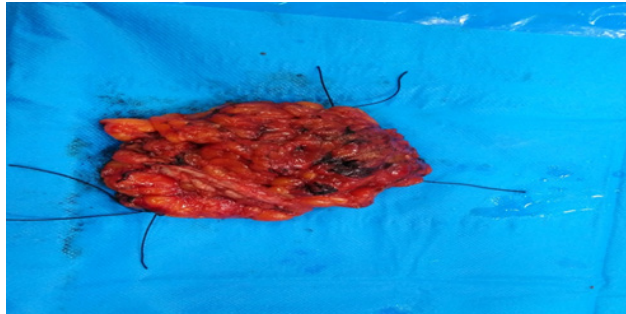


Fig. 4: Top view of postoperative specimen including tumor with marking of specimen peripheries using threads for intraoperative frozen section analysis.



Fig. 5: The tumor bed after excision with safety margins.

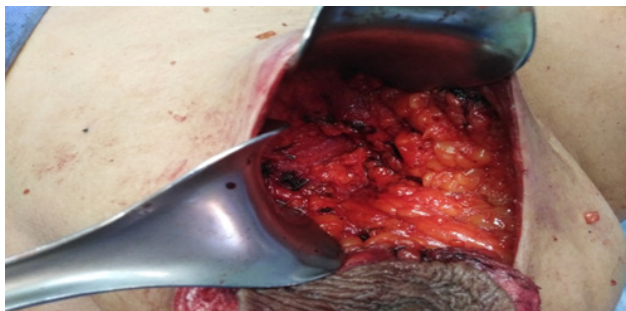


Fig. 6: Four titanium clips were placed along the margins of the tumor bed to facilitate subsequent adjuvant radiotherapy.



Fig. 7: ALND through separate incision.

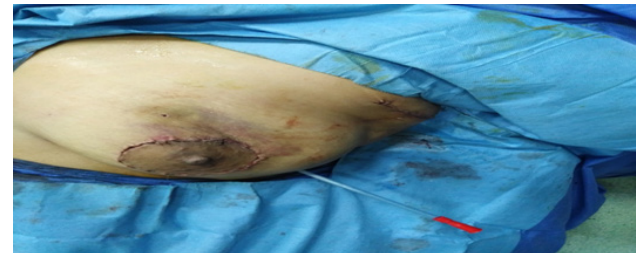


Fig. 8: Postoperative view.



Fig. 9: Postoperative view after 1 month.



Fig. 10: Postoperative view of another case with right breast cancer 3 months after surgery.

Procedure-related complications

Early postoperative complications: patients were monitored for the development of wound infection, dehiscence, nipple and areola necrosis, and hemorrhage formation during their maximum 6-day hospital stay.

Late postoperative complications: wound infections and persistent seroma in the breast and axilla were assessed during the first month following surgery at outpatient visits.

Esthetic outcome

Six months after surgery, a basic score was used for the cosmetic evaluation; the subjective and objective scores were recorded, and the mean was used. A grading system was used for the score assessment. The following characteristics were evaluated: ipsilateral and contralateral scars; symmetry of the breasts; form of the breasts; symmetry of NAC placement; and a score of 5 to 1 (5=excellent; 4=acceptable; 3=reasonable; 2=bad; 1=extremely poor)^[6].

Oncologic outcome

In the outpatient clinics, each patient had a local recurrence assessment. For a month, follow-up was scheduled every 2 weeks, then monthly for 6 months, every 3 months for a year, every 6 months for 2 years, and finally annually. Every 3–6 months, a bilateral breast ultrasound was carried out. Every year, mammograms were performed on each patient. When questionable data was found on mammography, an MRI was performed.

RESULTS:

The participants in our research range in age from 25 to 61 (median 46). The tumor size varies from 1 to 4 cm, with about 15 (71.4%) patients having the tumor located in the upper part and approximately three (14.28%) patients in the lower part, central in about four (19.04%) patients. The size of the breast ranges from cup a one (4.76%) patient, cup b eight (38.9%) patients, cup c eight (38.9%) patients, and cup d four (19.04%) patients. Breast ptosis ranges from ptosis 1 [six (28.57%) patients], ptosis 2 [11 (52.38%) patients], ptosis 3 [four (19.04%) patients]. Invasive ductal carcinoma [19 (90.47%) patients], invasive lobular carcinoma [one (4.76%) patient], and mixed invasive ductal carcinoma and invasive lobular carcinoma [one (4.76%) patient].

Postoperative complications occur in the form of local dermatitis [one (4.76%) patient], wound inflammation [one (4.76%) patient], and wound infection and wound gap [one (4.76%) patient] managed by secondary suture after infection control. All specimens were free safety margin. The cosmetic results are excellent in nearly in all patients (90.47%) except three (14.28%) patients who had good cosmetic results. Within the follow-up period, which spanned 6–42 months, none of the 21 patients experienced a local recurrence or systemic metastasis.

DISCUSSION

Numerous published oncoplastic techniques combine reconstructive and cosmetic plastic surgery with the surgical concepts of oncology^[7].

With the round block method, an oncoplastic volume displacement operation, only the perimamillary scars are visible. Patients with small-to-medium-sized breasts who do not need contralateral breast surgery for symmetrization and do not have a lot of ptosis should have this treatment^[4]. A good view may be obtained since the dermal flap can be produced by incising around the whole outer circle in the MRBT breast excision region, except the area beneath the NAC. This operation can be utilized for breast contouring in addition to partial mastectomy because of the excellent eyesight. While periareolar lesions are thought to

respond best to the original RBT technique, MRBT can modify the process for peripheral malignancies^[5].

The rectifiable NAC position and the acquisition of an excellent view are the benefits of RBT and MRBT.

These techniques are investigated in instances of breast cancer with an excision volume of up to 20%. Due to the ease with which small-to-medium-sized thick glandular breasts may be mobilized and the lack of danger associated with fat necrosis, the esthetic outcome may be deemed good^[8].

On the other side, moderate-to-large breasts have an adverse effect if the excision volume exceeds 20% because of the asymmetrical breast size brought on by the decreasing volume. Even when there is a large difference in size between the left and right breasts, patient satisfaction can still be high, provided the breast shape is preserved. Therefore, these treatments may be beneficial for individuals with moderate-to-large breasts^[8].

Four of the 18 patients who underwent the round block method showed partial NAC blood flow deficit. One patient in our research experienced local dermatitis, one had inflammation, and one had a wound infection and gap^[9].

According to Zaha *et al.*^[10], of 40 patients who had the modified round block method, the cosmetic result was good in 25 cases, fair in 75%, poor in 2.5%, and great in 65% of cases. In our study, almost all patients (90.47%) achieved great cosmetic results; just three (14.28%) patients had good results.

For a full year, there was no local recurrence in our trial. According to Romics *et al.*^[11] there was a 2.3% local recurrence rate over a median follow-up of 75 months. This is on par with previous research. Local recurrence rates were 2.7%, according to Clough *et al.*^[12], during a median follow-up of 30 months and 2.2%, during a median follow-up of 55 months.

CONCLUSION

Round block and modified round block offer safe, little scar formation, excellent tumor access, and oncological management surrounding the breast. There were no further modifications to the areola's location or form.

They benefit more from doughnut mastopexy because it requires no contralateral symmetrization, has better cosmesis, and has lower morbidity.

CONFLICT OF INTEREST

There are no conflicts of interest.

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