Evaluation of the round block technique in early breast cancer

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Introduction
Conservative surgery has become a well-established alternative to mastectomy in the treatment of breast cancer. However, in case of larger lesions or small-sized breasts, the removal of adequate volumes of breast tissue to achieve tumor-free margins and reducing the risk of local relapse may compromise the cosmetic outcome, causing unpleasant results. To address this issue, surgical techniques, the so-called oncoplastic techniques, have been introduced in recent years to optimize the efficacy of conservative surgery in terms of both local control and cosmetic results.
Patients and methods
A Clinical Interventional descriptive single arm randomized prospective study, conducted on twenty female patients presenting with operable breast cancer stages 1 and 2 located at the Upper or Central breast. Ages ranging 25 to 75 years to be treated using the "round block" technique.
Results
Cosmetic results were found to be excellent in three cases, good in eight cases, fair in five cases, and poor in two cases. In this study, the cosmetic results were unacceptable (fair and poor) in patients who underwent 25% resection or in whom the resected area was part of the lower portion of the breast.
Conclusion
These techniques are useful for performing breast-conserving surgery in the upper portion of the breast. However, if the excision volume is greater than 20% or excision of part of the lower portion of the breast is required, other procedures should be considered.
This article discusses the indications, advantages, and limitations of the round block breast-conserving oncoplastic techniques and its results in terms of feasibility, maintaining breast esthetics, limitations, and early complications.

Keywords:
breast cancer, conservative surgery, oncoplastic techniques

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Introduction

Breast-conserving surgery (BCS) is the standard procedure used to treat breast cancer. The primary goal of BCS is to control cancer as effectively as mastectomy, with the additional goal of achieving cosmetic results that are acceptable to patients. However, achieving good cosmetic results is sometimes difficult. The important factors considered to influence cosmetic results include excision volume, tumor location, and glandular density. Oncoplastic techniques can allow for good cosmesis even after large excisions of breast volume, and many oncoplastic volume-displacement techniques for partial mastectomy have been reported [1,2].

The round block technique (RBT) [1,3,4] is a mastopexy technique. It is also known as doughnut mastopexy or periareolar mastopexy, which is another oncoplastic volume-displacement technique used in BCS. Patients with small-sized to-medium-sized breasts without any major ptosis and who may not require contralateral breast surgery for symmetrization are considered to be most appropriate to undergo this procedure. The procedure begins by making two concentric periareolar incisions, resulting in a periareolar scar only. The nipple-areola complex (NAC) can be moved using this technique, depending on the distance of the outer incision from the new areola incision. As a result, this technique is thought to be highly appropriate for Egyptian patients.

Patients and methods

In the period from May 2014 to June 2015, a prospective study of 20 females patients presented with stage I or II breast cancer was conducted, and they were treated using the round block reduction

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mammoplasty technique as an oncoplastic tool for tumoral exision in Menoufiya University hospitals. The ages ranged from 25 to 75 years old. Diagnosis of breast cancer was by full history and clinical examination, preoperative investigations including routine preoperative investigations, investigations for exclusion and/or detection of distant metastasis, and investigations that confirm or exclude diagnosis. All patients were subjected to frozen section during surgery primarily for diagnosis of malignancy if not already diagnosed and document free margins around the excised mass. The Ethics Committee Approval is among my Papers in Menoufiya University as I am using this topic for the Defence of my thesis. Kindly Kontakt Mme. Samah the secretary of the Department of surgery at Menoufiya University as I am in Germany for the Time being.

All patients received full course of radiotherapy postoperatively for local control of the disease.

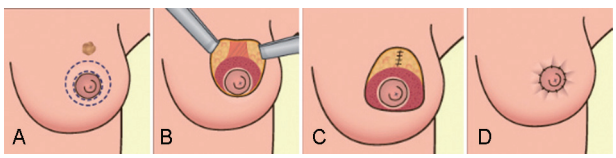
Patients with hormonal receptors positive received hormonal therapy in the form of tamoxifen.

In addition, high-risk group patients with positive lymph nodes received adjuvant chemotherapy where we used a nontaxane chemotherapy regimen for the systemic control of breast carcinoma in the form of cyclophosphamide, methotrexate, and 5-fluorouracil for six cycles. However, updates in chemotherapy modalities showed a statistically significant overall survival and disease-free survival for the taxane-containing regimens compared with the nontaxane regimens [5].

Surgical procedure

While the patient is sitting, two circular skin markings are made (Fig. 1a) on her breasts. The inner marking is made on the areolar border, and the external marking border varies based on the tumor size and location, nipple position, and the degree of ptosis. An external incision is made further away from the inner incision with increasing degrees of ptosis and tumor size. After the incisions are made, the tissue between the two incisions is de-epithelialized. Care must be taken to prevent injury to the dermis to preserve blood supply to the NAC (Fig. 1b).

Figure 1



The round block technique. (a) Periareolar incision and nipple-areola complex preservation; (b) tumor dissection and flap preparation; (c) postoperative result.

After separation of the skin around the tumor, lumpectomy is performed including the tumor and normal breast tissue. The surrounding breast tissue undergoes undermining and approximation for glandular reshaping (Fig. 1c), and the two periareolar skin incisions are closed using a running suture technique while checking for symmetry of the two breasts (Fig. 1d). If necessary, as in severe ptosis, the opposite NAC may be repositioned using the same method to result in a symmetric and ideal position as well as appearance of the NAC. After the surgery, the cosmetic results are satisfactory because there are only perimamillary scars without any additional scars.

Results

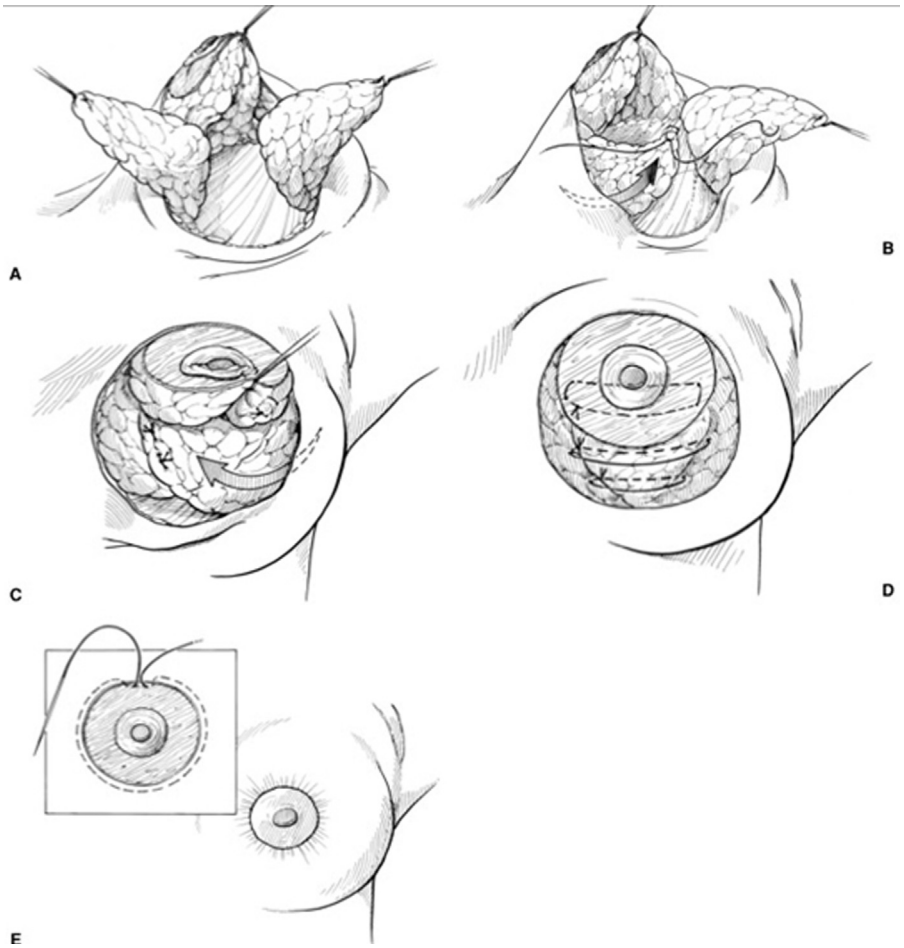
The mean age in this study was 47 years, tumor stages were IA (2.326%), IIA (30.233%), IIB (55.814%), and IIIA (11.628%) with a mean tumor size of 3.2 ±1.1912 cm, least resected margins of 0.7–3.8 cm, and mean operative time of 48–124 min (average: 96.5 min). The mean hospital length of stay was 3.25±1.02 days. The results were found to be excellent in three (15%) cases, good in 10 (50%) cases, fair in four (20%) cases, and poor in three (15%) cases. Unacceptable outcomes (either fair or poor) were observed in seven (35%) cases. However, of the three patients with poor cosmetic results, two required additional excision owing to having a positive margin. None of the patients wished to undergo contralateral breast surgery for symmetrization.

Discussion

The 'round block' enables the use of the periareolar approach to be extended to numerous types of breast surgery, giving easy access to all the glandular areas by extending the incision in an ellipse of depithelialized periareolar skin. By performing a mastopexy, the main goal is to obtain an attractive breast shape with a lasting result, leaving the most inconspicuous scar. The shortest scar is confined to the periareolar circle, avoiding a vertical infra-areolar scar and a horizontal submammary scar. After Benelli introduced RBT, this approach became one of the most popular methods. The characteristics of RBT are periareolar approach, superiorly based dermoglandular pedicle, criss-cross mastopexy, and round block suture.

Benelli was one of the first to note that to create an excellent long-lasting breast shape, the surgery on the gland must be separated from the surgery on the breast skin. Similar to older procedures that sutured the breast

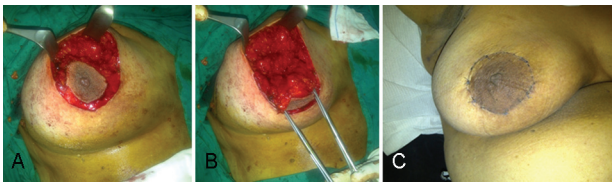
Figure 2



Operative details of Benelli's mastopexy.

parenchyma to create better breast contour. Benelli shaped the breast parenchyma by creating multiple flaps within the breast gland that were then criss-crossed and sutured together to create a conical breast shape (Fig. 2a–c). The breast was then 'laced' with a permanent suture (Fig. 2d). The round block permanent periareolar suture (Fig. 2e) was placed in the dermis of the skin and then tied down so that the size of the cutaneous areola matched the size of the actual areola. The breast was sometimes sutured to the chest wall to maintain its shape and location. The skin was allowed to re-drape over the newly shaped breast. The best patient for this technique had moderately sized breasts with some hypertrophy. Patients with very loose or very large ptotic breasts were difficult to treat. Patients with tubular breast deformity were also considered good candidates for round block mastopexy [6] (Fig. 3).

Figure 3



The round block technique. (a) Incision and nipple-areola complex preservation; (b) tumor dissection and flap preparation; (c) postoperative result.

The advantage of RBT is that the position of the NAC is correctable, and a very good view is acquired. These advantages are greatest for treating breast cancer in the upper inner portion of the breast. However, it is not the volume of the defect that compensates for these techniques. If the resection volume exceeds 20% of the total breast volume or the tumor position makes it difficult to obtain an adequate volume by mobilizing the surrounding tissue, the cosmetic results will be poor. These techniques are considered in cases of breast cancer whose excision volume is up to 20% in the upper portion. However, because small-to-moderate-sized dense glandular breasts can be mobilized easily by advancing the breast tissue into the excision cavity without the risk of creating fat necrosis, the cosmetic results may be relatively good

if the excision volume is greater than 20%. By contrast, moderate-to-large-sized breasts tend to exhibit poor outcomes owing to asymmetrical breast size caused by a shrinking volume if the excision volume is greater than 20%. However, when the form of the breast is kept beautiful even though the sizes of the left and right breasts differ considerably, patient satisfaction can be high. Therefore, patients with moderate-to-large-sized breasts may also be indicated for these techniques. In this study, cosmetic results were unacceptable in patients who underwent 25% resection. Other oncoplastic techniques should also be considered in such cases. In addition, because excision of the breast tissue just under the NAC is required in RBT, four patients in this study exhibited blood flow insufficiency in a portion of the NAC. Although this condition was improved with conservative treatment in all cases, careful attention must be paid during and after surgery. Based on the results of the present study, in our opinion, RBT is a useful procedure for performing BCS in the upper portion of the breast. However, if the excision volume is 25%, or part of the region in the lower portion requires excision, RBT should be considered in combination with other techniques or procedures. Oncoplastic procedures are less technically demanding and time consuming than major reconstructive operations and usually require limited training to be properly performed by surgeons experienced in routine breast surgery. These procedures are usually performed in a single surgical access, and the patient leaves the operating room without major residual asymmetry or deformity. Avoidance of poor cosmetic appearance after wide excision by simple oncoplastic methods will increase the number of women who can be treated with BCS by allowing larger breast excisions with improved cosmetic results that achieve widened surgical margins around the cancer.

Conclusion

Many patients, especially with increasing public perception of the incidence of cancer breast, are extremely worried about developing a cancer in their breasts. This has led to a great interest in prophylactic mastectomies. The round block mastopexy with an on-table reconstruction of the contralateral breast if needed offers them the possibility of having an esthetic breast while removing all the breast tissue liable to develop a malignancy. Volume-displacement techniques are time and cost effective, avoiding distal donor site morbidities and also well accepted by both patients and surgeons. However, postoperative breast radiotherapy associated with its possible complications may lead to compromising the esthetic results.

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Conflicts of interest

There are no conflicts of interest.

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