# Evaluation of donut mastopexy as a conservative breast surgery in juxta areolar early breast cancer

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**Background**
In order to give a treatment as effective as mastectomy with the added benefit of a preserved breast, breast conserving surgery has evolved into the accepted course of action for the diagnosis and treatment of breast cancer. Donut mastopexy is one of the cancer breast surgery techniques that is used.
**Objective**
Evaluation of donut mastopexy as a conservative breast surgery in juxta areolar breast cancer.
**Methods**
A total of 50 female patients with early breast cancer near nipple-areolar complex were enrolled. Cosmetic outcome was evaluated during the early postoperative period and on follow-up. Operative time, intra and postoperative bleeding, drain content, wound complication as seroma or surgical site infection, symmetry, patient and doctor satisfaction were evaluated.
**Results**
Breast imaging reporting and data system (BI-RADS) classification of the obtained specimens of the study population showed that 12 (24%) had grade 4 and 38 (76%) had grade 5. Preoperative tru-cut biopsies of the obtained specimens of the study showed that 34 women (68%) had infiltrative ductal carcinoma, 10 women (20%) had ductal carcinoma in situ, four women (8%) had infiltrative lobular carcinoma and two women (4%) had mucinous carcinoma. Preoperative true-cut biopsies of the obtained specimens showed that 34 patients (68%) had infiltrative ductal carcinoma, 10 patients (20%) had ductal carcinoma in situ, four patients (8%) had infiltrative lobular carcinoma and two patients (4%) had mucinous carcinoma in-situ component of the obtained specimens showed that 13 patients (26%) had no in-situ component, 16 patients (32%) had less than or equal to 5% and 21 patients (42%) had greater than 5-25% intraoperative bleeding were three patients (6%); mean of drain content (volume) was 26.29±2.79 and mean of operative time (min) was 93.16±13.62. The most common complication was seroma (10%) and four patients (8%) were bleeding; followed by hematoma and delayed wound healing, and there was agreement on the ratio (6%) and infection and axillary wound seroma, and there was agreement on the ratio (4%), on the other hand partial nipple/skin necrosis and wound dehiscence was the lowest noticed complication, and there was agreement on the ratio (2%); as for the surgical site infection was five patients (10%) were hotness, four patients (8%) were redness and three patients (6%) were swelling. The patient satisfaction was 33 patients (66%) were excellent of satisfaction, nine patients (18%) were very good of satisfaction, seven patients (14%) were good satisfaction, and one case (2%) was poor satisfaction. Additionally, there was 31 doctors (62%) were excellent of satisfaction, 11 doctors (22%) were very good of satisfaction, 8 doctors (16%) were good satisfaction, while there is no poor cases among doctor satisfaction.
**Conclusion**
Donut mammography results in good cosmetic results. The study's overall cosmetic outcome was more gratifying, and this was evident in the patients' psychological health and sense of self-worth.

**Keywords:**
breast cancer, donut mastopexy, juxta areolar

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## Introduction

The breast is particularly a significant component of the female body and, as such, it plays anatomical, physiological, and aesthetic functions. An essential

feminine characteristic and a marker of sexuality and fertility is a proportionately developed breast. Women's self-confidence is greatly impacted by their breasts, especially now that their roles in society have significantly increased [1].

Around 1.7 million new cases of breast cancer are identified each year, making it the second most frequent malignancy among the women globally. Breast cancer is the most prevalent type of cancer in Egyptian women, accounting for roughly 38.8% of all female malignancies; it is a significant cause of mortality in Egyptian women, with a lifetime risk of developing it of 12%, according to the National Cancer Institute [2].

A breast cancer diagnosis is a significant event that alters patient life. Surgery for breast cancer causes physical changes to the breast and body that may drastically and frequently permanently impair a woman's perspective of her physical, mental, and sexual wholeness [3].

The surgical treatment of breast cancer has changed dramatically over time, moving away from invasive techniques and towards ones that completely remove the tumor while leaving healthy parenchyma tissue intact, reducing patient morbidity. Through this change, patients' quality of life and cosmetic outcomes have improved while retaining the same level of oncologic safety [4].

The advent of 'oncoplastic' surgery, which generally refers to the rebuilding of partial mastectomy abnormalities, has been a more recent innovation to further improve aesthetic outcomes. The reconstruction of partial mastectomy has been described using a variety of methods, including local tissue rearrangement, mastopexy or reduction mammoplasty procedures, and the transfer of local-regional flaps [5].

Oncoplastic breast surgery is the surgical removal of breast lesions using a variety of reconstructive plastic surgery methods. It enables total local disease excision while enhancing cosmetic results. Many minimal-incision treatments have been developed in response to the growing demand for scar reduction [6].

Donut mastopexy lumpectomy is a surgical procedure which begins with a periareolar incision, but then proceeds to de-epithelialize the periareolar skin in a donut shape. A lumpectomy is carried out after making an incision along a section of the donut's outer edge. After a lumpectomy, residual tissue is moulded to alter the breast's form. After lumpectomy, any superfluous skin that is still present is corrected by plication of the donut-shaped de-epithelialized area's outer and inner circumferences [7].

Donut mastopexy lumpectomy is regarded as a helpful substitute for traditional lumpectomy. A periareolar scar is more undetectable than a scar from a straight incision over the afflicted area, and it also has a more aesthetically attractive appearance. Breast skin and glandular volume are both altered to provide a pleasant breast contour [8].

## Methods

This prospective study was carried out on 50 female patients with breast cancer aimed to focus on donut mastopexy as an oncological procedure attended outpatient clinic at Ain Shams University Hospital from July 2022 until January 2023.

### Inclusion criteria

Female patients aged 20–60 years old with early breast cancer i.e., stages I and II and tumors near Nipple-Areolar Complex within 2–6 cm were enrolled.

### Exclusion criteria

Women with tumors away from Nipple-Areolar Complex more than 6 cm, multicentric or multifocal carcinoma, centrally located breast cancer, inflammatory breast cancer, metastatic breast disease or patient refusal or inability to complete the study.

### Ethical considerations

Participating patients signed informed written consent after thorough explanation of the details and purpose of the current study.

Patients had the right to withdraw from the study at any phase without being adversely impacted regarding the medical care they should receive.

The study protocol was approved by the Ethical Research Committee of General surgery Department and Faculty of Medicine, Ain Shams University.

### Study procedures

After approval of study protocol, patients were enrolled into the study according to inclusion and exclusion criteria. Data collection tools were patient sheets 'attached' and medical records review. All patients were subjected to the following:

### Full history taking

Personal history including age, marital status, occupation, addresses, special habits and phone number.

#### *Present history (complaint)*

History of breast lumps, pain, swelling or thickening of the breast, dimpling of the breast skin, nipple crust, redness of breast skin, new nipple discharge that is not breast milk, including blood, skin sores, or growing veins on the breast.

#### *Menstrual history*

Age of menarche, regularity, amount, associated symptoms, and onset of menopause.

Past history of medical disorders such as (diabetes mellitus, hypertension, etc.) and surgical history including previous oncologic surgeries.

### Complete clinical examination

#### *General examination*

With special emphasis on vital signs (blood pressure, pulse and temperature), BMI, and pallor.

#### *Local examination*

When the patient had not noticed the lump, signs and symptoms indicating the possible presence of breast cancer were assessed as follow change in breast size or shape, skin dimpling or skin changes (eg, thickening, swelling, or erythema), recent nipple inversion or skin change or other nipple abnormalities (eg, ulceration, retraction, or spontaneous bloody discharge). Nipple discharge, particularly if bloodstained.

When nature of palpable lumps was difficult to be determined clinically, the following features were raised concern hardness, irregularity, focal nodularity, asymmetry with the other breast and fixation to skin or muscle (assess fixation to muscle by moving the lump in the line of the pectoral muscle fibers with the patient bracing her arms against her hips).

The assessment included the axillae and supraclavicular fossae, the chest and sites of skeletal pain, and abdominal examinations. The clinical evaluation included a thorough assessment of specific risk factors for breast cancer.

### Laboratory investigations

Including complete blood picture, coagulation profile, random blood sugar, urine analysis, liver, and renal function tests.

### Radiological examination

Including bilateral sono-mammography, computed tomography chest, pelvic-abdominal ultrasound and bone scan as indicated and upon the patients' complaint from bony ache. ECG and echocardiography were performed upon requested by the anesthesiologist when indicated. Tissue biopsy using true cut core biopsy in all patients was indicated.

### Patient counseling and consent

After admission and completion of history and examination each patient received a detailed explanation of her condition regarding the disease itself, the type of surgery and expected postoperative adjuvant therapy, operative details of the selected technique for each patient were explained using pictures of similar cases to help visualization of the outcome, risks, and benefits of the suggested procedure along with it's possible intraoperative and postoperative possible complications were also clearly stated and explained individually. An informed oral and written consent were obtained from the patients.

### Preoperative marking

Mark up and design of planned incision were done on the morning of the surgery in the holding area of the operating theater in the presence of the breast nurse and the surgical team.

Drawings were made using water proof skin markers. Outer and inner incision lines marked with arrows, area in-between to be de-epithelialized (dots), 1–2 cm distance between inner and outer incision line depending on tumor size, location, and nipple position.

The more breast volume to be excised, the more ptosis to be corrected, the larger the distance between inner, and outer incision line.

### Surgical technique

The patient is placed in the supine position with the arms abducted for axillary access, with the possibility to seat the patient on the operative table to control the symmetry.

#### *Incision*

The patient is operated in the supine position with both arms abducted at 90°. Preoperative biopsy improves the operation planning, however, is not necessary for this type of surgery (unlike other larger reduction techniques). In cases of preoperatively histologically verified breast cancer, it is preferable to start with sentinel node biopsy by injecting the dye retro-areolar in order to not disturb the lymphatic

drainage. It is preferable to de-epithelialize straight away and to dissect the breast parenchyma from the skin before removing the lump with the tumor. This strategy warrants a large operating field and better control of the resection margins which are substantial in breast cancer surgery. We always use intraoperative frozen section analyses to reduce the necessity of a second operation. The tumor bed is marked with six titan clips at all margins for radiotherapy orientation to reduce radiation scattering. De-epithelialization between outer (lateral borders) and inner (neoareola) incision lines. The nipple areola complex is supplied by dermal vessels from all sides. Do not cut through the dermis.

*Resection*

Cut through the dermis at the side of tumor location. Lift and undermine the skin in order to free the breast parenchyma from the skin above the tumor and at least 5 cm laterally and medially from the tumor and up to the upper end of the breast to have a good exposure. The nipple is still supplied by dermal vessels.

*Reconstruction*

After dissecting the breast parenchyma and the lump with the tumor from the skin, the lump is lifted up with the pectoralis fascia and elevated outside the skin envelope to optimize palpable control during lumpectomy.

*Closure*

After resection of the tumor, the defect (■) can be closed by approaching the lateral parenchyma (↔) either with sutures or just by mobilization and simple positioning. Mobilize the lateral breast tissue by undermining above the pectoralis fascia and between the skin and breast parenchyma. Mark the breast borders with titan clips. Close the dermis with interrupted single stitches using absorbable 4/0 and the epidermis with running absorbable 5/0.

**Postoperative management**

Prophylactic broad spectrum antibiotic which is third-generation cephalosporins 1 g was administrated to all patients upon induction and during the whole period of hospital stay. Patients received routine postoperative analgesia in the form of pethidine 50 mg after recovery from anesthesia followed by non steroidal anti inflammatory drugs (NSAIDs) fixed dose every 8 h in the first 24 h and when needed after that.

Patients were discharged at the second day postoperative when everything was fine. Patients were discharged on antibiotics, analgesics, and anti-edema agents. They were advised to wear well-fitting sport bra following all reconstruction procedures. Drains were removed in follow-up visits when daily volume was less than 40–50 ml.

Patients were instructed to undergo arm and shoulder mobilization and a set of exercises to avoid stiffness of the shoulder joint and decrease arm edema after axillary surgery. Dressing once daily with betadine was instructed for all patients.

**Follow-up**

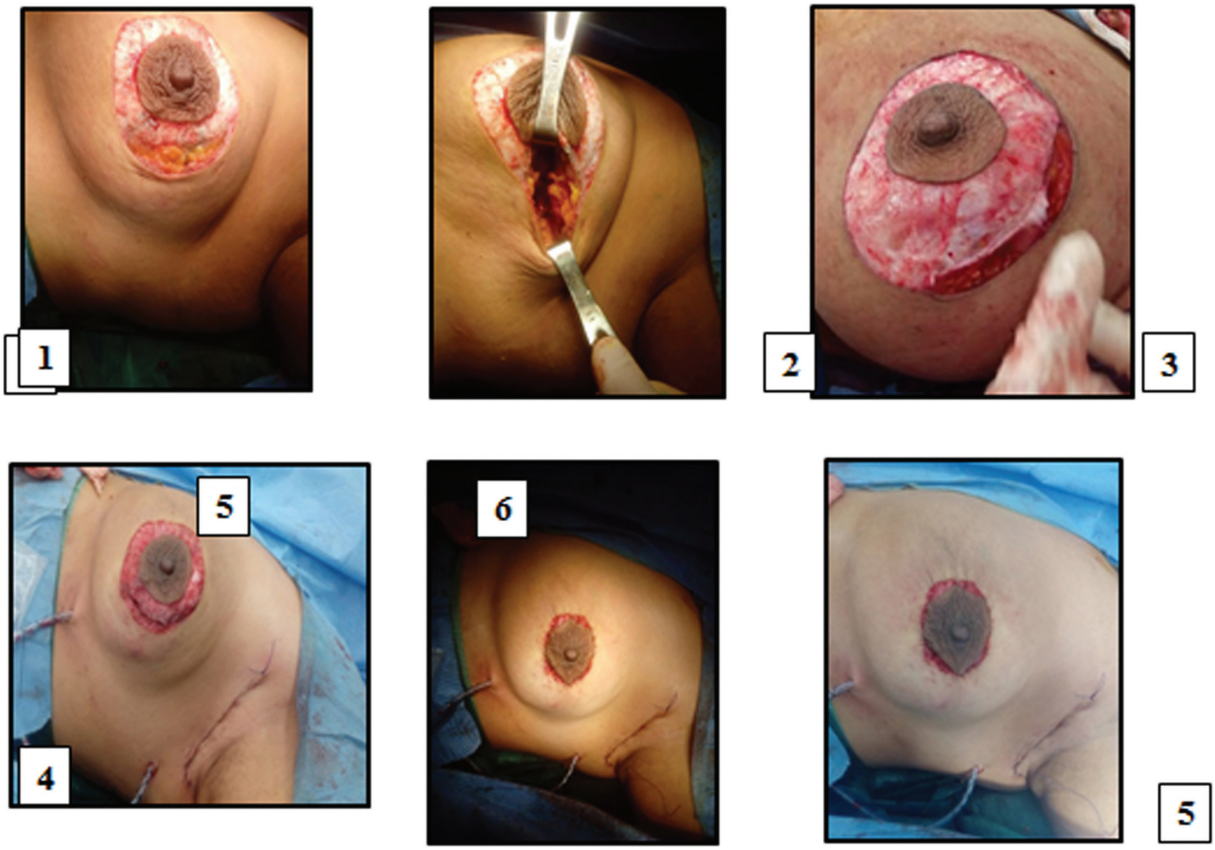
Patients received a follow-up schedule upon discharge from the hospital as the following first week daily for dressing and monitoring the drains the following 2 weeks every 4 days until removal of the drains and stitches.

When the final pathology report was available, patients were referred to the Oncology Department to start their adjuvant therapy. After completion of the adjuvant therapy, patients were asked to follow-up in the surgical department clinic once every 3 months for the 6 months for clinical examination, breast ultrasound and tumor markers, bilateral mammography, and routine investigations as required (Fig. 1).

Primary outcome of current study was cosmetic outcome. Cosmetic outcome was evaluated during the early postoperative period and on follow-up. Evaluation was done by means of scoring system, graded from one to five, one indicating poor results and five indicating excellent results. Cosmetic outcome was evaluated by the surgeon, the patient and the breast multi disciplinary team (MDT) by postoperative photographs, then 2 weeks and 1 month. Comparison of preoperative and postoperative breast measurements was taken in terms of nipple areola complex (NAC) position to the mid humeral level, distance from the sternal border and inframammary sulcus. Re-evaluation was done after completion of adjuvant chemotherapy and radiotherapy during follow-up. Complication as radio-necrosis, breast edema, and inflammation were recorded and managed according to its severity for the first 6 months after the surgery.

Secondary outcomes were demographic data as age, special habits, associated medical conditions, operative time (skin to skin), intra and postoperative bleeding (suction content and soaked towels), drain content (volume), wound complication as seroma or surgical site infection (redness, hotness, swelling),

**Figure 1**




Surgical technique 1) Incision, 2) Resection, 3) Reconstruction, 4) Drain insertion, 5) and 6) Closure.

symmetrization (size and shape) and patient and doctor satisfaction using scale from 0 to 10.

### Statistical analysis

Recorded data were analyzed using the statistical package for social sciences, version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean±standard deviation (SD). Qualitative data were expressed as frequency and percentage.

## Results

Age ranged from 26 to 57 years with a mean of 43.23 ±9.74. The BMI ranged from 16.3 to 30.3 with a mean of 23.32±4.94. While the location of tumor, it was 26 in the left breast and 24 in the right breast. The tumor was located in the upper outer quadrant in 22 (44%) patients, in the upper inner quadrants in nine (18%) patients, in the lower outer quadrant in eight (16%) patients, in the lower inner quadrant in eleven (22%) patients (Table 1).

Breast imaging reporting and data system (BI-RADS) classification of the obtained specimens showed that 12 (24%) had grade 4 and 38 (76%) had grade 5 (Table 2).

Preoperative true-cut biopsies of the obtained specimens showed that 34 patients (68%) had infiltrative ductal carcinoma, 10 patients (20%) had ductal carcinoma in situ, 4 patients (8%) had infiltrative lobular carcinoma and 2 patients (4%) had mucinous carcinoma (Table 3).

In-situ component of the obtained specimens showed that 13 patients (26%) had no in-situ component, 16 patients (32%) had less than or equal to 5% and 21 patients (42%) had greater than 5-25% (Table 4).

Intraoperative bleeding were 100+37.80 ml; mean of drain content (volume) was 26.29±2.79 and mean of operative time (min) was 93.16±13.62 (Table 5).

Postoperative paraffin examination of the obtained specimens showed that 18 patients (36.0%) were PT1N0, 5 patients (10.0%) were PT1N1, 2 patients (4.0%) were PT2N0 and 25 patients (50.0%) were PT2N1 (Table 6).

The most common complication was seroma (10%) and three patients (6%) were bleeding; followed by hematoma and delayed wound healing, and there was

**Table 1 Baseline characteristics distribution among study group**

| Baseline characteristics | Total (*n*=50) |
|---|---|
| Age (years) | |
| Range | 26-57 |
| Mean±SD | 43.23±9.74 |
| BMI [weight/(height)$^2$] | |
| Range | 16.3-30.3 |
| Mean±SD | 23.32±4.94 |
| Breast size | |
| Small | 14 (28.0%) |
| Medium | 28 (56.0%) |
| Large | 8 (16.0%) |
| Degree of ptosis | |
| No | 8 (16.0%) |
| Mild | 21 (42.0%) |
| Moderate | 16 (32.0%) |
| Sever | 5 (10.0%) |
| Distance from the nipple and areola complex (cm) | |
| Range | 1.4-10.5 |
| Mean±SD | 6.06±3.19 |
| Radiological evaluation | |
| T1 | 23 (46.0%) |
| T2 | 27 (54.0%) |
| Tumor size (cm) | |
| Range | 0.9-4.3 |
| Mean±SD | 2.62±1.21 |
| Special habits | |
| Yes | 4 (8%) |
| No | 46 (92%) |
| Associated Medical Conditions | |
| Yes | 9 (18%) |
| No | 41 (82%) |

**Table 2 BI-BIRADS classification distribution among study group**

| BI-RADS classification | Total (*n*=50) |
|---|---|
| BIRADS 4 | 12 (24.0%) |
| BIRADS 5 | 38 (76.0%) |

**Table 3 Preoperative true-cut biopsies distribution among study group**

| Preoperative true-cut biopsies | Total (*n*=50) |
|---|---|
| Infiltrative ductal carcinoma | 34 (68.0%) |
| Ductal carcinoma in situ | 10 (20.0%) |
| Infiltrative lobular carcinoma | 4 (8.0%) |
| Mucinous carcinoma | 2 (4.0%) |

**Table 4 The in-situ component (core biopsy) distribution among study group**

| The in-situ component | Total (*n*=50) |
|---|---|
| No in-situ component | 13 (26.0%) |
| ≤5% | 16 (32.0%) |
| >5–25% | 21 (42.0%) |

**Table 5 Intraoperative bleeding and operative time distribution among study group**

| | |
|---|---|
| Amount of bleeding 'CC' | |
| Range | 50–150 |
| Mean+SD | 100±37.80 |
| Drain content (volume) 'CC' | |
| Range | 20-30 |
| Mean±SD | 26.29±2.79 |
| Operative time (min) | |
| Range | 50-125 |
| Mean±SD | 93.16±13.62 |

**Table 6 Postoperative paraffin examination distribution among study group**

| Postoperative paraffin examination | Total (*n*=50) |
|---|---|
| PT1N0 | 18 (36.0%) |
| PT1N1 | 5 (10.0%) |
| PT2N0 | 2 (4.0%) |
| PT2N1 | 25 (50.0%) |

**Table 7 Breast complications distribution among study group**

| Breast complications | No. (%) |
|---|---|
| Seroma | 5 (10.0%) |
| Bleeding | 3 (6.0%) |
| Hematoma | 3 (6.0%) |
| Delayed wound healing | 3 (6.0%) |
| Infection | 2 (4.0%) |
| Axillary wound seroma | 2 (4.0%) |
| Partial nipple/skin necrosis | 0 |
| Wound dehiscence | 1 (2.0%) |
| Surgical site infection | |
| *Hotness* | 5 (10.0%) |
| *Redness* | 4 (8.0%) |
| *Swelling* | 3 (6.0%) |

agreement on the ratio (6%) and infection and axillary wound seroma, and there was agreement on the ratio (4%), on the other hand partial nipple/skin necrosis and wound dehiscence was the lowest noticed complication, and there was agreement on the ratio (2%); as for the surgical site infection was five patients (10%) were hotness, four patients (8%) were redness and three patients (6%) were swelling (Table 7).

The time to start postoperative radiotherapy (days) ranged from 13 to 40 min, with a mean of 27.16 ±8.91 days (Table 8).

There was patient satisfaction was 33 patients (66%) were excellent of satisfaction, 9 patients (18%) were very good of satisfaction, 7 patients (14%) were good satisfaction and one case (2%) was poor satisfaction. Additionally, there was 31 doctors (62%) were

**Table 8 Time to start postoperative radiotherapy (days) distribution among study group**

| Time to start postoperative radiotherapy (days) | Total (*n*=50) |
|---|---|
| Range | 13–40 |
| Mean±SD | 27.16±8.91 |

**Table 9 Satisfaction distribution among study group**

| Satisfaction | No. (%) |
|---|---|
| Patient satisfaction | |
| Poor | 1 (2.0%) |
| Good | 7 (14.0%) |
| Very good | 9 (18.0%) |
| Excellent | 33 (66.0%) |
| Doctor satisfaction | |
| Poor | 0 |
| Good | 8 (16.0%) |
| Very good | 11 (22.0%) |
| Excellent | 31 (62.0%) |

excellent of satisfaction, 11 doctors (22%) were very good of satisfaction, 8 doctors (16%) were good satisfaction, while there is no poor cases among doctor satisfaction (Table 9).

## Discussion

A version of the Donut technique used in reduction mammoplasty as part of oncoplastic breast surgery for breast cancer was assessed by Abdl Rhaman and colleagues. From the 20 patients, cup sizes C and D were most prevalent, with the latter being the mean and making up more than half (55%) of the total. With a mean separation from NAC of 2.86 0.85, the mean tumor size was 3.37 1.01 in size. 60% of the tumor was in the paraaereolar region, and 40% was in the breast's bottom half. 7 (35%) patients got bilateral surgery, while 13 (65%) patients underwent unilateral surgery. IDC accounted for 70% of tumor pathologies. The total mean score for patients' happiness with their appearance was 4.35, which is in the very good to outstanding range. They came to the conclusion that modifying oncoplastic surgical techniques allows the combining of several advantages, as in this case with the modified doughnut technique, which combines the round block and superior medial techniques for better tumor access, oncological control around the breast, and reduction mammoplasty in large breasts of cup C, D, and more, with safe NAC and good aesthetic results. This method demonstrated positive adoption on both sides, which is essential for symmetrization in oncoplastic operations [9].

With regard breast size in our study, 14 women (28%) of them had 'mall', 28 patients (56%) of them had 'medium' and eight women (16%) of them had 'large'; additionally there was degree of ptosis were eight women (16%) had no degree of ptosis, 21 women (42%) had mild, 16 women (32%) had moderate and five women (10%) had severe, as for the radiological evaluation were 23 women (46%) had palpable discrete suspicious axillary lymph nodes and 27 women (54%) had had no palpable lymph nodes; while distance from the nipple and areola complex (cm) ranged from 1.4-10.5 with a mean of 6.06±3.19; the tumor size ranged from 0.9-4.3 with a mean of 2.62±1.21; as for the special habits were 4 patients (8%) and associated medical conditions were 9 (18%).

According to Lin and colleagues, 11 patients received matrix rotation with periareolar de-epithelialization (donut group) while the other 25 underwent matrix rotation only, depending on the size and position of the tumor in relation to the nipple-areola complex (nondonut group). Self-report questionnaires were used to gauge the cosmetic outcomes. The weights of the removed breast lumps were 104.1 g on average for the donut group and 84.5 g on average for the non-donut group. Local recurrence was discovered during the 3-year follow-up period in one case and was treated with a nipple-sparing mastectomy followed by breast reconstruction with artificial implants. 31 patients in total (88.6%) thought their postoperative outcome was adequate or satisfactory. 27 individuals (77.1%) also believed that the treated breasts were almost identical to or barely different from the untreated side. Treatment for breast cancer in the upper/upper inner quadrant of the breast that necessitates a rather extensive excision is made simple with matrix rotation. This method allows for the removal of bigger breast tumors without affecting breast attractiveness [10].

According to Lim and colleagues, the donut mammoplasty surgical technique's simplicity was evident not only in the short operating time but also in the minimal overall intraoperative blood loss that was seen. 85.6 ml of blood on average were lost. First day drain amounts were all estimated during the early surgical follow-up phase. The average first day drain quantity was 83.8 ml, which is pretty similar [11].

BI-RADS classification of the obtained specimens of our study population showed that 12 (24%) had grade 4 and 38 (76%) had grade 5. Preoperative Tru-cut biopsies of the obtained specimens of our study showed that 34 women (68%) had infiltrative ductal carcinoma, 10 women (20%) had ductal carcinoma in situ, 4 women (8%) had infiltrative lobular carcinoma

and two women (4%) had mucinous carcinoma. In-situ component of the obtained specimens of our study showed that 13 women (26%) had no in-situ component, 16 women (32%) had less than or equal to 5% and 21 women (42%) had greater than 5-25%. Intraoperative analysis of resection margins of the obtained specimens of our study showed that 40 women (80.0%) had negative, eight women (16.0%) had close, four women (8.0%) had lateral, three women (6.0%) had posterior, three women (6.0%) had positive (lateral margin) and one woman (2.0%) had anterior.

According to Almasad, the key benefits of such a procedure included a minimal periareolar scar, preservation of nipple sensitivity, ease of performance, and a brief surgical time. Donut mastopexy was incorporated as a fantastic method to remove malignant breast lesions; in fact, one may think of this method as a midline incision to examine the abdominal cavity because various sections of the breast can be reached with ease. This method is typically appropriate for tumors that are deeply embedded in the breast away from the surface and segmentally dispersed in the upper lateral or upper central locations. The skin can be de-epithelized and buried to fill the dead space if a significant portion of glandular tissue was removed, leaving superfluous skin and underlying tissue hanging in the dead space. Occasionally, when the tumor is at the upper lateral location, it is possible to approach the axilla by the same incision. If an appropriate margin could be established by breast conserving therapy (BCT) without violating previous skin incisions, the donut mastopexy lumpectomy enables surgeons to conduct a traditional or skin-sparing mastectomy [12].

Postoperative paraffin examination of the obtained specimens of our study showed that 18 women (36.0%) were PT1N0, five women (10.0%) were PT1N1, two women (4.0%) were PT2N0 and 25 women (50.0%) were PT2N1. Also, five women (10.0%) were grade I, 32 women (64.0%) were grade II and 13 women (26.0%) were grade III among tumor grade. Histological type of the obtained specimens of our study showed that 35 women (70.0%) had infiltrative ductal carcinoma, nine women (18.0%) had ductal carcinoma in situ, four women (8.0%) had infiltrative lobular carcinoma and two women (4.0%) were mucinous carcinoma.

Giacalone and colleagues evaluated surgical factors, histological data, postoperative morbidity, and cosmetic results between doughnut mastopexy lumpectomy (DML) and standard lumpectomy (SL). There were two conservative surgical options available to 127 breast cancer patients: doughnut mastopexy lumpectomy (DML group, n 14 39) or standard lumpectomy (SL group, n 14 88). In terms of histology size, radiographic tumor size, tumor location inside the breast, and pT category, the groups were equivalent. Surgical parameters, histological parameters, postoperative morbidity, and cosmetic results were compared. Patients who underwent DML were younger than those who opted for SL. Although the skin incision in the DML group was made 3 times longer than in the SL group, it resulted in a final scar that was only visible around the nipple areola complex and no other postoperative problems. In comparison to the SL group, the average volume of the breast specimen was larger in the DML group. The DML group had a higher rate of satisfactory results than the SL group, according to the clinician's judgement of the cosmetic outcome. However, there was no difference in cosmetic satisfaction across the groups as indicated by the patient assessment. They concluded by saying that DML might be a good substitute for SL in terms of accurate breast tissue removal as well as aesthetic outcomes [13].

In our study, as regard patient satisfaction, 33 patients (66%) were excellent of satisfaction, nine patients (18%) were very good of satisfaction, seven patients (14%) were good satisfaction and one case (2%) was poor satisfaction. Additionally, 31 doctors (62%) were excellent of satisfaction, 11 doctors (22%) were very good of satisfaction, eight doctors (16%) were good satisfaction, while there are no poor cases among doctor satisfaction.

According to Mahmoud and Saleh, who concurred with us, Donut mammoplasty has excellent cosmetic results in about 84% of the study's cases. However, our study's overall cosmetic results were more satisfactory, which had a positive impact on the patients' psychological health and sense of well-being. The donut mammoplasty procedure was best used on smaller breasts rather than larger ones, especially if there was a potential for distant malignancy from the NAC. Donut mammoplasty demonstrates minimal percentage of issues were uncomplicated in handling with little risk in patient's life. None of the aforementioned issues caused postoperative adjuvant therapy to be delayed [14].

According to Daga and Kumar, improvements in oncoplastic procedures have increased dedication to form restoration and, as a result, have improved cosmetic outcomes. One such method is donut

mastopexy lumpectomy, which is most effective in cases where the cancer has not spread to the skin or the nipple-areolar complex. It has a number of benefits over a typical lumpectomy, including the ability to conduct augmentation mammoplasty, retention of nipple-areolar sensation, limiting of scar to the periareolar region, and ease and speed of surgery. A small breast lift is also offered without unsightly scars that are obvious. This study sheds light on the specifics of DML and its usefulness in breast oncoplasty [15].

Four examples, or 16% of the total, fall into the good and fair score categories. None of our cases have received a subpar or ugly rating (Maruthappu and colleagues) [16]

The most common complication in our study was seroma in 5 cases (10%), bleeding in four patients (8%); followed by hematoma and delayed wound healing, and there was agreement on the ratio (6%) and infection and axillary wound seroma, and there was agreement on the ratio (4%), on the other hand partial nipple/skin necrosis and wound dehiscence was the lowest noticed complication, and there was agreement on the ratio (2%); as for the surgical site infection was five patients (10%) were hotness, four patients (8%) were redness and three patients (6%) were swelling.

According to Urban and colleagues [17], diabetes mellitus raises the risk of postoperative wound infection.

In a cohort of patients who underwent surgery for breast cancer, Vilar-Compte and colleagues examined fluctuations in surgical site infections (SSIs) during the course of a 5-year prospective monitoring study and looked into potential causes of SSIs. A total of 2338 breast cancer procedures were documented over the study period, and 441 SSIs (18.9%) were identified. The frequency of SSI changed throughout the course of the five years, with a substantial drop occurring following the introduction of preventive interventions. Three SSI out-of-confidence limitations were discovered after 2002, two of which had to do with the operation of evacuation systems and one of which was connected to a set of revolving inhabitants. Age 58 years, BMI 30.8, concurrent preoperative chemo radiation, hematoma, age 58 years, and length of operation 160 min were discovered to be SSI-related risk factors [18].

According to Olsen and colleagues SSI following breast cancer surgery were more frequent than anticipated for clean surgery and more frequent than SSI following noncancer-related breast surgery procedures. 4.4% after mastectomy alone, 12.4% after mastectomy with immediate implant reconstruction, 6.2% after mastectomy with immediate reconstruction utilising a transverse rectus abdominis myocutaneous flap, and 1.1% after breast reduction surgery all experienced SSI [19].

In order to determine the optimum oncoplastic procedure for the tumor distance, Humayun and Ardeshir created a geometrical calculating method that is simple to repeat. They used this method to evaluate the location of the NAC and the tumor intraoperatively. They asserted that lateral mammoplasty is preferable for treating cancers that are far from the nipple and that donut mammoplasty cannot effectively treat them [20].

Intraoperative bleeding in our study occurred in three patients (6%); mean of drain content (volume) was 26.29±2.79 and mean of operative time (min) was 93.16±13.62.

Lim and colleagues sought to ascertain whether the round block approach would produce operational parameters similar to those of a typical wide local excision (sWLE). They claimed that there is no evidence of an increase in problems and that the round block approach has similar operational characteristics to sWLE. Better cosmesis and a lower re-excision rate were seen in the round block patients, indicating that the round block approach may be superior than sWLE in some circumstances. 22 patients in total were enrolled in the trial. In the round block and sWLE groups, the mean operating time was 122 and 114 min, respectively ($P$=0.64). In both groups, the length of stay was comparable ($P$=0.11). Patients who received round block surgery had superior cosmetic results and less re-excision. The sWLE group showed a greater rate of recurrence [11].

## Conclusion

Donut mammography results in good cosmetic results. Our study's overall cosmetic results were more satisfactory, and this had a positive impact on the patients' psychological health and sense of well-being. The donut mammoplasty procedure was most effective when used on smaller breasts rather than larger ones that may have a distant tumor from the nipple-areolar complex. Donut mammography had a minimal incidence of problems and posed no danger to the patient's life. None of the aforementioned issues caused postoperative adjuvant therapy to be delayed.

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**Conflicts of interest**

There are no conflicts of interest.

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