

# ADVANTAGES AND LIMITATIONS OF ONCOPLASTIC SURGERY IN BREAST CANCER TREATMENT AND REHABILITATION: A LITERATURE REVIEW

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## ABSTRACT

**Relevance:** *The Relevance: At the moment, according to the WHO, breast cancer is the most common type of cancer and the leading cause of death among women with cancer in Asia in 2022. Surgical treatment is widely used and is continually improving, given the increasing detection of the disease in the able-bodied population. Oncoplastic surgery (OPS) is gaining popularity as part of a rehabilitation program.*

**This study aimed to** *evaluate the advantages and limitations of modern oncoplastic surgery techniques in the treatment and post-surgical rehabilitation of breast cancer patients.*

**Methods:** *Scopus, PubMed, and e-Library databases have been searched for scientific publications from 2015 to 2025. The search revealed over 2,500 articles, of which 32 sources were selected according to inclusion and exclusion criteria.*

**Results:** *The effectiveness of OPS in post-surgical breast cancer rehabilitation has been established. It was revealed that, compared with traditional mastectomy, OPS provides the same oncological safety but at the same time allows achieving optimal aesthetic results.*

**Conclusion:** *Comparing the modern literature on the above-mentioned methods, we concluded that oncoplasty is an important part of comprehensive breast cancer treatment. Oncoplastic approach requires further description and evaluation from a professional perspective and through patient-oriented surveys.*

**Keywords:** *breast cancer, oncoplastic surgery (OPS), surgical rehabilitation (SR).*

**Introduction:** Breast cancer remains one of the most common cancers among women worldwide, occupying a leading position in terms of both morbidity and mortality. According to the World Health Organization, more than two million new cases of the disease are diagnosed worldwide each year. Breast cancer detection rates are increasing in both developed and developing countries.

Despite advances in early diagnosis, chemotherapy, and targeted therapy, surgical intervention is still the main stage in the treatment of breast malignancies. In recent decades, there has been an active transformation of approaches to the surgical treatment of breast cancer. Radical and traumatic interventions are gradually being replaced by oncoplastic surgery (OPS), a field that combines oncological radicalism with plastic and reconstructive techniques.

The term "oncoplastic surgery" was introduced by Dr. Audretsch in 1993, combining tumor removal with plastic surgery to optimize cosmetic outcomes. This approach gained rapid popularity across Europe, with breast tumor surgeries involving plastic techniques rising from 40% in 1991 to 60% in 2002, and continuing to grow [1].

Oncoplastic surgery (OPS) aims not only at removing the tumor in compliance with all oncological standards, but also at preserving or restoring the aesthetics of the breast. This is extremely important for a woman's psycho-emotional state, her self-esteem, quality of life, and social rehabilitation. Modern research increasingly high-

lights the need for an integrated approach to the treatment of breast cancer patients, where post-surgical rehabilitation occupies a key position.

Standard BCS yields poor cosmetic results when more than 20% of breast tissue is removed, but OPS allows larger resections without compromising aesthetics. OPS is now used even in "extreme" cases (e.g., tumors >5 cm, multifocal/multicentric, node-positive), though it carries a higher re-excision rate. In the study, the mean tumor volume in the OPS group was 58.4 cm<sup>3</sup> larger than in the BCS group ( $p < 0.001$ ), confirming its use for larger tumors [2].

Nevertheless, despite accumulated clinical experience, unresolved issues remain regarding the optimal selection of oncoplastic techniques, the assessment of their long-term oncological and aesthetic outcomes, and their integration into standardized treatment protocols. This underlines the relevance of this study aimed at analyzing the effectiveness of oncoplastic operations in the context of post-surgical rehabilitation of women who have been treated for breast cancer, taking into account oncological safety and quality of life of patients.

Breast cancer also remains the leading cause of cancer morbidity and mortality among women in the Republic of Kazakhstan. Despite progress in early diagnosis and systemic treatment, a significant number of patients still require surgery, which is often associated with partial or complete breast loss. Such drastic reversals often lead to severe psychological, aesthetic, and social consequences

that affect a woman's self-esteem, quality of life, and social adjustment.

Given the increasing incidence of breast cancer, the younger age of patients, and the increasing demands on quality of life after treatment, OPS is becoming particularly important. Despite the accumulated clinical experience, the issues of choosing optimal oncoplastic techniques, their oncological safety, accessibility, and inclusion in the standards of oncological care remain the subject of scientific and practical discussions. Therefore, the study of the effectiveness of oncoplastic operations in the context of post-surgical rehabilitation is an urgent and socially significant task aimed at improving the quality of medical care for women with breast cancer.

**The study aimed to** evaluate the advantages and limitations of modern oncoplastic surgery techniques in the treatment and post-surgical rehabilitation of breast cancer patients.

**Materials and Methods:** This review includes domestic and international publications from the last 10 years (2015-2025) from the PubMed, Google Scholar, and Scopus databases. The search was conducted using such keywords as "breast cancer," "oncoplastic surgery," and "post-surgical rehabilitation". Inclusion criteria: articles describing the results of randomized single-center and multicenter trials, meta-analyses, and systematic reviews with access to the full text. Exclusion criteria: descriptions of specific cases, literature reviews, abstracts of conference reports, and articles without access to the full text. According to the search results, more than 2,500 articles were found, of which 32 were selected based on the criteria. The authors' agreement is 95%.

**Results:** Oncoplastic breast reconstruction seeks to address partial mastectomy defects in the setting of breast-conserving surgery (BCS) to achieve superior aesthetic outcomes with comparable oncologic safety compared with traditional BCS [3].

Since the 1990s, reconstructive surgery has focused on correcting deformities after BCS. Mammoplasty techniques have been introduced during resection to prevent complications, including the Benelli circular block method, vertical patterns of reduction mammoplasty/mastopexy, hidden scars, and anatomically accurate approaches to their application. These developments have shaped the philosophy of the OPS — standard breast mapping by deformation zones and selecting the optimal technique based on tumor location. Even in the presence of a locally advanced disease, with a good response to neoadjuvant therapy, we can avoid mastectomy and use OPS, preserving the breast as much as possible [4].

The European Institute of Oncology in Milan reported that patients after OPS experience less anxiety and feel more comfortable with their own body [5].

Retrospective studies have shown that patients after OPS report a higher quality of life than those who have undergone traditional BCS [6].

In addition, psychosocial well-being is rated higher in the tissue replacement group, possibly because the scar is not visible from the front when looking in the mirror, which reduces cognitive perception of the defect. There-

fore, the patient's subjective assessment plays an important role in determining the quality of the cosmetic result after OPS [7].

As the survival rate of patients after breast cancer treatment increased, their expectations for a long-term aesthetic outcome also increased significantly [8].

The cultural and emotional characteristics of each patient may also explain why subjective assessments are often lower than expert technical assessments [7].

Between 2013 and 2014, Leser et al. performed a prospective clinical trial on 61 patients with breast cancer, and patients were especially dissatisfied with the cosmetic outcome on the day of discharge compared to baseline ( $p=0.024$ ). Furthermore, satisfaction with the cosmetic result significantly decreased after discharge in patients below 65 years who underwent mastectomy ( $p=0.049$ ), but not in patients over 65 years who underwent mastectomy [9].

The Breast Cancer Conservative Treatment (BCCT) software assesses aesthetic outcomes, including breast deformity and asymmetry. BCCT summarizes all objective symmetry measurements, providing the required psychological adaptation and return to normality [10].

A recent prospective study by M. Bolliger et al. (2016) compared BCS with mastectomy and showed that patients who underwent OPS had higher satisfaction with breast appearance and significantly better overall well-being on the BREAST-Q scale. This study included only level II interventions, and oncoplasty was strongly recommended whenever possible [6].

In 2021, Ritter and colleagues conducted a prospective study using the BREAST-Q questionnaire to assess QOL. The study involved 133 patients who underwent various procedures, including total mastectomy, conventional BCS, or oncoplastic BCS, specifically the round block technique or nipple-sparing mastectomy with Deep Inferior Epigastric Perforator flap (DIEP) reconstruction. The study revealed a statistically significant improvement in the psychosocial and physical well-being of older patients after undergoing complex reconstructive surgery, compared to their younger counterparts. This finding suggests that such advanced surgical procedures can be considered for older individuals, as they demonstrate a remarkable post-operative quality of life [11].

A clear conclusion can be drawn from modern literature: segmental resection is the best approach to breast preservation. Patients should be carefully selected for segmental resection in order to completely remove the tumor. Patients with multicentric tumor sites covering different areas of the breast are not suitable candidates for organ preservation [12].

Despite the achievements, tumor treatment in the retroareolar zone remains difficult to achieve a satisfactory result, as central excision and primary closure can lead to unsatisfactory cosmetic outcomes, such as contour deformations [13].

**T-Inverted technique.** The T-inverted method is used in patients with ptosis or large mammary glands and involves reconstruction of the affected breast with simultaneous mastopexy or reduction mammoplasty on the contralateral side to achieve aesthetic symmetry [14].

Over the past decades, surgical techniques for breast reduction have been continuously improved but remain difficult due to problems such as unwanted contours, recurrent ptosis, and unsatisfactory scarring. Various types of mammoplasty, including periareolar, vertical, and inverted-T patterns, have been described to correct breast shape [15].

Although BCS followed by radiation therapy has proven to be equivalent to mastectomy in terms of overall and recurrence-free survival, classical BCS techniques often fail to achieve a satisfactory cosmetic result in ptosis. OPS, which evolved from BCS, allows you to remove large amounts of tissue and achieve better symmetry. Therefore, bilateral operations are required to restore the balance [13].

K.B. Clough et al. summarized an Atlas and classification for OPS, among which the inverted-T technique was performed for resections ranging from 20 to 50% of the breast volume (OPS level II) [15]. Currently, Inverted-T pattern techniques with corresponding pedicles are successfully used in oncoplastic mammoplasty and demonstrate good results. However, more evidence of this technique's reliability is needed. Later, other authors described using the inferior pedicle of a Wise pattern mammoplasty to support the skin island, resulting in a reverse inverted-T or anchor incision line, as well as vertical mammoplasty of the Lejour [16].

It is recommended to take ptosis, projection, and the dimensions of both breasts into account during the operation to achieve symmetry in the sitting position. However,

radiation therapy can cause dermatitis, fibrosis, scarring, and seroma, which affect volume and aesthetic results for a year after treatment [14].

The nipple-areolar complex (NAC) displacement plays a key role in breast reduction. The sensitivity and viability of the NAC are important indicators of successful pedicle design. Figure 1 shows the process of deepithelialization, as outlined by preoperative skin markings and dissection of the surrounding skin. The inferior pedicle is incised down to the pectoralis major fascia, and the excess breast tissue and subcutaneous fat are resected en bloc with the superior pole [15].

Therefore, to achieve optimal symmetry, it is important to analyze the predicted volume change and adjust the contralateral breast volume accordingly. Previous studies, including that of Smith et al., have shown good aesthetic results without additional interventions, with immediate balancing. To achieve symmetry with immediate balancing, healthy breasts should be reconstructed with a slight reduction in volume, taking into account the possible reduction in volume after radiotherapy. It is reported that after completion of radiation treatment, unpredictable changes in tissue volume occur during the year, which affects the cosmetic result of breast reconstruction. Therefore, to achieve optimal symmetry, it is important to predict volume changes and adjust the contralateral breast volume accordingly [14].

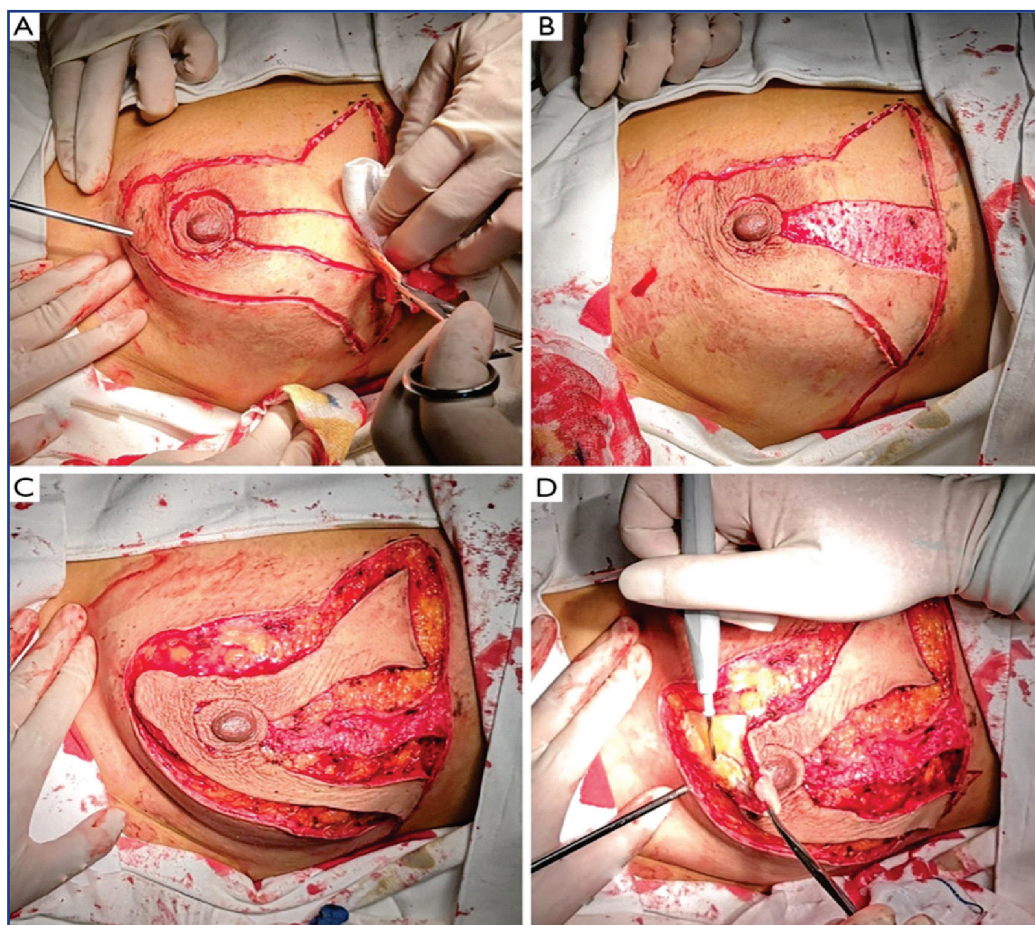


Figure 1 – Deepithelialization according to preoperative skin markings and dissection of surrounding skin (A-D). The inferior pedicle was incised with a scalpel down to the pectoralis major fascia. The excess breast tissue and subcutaneous fat were resected en bloc with the superior pole. Source: H. Hu et al. [15] under a CC BY-NC-ND 4.0 license



*Grisotti.* The standard Grisotti flap is an excellent oncoplastic option for patients with retroareolar cancers and medium-sized breasts. This technique also allows you to preserve the breast while providing a satisfactory cosmetic result in terms of contour and projection. The initial description of Grisotti's technique involved creating a circular skin flap below the NAC. This dermoglandular flap then advances and rotates into the defect. However, from this description, it can be concluded that such a flap is not ideal for patients with a short distance from the NAC to the inframammary fold (IMF), since the flap will inevitably shorten this distance even more. The displacement of the skin flap disc in the lower lateral direction allows for maintaining adequate rotation and advancement of the skin used to replace the areola, avoiding shortening the distance from the NAC to the IMF and, at the same time, maintaining the natural projection and aesthetically pleasing contour of the breast [13].

Figure 2 shows the key stages of the Grisotti technique, including preoperative mapping, flap epithelialization, creation of the central quadrant defect, and the final postoperative appearance [17].

The Grisotti flap technique is well known, especially in Europe and the Middle East, and is a simple, reliable, low-risk procedure. For women with symptomatic macromastia or small breasts, an oncoplastic surgeon should consider alternative surgery options [18].

However, this technique has its drawbacks. Firstly, due to the uneven tension around the skin flap, the new areola may not be completely round. Secondly, both patients receiving postoperative radiation therapy had breast tissue retraction (contraction) after irradiation [8].

Mammoplasty, according to Grisotti, is specially used for lumpectomy with resection of the NAC, which is a standard indication for retroareolar tumors or Paget's disease of the nipple. Since the flap is based on the lower part, a certain degree of ptosis is necessary for the correct orientation of the restored skin flap on the contour of the breast. Another approach to the treatment of central breast cancer is a Wise pattern incision with delayed nipple reconstruction on medial and lateral parenchymal skin flaps. However, in patients with narrow breasts, a Grisotti flap may be preferable, as the "Wise pattern" often results in a narrowing of chest width [18].

In 2021, Y. Chen et al. successfully presented their own version of the modified Grisotti technique, specifically

adapted for East Asian women. Based on the Breast Surface Beautiful Score (BSBs) and Breast-Q evaluations, both patients were satisfied with the outcomes. After a year of follow-up, there was no recurrence or metastasis [8].

The main problem associated with this method occurs in patients with triple-negative cancer or cancer with HER-2 enhancement, when the response to local neoadjuvant systemic therapy determines the need for further adjuvant treatment. However, this important information may become unclear after neoadjuvant radiation therapy. Common to all breast cancer surgeries are the relatively low risks of hematoma and infection. At the moment, reports have not shown a significant increase in the risk of these complications either in limited series using the Grisotti flap or in larger series of oncoplastic operations [18].

However, OPS is associated with a higher risk of fat necrosis compared to non-oncoplastic resections. A review of oncoplastic reduction mammoplasty found a 4.3% risk of fat necrosis, based on 17 articles and 1,324 cases with a follow-up of 20 to 74 months [19].

Flap ischemia is diagnosed clinically by pallor or delayed capillary filling of the flap skin for more than 3 seconds during dissection or insertion. Alternatively, an in-procedure laser imaging system with indocyanine green (SPY, Stryker, Kalamazoo, MI) can be used for non-invasive flap perfusion monitoring. The use of this technology reduces the incidence of flap necrosis after mastectomy with skin preservation from 16% to almost zero. If ischemia is detected during surgery, during flap insertion, or in the early postoperative period, the first simple step is to carefully loosen the sutures of the installation. A small divergence of the wound that heals by secondary tension is usually preferable to ischemic complications caused by flap tension [18].

A distinctive feature of the Grisotti flap is the mobilization of the parenchymal flap into the defect after tumor removal, which can lead to irradiation of tissue areas outside the traditional field for boost radiation. This is also observed with the use of the crescent according to K.B. Clough et al., and with mastoplasty according to the Wise scheme, especially if the tumor is located above the areola. The consequences of this have not yet been studied, and strategies for adapting radiation therapy are limited to marking the tumor removal cavity with fiducial markers to distinguish the tumor bed from the sites of mobilization and dissection [18].

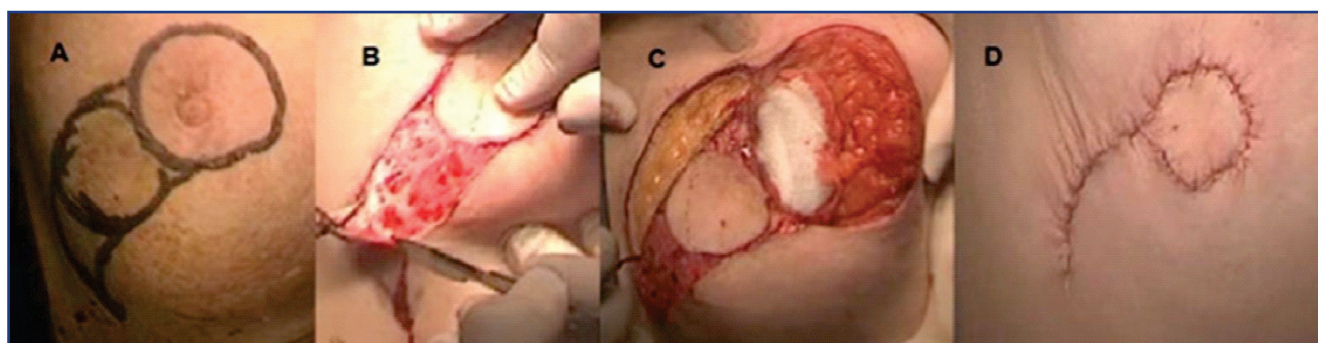


Figure 2 – The Grisotti technique (A) preoperative mapping, (B) flap epithelialization without a new areola, (C) central quadrant defect, (D) postoperative appearance. Source: M.S. Essa et al. [17] under a CC BY-NC-ND 4.0 license

**Round block:** The round block technique, also known as Benelli mastopexy or “Doughnut”, is considered an effective level II oncoplastic technique suitable for women with relatively small breast size and minimal ptosis [20].

The simplicity of the round block technique allows repeated resection of the edges, unlike the approaches used in mammoplasty based on the “wise template” principle [8].

It has been shown that the round block is well-suited for women with smaller breasts and minimal ptosis [20]. Although simple wide local excision (SWLE) leaves a longer scar than the periareolar approach, the circular periareolar scar obtained with a round block is often well hidden, making it cosmetically attractive despite the longer incision for suturing and the additional steps of skin de-epithelialization and pouch suturing of the neoareolar opening compared to SWLE [20]. The duration of surgery with the round block technique is comparable to SWLE (Figure 3) [21].

K.B. Clough et al. described this principle in selecting oncoplastic techniques for fatty and glandular breast tissue, which we confirm for the central round block technique in this study [16].

The technique is oncologically safe, with a low level of complications and comparable rates of local recurrence compared to conservative breast treatment in general or other oncoplastic techniques. Large-scale oncological resection is possible, taking into account breast size, and the technique is not limited to use only in patients with small breasts [18].

Regardless of the location of the tumor, the distance between the nipple and the tumor, the volume of the tumor, and the ratio of tumor volume to breast volume, breast reconstruction using the round block technique is a good option for breast cancer patients undergoing partial mastectomy [22].

Because the round block is slightly less complicated than other level II oncoplastic techniques, it may have fewer potential complications associated with OPS [20].

It has been shown that the round block technique can be used when the distance from the nipple to the tumor is small, whereas the “tennis racket” method is more useful when the distance is large. The authors found that the circular block technique can be used even at a distance of 10 cm from the nipple to the tumor. In general, surgery is possible if the distance between the inner periareolar circle and the outer circle is less than 1 cm; at 1.5 cm, it is possible to perform an intervention on the entire breast [22].

Circular incision along the areola also makes it easy to include an existing surgical scar in the mastectomy plan, if necessary to achieve adequate oncological removal. Patients with a large tumor-to-breast ratio who wish to preserve their breast, patients with multifocal/multicentric breast tumors who would otherwise require mastectomy, as well as patients with slight breast asymmetry and a tumor in the larger breast who wish to achieve breast symmetry after surgery, were allowed to use the round block method. The exceptions to the round block method included patients who are contraindicated for surgery, heavy smokers, patients with severe ptosis, or a central tumor affecting the NAC [20].

A low level of planned and subsequent operations on the opposite breast can be expected, with excellent symmetry at follow-up. Young patients with good tissue elasticity have an advantage in this technique, allowing better symmetry with the non-operated side without symmetrizing surgery on the other breast [8].

To achieve good aesthetic results for tumors located below the NAC, a lower tumor-to-breast volume ratio is required than for tumors located above the NAC [22].

The new modification of circumareolar mammoplasty by Benelli has been adapted for East Asian women and used in treating patients with smaller breasts in Japan, Korea, and Taiwan [21].

Although extensive ductal carcinoma is associated with the risk of local recurrence, the presence of clean resection margins after BCS is still considered sufficient, subject to subsequent adjuvant radiation therapy. Modern adjuvant treatments have significantly reduced the rate of local recurrence, and an integrated (multimodal) approach to breast cancer treatment is recognized as the “gold standard.” It is reasonable to limit the dissection in the prefectoral (pre-thoracic) plane, taking into account the volume of exfoliation of subcutaneous tissue, in order to ensure maximum blood supply to the glandular flaps. This is especially important for fatty breasts. We recognize that one disadvantage of round block mammoplasty with circumareolar access is that it can slightly flatten breast shape [8].

To better control the risk of such complications, it is necessary to carefully evaluate breast tissue structure using preoperative mammography, as fatty necrosis most often occurs in patients with low tissue density and a predominance of the fatty component. In addition, in such high-risk patients, the technique of “cold dissection” (with scissors or scalpel) can be used to reduce tissue damage caused by electrocoagulation, if alternative oncoplastic methods are not possible [7].

In the study by Elbasateeny, there was no significant difference in recurrence rates between patients who underwent conservative breast surgery and those who had a modified radical mastectomy. Patients with recurrence were referred to oncotherapy, and four cases that underwent surgeries using the round block technique were re-operated on using modified radical mastectomy [23].

**“Bat wing”.** Mammoplasty in the form of a “bat wing” is better suited for resection of larger tumors in the central, upper periareolar, or subareolar region of the breast, especially in patients who require mastopexy, removal of excess inelastic skin, or moderate reduction in breast volume.

Mammoplasty of the “batwing” type combines resection of a skin area and the crescent-shaped glands above the NAC, as well as two adjacent triangular or wing-shaped areas of skin and breast parenchyma extending on both sides of the areola [18]. Figure 4 shows the main steps of the “bat wing” mastopexy technique, including preoperative skin markings, creation of the glandular defect, excision of the specimen, and the immediate postoperative appearance [19]. Mammoplasty in the form of a “bat wing” is also called “omega-plasty” or “inverted V-shaped mammoplasty” because of the “omega”



or inverted V-shaped incision formed by combining an upper circular incision and two adjacent radial incisions. "Batwing" or "hemibat wing" mammoplasty is especially useful for resection of tumors located 5-10 mm away from the skin covering them, when excision of the adjacent skin may be required to ensure a microecologically clean anterior or superficial edge. The batwing technique is preferable when the tumor is localized in the central part of the upper inner or upper outer quadrant at a dis-

tance of several centimeters from the NAC, with or without radially directed intraductal spread. In turn, the hemibatwing technique is better suited for excision of tumors in the upper inner and upper outer quadrants, especially when the tumor is close to the skin and removal of the skin covering is required. Both mammoplasty techniques provide optimal results (such as breast shape and nipple projection) in patients with large breast volume and moderate ptosis (grade I and II) [18].

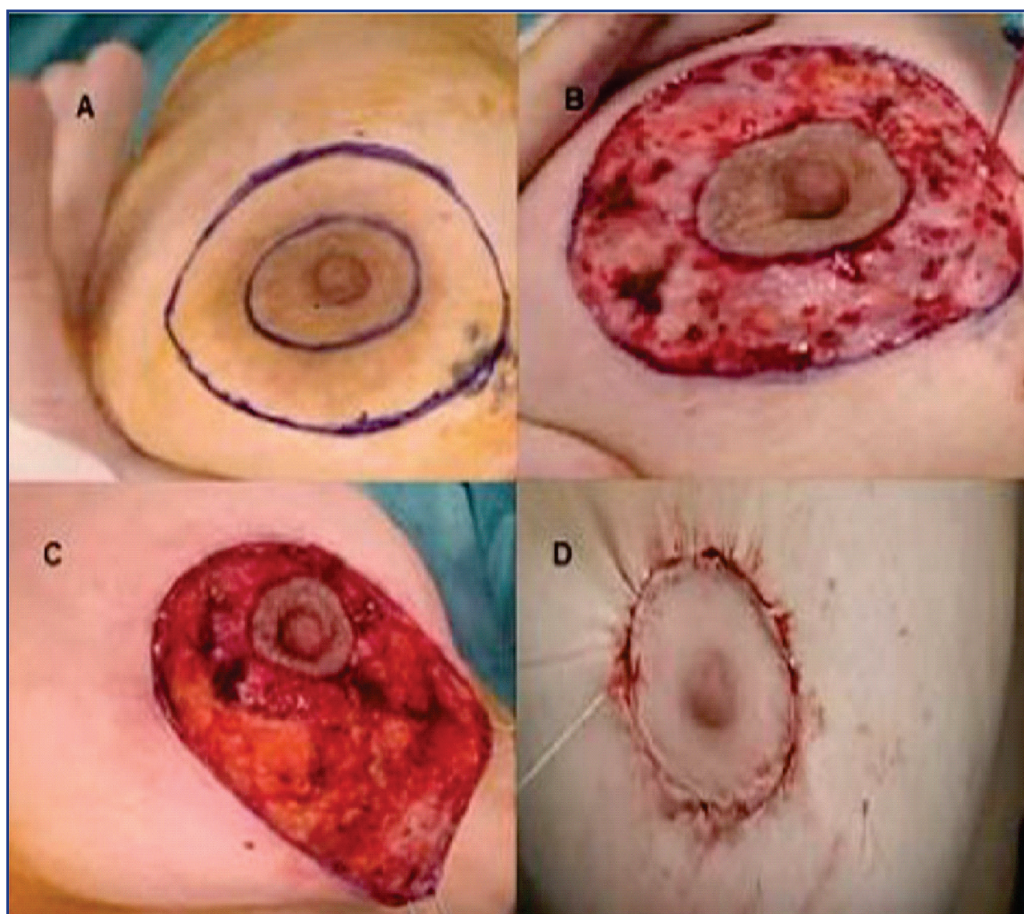


Figure 3 – Round block technique, (A) preoperative mapping, (B) de-epithelialization between two circles, (C) central quadrantectomy defect, (D) postoperative view. *Source:* M.S. Essa et al. [17] under a CC BY-NC-ND 4.0 license

The symmetrization operation can be performed simultaneously with oncoplastic intervention, in the second stage, after assessing the edges of the resection, or it can be postponed indefinitely depending on the clinical situation, the wishes of the patient, the qualifications of the surgeon, and the availability of a specialist in plastic surgery [24].

According to Silverstein's batwing mastopexy, it is important not to reduce the distance between the sternal notch and the nipple (SN-N) excessively, as this can lead to pseudoptosis. In fact, an excessive upward displacement of the NAC can make the breast appear unnatural, so the SN-N distance should always be at least 16 cm [25].

On the other hand, the batwing mammoplasty group was significantly more satisfied with scar visibility and overall outcome [26].

One of the limitations of the batwing technique is that it can only be applied to tumours in the upper half of the breast. Another limitation is that the lower pole of the

breast is left intact in this reduction technique. This may limit the weight of the specimen to be resected [27].

A recent study reported that the only case of partial nipple necrosis was in a patient with delayed initiation of adjuvant treatment due to diabetes mellitus. On the other hand, oncoplastic reduction can be performed in macro-mastic breasts without causing a risk of delaying the start of adjuvant treatment [28].

Postoperative complications after oncoplastic breast resections include seroma, hematoma, infections of the postoperative wound, divergence of the wound edges, fatty necrosis, and, in rare cases, necrosis of the areola and nipple. Extensive exfoliation of the fatty breast tissue can increase the risk of fatty necrosis and seroma formation. Excessive exfoliation of the NAC area may increase the risk of NAC ischemia or necrosis [18]. There is a constant risk of delayed adjuvant therapy, which is an important part of optimal breast cancer treatment, due to postoperative complications [29].

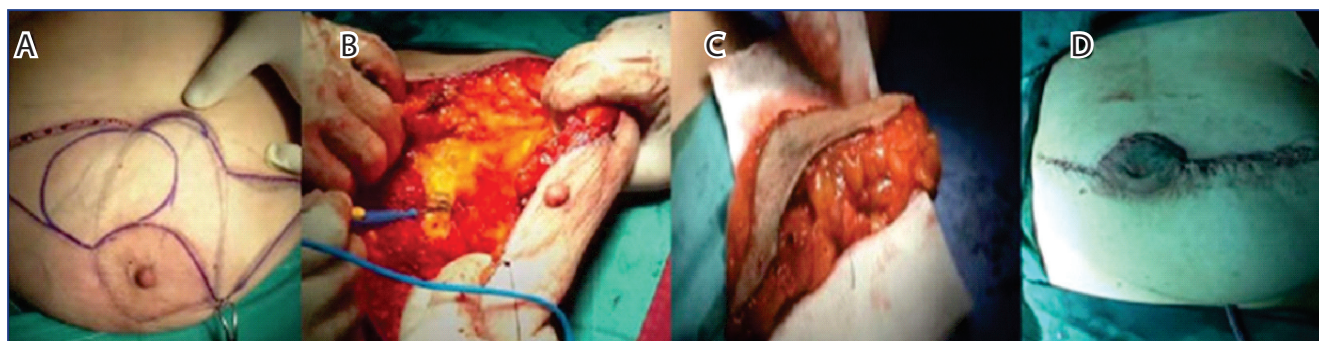


Figure 4 – Mastopexy technique “bat wing”, (A) preoperative mapping, (B) glandular defect, (C) sample, (D) immediate postoperative view. Source: M.S. Essa et al. [17] under a CC BY-NC-ND 4.0 license

**Discussion:** OPS, an interdisciplinary field at the intersection of oncology and reconstructive mammoplasty, has been actively developing since the end of the 20th century and is now considered one of the most important components of an integrated approach to treating patients with breast cancer. Initially, these operations were developed as an alternative to radical mastectomy, which, despite its high oncological effectiveness, was accompanied by significant physical and psycho-emotional consequences.

The Grisotti flap is a valuable method for treating central tumors that require NAC resection. Replacing the removed NAC with a new skin flap preserves the breast contour. This method is especially effective in women with a narrow rib cage and moderate ptosis, when a more standard Wise incision can lead to undesirable narrowing of the breast tissue. In addition, for women who want to avoid surgery on the opposite breast, the Grisotti flap allows for better alignment of the shape of both mammary glands.

The published results are comparable with those of other oncoplastic methods across various breast quadrants: similar indicators of resection margin involvement, local recurrence, and overall survival. A special feature of the Grisotti flap is the mobilization of the parenchymal flap into the defect after tumor removal, thereby exposing the parenchyma outside the traditional boost irradiation field. Similar effects are observed with the Clough Crescent method and the Wise reduction mammoplasty part, especially if the tumor is located above the areola. The consequences of this have not yet been described, and the development of strategies to adapt radiation therapy is limited to marking the cavity after tumor removal to distinguish it from the mobilized tissue.

The Grisotti technique is not suitable for women who want a significant rise in the NAC or a significant reduction in breast volume. It is effective when minimal breast size and shape changes are required, and surgery on the contralateral breast is undesirable or should be avoided [18].

Randomised evidence on cosmetic outcomes after breast cancer surgery is lacking; a review of 11 non-randomised studies covering 411 patients showed only 84–89% had good cosmetic results despite inconsistent, non-validated assessments. Only one study reported patient satisfaction, where 94% of 162 patients were satisfied or very satisfied with the outcome [30].

If we look at the survival rate of patients with breast cancer in Kazakhstan, the Aktobe region had the lowest

overall survival rate at  $12.1 \pm 0.9$  months (95% CI: 10.3–13.9 months), which is significantly lower than the survival rates in the Shymkent and Zhambyl regions. The highest survival rates were observed in these two regions, with  $18.0 \pm 1.3$  and  $17.9 \pm 1.4$  months (95% CIs: 15.5–20.5 and 15.3–20.7), respectively. However, we do not have reliable data on the percentage of these patients who underwent oncoplastic treatment [31].

At the same time, several publications note unresolved issues related to the variability of approaches to OPS, the lack of a unified classification of interventions, and the heterogeneity of their effectiveness assessment. Some authors point to the lack of long-term oncological follow-up, which complicates an objective assessment of the safety of these methods [32]. Simultaneously, there is a need to expand the scientific base, systematize training specialists in different approaches, and standardize indications for such interventions. Thus, summarizing the available data allows us to assert that OPS is a promising and socially significant area that can significantly change the paradigm of treatment and rehabilitation of patients with breast cancer. However, further clinical and multicenter studies are needed to strengthen the evidence base, develop national guidelines, and expand the availability of these technologies.

Limiting conditions and limiting factors should also be taken into account when performing oncoplastic reconstructions, such as the presence of positive resection margins, mutations in the BRCA1 and BRCA2 genes (relative contraindications), multicentric tumor growth, the absence of a postoperative defect during neoadjuvant therapy, and an unfavorable ratio of tumor size to breast volume.

**Insights.** Taking into account the anatomical features of the patient's breast, the advantages of each technique are given:

- 1) The absence of ptosis or minor ptosis makes it possible to perform breast reconstruction using periareolar and circular techniques.

- 2) The presence of lower ptosis is an indication for the use of a vertical Lejour incision, providing a shorter scar.

- 3) At the same time, the wise T-inverted technique combines the advantages of previous techniques and can be used in the reconstruction of ptotic and mammary glands without ptosis.

- 4) The superfedicular Pitanga method, the Vertical method by Mcxissock, the lower bipedicular method by



Robbins, and the superfedicular method by Orlando are described in the literature as reliable and safe.

5) For round-block reconstruction, patients with small and medium-sized mammary glands without any pronounced ptosis are most suitable, and surgery on the contralateral breast may not be required to achieve symmetry, which makes this technique optimal, especially for Asian women.

6) The use of the round-block technique is preferable for symmetrical mammary glands of medium size, without severe ptosis near the sacs, and with monocentric tumor growth. The advantages of this method include the absence of clearly visible postoperative scars and the need for no contralateral correction.

7) The "bat wing" technique is optimal for tumor localization in the central quadrant, on the border with the areola, with monocentric growth, with the possibility of NAC removal, without the use of long displaced flaps.

8) Contralateral balancing requires accurate prediction of volume changes after radiation therapy. If balancing is performed simultaneously with reconstruction, taking into account possible reductions in the reconstructed breast's volume, a healthy breast should be reconstructed with a slight decrease in volume. There are a few studies in the literature on the objective measurement of these volumes. Given the side effects of radiation therapy, it is important to predict volume changes within a year of treatment to achieve optimal symmetry.

**Conclusion:** Comparing the modern literature on the above-mentioned methods, we concluded that oncoplastic is an important part of comprehensive breast cancer treatment. Oncoplastic approach requires further description and evaluation from a professional perspective and through patient-oriented surveys.

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#### АНДАТПА

### СҮТ БЕЗІ ҚАТЕРЛІ ІСІГІН ЕМДЕУ МЕН ОҢАЛТУДАҒЫ ОНКОПЛАСТИКАЛЫҚ ХИРУРГИЯНЫҢ АРТЫҚШЫЛЫҚТАРЫ МЕН ШЕКТЕУЛЕРІ: ӘДЕБИЕТКЕ ШӨЛУ

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**Өзектілігі:** Қазіргі уақытта Дүниежүзілік денсаулық сақтау ұйымының (ДДСҰ) деректері бойынша, сүт безі обыры – қатерлі ісіктің ең жиі кездесетін түрі және 2022 жылғы Азия әйелдері арасындағы онкологиялық өлім-жітімнің жетекші себебі болып табылады. Аурудың еңбекке қабілетті жастағы адамдар арасында жиі анықталуына байланысты хирургиялық емдеу әдістері кеңінен қолданылып, үнемі жетілдірілуде. Онкопластикалық хирургия (ОПХ) оңалту бағдарламасының маңызды бөлігі ретінде танымал бола түсуде.

**Зерттеудің мақсаты** – Сүт безі обырымен ауыратын науқастарды емдеуде және операциядан кейінгі оңалтудан өткізуде қазіргі заманғы онкопластикалық хирургия әдістерінің артықшылықтары мен шектеулерін бағалау.

**Әдістері:** Ғылыми басылымдарды іздеу 2015 және 2025 жылдар аралығында Scopus, PubMed және E-Library дерекқорларында жүргізілді. Іздеу барысында 2500-ден астам мақала анықталды, оның 32 дереккөзі қосу және алып тастау критерийлеріне сәйкес таңдалды.

**Нәтижелері:** Онкопластикалық хирургияның сүт безі обырынан кейінгі операциялық оңалтудағы тиімділігі анықталды. Дәстүрлі мастэктомиамен салыстырғанда, ОПХ онкологиялық қауіпсіздік деңгейін сақтай отырып, эстетикалық нәтижелердің анағұрлым жоғары болуын қамтамасыз ететіні дәлелденді.

**Қорытынды:** Қазіргі әдебиеттерде сипатталған жоғарыда аталған әдістерді өзара салыстыра келе, онкопластикалық тәсілді науқастарды оңалту барысында қолдану сүт безі обырын кешенді емдеудің маңызды бөлігі болып табылады деген қорытындыға келдік. Бұл тәсіл кәсіби тұрғыдан да, пациентке бағытталған сауалнамалар арқылы да одан әрі сипаттауды және бағалауды қажет етеді.

**Түйінді сөздер:** сүт безі обыры, онкопластикалық хирургия (ОПХ), хирургиялық оңалту (ХО).

#### АННОТАЦИЯ

### ПРЕИМУЩЕСТВА И ОГРАНИЧЕНИЯ ОНКОПЛАСТИЧЕСКОЙ ХИРУРГИИ В ЛЕЧЕНИИ И РЕАБИЛИТАЦИИ ПРИ РАКЕ МОЛОЧНОЙ ЖЕЛЕЗЫ: ОБЗОР ЛИТЕРАТУРЫ

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**Актуальность:** На данный момент, по данным ВОЗ, рак молочной железы является наиболее распространенным видом рака и основной причиной смерти среди онкобольных женщин в Азии в 2022 году. Хирургическое лечение широко применяется

и постоянно совершенствуется, учитывая растущую выявляемость заболевания среди трудоспособного населения. Онкопластическая хирургия (ОПХ) набирает популярность как часть реабилитационной программы.

**Цель исследования:** оценка преимуществ и ограничений современных методов онкопластической хирургии в лечении и послеоперационной реабилитации больных раком молочной железы.

**Методы:** Поиск научных публикаций за период с 2015 по 2025 годы был проведен в базах данных Scopus, PubMed и электронной библиотеке e-Library. Поиск выявил более 2500 статей, из которых 32 источника были отобраны в соответствии с критериями включения и исключения.

**Результаты:** Установлена эффективность ОПХ в послеоперационной реабилитации после рака молочной железы. Было выявлено, что по сравнению с традиционной мастэктомией, ОПХ обеспечивает такую же онкологическую безопасность, но в то же время позволяет достичь оптимальных эстетических результатов.

**Заключение:** Сравнив данные о вышеупомянутых методах, представленные в современной литературе, мы пришли к выводу, что применение онкопластического подхода в реабилитации пациентов является важной частью комплексного лечения рака молочной железы и заслуживает дальнейшего описания и оценки как с профессиональной точки зрения, так и с позиции пациент-ориентированных исследований.

**Ключевые слова:** рак молочной железы (РМЖ), онкопластическая хирургия (ОПХ), хирургическая реабилитация (ХР).

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