

CASE REPORT

DOI: 10.5336/caserep.2021-81476

Management of the Inflammatory Breast Cancer After Reduction Mammoplasty

Arda ÖZDEMİR^a, Burak KAYA^a, Can KONCA^b, Necip Sefa ÖZDEN^a, Seher DEMİRER^b^aDepartment of Plastic Reconstructive and Aesthetic Surgery, Ankara University Faculty of Medicine, Ankara, TURKEY^bDepartment of General Surgery, Ankara University Faculty of Medicine, Ankara, TURKEY

ABSTRACT Breast cancer is a systemic disease that occurs in approximately one in eight women and may cause significant mortality and morbidity. Inflammatory breast cancer was considered to be contraindicated for simultaneous reconstruction after mastectomy in previous periods due to frequent local recurrence and low survival expectancy. However, simultaneous reconstruction is a necessity nowadays; with the use of combination therapies that includes chemotherapy and radiotherapy besides surgery for inflammatory breast cancer. Reverse abdominoplasty was described by Huger in 1970, which is a reliable choice for reconstruction of anterior chest wall defects. In this case report, a patient who was diagnosed with inflammatory breast cancer after breast reduction surgery and underwent bilateral modified radical mastectomy and reconstruction with a reverse abdominoplasty flap was presented. Inflammatory breast cancer can be seen after reduction mammoplasty. Reverse abdominoplasty flap is a reliable option for the reconstruction of anterior chest wall defects after resection of such cancers.

Keywords: Inflammatory breast cancer; reduction mammoplasty; reverse abdominoplasty

Inflammatory breast cancer was first described in 1924 and is a rare, aggressive form of invasive breast cancer.¹ Inflammatory breast cancer accounts for just 2% of all breast cancers but is responsible for 10% of the breast cancer-related deaths. The inflammatory breast cancer is diagnosed clinically, and the diagnosis is based on changes on the skin of the breast, such as erythema, edema, peau d'orange and prominent appearance of dermal hair follicles.² Reduction mammoplasty is a useful technique in both oncologic and cosmetic aspects in terms of allowing pathological examination of the breast parenchyma, which also reduces the incidence of breast cancer since it reduces total breast parenchyma.³ Reverse abdominoplasty is a technique used to correct supraumbilical skin excess using the inframammary incision. In recent years, it has also been used for bilateral anterior chest wall defects that occur after oncological resection.⁴

CASE REPORT

A 52-year-old patient was admitted to the Department of General Surgery in our clinic with complaints of erythema, itching and swelling of the left breast skin. With these complaints, the patient first applied to the outpatient clinic of general surgery of another hospital and was referred to the dermatology clinic. A positron emission tomography/computed tomography was requested to evaluate the patient and resulted as follows: 'Minimal hypermetabolism with suspicion of malignancy was observed in both breast skins, thickening of the skin reaching approximately 1 cm in the widest part. Diffuse, dense areas were observed in both breast parenchymas that were more prominent on the left. Pronounced lymph nodes in both axillae were suspected to be hypermetabolic metastasis.

The patient's history revealed hiatal hernia, hypothyroidism and hypertension, but no active drug

Correspondence: Arda ÖZDEMİR

Department of Plastic Reconstructive and Aesthetic Surgery, Ankara University Faculty of Medicine, Ankara, TURKEY

E-mail: arda.ozd@hotmail.com



Peer review under responsibility of Türkiye Klinikleri Journal of Case Reports.

Received: 20 Jan 2021

Received in revised form: 23 Feb 2021

Accepted: 25 Feb 2021

Available online: 08 Mar 2021

2147-9291 / Copyright © 2021 by Türkiye Klinikleri. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

use. The anamnesis showed that the patient underwent bilateral reverse T scar reduction mammoplasty at another hospital due to bilateral breast hypertrophy approximately 1.5 years ago, and the patient's mammography was reported as BI-RADS 1 before the surgery. It was also learned that the patient's breast tissue, which was sent for histopathological examination after reduction mammoplasty, was reported as "focal fibrocystic changes".

The patient's mammography, which was performed at the postoperative first-year follow-up, was resulted as follows: "No clusters of microcalcification in malignant nature were observed. A lymph node with a thick cortex of the left axilla was observed". Correlation with ultrasonography (USG) was recommended. The breast USG applied to the patient in line with these recommendations was reported as follows: "Retroareolar millimetric cyst was observed in both breasts. A cluster of microcysts was observed in the right upper quadrant."

In the physical examination, dermal erythema and peau d'orange appearance extending from the inframammary sulcus to the inferior border of the clavicle in the skin of the left breast was observed. Also, scars that are 20 cm in length extending from the inferior border of areola to the medial and lateral sides of the inframammary sulcus compatible with the reverse T reduction mammoplasty incisions in both breasts are observed. No palpable lymph nodes or masses were present in both breasts and axilla. A tru-cut biopsy was planned for the patient with a suspicion of inflammatory breast cancer. The biopsy result of the patient was reported as follows: "The findings strongly suggesting invasive carcinoma." After four cycles of neoadjuvant chemotherapy treatment, including cyclophosphamide, epirubicin, 5-fluorouracil the patient, was prepared for surgery.

Bilateral modified radical mastectomy and bilateral axillary lymph node dissection were carried out by the general surgery team. Breast parenchyma and axillary lymph nodes were sent for pathological examination. The mastectomy defect in the right breast could be repaired primarily. However, the mastectomy defect in the left breast had a vertical length of approximately 15 cm. The preoperative appear-



FIGURE 1: The preoperative appearance of the patient.

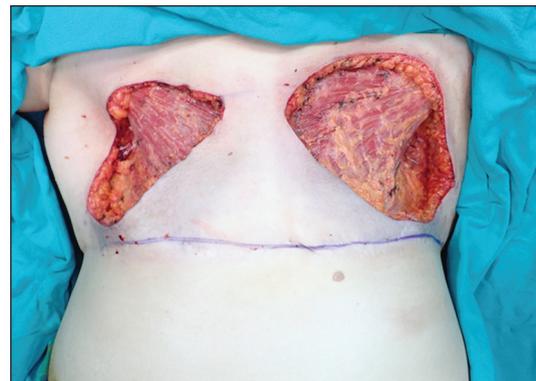


FIGURE 2: The appearance of the patient after mastectomies.

ance of the patient is shown in [Figure 1](#), and the appearance of the patient after mastectomies is shown in [Figure 2](#).

At this stage, the operation was taken over by the plastic surgery team for the repair of bilateral mastectomy defects. A reverse abdominoplasty flap was planned, and both mastectomy defects were combined with excision of the midline intact tissue. The main aim of excising the intact tissue was to reach a uniform horizontal scar and also to reduce the risk of a hypertrophic scar. To do so, the option of unilateral primary repair of the right side and unilateral reverse abdominoplasty flap to the left side was not favored. The appearance of the patient after excision of the midline intact tissue is shown in [Figure 3](#).

The reverse abdominoplasty flap was elevated by dissection of the anterior abdominal wall superficially the rectus fascia until the umbilicus is reached. [Figure 4](#) shows the dissected reverse abdominoplasty flap.



FIGURE 3: The appearance of the patient after excision of the midline intact tissue.



FIGURE 4: The dissected reverse abdominoplasty flap.

Then, the flap was adapted to both mastectomy defects with appropriate sutures. The early postoperative appearance of the patient is shown in Figure 5. Any problems such as postoperative suture dehiscence, circulation problem or seroma were not observed.

Pathological examination of bilateral mastectomy and bilateral axillary lymph node dissection was resulted as follows: “Mixed invasive micropapillary and ductal carcinoma of the right and left breast (Invasive carcinoma NST), Grade 2; Invasive tumor and lymphovascular invasion are present in the dermal area of the areola. Paget’s disease was not observed. Dermal subcutaneous tissue showing tumor infiltration and diffuse lymphovascular invasion were observed. Axillary dissection materials revealed 16/17 metastatic lymph nodes on the right and 11/11 metastatic lymph nodes on the left.” The patient’s consent was obtained for this case study.

DISCUSSION

Patients with the request for reduction mammoplasty must be evaluated by physical examination and radiological imaging for breast cancer. The main reason for this evaluation is that the breast lymphatic traffic will change with reduction mammoplasty. This change means that the position of the sentinel lymph node to be biopsied in case of future breast cancer also changes after reduction mammoplasty surgery.⁵ In the literature, the findings obtained in the cohort studies showed that when the patients were over 40 years of age and when more than 600 grams of tissue were removed during reduction mammoplasty, the in-



FIGURE 5: The early postoperative appearance of the patient.

cidence of breast cancer significantly reduced.⁶ In addition, in the 28-year follow-up performed by Baasch et al., the relative risk of breast cancer was determined to be 0.61 following reduction mammoplasty.⁷ However, to our knowledge, there are no cases of inflammatory breast cancer developed after reduction mammoplasty in the literature.

It is considered that embolism of tumor cells into skin lymphatic vessels is the main responsible factor for breast lymphatic obstruction in inflammatory breast cancer.⁸ Inflammatory breast cancer has approximately a 5% incidence in the community, and its 5-year survival is between 34-47%.⁹ When the patient was presented to our clinic, she was diagnosed with inflammatory breast cancer due to skin lesions on the left breast.

The main treatment in inflammatory breast cancer is neoadjuvant chemotherapy to reduce tumor stage, obtaining tumor-free surgical margins and radiotherapy in the breast, skin and axilla.¹⁰ As a result

of this triple treatment modality, the survival of inflammatory breast cancer cases has dramatically increased.⁹ The increase in survival also increased the need for repair of mastectomy defects.

Mastectomies were carried out because inflammatory breast cancer is more challenging than skin protective mastectomies concerning reconstruction. Simultaneous reconstruction was not recommended for repairing mastectomy defects due to inflammatory breast cancer because of high local recurrence rate before chemotherapy, surgery and radiotherapy triple treatment. In recent years, simultaneous reconstructions have been preferred.

Skin grafts, regional and free flaps are possible options for the repair of anterior chest wall defects after surgical treatment of the inflammatory breast cancer. These flap options include pectoralis major, latissimus dorsi, omentum, rectus abdominis, external oblique muscle and transverse thoracoabdominal flap.⁹ Reverse abdominoplasty flap is a reliable flap with a rich blood supply that is rarely used for reconstruction. In contrast to other flap options, using the reverse abdominoplasty technique enables both mastectomy defects to be reconstructed simultaneously with mastectomy.⁴ Another reason for the preference is that the reverse abdominoplasty flap technique has short operation and recovery time.⁴ The most important reason for the preference of this technique besides the previous two techniques is that the risk of com-

plete flap failure after radiotherapy in the postoperative period is lower compared to other techniques.⁴ Skin grafts are not preferred because they are not as sufficiently resistant to a possible radiotherapy as other flap options. Also since the patient had neoadjuvant chemotherapy, the expected local recurrence risk was quite low. The patient presented in this case report had two separate mastectomy defects that were repaired by the reverse abdominoplasty technique.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Arda Özdemir; **Design:** Can Konca; **Control/Supervision:** Seher Demirel; Burak Kaya; **Data Collection and/or Processing:** Can Konca; **Analysis and/or Interpretation:** Arda Özdemir; **Literature Review:** Necip Sefa Özden; **Writing the Article:** Arda Özdemir, Necip Sefa Özden; **Critical Review:** Seher Demirel, Burak Kaya; **References and Fundings:** Can Konca; **Materials:** Seher Demirel.

REFERENCES

- Anderson WF, Schairer C, Chen BE, Hance KW, Levine PH. Epidemiology of inflammatory breast cancer (IBC). *Breast Dis.* 2005-2006;22:9-23. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Barkataki S, Joglekar-Javadekar M, Bradfield P, Murphy T, Dickson-Witmer D, Van Golen KL. Inflammatory breast cancer: a panoramic overview. *J J Rare Dis Res Treat.* 2018;3(2):37-43. [[Crossref](#)]
- Tarone RE, Lipworth L, Young VL, McLaughlin JK. Breast reduction surgery and breast cancer risk: does reduction mammoplasty have a role in primary prevention strategies for women at high risk of breast cancer? *Plast Reconstr Surg.* 2004;113(7):2104-10; discussion 2111-2. [[Crossref](#)] [[PubMed](#)]
- Tiong WH, Basiron NH. Reverse abdominoplasty flap in reconstruction of post-bilateral mastectomies anterior chest wall defect. *Case Rep Med.* 2014;2014:942078. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Kiluk JV, Kaur P, Meade T, Ramos D, Morelli D, King J, et al. Effects of prior augmentation and reduction mammoplasty to sentinel node lymphatic mapping in breast cancer. *Breast J.* 2010;16(6):598-602. [[Crossref](#)] [[PubMed](#)]
- Brown MH, Weinberg M, Chong N, Levine R, Holowaty E. A cohort study of breast cancer risk in breast reduction patients. *Plast Reconstr Surg.* 1999;103(6):1674-81. [[Crossref](#)] [[PubMed](#)]
- Baasch M, Nielsen SF, Engholm G, Lund K. Breast cancer incidence subsequent to surgical reduction of the female breast. *Br J Cancer.* 1996;73(7):961-3. [[Crossref](#)] [[PubMed](#)] [[PMC](#)]
- Robertson FM, Bondy M, Yang W, Yamauchi H, Wiggins S, Kamrudin S, et al. Inflammatory breast cancer: the disease, the biology, the treatment. *CA Cancer J Clin.* 2010;60(6):351-75. Erratum in: *CA Cancer J Clin.* 2011; 61(2):134. [[PubMed](#)]
- Simpson AB, McCray D, Wengler C, Crowe JP, Djohan R, Tendulkar R, et al. Immediate reconstruction in inflammatory breast cancer: challenging current care. *Ann Surg Oncol.* 2016;23(Suppl 5):642-8. [[Crossref](#)] [[PubMed](#)]
- Copson E, Shaaban AM, Maishman T, Moseley PM, McKenzie H, Bradbury J, et al. The presentation, management and outcome of inflammatory breast cancer cases in the UK: Data from a multi-centre retrospective review. *Breast.* 2018;42:133-41. [[Crossref](#)] [[PubMed](#)]