MAR Clinical Case Reports (2024) 5:4

Case Report

A Case of Areola Necrosis: Maintaining the Principle of Tissue Preservation or of Breast Subunit?

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Received: 18 April 2024

Published: 06 May 2024

Introduction

Psychological distress due to mutilation progressively decreased since radical surgery has been replaced by breast conservative surgery. However, 20-30% of the breast cancer patients undergo a mastectomy. More recently, Nipple sparing mastectomy and immediate reconstruction has become an accepted treatment for appropriately selected cancer and prophylactic mastectomy patients. Different studies conclude that NSM is improving aesthetic and psychological results without compromising oncological outcome.

Since the main rationale for NAC sparing mastectomy is better postoperative breast cosmesis, all local complications that negatively influence the aesthetic outcome of the procedure are a serious concern. The technique of nipple- and areola-sparing mastectomy requires extensive undermining of the nipple–areola complex in order to achieve complete excision of glandular tissue. Extensive dissection might jeopardize the blood supply of the nipple–areola complex, and thus lead to necrotic changes. Moreover, immediate breast reconstruction is known to increase wound complications.

When performing a breast reconstruction or oncoplasty, adequate viability of the tissues left behind and/or added to partially or totally reconstruct the breast, is of utmost importance for a successful outcome. Therefore, tools to assess tissue perfusion are excellent and valuable instruments for the breast reconstructive surgeon. Indocyanine green-angiography (ICG-A) has been shown to be beneficial in delayed and immediate breast reconstruction. Upon completion of the mastectomy perfusion assessment is performed and the breast is reconstructed.

Necrosis of the nipple areolar complex (NAC) is an infrequent but devastating complication of breasr reconstruction after NSM.

However, with strategic management and properly timed reconstruction, it is possible in most cases to restore a natural-appearing NAC.

In the immediate postoperative period, the ischemic NAC can be transferred as a full-thickness graft. When it is elected to convert to a graft, all the circulatory changes have to be stabilized to confirm that the ischemia is irreversible and the recipient site is healthy enough to accept a graft. The guiding principle in surgical management of ischemic complications of the NAC is to avoid aggressive treatment until the tissue necrosis obviously demarcates. When the missing part is small, the nipple can be reconstructed by composite grafting from the contralateral nipple. When a major part of the nipple is lost, reconstruction using a local flap can yield a favorable result. The areola can be reconstructed using a full skin graft from the contralateral areola,

the labia minora , or the upper inner thigh. Intradermal tattooing can be used to obtain a desirable color match.

Smoking has a significant impact on necrotic complications. Similarly, Garwood and co-workers found smoking as a risk factor for necrosis in NSM. Komorowski previously reported that age over 45 years and incision type have significant detrimental impact on necrosis.

Case Report

A 49-year-old woman with breast cancer on the right side underwent immediate reconstruction following nipple-sparing mastectomy using lateral incision (specimen weight: 340 g) along with a sentinel node biopsy. The patient had no comorbidities such as diabetes, and a previous neoadjuvant chemotherapy, but was a smoker. We did advice the patient to stop smoking before the surgery, but we did not achieve this aim.

5 days after surgery, the mastectomy flap suffered a partial ischemia across the nipple, corrisponding to the poorly perfused area, evaluated within the first half-hour after mastectomy with ICG-A.

After 7 days tissue necrosis demarcates and under local anesthesia, the necrotic part was removed and then sutured with Ethylon 4/0, with a consistent displacement of the areola, breast deformity and an asimmetry with the contralateral part.

After the removal of the suture, the wound presented a deiscence with a consitent leak of limpid fluid.

The wound get infected and patient immediately started Amoxicilne+Clavulanico 1000mg treatment. Gentle wound dressing changes were performed with non adherent gauzes.

After a week, the patient underwent a second local procedure, with the removal of the dehiscence and the wound suture.

Despite the breast underwent every second day a mediacal treatment, the same problem reuppered.

The wound did not re-epithelizate and after a week presented again a dehiscence with the exposition of the prosthesis.

The patient returned in OR.The author pulled out the prosthesis and washed the pocket with Betadine and sterile water. The ADM was integrated. Therefore the devitalized part of the areola was removed and the restant part dehepitelized and sutured to the vitalized part of the skin.

With the aid of an areola marker the restant nipple was centered, drawn and dehepitelized. A skin graft was

removed fron the inguinal region and put in sterile water.

Circumferential capsulotomies was performed, thus to enlarge the pocket.

The pocket was washed with a solution containing sterile water, Betadine, Rifocin and Gentalyn ,), two drains were inserted and fixed using non-resorbable sutures. (Upon re-draping and re-sterilization of the chest area and change of glowes and instruments, the chosen silicone-gel implant, with the same dimension of the controlateral, was positioned.

The skin was sutured using resorbable sutures), in two layers followed by non- resorbable sutures. The new areola was sutured with a round interlocking block suture with the graft centred on the dehepitelized area.

While salvaging this through a full-thickness skin graft from the monolateral inguinal region was considered, we were concerned that the skin color and texture match would not be favorable. Given that the contralateral breast had a previous skin sparing mastectomy, this problem didn't exist.

The skin graft showed successful engraftment with no issues, and the postoperative course was uneventful. One year after the surgery, the reconstruction remained cosmetically favorable.

Conclusion

The traditional dogma of Plastic Surgery "Tissue conservation and preservetion" has been trasgressed, thus to obey a principle of simmetry of a pleasant breast and to maintain the subunit of the areola.

Similar to nasal reconstruction, a subunit principle in breast reconstruction may significantly improve the appearance of the result. Dividing the breast in subunits that are to be replaced as a whole rather than as a patch gives superior results. The more favorable subunits of the breast in terms of post operative appearance and camouflage of scars included the nipple, the areola, and the expanded areola subunits.

In the subunit concept, a better aesthetic result may be achieved by creating a larger defect by sacrifice normal breast skin to hide transitions at subunit margins. Spear

The 3 step principle of Blondeel regarding the ideal of a pleasant and aesthetically correct breast, respected an appropriate footprint, a proportional conus and an accurate skin envelope in our case.

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The priority during reconstruction would must be the duty of reconstruct a tissue from a vital tissue. For this reason, we excise the necrotic part, the areola, suturing the vitalized part of the subdermal od the areola to the subdermal breast tissue.

NSM. Komorowski et al. previously reported that age over 45 years had significant detrimental impact on necrosis risk.

Psychological distress due to mutilation still remain for women

The experience of a life threatening illness, such as cancer, requires a person to consider an array of emotional, medical, social and existential demands. Specific to breast cancer, research shows that the experience of diagnosis and treatment of breast cancer may result in considerable distress.It is also known that a diagnosis of invasive breast cancer propels women into a time of uncertainty, that brings fear and emotional work. This disease oftentimes challenges a woman's identity, self-esteem, body image and relationships. However, even with these commonly felt distresses, most women adjust well to a breast cancer diagnosis and the treatments experienced, particularly if they had a previous cancer, with breast reconstruction complications.

In this setting, the women being diagnosed with breast cancer or genetic disposition thereto, should be offered the highest standard of care and treatment. The prerequisite for a successful reconstruction as well as timely onset of adjuvant treatment is uneventful healing. In addition, this may also yield an aesthetically acceptable or even pleasing result. For thos reason the surgeon has to consider all these aspects, in order tachieve the best surgical, oncological and emotional result.

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