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CASE REPORT

Breast

Goldilocks Mastectomy with Bilateral In Situ Nipple Preservation Via Dermal Pedicle

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Summary: Patients who don't want or can't have formal breast reconstruction after mastectomy surgery can be considered for a Goldilocks mastectomy, where the breast fullness is recreated from what is left behind after the gland tissue is removed from underneath the skin in a breast reduction pattern. A Goldilocks mastectomy does not require the use of implants or tissue transfer from other parts of the body and may be completed in a single surgery. This is best suited for larger breasted women who are willing to have much smaller breasts as a result. Previously, it was a challenge to be able to preserve the nipples when this operation was performed; however, this article describes a patient who had a bilateral Goldilocks mastectomy for right breast cancer who was able to save her nipples by keeping the blood flow in place from the surrounding skin. Conventional breast reconstruction after mastectomy is a challenge for larger breasted women. The Goldilocks mastectomy technique was designed to make best use of the redundant lower pole skin and subcutaneous fat to recreate a breast mound without a prosthetic implant or autologous tissue transfer. In its original description, the Goldilocks mastectomy did not include a means for nipple preservation. In this report, we describe the further refinement of the Goldilocks procedure that preserves the nipple areolar complex using a dermal pedicle. A patient with large pendulous breasts and right breast carcinoma underwent a bilateral Goldilocks nipple-sparing mastectomy and immediate reconstruction without an implant or flap. *(Plast Reconstr Surg Glob Open 2018;6:e1748; doi: 10.1097/GOX.0000000000001748; Published online 20 April 2018.)*

INTRODUCTION

Nipple- and skin-sparing procedures are supplanting traditional transverse elliptical mastectomy in women with small-to-moderate size breasts. However, skin- and nipple-sparing procedures are frequently rejected in large breasted patients due to the resulting redundant skin flaps.

Described in 2012, The Goldilocks mastectomy has proven to be a reliable technique to expand the advantages of skin-sparing procedures to women with large and ptotic breasts.[1] It utilizes a wise pattern configuration, with closure of the upper pole mastectomy flap skin over lower pole dermal fat and de-epithelized skin to provide local flap material to create a breast mound. Because of the relocated upper areolar border to the newly created inframammary crease and the placement of the lower areolar border under the upper pole skin, sparing the nipple areolar complex (NAC) is a challenge due of its lack of blood supply and limited maneuverability. While NAC preservation has been successfully described as a skin graft,[2,3] we recognized that in situ NAC sparing is indeed possible as well.

CASE REPORT

A 57-year-old G2, P2 obese woman with large, ptotic breasts presented with a 0.8 cm, grade II,ER/PR pos, Her-2neu neg, right breast infiltrating ductal carcinoma. The patient elected to undergo mastectomy. She desired an autologous reconstruction without implant but was a poor candidate for TRAM or DIEP flap due to the abdominal obesity. A right Goldilocks mastectomy with sentinel node biopsy and prophylactic left Goldilocks mastectomy was performed.

Preoperative marking was performed in the standing position using a Wise keyhole pattern (Fig. 1).

The nipple areola location was transposed cranially 18 cm to the level of the inframammary crease. The NAC was reduced to a 42-mm diameter and left intact as the keyhole pattern is de-epithelialized. When creating the

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Fig. 1. Preoperative wise pattern marking; right breast tumor upper outer quadrant.

circumareolar incision, we took great care to not divide the thicker fibrous dermal layer with a full thickness incision to protect the subdermal vascular network.

Standard mastectomy flap creation was performed with cautery via the lateral border of the keyhole flap. The dissection was performed with this approach to reach the breast boundaries. The plane was created at the gross interface of the parenchyma and subdermal fat. Careful dissection and delicate tissue handling reduces loss of the subdermal vascular plexus.

The breast was elevated from the chest wall and passed off for pathological analysis. The skin flaps represent the entire skin envelop of the breast with the de-epithelialized keyhole portion containing the NAC (Fig. 2, 3). Blood supply of the most distal portion of the flaps and NAC is judged adequate. The NAC is transposed to the previously marked position with tailor tacking sutures and the medial and lateral vertical limbs of the keyhole are approximated. The de-epithelialized skin/adipose flaps are folded to provide volume. Adjustments are made with the patient in the sitting position. When the configuration is satisfactory, the tailor tacking sutures are removed, Jackson Pratt drains are placed in each breast, and the dermal closure completed (Fig. 4).

Fig. 2. Undersurface of skin flap dissection with breast specimen still attached to chest wall.

Fig. 3. Nipple areola complex carried on broad inferior and superior-lateral pedicle.

DISCUSSION

The Goldilocks mastectomy has distinct advantages for large-breasted patients. Instead of resecting redundant skin flaps as in a traditional transverse mastectomy, this technique produces reliably vascularized skin adipose flaps that can be used to tailor a neo-breast mound. The technique allows excellent exposure for the mastectomy, and the resulting mound shape is superior to traditional mastectomy with either implant or flap reconstruction. The modification described extends the versatility of the Goldilocks procedure to nipple areola preservation. Because underlying breast parenchyma perforators are re-

Fig. 4. Postoperative result at 3 months.

moved, the NAC dermal pedicle must be more broadly based, and care must be taken to protect small perforating vessels which enter medially from the parasternal branches of the internal mammary.[4] As this case demonstrates, these vessels provide a reliable blood supply even with extended flaps, which result from a ptotic breast.

SUMMARY

The trend toward less disfiguring skin- and nipple-sparing procedures for treatment and prophylaxis of breast cancer is largely bypassing women with large or ptotic breasts. This is due to the lack of methods that address the excess skin envelope that results after mastectomy. Repurposing the Wise pattern to tailor a breast mound after mastectomy provides the oncologic surgeon with a valuable and time-tested tool to approach skin sparing in the large breast. The redundant, de-epithelialized flap buried within the newly tailored mound can provide adequate volume without the complications concomitant with an implant or distant flap. An understanding of the keyhole pattern and familiarity with preoperative marking is necessary. Skin flap necrosis, a common concern cited with traditional mastectomy in obese women,[4,5,6] is not an issue in our experience with this technique. Skin closure along the vertical limb maintains the basic cone shape of the breast mound and stretches naturally over time unlike transverse chest scars.

The nipple areola–sparing Goldilocks modification illustrates a further advantage of this approach to mastectomy. Sparing of the NAC, when oncologically prudent, permits a markedly less disfiguring option for women. We did not experience nipple necrosis in this case even with an extended pedicle length.

To our knowledge, this is the first case in which the Goldilocks technique has been utilized for bilateral autologous reconstruction with in situ bilateral nipple areola preservation.

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