

## Skin- and Nipple-Sparing Mastectomy without reconstruction +/- lipomodelling

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### Introduction

The introduction of nipple-sparing mastectomy (NSM) has dramatically improved the cosmetic outcomes and quality of life for patients requiring a mastectomy. Previously wrought with complications, this procedure regained popularity after Hartmann et al. in 1999 published their Mayo Clinic experience with prophylactic mastectomy in women at high-risk of breast cancer. In their report, the majority of women in the study had undergone NSM and only 1% (7/693) developed a subsequent breast cancer. There was no statistical difference in risk reduction whether the nipple was excised or preserved [1].

Nipple-sparing mastectomy has subsequently been incorporated into mainstream breast cancer surgery, with no evidence of increased risk of local recurrence of complications compared with the previous gold standard of skin-sparing mastectomy [2,3] and with better patient satisfaction [4].

The surgical techniques for breast reconstruction have evolved in the intervening 3 decades. Women who require or request mastectomy are now routinely offered immediate breast reconstruction, with either silicone implant or using autologous flap, or a combination [5,6]. Immediate reconstruction poses specific issues for women with a low body mass index (BMI) who often have a breast width greater than 12 cm but a cup size or volume of 200 g or less. Currently, the smallest implant on the market with a width of 12 cm is the Sebbin extra short height, low projection (3.6 cm) which has a volume of 210 cm<sup>3</sup>. Such an implant would result in noticeable asymmetry compared with the opposite breast. Options include inserting a larger, appropriate width implant, which is not always favoured by such slim women. An expander may be placed to avoid the greater risk of complications arising if the mastectomy skin envelope is overstretched, but this then leads to a recommendation for contralateral symmetrising augmentation to match volume. Some women are against the use of silicone implants, and reluctant to undergo autologous tissue transfer for such a small volume. These women could have a simple mastectomy, but many may wish to preserve the nipple for visual cosmetic benefit.

Based on a series from Singapore [7], we have offered a selected group of women with small breasts and minimal ptosis the option of nipple-sparing mastectomy (NSM) without standard immediate breast reconstruction with or without lipo-modelling. Here we report on the series, with illustrative photos.

### Methods

Women with breast weights of less than 200 g who had undergone NSM without reconstruction were identified for inclusion in this study. The mastectomy surgery was performed using standard techniques, the same as for patients having a reconstruction. Some women underwent immediate or delayed lipofilling to achieve a breast mound and some have chosen to remain flat.

During the Covid-19 pandemic we developed a 'selfie' protocol in which patients were invited to take photographs and email them in to be uploaded on to the secure medical photography site within the Electronic Medical Record. Eligible women were invited to send in images which were then reviewed at one of our oncoplastic multidisciplinary meetings. Figure 1 shows the guidance sent to the patients illustrating the photos they were expected to take and return via email.

### Results

Eight patients were approached and 6 agreed to send photos for this evaluation. One patient had recent surgery and was therefore excluded, another patient had a simple mastectomy with lipomodelling and therefore was also excluded. Three patients underwent simple NSM alone without lipomodelling. These procedures occurred between July 2019 to March 2021 with the majority of procedures occurring in 2020 (4/6, 67%).

Each of these patients had undergone mastectomy without reconstruction by choice. The BMI ranged from 18 kg/m<sup>2</sup> to 23 kg/m<sup>2</sup> with the average being 20.5 kg/m<sup>2</sup>. Most patients were a small cup size range with breast weights between 70 to 190 grams. Three patients underwent radiotherapy, two in the adjuvant setting and one patient had radiotherapy prior to her mastectomy, having previously had breast-conserving surgery. Table 1 summarises the six cases for whom photographs were obtained. Figure 2 shows the follow up selfie photographs of four illustrative patients. Brief histories are provided.

### Discussion

An alternative approach to the transverse mastectomy scar in small-breasted women with a low BMI was first reported by Lim et al. This is the first case series in Caucasian women and the second thus far in the literature. It constitutes an IDEAL framework level 2A as it is a further case series building on a previous initial report and describes learning from experience [8].

## Photographs for Breast Surgery

### ***Why do we need photographs?***

Photographs allow the breast and plastic surgery teams to discuss your case at the oncoplastic multidisciplinary meetings and to plan the best surgery for you. You have a choice of how your photographs can be taken

1. By medical photographers at Royal Marsden Hospital in Sutton or Chelsea.
2. By you, your partner or close friend ('selfies') and then email them to us.

All photographs become part of your confidential medical records and are stored securely. More information on how your photographs may be used (only with your permission) is on the 'consent to photograph' form which all patients must complete with a member of the breast surgery team before having the photographs taken/send in selfies.

### ***How to take your photographs***

Please wear 'bikini' underpants to maintain modesty. Do not wear jewellery or personal items. You should stand in front of an empty plain white/pale wall in a very well-lit room. The camera/person should have a window or light source behind them to prevent shadows. The camera should be level with the middle of your chest and 'zoomed in'. Please DO NOT show your face

Take 3 photographs of your breasts and abdomen from neck to pubic hair:

**Directly facing the camera  
with arms by your side**



**Slight right angle**



**Slight left angle**



### ***How to send your photographs***

1. Please read the 'use of non-secure email' disclaimer on the next page. Emailing photos means you understand and agree to the disclaimer. You can cancel your agreement at any time in writing.
2. Email the photos with your full name, hospital number and date of birth to:

The photos will be stored safely and confidentially as part of your medical records.  
Please delete your photos from your mobile device in case it is stolen.

*Figure 1. Patient 'Selfie' proforma implemented*



**A**



**B**



**C**



**D**

*Figure 2. Outcome photos*

- a) Right mastectomy for recurrence (i.e. prior radiotherapy and pre-existing asymmetry), via previous upper outer quadrant radial scar. Breast weight 91 g. No lipomodelling. Photographs at 13 months post-op
- b) Bilateral mastectomy via inframammary fold incision for BRCA 2 Risk reduction. Breast weights: Right 62 g, Left 68 g. 1 episode of lipomodelling. Photographs at 5 months post-op
- c) Right mastectomy for node positive breast cancer. Breast weight 150 g. Adjuvant post-mastectomy radiotherapy. No lipomodelling. Photographs at 9 months post-op
- d) Right mastectomy via peri-areolar incision for G3 IDC ER /PR neg , Her 2 pos and HG DCIS and Pagets. Breast weight 190 g. 1 episode of lipomodelling. Photographs at 6 months post-op.

Table 1. Demographics of patients in the series

Age	BMI	Breast width	Indication for surgery	Breast weight	Lipomodelling volume	Adjuvant radiotherapy	Duration of follow up from surgery to photos
70	18.1	Not recorded	recurrent ER8 PR7 HER2 3+ IDC – previous Wide local excision	91 g	nil	yes	13 months
30	23.0	12 cm	G2 IDC plus DCIS ER8, PR 8 her 2 neg	132 g	80 mls serratus, 250 mls pec	no	5 months
46	18	12 cm	BRCA 2 risk reduction	62 g right, 68 g left	38 mls right, 38 mls left	no	5 months
33	18.6	Not recorded	G3 IDC Triple negative	150 g	nil	yes	9 months
61	22.6	Not recorded	G2 ILC ER8 PR7 Her 2 neg	70 g	200 mls	yes	11 months
45	22.3	Not recorded	G3 IDC ER/PR neg, Her 2 pos plus HG DCIS	190 g	160 mls to pec and serratus	no	6 months

Lim *et al.* [17] described a round block technique in which redundant skin around the nipple-areola complex (NAC) is approximated and marked to form an outer ring. The skin between the outer ring and the NAC is then de-epithelialized. The NAC is raised as a full thickness flap on a superomedial pedicle, and the mastectomy is performed through the incision of the de-epithelialized area. This technique, however, comes with complications such as widening of the areola as a direct result of the surgical technique, and the risk of necrosis of the nipple-areola complex which is now supported by a supero-medial pedicle only.

We have used a variety of incisions, mostly the inframammary approach, relying on the innate contraction of the skin to the chest wall. Only case (a) had a small skin resection to remodel the envelope.

In our series, patients who had chosen or requested this procedure were happy with their decision, but further work will be undertaken prospectively, with oncological and patient-reported outcome endpoints. Overall, surgeons were also satisfied with the aesthetic outcomes, and we remain willing to offer this option to patients who request this procedure or who are small-breasted. As with many surgical interventions, especially those for which aesthetic outcome, a very personal matter, is a relevant endpoint, randomisation may be difficult in this cohort of patients.

Limitations of this study include the single centre for case acquisition and the heterogeneity of surgical incision and use of lipofilling. No formal patient-reported outcome analysis has been undertaken. Nonetheless, we believe it provides support to this approach in carefully selected women.

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