



Nipple sharing: an undervalued technique in nipple reconstruction

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Background: Nipple reconstruction is an important stage within the patient's breast reconstructive journey. It can be performed surgically by using local flap or nipple share techniques. Despite evidence in the literature favoring the results after nipple share procedures and associated high patient satisfaction, this technique is infrequently offered to patients in our unit, where over 300 autologous breast reconstructions are performed yearly.

Methods: A survey was conducted evaluating the preferred nipple reconstruction technique of the eight plastic surgeons performing breast reconstruction in our unit. In addition, 60 patients who had had a nipple reconstruction procedure were given questionnaires to assess their satisfaction with aspects of their nipple reconstruction.

Results: Only one of the eight plastic surgeons preferred nipple sharing over a local flap reconstruction. The experience with nipple sharing was very limited in this group of highly experienced breast reconstructive surgeons. Reasons for not performing nipple sharing were diverse and not in line with the current literature or results of our patient questionnaire. The response rate of the patient questionnaires was 53%. Patients of the nipple share group were more satisfied with each aspect of their nipple reconstruction and no donor nipple morbidity was reported in this group. One hundred percent patients in the nipple share group said that they would have the same procedure again compared to a lower 80% in the local flap group.

Conclusions: Our nipple share patient group were more satisfied with all aspects of the nipple reconstruction compared to the local flap group. We propose that unfamiliarity with the nipple share technique and misconceptions regarding its results are the main reasons for it not being offered. In our experience, nipple sharing can result in superior aesthetic outcomes and high patient satisfaction, especially in women with larger nipples who benefit from a contralateral nipple reduction.

Keywords: Nipple reconstruction; breast reconstruction; nipple sharing; local flap

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Introduction

Nipple reconstruction is usually performed as the final surgical stage of a patient's breast reconstructive journey prior to nipple-areolar tattooing. It can be performed surgically by using local flap or nipple sharing techniques. It has been shown that patients are more satisfied with their breast reconstruction if it includes a nipple

reconstruction (1,2).

Nipple sharing is not a new procedure and was first described by Wexler and Oneal in 1972. The authors reconstructed a previously ablated areola and nipple using half of the nipple-areola from the contralateral breast during a bilateral reduction mammoplasty (3). Studies have shown that there is minimal morbidity to the donor nipple, with minimal loss of sensation (4,5). The literature



Figure 1 Results of nipple sharing in two different patients after a DIEP reconstruction. From left to right: lateral view donor nipple, front view, lateral view reconstructed nipple.

also demonstrates high patient satisfaction scores after nipple sharing (4,6) and a recent systematic review showed satisfaction data is higher in nipple share groups compared to local flap nipple reconstruction groups (7).

In the senior author's experience, nipple sharing can result in superior aesthetic outcomes (*Figure 1*) and high patient satisfaction, especially in women with larger nipples who benefit from a contralateral nipple reduction. This owes to the fact that the nipple is a structure of unique tissue composition, containing smooth muscle and lactiferous ducts. To achieve a "like for like" reconstruction, no other tissue but that of a nipple contains the same structural elements to mimic nipple texture, colour match and give long-term projection. This is demonstrated when using local flap techniques whereby the new "nipple" is softer and will flatten over time with loss of projection (8).

Our preferred technique is to harvest the inferior half of the donor nipple via transverse incision and close the defect directly. The graft is sutured to a de-epithelialised recipient wound bed and secured with a tie-over dressing (*Figure 2*). We have seen consistently good results with minimal donor site morbidity.

However, in our unit, where over 300 free flap breast reconstructions are performed yearly, nipple sharing is not offered to the majority of patients. We suspect this surgical preference may be due to lack of experience with the procedure and concerns regarding donor site.

To test this hypothesis, we conducted clinician

surveys to find out what nipple reconstruction technique plastic surgeons in our unit prefer and the reasons for these preferences. We also conducted a retrospective study of patients in our unit who had undergone nipple reconstruction after breast reconstruction under the care of a single surgeon who performs both the nipple share and local flap techniques. We used patient surveys to ascertain patient satisfaction with their nipple reconstruction and that of the donor nipple if they had a nipple share procedure.

Methods

Clinician surveys

For the first part of the study, we conducted a clinician survey to assess current nipple reconstruction preferences and practice of plastic surgical consultants in our unit. All eight breast reconstructive surgeons, who regularly perform nipple reconstruction, were approached. We asked what their preferred nipple reconstructive method was and their reasoning for this preference. We also asked how many cases of nipple sharing they had seen and/or performed in their career.

Patient surveys

After gaining ethical approval from our local hospital Governance Department, surveys were sent to 60 patients who had undergone nipple reconstruction in our unit



Figure 2 Nipple sharing technique. Top row: harvest of donor nipple and direct closure of the donor site. Bottom row: de-epithelialisation of the recipient wound bed and securing the nipple graft with a tie-over dressing.

under the care of a single surgeon between 2012 and 2017. Along with their survey, patients were provided with an information leaflet providing information about the study, a consent form for enrolment and were advised that if they did not respond to the study letter they would not be re-contacted. All participating patients gave informed consent by returning a signed consent form.

The surveys asked them to evaluate aspects of their nipple reconstruction (including size, shape, projection, sensation, texture and colour), as well as the donor nipple result in nipple sharing cases. Patients were also asked if they would have the same type of nipple reconstruction procedure again. Patients were given three months to return their questionnaires.

Results

Clinician surveys

Out of eight consultants only one preferred nipple sharing over the local flap technique. The reasons given for his preference include an associated superior cosmetic result and higher patient satisfaction. It also has the ability to reduce a large donor nipple and is suitable when carrying out nipple reconstruction over a thinly covered implant.

The remaining seven consultants all noted their preferred nipple reconstruction to be the (modified) C-V local flap. Their reasons for this choice varied but included not liking nipple sharing due to oncological reasons, risk of chronic pain to the donor nipple, risk of graft failure and

preference not to touch the “healthy breast”.

Of the seven consultants who did not prefer the nipple share method, only one had seen/performed more than 10 nipple share procedures over their career.

Patient surveys

Out of the 60 patient questionnaires sent (38 local flaps and 22 nipple shares), there was a response rate of 53% (total responses = 32, with 21 local flaps and 11 nipple shares).

When comparing satisfaction scores with the features of the reconstructed local flap versus the nipple share result, the nipple share group scored higher in all areas (see *Table 1*). Patients had no concerns regarding their donor nipple after the nipple share procedure, with no reports of scar issues or chronic pain. Of the nipple share group 100% of patients would undergo the same procedure again, compared to a lower 80% in the local flap group.

Discussion

The opinion of the majority of our consultant body was a preference for local flap nipple reconstruction over the nipple share technique. This does not seem to correlate with our patient satisfaction data and conclusions made within the literature, which favour nipple sharing. Reasons for the consultants’ choice were very varied, highlighting that like in many plastic surgery procedures, preferences are usually supported by personal views rather than scientific evidence. However, we appreciate that only a small number

Table 1 Satisfaction scores of the reconstructed nipple

Features	Local flap (%)	Nipple share (%)
Size		
Correct size	76	91
Too small	24	9
Projection		
Correct projection	67	82
Too flat	33	18
Colour		
Correct colour	48	100
Too light	52	0
Texture		
Normal	57	100
Too soft	43	0
Natural look		
Natural	71	100
Unnatural	29	0

of consultants were surveyed in our study. A national practice clinician survey would yield a more representative sample of current surgical opinion.

As detailed in the results section, there are higher satisfaction scores when patients rated aspects of a nipple share reconstructed nipple compared to a local flap reconstructed nipple. None of the patients surveyed who underwent nipple sharing reported any donor site morbidity. Only 1 out of 22 nipple grafts failed in a patient who had previously undergone radiotherapy. Donor site morbidity and graft failure were concerns surgeons had regarding the nipple sharing, but these opinions are unsupported by our study.

It is also important to note that there has been a single case of Paget disease in a nipple graft following nipple-sharing reported in the literature (9). The oncological risk is extremely low and not something we have seen in our practice but highlights the importance of careful patient selection and oncological follow-up.

In the senior author's opinion, patient selection is also important as an adequately sized contralateral donor nipple is vital when employing the nipple share technique. The recipient bed must be correctly de-epithelialized and no electro-coagulation should be used as this can compromise

graft take. It is also essential that specialist plastic surgery nurses manage these patients post-operatively, as they are experienced in the evolving appearances of the new nipple. This is of particular importance because the nipple graft often looks necrotic with a superficial scab lasting up to 8 weeks post-operatively. Only the surgeon should be permitted to remove this scab to avoid inadvertent removal of the graft.

Two of the eleven patients in the nipple share group felt that their new nipple had grown in size during the post-operative period. This may support the senior author's hypothesis that nipple tissue has growth potential. A prospective study measuring the dimensions of the new nipple at intervals post-operatively would provide more information on this topic.

Conclusions

Our survey does show a trend towards higher patient satisfaction in the nipple share group, which is supported by current literature on the subject. However, it appears that many surgeons performing nipple reconstruction prefer the local flap reconstructive technique. Despite little experience with nipple sharing, they incorrectly associate it with higher complication rates and lower patient satisfaction. We hope this article provides education to surgeons performing breast reconstruction of the advantages of the nipple share approach in the appropriate selected patient.

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Footnote

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at <http://dx.doi.org/10.21037/abs.2018.08.02>). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). This study was approved by the local hospital Governance Department. Written informed consent was obtained from the patient for publication of

this manuscript and any accompanying images.

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