Peer Review File

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Reviewer A

Congratulations on a manuscript that addresses a topic of current interest to breast reconstructive surgeons. A few comments below:

Comment 1: Given the large incisions and open approach, I do not think this would qualify as a minimally invasive approach (as stated in the abstract and body of the text).

Reply Comment 1: Thank you for the comments and suggestions. All changes to the text of the manuscript have been highlighted in red. The term "minimally invasive" used in this manuscript to describe the technique has been changed throughout the manuscript to "muscle-sparing" to avoid confusion.

Changes in the text: This change has been added to the text on lines 51, 104 and 307.

Comment 2: It would be useful to provide the operative specimen resection weights to provide an indication of the implant size used relative to volume of breast removed.

Reply Comment 2: Thank you for the suggestion. Unfortunately, specimen resection weights were not recorded or available in all cases; therefore, this data cannot be added to the manuscript.

Comment 3: I note that all patients underwent a Wise-pattern/modified Wise-pattern incision. This implies a reduction in the skin envelope. Were all patients relatively large breasted requiring/desiring a smaller breast size?

Reply Comment 3: Thank you for the comment. The majority of patients in the study underwent Wise pattern mastectomy and were large breasted, had a certain degree of ptosis and wanted to be smaller or similar in breast size. Of these patients, those who were suitable candidates and for whom it was oncologically safe, had the nipple-areolar complex harvested as a full-thickness graft and grafted to a new location on the reconstructed breast. Patients who did not have the nipple-areolar complex harvested as a free graft had the nipple sacrificed with the Wise pattern mastectomy. A small number of patients in the study who did not have ptosis underwent nipple-sparing mastectomy with the nipple-areolar complex left intact and implant reconstruction.

Changes in the text: This clarification and the above sentences have been added to the Methods section of the manuscript on lines 165-172.

Comment 4: Would this incision also imply that the patients who did not undergo a NAC free graft (48%) ended up sacrificing the NAC?

Reply Comment 4: Patients who were appropriate candidates, and for whom it was oncologically safe, had the nipple areolar complex harvested as a full-thickness free nipple graft and wrapped in saline-moistened gauze. After mastectomy and implant reconstruction was performed, the skin overlying the ideal nipple location on the breast mound was de-epithelialized and the free graft was sutured in place. Patients who did not have the nipple-areolar complex harvested and grafted as a full-thickness free graft had the nipple sacrificed with the Wise pattern mastectomy incision.

Changes in the text: These sentences have been added to the Prepectoral Implant Breast Reconstruction Technique section of the Methods on lines 190-196.

Comment 5: Why not utilize an inframammary or periareolar incision (with or without lateral extensions) to preserve the NAC and skin envelope in suitable patients? ie. small - medium breasted patients.

Reply Comment 5: The majority of patients in the study underwent Wise pattern mastectomy and were large breasted, had a certain degree of ptosis and wanted to be smaller or similar in breast size. Of these patients, those who were suitable candidates and for whom it was oncologically safe, had the nipple-areolar complex harvested as a full-thickness graft and grafted to a new location on the reconstructed breast. Patients who did not have the nipple-areolar complex harvested as a free graft had the nipple sacrificed with the Wise pattern mastectomy. A small number of patients in the study who did not have ptosis underwent nipple-sparing mastectomy with the nipple-areolar complex left intact and implant reconstruction.

Changes in the text: This clarification and the above sentences have been added to the Methods section of the manuscript on lines 165-172.

Comment 6: Perhaps, another outcome of this paper would be to demonstrate that larger breasted women are also candidates for an immediate prepectoral implant reconstruction. Some studies suggest that immediate prepectoral implant reconstruction in the setting of a nipple sparing mastectomy are best suited to small-medium breasted women.

Reply Comment 6: Thank you for this suggestion. This is an important point to state in the manuscript.

Changes in the text: The sentence, “Another important outcome of this study is that it demonstrates that larger breasted women with ptosis who are not ideal candidates for nipple-sparing mastectomy can safely undergo immediate prepectoral implant

reconstruction using a Wise pattern mastectomy incision with the nipple-areolar complex harvested and repositioned in an ideal location as a free graft," has been added to lines 313-317 of the Discussion section of the manuscript.

Comment 7: There are only 2 photographs provided. It would be useful to provide some further pictures. Pre-operative and post-operative photos for women who underwent free nipple grafts and those who did not would be important. Some operative photos to better illustrate the technique would also be useful.

Reply Comment 7: Thank you for the suggestion. Additional photos of the technique and postoperative photos of women who underwent prepectoral reconstruction with free nipple grafts were included in the manuscript.

Changes in the text: Please see additional Figures 1 and 3 added to the paper.

Comment 8: Was there a learning curve involved? Did outcomes improve toward the end of the 10-year period?

Reply Comment 8: There is a learning curve with every new surgical technique that is incorporated into one's surgical armamentarium. However, since there is no way to quantify or measure the learning curve involved in performing the surgical technique described in this paper, it cannot be addressed or commented on.

Reviewer B

This is an interesting piece but has several major failings. First, on positive notes, it is very well written, well-structured and well referenced.

The negatives are substantial:

Comment 1: It is retrospective in nature, and fails to be able to offer significant data as a result

Comment 2: There is no mention of statistical analysis at all in the methods or results, and no meaningful data is thus presented

Comment 4: There are no standardised variables and no validated tools used in the analysis at all - as such, this is a 'technique' paper, not an outcome paper, and needs total reworking as such with clearer methods, technique and photographs.

Reply Comments 1, 2 and 4: Thank you for your comments. The retrospective, non-randomized nature of the study is a limitation; however, this is the case for many important studies in the breast surgery literature, as it is extremely difficult to execute prospective, randomized and controlled clinical breast surgery studies. The prepectoral reconstruction results reported in this manuscript have been statistically analyzed and compared to a control group of subpectoral reconstructions performed by the same surgeon, during the same study period (see new Table 1). Furthermore, to determine risk factors for a complication after prepectoral implant reconstruction,

we analyzed and compared demographic, clinical and operative characteristics between patients who experienced a complication after prepectoral reconstruction to those who did not experience a complication (see new Table 2). We believe this greatly strengthens the scientific merit of our study.

Changes in the text: These changes have been reported in new Tables 1 and 2, as well as in the Abstract in lines 56-73, in the Introduction in lines 114-117, in the Methods section in lines 159-164 and lines 203-210, in the Results section in lines 242-285 and in the Discussion lines 308-317.

Comment 3: There are no intraoperative photographs at all to demonstrate the technique

Reply Comment 3: Intraoperative photographs to demonstrate the technique have been added in new Figure 1.

Changes in the text: Please see new Figure 1.

Reviewer C

Comment 1: It would be important to know if complications were more common in patients with risk factors such as: smoking, radiation therapy, large and ptotic breasts, and previous breast surgery.

Reply Comment 1: Thank you for the suggestion. Please see new Table 2 which analyzes risk factors for complications rates in prepectoral implant reconstruction. Unfortunately, degree of ptosis and prior breast surgery were not accurately recorded in all patients so this data cannot be analyzed.

Changes in the text: Please seen new Table 2 and additional sentences in the Results section on lines 276-285.