

Peer Review File

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Reviewer A

Comment 1: Excellent review with very helpful diagrams. I would recommend including a section on the management of central tumors. I would also include indications for level 2 Oncoplastic lumpectomy, specifically addressing the aesthetic option of reduction in women with small tumors whom otherwise desire reduction, and; a level 2 procedure as a segue to nipple-sparing mastectomy in ptotic, large-breasted women.

Reply 1: Thank you for the thoughtful review, we have added a paragraph on central tumors to page 7 on lines 346-361 under the sub-title “Anatomic considerations”.

The addition of a discussion on patients with smaller tumors undergoing level 1 resection can be found on pages 6-7, lines 285-319.

As oncoplastic breast surgery is based on reconstruction of breast conservation surgical defects, detailed discussion on mastectomy procedures was not within the scope of our current review. However, the benefit prophylactic mammoplasty or mastopexy to offer women nipple-sparing mastectomies deserves to be highlighted; thus, we added a discussion to the volume displacement section on page 8 lines 408-420.

Reviewer B

Comment 1: To embellish the didactical character of the techniques, it is advisable to add the indications of each technique and an image or a sketch for the description of the preoperative marking of the flap.

Reply 1: Important feedback we have received regarding this current primer is that our cases were not displayed optimally. Former “case 2, photograph 1” and “case 3, photograph 3” demonstrated preoperative markings. However, we did not include preoperative markings of volume displacement techniques. New and reformatted figures have been added to the manuscript to better assist our explanations for both volume displacement (figure 2, page 9, line 458) and volume replacement techniques (AICAP figure 6, page 14, line 610; LICAP figure 12, page 16, line 706). Based on your feedback, indications have been separated out by technique with volume displacement on pages 8-9, lines 425-442 and volume replacement on page 12-13, lines 534-563.

Comment 2: 217-222 reference is needed.

Reply 2: Appropriate citation has been added to page 13, lines 545-549 (corresponding to your appropriately labeled lines in stated review), as we reference Clough et al from 1990 to confirm the tendency for breasts to experience a bird beak deformity following lower pole resections, then Clough et al 2010 when discussing OPS in level 1 excision volume.

Comment 3: All pictures should be numbered uniquely and mentioned in the text accordingly in a consequent manner. I believe it is better to mention the cases upfront and in brackets and not as subtitles for better coherence of the manuscript.

Reply 3: We agree that the cases could be presented in a more reader-friendly format. Therefore, in order to address both of the above comments we reformatted the cases completely to be elaborated on within the appropriate sections. All pictures are now mentioned within the text and the cases are no longer subtitles.

Comment 4: Figure legend of case 1 picture 2 to be technique explained in detail (pedicle-wise, perforator-wise).

Reply 4: Thank you for pointing out this lapse, the patient underwent inferior-pedicle design, thus this was added to the legend.

Comment 5: Pictures to be rotated to the right angle.

Reply 5: Thank you for this catch, and we have ensured all photographs have been uploaded in the appropriate orientation. We as authors have found that reviewing figures on smart devices compared to computer monitors have the tendency inaccurately depict the photograph orientation.

Comment 6: 281-284 reference/ citation is suggested to support the advantage of LICAP.

Reply 6: Thank you for pointing this out. We added the citation from the NIH that discussed the advantage of preserving the thoracodorsal pedicle in using LICAP flaps, on page 15 lines 649-653. As well as clarified that the advantage of patient positioning is only the authors opinion.

Comment 7: Pictures with indocyanine green technology showing tissue perfusion would be a great addition to the manuscript yet if there are no pictures citation needs to be added.

Reply 7: We agree patient photographs would be ideal to convey the utility of ICG perfusion in oncoplastic breast surgery, however, we do not have photographs that have been approved by patients for use. Thus, we have added a citation to a review article by Lauritzen et al from 2021 demonstrating the use of ICG for intraoperative decision-making lead to decreased rate of complications and decreased rate of reconstruction loss in oncoplastic breast surgery. The citation was added to page 8 lines 429, page 15 line 642, and page 16 line 713.

Comment 9: Titles and paragraphs after the case should be converted into a discussion paragraph.

Reply 9: Discussion was added to pages 20-21 on lines 859-887, thank you for the much-needed suggestion and necessary addition.

Comment 10: Some information regarding the learning curve.

Reply 10: A discussion on learning curve to adopt oncoplastic methods was added to the page 21, lines 880-887, also astutely pointed out as necessary and integral part of our newly added discussion section.

Reviewer C

Comment 1: I think it is incorrect to present the article as a review, there is no literature review or data review.

Reply 1: We agree article is not a formal review, in order to accurately represent the purpose of the manuscript, the authors have fully reformatted to fulfill requirements of the “Surgical Technique Format” defined by the Annals of Translational Medicine. Thank you for pointing out this error.

Comment 2: Only 2 volume displacement techniques are described. it would be useful to deepen by describing all the most common techniques (superior pedicle, lateral pedicle and central mount technique).

Reply 2: Thank you for calling attention to the additional pedicle-based designs that can be employed with volume displacement techniques, we have mentioned the additional design options under the volume displacement section, lines 422-426 on page 8. Unfortunately limited by 5,500-word count corresponding with the surgical technique format our technical descriptions were limited to the arguably most versatile options in the superomedial pedicle and inferior pedicle designs.

Comment 3: The relationship between the site of the tumor and the chosen technique needs to be explained.

Reply 3: The surgical options offered to patients are highly dependent on tumor location, therefore we genuinely appreciate this feedback and have inserted multiple paragraphs under the anatomic consideration section, on pages 6-7 through lines 318-361.

Comment 4: In the volume replacement section, I think the TDAP and the LD flap should also be included.

Reply 4: As authors we had to make difficult decisions on what techniques to provide further technical elaboration. For the purposes of this paper, the authors have chosen to only elaborate on the LICAP and AICAP techniques, mainly limited by the word count but also as these designs are arguably less morbid and equally as versatile.

Nonetheless, you elucidate the gap we previously had in mentioned available volume replacement techniques. Added breath can be found on lines 526-532 on page 12.

Reviewer D

Comment 1: The authors present an excellent overview of oncoplastic surgery. For the introduction, the authors could consider removing some of the most basic content related to breast cancer screening and cancer work-up and perhaps put more emphasis on once a patient has been diagnosed, when/how plastic surgery referrals should occur or conversations around oncoplastic surgery should happen with patients, as well as potentially expand on the multi-disciplinary aspect of work-up and the importance of having reconstructive surgeons involved in these discussions.

Reply 1: Thank you for this insight. We have followed your suggestion and removed the more basic breast cancer diagnosis details and highlighted expanding the multi-disciplinary aspect of a breast cancer diagnosis workup, as we believe early involvement of plastic surgeons or dual-trained oncoplastic surgeons should be employed as early as possible, with one option for involvement being scheduled breast tumor board. The addition of this important dialogue can be found in the newly constructed discussion on page 20, lines 861-870.

Comment 2: For Indications, even though the authors mention that this is a primer focused on Level II oncoplastic surgery, they should restate this in the indications, as patients with smaller breasts or minimal ptosis are still oncoplastic surgery candidates, just more likely to be able to be treated with Level I approaches.

Reply 2: We agree it is pertinent to mention the existence of level I approaches; thus, we did add a paragraph on small tumors in anatomic considerations, lines 285-319, on page 5-6.

Comment 3: It might be helpful to discuss the septum containing the neuromuscular structures and other strategies for avoiding neuromuscular injury in the anatomy section.

Reply 3: As we felt limited by the appropriate word count, it was a difficult decision to limit our anatomic descriptions to specific blood supply for the relevant OPS techniques discussed later in the text and highlight the innervation to the NAC (page 5, line 282-284).

Comment 4: As there are other options for marking the tumor bed besides clips, it would be helpful to include that these exist if even the authors prefer to use clips.

Reply 4: As we did refer to surgical clips to mark the partial mastectomy cavity, we agree that further elaboration is necessary to mention potentially different options. Thus, a paragraph was added to the section on postoperative considerations on page 17, lines 749-756.

Comment 5: The drawing of the blood supply to the breast does not add to the manuscript.

Reply 5: While we agree that the blood supply to the breast is a basic concept that all breast and plastic surgeons should have sufficient understanding prior to reading our primer, oncoplastic surgery is all about maintaining perfused tissue based upon the blood supply. Thus, we felt a brief review prior to elaborating on pedicle and perforator-based tissue rearrangement can aid more visually based learners. We did heed your advice as we recognize redundancies in the blood supply explanation that has now been removed and condensed to the paragraph in anatomic considerations, page 5 lines 273-282.

Comment 6: While the section on volume replacement approaches is very helpful, most large series on oncoplastic surgery particularly systemic reviews/meta-analyses are on oncoplastic reduction - given the different complication profiles and surgical indications between oncoplastic reduction and local perforator flaps, the complications should be separated into different sections and not grouped as one.

Reply 6: Thank you for calling attention to the fact that we did not highlight the unique complications for volume displacement and replacement techniques. We tended to focus on the similarities between all oncologic procedure, however we did add a paragraph on unique complications encountered with volume replacement techniques on lines 790-820 on pages 18-19.