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Reviewer A

COMMENT #1: The authors proposed an interesting and well-written narrative review about the indications, pros and cons of retropectoral and prepectoral placement in implant-based breast reconstruction.

I have some minor suggestions:

“Preoperative risk assessment requires consideration of all factors and comorbidities that may be associated with greater risk for development of complications or poor aesthetic reconstructive outcomes, which include body mass index (BMI), breast volume, ptosis, skin quality and other contributing factors including intraoperative skin flap quality.(1–3)”

“Across all forms of 149 reconstruction, Hanwright et al. reported higher overall morbidity in patients with high BMI among 12,986 patients.(4) Other studies demonstrated concordant findings that high rates of 151 overall complications are associated with high BMI in patients undergoing implant-based reconstruction compared to patients with lower BMI.(5–7)

Please cite also <https://pubmed.ncbi.nlm.nih.gov/35854008/> The authors showed how increased BMI was associated with failure in retropectoral implant-based breast reconstruction.

REPLY #1: This resource has been cited in the revised version.

CHANGES IN THE TEXT #1: Please see page 6 line 152.

COMMENT #2: “Further, Lin et al. revealed that, compared to permanent implants, radiation of tissue expanders was associated with significantly more complications (32.8% vs. 11.4%) including skin necrosis, wound breakdown, and infections, as well as higher odds of prosthetic failure (OR: 2.02, p=0.047).(24)”

This assessment is some way confounding: it seems Lin was discussing about irradiating the expander or the permanent implant in two-stage breast reconstruction; actually, Lin et al were comparing PMRT in DTI and in two-stage breast reconstruction. Other papers may be discussed if the authors want to highline the different expected outcomes base on the timing of irradiation (Anderson doi: 10.1016/j.ijrobp.2008.06.1940, Nava 10.1097/PRS.0b013e31821e6c10, Cordeiro 10.1097/PRS.0000000000001278, Cagli 10.1007/s00266-022-03001-7.

REPLY #2: We appreciate this feedback. Upon further review of our referenced article, we agree that this assessment is confounding. We have included the suggested article by Nava et al. to discuss and highlight the differences in expected outcomes after postmastectomy radiation therapy.

CHANGES IN THE TEXT #2: Please see page 9 lines 213-215.

COMMENT #3: In the final part of the paper, the authors propose a preoperative reconstruction assessment for patients undergoing prophylactic and therapeutic nipple-sparing mastectomy. The two algorithm are very similar, and I do not believe they deserve separate

paragraphs and diagrams. I believe a single paragraph and diagram, underlining the differences in the two conditions, would be more impactful.

RESPONSE #3: We appreciate the input regarding our proposed preoperative reconstruction assessment and we agree that both algorithms are similar. We have chosen to keep the original figures for the purposes of clarity for readers. However, in consideration of this valuable feedback, we have combined the separate paragraphs into one unified section to discuss both diagrams while underlining the differences.

CHANGES IN THE TEXT #3: Please see pages 16-17 lines 389-423.

COMMENT #4: I was also wondering why the authors chose to limit this analysis only to NSM; why not considering skin sparing and skin reducing mastectomy? Did they include the SRM in the NSM?

RESPONSE #4: We appreciate this question. The scope of this study was narrowed to only include NSM given the concern for higher risk of reconstructive complications when the nipple-areolar complex is preserved. With the increase in popularity of NSM, the authors chose to have a narrower focus for plastic surgeons to use this review as a guide for reconstructive prospects in the setting of NSM.

CHANGES IN THE TEXT #4: No changes to the text were made in response to this comment.

COMMENT #5: Figure 4 (Preoperative decision algorithm for reconstruction assessment based on patient characteristics and preferences.) is not cited in the text. A few lines about this algorithm would be appreciated.

RESPONSE #5: We appreciate this comment. The algorithm is cited on Page 6 Line 140 and the factors within the algorithm are discussed under the section Flap Perfusion on Page 12 Line 290.

CHANGES IN THE TEXT #5: No changes to the text were made in response to this comment.

Reviewer B

COMMENT #6: I read with interest the article of C.A King et al. about the review of the literature on optimal position in implant-based breast reconstruction

I think that the studies included are well chosen and the algorithms proposed can help surgeons in surgical management of patients, as there are few consolidated resources in literature.

All patients characteristics are well described as well as all the risk factors.

It is interesting the part where you report that compared to permanent implants, radiation of TE is associated with significantly more complications. Could be interesting to know more about this, as well as the reason why there are increased odds of capsular contracture with implant size 400mL.

It is also something useful to read about few studies talking about skin flap thickness, since there is no a standardized cut-off that determine where use a prepectoral o subpectoral reconstruction.

RESPONSE #6: We thank the reviewer for taking the time to read our study and provide positive feedback.

CHANGES IN THE TEXT #6: No changes in the text were made in response to this comment.

Reviewer C

COMMENT #7: The title mentions this paper is a 'literature review', it will be better if this work is revised to a 'systematic review'.

RESPONSE #7: We thank the reviewer for this comment. The title of literature review reflects the format of the study. Our study does not currently meet the criteria for systematic review, so we chose a title that would accurately reflect our methodology.

CHANGES IN THE TEXT #7: No changes to the text were made in response to this comment.

COMMENT #8: In methods section, authors do not tell us how many papers were included in review, what is the level evidence of studies included? Were there any randomised trials? Authors should include a flow diagram showing literature selected and discarded. Table -1 provides insufficient information.

RESPONSE #8: We thank the reviewer for this comment. For the literature review requirements, the authors followed the instructions as outlined in Author Instructions by the Journal to produce Table 1. Since this was not a systematic review nor meta-analysis with strict and formal criteria for inclusion/exclusion, the authors felt Table 1 to be sufficient to outline the methods of the literature review process per Journal guidelines.

CHANGES IN THE TEXT #8: No changes to the text were made in response to this comment.

COMMENT #9: Based on the evidence reviewed, algorithms are recommended by authors only for nipple sparing mastectomy. Authors should also include skin sparing mastectomy (i.e cases when nipple is removed for oncological reasons or for better aesthetic outcome).

RESPONSE #9: We appreciate this question. The scope of this study was narrowed to only include NSM given the concern for higher risk of reconstructive complications when the nipple-areolar complex is preserved. With the increase in popularity of NSM, the authors chose to have a narrower focus for plastic surgeons to use this review as a guide for reconstructive prospects in the setting of NSM.

CHANGES IN THE TEXT #9: No changes to the text were made in response to this comment.

Reviewer D

COMMENT #10: This is a well written review addressing a topic that has become an active topic of discussion. Although it does appear that most reconstructive surgeons are now trending toward prepectoral implant placement. Would the author kindly address/comment on the following:

- there should be mention of reconstruction with a synthetic mesh as an alternative to ADM (eg. TiLOOP bra) which is a common technique in prepectoral reconstruction
- or is this article looking at ADM specifically and excluding the use of synthetic mesh?

RESPONSE #10: We appreciate the reviewer's suggestion. While we agree that the use of synthetic mesh may serve as an alternative to ADM in some cases, this is not something we examined within the scope of this study, though this may be an interesting topic for future investigations.

CHANGES IN THE TEXT #10: No changes to the text were made in response to this comment.

Reviewer E

COMMENT #11: The Authors performed a literature review and guide for optimal position in implant-based breast reconstruction. The paper is well written, the topic interesting to a global audience. The following reference is missing: Mangialardi ML, Salgarello M, Cacciatore P, Baldelli I, Raposio E. Complication rate of prepectoral implant-based breast reconstruction using human acellular dermal matrices. *Plast Reconstr Surg Glob Open* 2021;e3235.

RESPONSE #11: We thank the reviewer for this additional resource. The text has been updated to include this citation, particularly relevant to the lower rates of capsular contraction observed with the use of ADM.

CHANGES IN THE TEXT #11: Please see Page 8 Line 199, citation #22.