

Peer Review File

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Reviewer A

The Authors described their experience on the application of Pectoralis Major fascia in retropectoral breast reconstruction. The topic and the results are interesting to a global audience. The following reference is missing: Mangialardi ML, Salgarello M, Cacciatore P, Baldelli I, Raposio E. *Plast Reconstr Surg Glob Open* 2021;e3235.

Reply A: We sincerely appreciate the valuable comments. We have checked the literature carefully, corrected this mistake as advised (see Page 2, line 378) and added a reference (see Page 15, line 335).

Changes in the text: Conventional reconstruction techniques primarily involve placing prostheses in front of the chest muscles. However, these methods are often associated with complications, such as prosthesis leakage and insufficient mobility and softness of the reconstructed breast^[4].

[4] 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*. 2020. 8(12): e3235.

Reviewer B

This is a well-timed manuscript that helps to facilitate conversation regarding breast reconstruction. As the arch of breast reconstruction has turned to favor pre-pectoral breast reconstruction with the advent of allograft, there have been more and more questions regarding the economic feasibility of the use of allograft. Providers have questioned if the increased cost is justifiable, especially with increased complications such as infection and seroma. In this setting, finding an alternative is vital, which this

manuscript explores.

Unfortunately, this manuscript falls short in doing so in a few key areas. One, they have very few patients with limited follow up. Although early complications (i.e. infection, seroma, hematoma) are detected relatively early, the majority of complications with prosthetic reconstructions including implant malposition, loss of pocket domain, "ptosis", etc take months to years to develop. Additionally, this method serves a very small patient population with small breast volume, as larger prosthesis would require a larger pocket and would most likely require reinforcement with some mesh variant.

From an oncological perspective, although there is data that pectoral fascia preservation does not adversely impact outcomes, there is also contradictory data that surgical oncologists cite when removal pectoral fascia. This creates a unique situation where (1) what is the long term impact of preserving the fascia from an oncological perspective and (2) does the patient need alternative imaging/monitoring in the event there is a recurrence.

Lastly, with regards to the authors concern of cost, would the use of alternate surgical mesh (i.e. Galaflex or vicryl mesh) offset the cost to make it a more feasible alternative to allograft with better structural support to the fascial construct demonstrated in the manuscript is a question not explored.

Reply B: Thank you for your valuable suggestions.

In the article, we indicated that this technology is primarily suitable for early-stage breast cancer patients with a breast volume of less than 300 ml who are unable to undergo breast-conserving surgery, resulting in a limited number of eligible cases. While surgical complications such as implant migration and leakage may necessitate long-term postoperative follow-up, early postoperative breast deformities can serve as indicators of these potential complications. Overall, the postoperative breast appearance of the patients reported in the article is generally favorable, suggesting a low likelihood of the aforementioned issues.

However, if the breast size is excessively large, the biological patch area will require re-reinforcement. From an oncological perspective, tumor recurrence is a significant concern during long-term follow-up. Consequently, we typically select patients with carcinoma in situ and negative axillary lymph nodes, conducting thorough preoperative evaluations to exclude any potential tumor accumulation. During the surgical procedure, the pectoralis major fascia located behind the tumor is excised, and postoperative immunohistochemical pathology is employed to confirm the absence of tumor metastasis.

Finally, discussion regarding the biological structure of the pectoralis major fascia and its role in breast reconstruction can be found in the article (see Page 14, lines 301-315).

Reviewer C

The authors present a technique paper describing the use of pectoralis fascia to create a complete retropectoral pocket.

This technique has been described previously before for both subpectoral and prepectoral reconstruction. The manuscript appears to still be in editing with author comments in the margins and incomplete header in the middle of the manuscript. The authors only present three patients which does not provide robust data to support this technique.

Reply C: Due to its highly selective nature, the number of patients eligible for this technology is limited. Despite the small sample size, follow-up assessments revealed that patients reported satisfaction with their postoperative breast appearance. Consequently, this technology can be regarded as both feasible and safe.