Peer Review File

Article Information: https://dx.doi.org/10.21037/gs-22-295

Round 1:

Reviewer A

I enjoyed this article and I think it will be a useful publication.

But at the moment it is written in a format that needs to be improved for scientific presentation.

1. introduction - remove all aspects of methodology and focus on the background and literature

Reply: The authors thank reviewer A for the suggestion. We have modified the introduction as advised (lines 72-90).

2. methods - 90% of this is on 'standard' - there needs to be more on the differences.

Reply: We have expanded the section on the differences between the two institutions as advised (lines 176-190).

3. discussion - more incorporation of the differences in approach and what the literature has previously described on this topic.

Reply: We have incorporated more details regarding the differences in approach in the Discussion (lines 306-315). We have expanded the section on external stressors (lines 337-344). However, we found no other studies that evaluated the effect of the perioperative team setup on outcomes after microsurgery or microsurgical breast reconstruction.

Reviewer B

However, I am sorry to inform you that the study seems to be inadequate for GS. The following are the comments provided.

1. It is an evident fact that the operation techniques and the patients' underlying factors are important for microsurgeries, but appropriate care with adequate procedures during the proper period after the surgeries are essential. Still, a special postoperative care team can be constructed only when the hospitals or the affiliated department is available in terms of the situation. In addition, it cannot be ruled out that it is only possible in extremely restricted places.

CH is a large hospital, so there are many staff overall. However, it is considered that there is no big difference when the staffs related to microsurgeries are compared to PC, and it is impossible to assess only based on Table 1. It seems that hospital-specific staff numbers don't hold meaning. However, CH performed fewer flap surgeries and it does not make sense.

Reply: The authors thank reviewer B for the comments.

Of note, the hospital-specific staff number only includes staff involved in the perioperative care of patients undergoing microsurgical breast reconstruction. We have clarified this in the manuscript, which now reads as follows: "The total number of perioperative staff involved in microsurgical breast reconstruction cases was lower at PC (27 care providers) than at CH (pool of > 83 care providers) (Table 1)." (lines 100-104)

2. In addition, what are the duties that the perioperative team is in charge of? How does the team detect the appropriate procedure during the right time and who makes the decisions to perform it? It is not scientific to state that the smaller clinic has a low complication rate.

Reply: We have added Table 6, which depicts the tasks of the different team members specific to microsurgical breast reconstruction at the authors' center.

3. There is an insufficient explanation about the same surgical protocol in both hospitals. There was a reference about the injections like heparization, eglandin, or fraxiparin or the mobilization after the surgeries but there is insufficient analysis and explanation about the reference or the reason for performing it. Why was it settled as the method? There is only a Table provided about which surgeries both hospitals perform and how many times they perform it as well as the complications of the surgeries and there is no scientific information that can be gained from it.

Reply: We have added the following references to back up our surgical protocol with scientific evidence (lines 124-173):

1) Haddock NT, Dumestre DO, Teotia SS. Efficiency in DIEP flap breast reconstruction: The real benefit of computed tomographic angiography imaging. Plastic and Reconstructive Surgery. 2020;146(4).
2) O'Connor EF, Rozen WM, Chowdhry M, Patel NG, Chow WTH, Griffiths M, et al. The microvascular anastomotic coupler for venous anastomoses in free flap breast reconstruction improves outcomes. Gland Surgery. 2016;5(2).
3) Lardi AM, Dreier K, Junge K, Farhadi J. The use of tranexamic acid in microsurgery - Is it safe? Gland Surgery. 2018;7.
4) Polanco TO, Shamsunder MG, Hicks MEV, Seier KP, Tan KS, Oskar S, et al. Goal-directed fluid therapy in autologous breast reconstruction results in less fluid and more vasopressor administration without outcome compromise. Journal of Plastic, Reconstructive and Aesthetic Surgery. 2021;74(9).
5) Salgado CJ, Moran SL, Mardini S. Flap monitoring and patient management. Plastic and Reconstructive Surgery. 2009;124.

4. Moreover, the two hospitals conducted 150 free flap surgeries over 11 years, and this means that around 10 surgeries were conducted in a year, and does this mean that a subspecial perioperative team has to be formed for the surgeries with the frequency of less than once a year? Additionally, there is no way that the drugs that are used in the current procedures were used 11 years ago. This is interknitting all the data and does not get connected.

In all surgeries, the patient or operator factors are relevant and cause an effect on the postoperative outcomes and if there are changes such as changes in the team, it will certainly cause an influence.

The conclusion does not connect with the earlier explanation, but it was closed as a logical result, so which aspect will be set up as the prospective study? Since the surgeries are performed with a low frequency, it is considered that the same team cannot care consistently for the surgeries that are conducted once every month or two.

Reply: Thank you for this comment. There seems to be some misunderstanding.

Firstly, the surgeries are performed with a higher frequency than observed by reviewer B. As already described in the Methods section, a total of 150 microsurgical breast reconstructions were performed over 16 months (January 2019 – April 2020), corresponding to a mean of 9.4 microsurgical breast reconstructions per month or 2.3 microsurgical breast reconstructions per week.

Secondly, the drugs prescribed in the Methods section did indeed remain consistent during the 16 months (as opposed to 11 years stated by reviewer B) of the study.

I am very sorry, but please submit a more scientific study the next time.

Reviewer C

Not overly scientific however the discussion and concept would be highly interesting for readers....

1. A prospective study with radomization would be the next challenge.

Reply: The authors thank reviewer C for this comment. We agree that a prospective study would be of great value in the future (line 355-357).

Reviewer D

Summary

The authors retrospectively review autologous breast reconstructions (ABR) performed at two different institutions over 16 months. A smaller clinic with 33 care takers and a larger with 335.

150 flaps were performed in 125 pt by 3 microsurgeons, the senior author being the most active, performing 110 of the total 150 flaps, 93% of all flaps performed in the smaller unit

The patient cohort is similar for the two groups in regards to age and BMI (small/big clinic)

Length of stay (LOS) was similar at the two institutions

At the small clinic, 11.5% are reoperated, at the bigger unit, 28.6%

An identical perioperative is used.

The clinical problem presented is relevant and interesting, many of us have experienced the confusion that changing the perioperative team has on performance.

The paper is interesting and could be relevant but it also has some important weaknesses

Major concerns

The vast majority of cases are performed by the senior author (JF).

81/87 (93%) at the smaller PC and 29/63 (46%) at the larger CH.
At PC, 10/87 patients undergo revision (11.5%)(JF patients 7.4%)
At CH, 18/63 patients undergo revision (28.6%)(JF patients 31%)

1. I do not feel convinced that the differences are not caused by his expertise, this should be further addressed. Many possible reasons for JFs increased revisions at CH compared to PC could be offered, other than the perioperative teams.
Reply: We have further addressed this in the Discussion (lines 295-298).
The reasons for revision surgery have been addressed in the Discussion (lines 227-253).

2. The specific composition of the surgical team (anaestesiologist/OR nurse and tech) should be detailed and explained. How many different persons, in each position are active in the surgeries? Even though CH draws from a larger pool, the same few persons could be involved in the surgeries. It should be documented if this is the case or not.
Reply: The number of staff outlined in Table 1 includes all personnel involved in microsurgical breast reconstruction at the two hospitals. The legend of Table 1 has been rephrased for clarification: "Number of staff involved in microsurgical breast reconstruction by hospital." The composition of the surgical team has been detailed in the Methods section as advised (lines 131-133).

3. The timing of the cause for revision surgery would add strength, it would be useful to know if the majority of revisions occurred in the OR or in the postoperative period. As in, is the added risk of a staff unfamiliar with microsurgery more impactful in the OR
Reply: While the timing of revision surgery was not assessed in this study, a retrospective study performed by the senior author showed that most revisions of microsurgical cases occurred postoperatively during the first 48 hours. Comparing the team setup between scheduled surgery and emergency flap revisions would be an interesting research question of a future study. We have modified the Discussion section accordingly (lines 278-283).

Minor concerns
4. The tables could be revised in how % is quoted.
For example, in table 4, at PC 81 flaps were performed and the table report 6 with anastomotic problems, then followed by (40), as in 40%. This is 40% of the total anastomotic

problems, reading horizontally. It would make more sense to the reader, knowing the percentage of the 81 patients, that is 6/81= 7,4%

Reply: Thank you for the suggestion. We have revised the tables accordingly.

5. ASA groups, another possible cause for differences are not quoted.

Reply: We agree that this is a limitation to our study and we have added this in the Discussion section of our manuscript (lines 282-283).

6. LOS is quite long at both institutions, analysis of the impact that revision surgery had on LOS would add value to the study

Reply: We have incorporated this aspect in the Discussion section (lines 258-265).

I find the paper interesting and the topic worthy of publication so I encourage the authors to revise and resubmit

Reviewer E

The reliability of microsurgical reconstruction of the breast is still an issue in many units. The study is well designed and can be considered a unique situation for a retrospective cohort study. The authors are very honest with their data, and I personally thank them for it, although both complication and salvage rates seem higher than expected. Anyway, no further explanation is required about that because it does not alter the manuscript's purpose. The manuscript gives a substantial amount of information about the influence of perioperative staff in microsurgical reconstruction. And that might be good enough. However, as a reader and everyday microsurgeon, I would appreciate a more detailed information of the specific factors involved (Discussion section). I understand that it might not be appropriate, but it might be of great help for those colleagues regularly performing any kind of microsurgical reconstruction.

Reply: The authors thank reviewer E for the comment and suggestion. The authors have added Table 6 to the Discussion section, which provides more details on the specific tasks of the team members involved. We have also added more detailed information regarding the different factors in the Discussion section (lines 306-315; 340-344).

Reviewer F

I find remarkably interesting you try to determine certain perioperative variables in the success or failure of microsurgical breast reconstruction. I believe that it is one of the research paths to study factors affecting quality of microsurgical reconstruction.

Reply: The authors thank reviewer F for this comment.

Round 2:

Reviewer A

This is an interesting study, and the revisions continue to improve the piece.

I am still very concerned with the ability to interpret the results.

The methods are a retrospective review of two clinics, that have MANY differences but these are not made clear in the methods.

The results therefore are unclear.

If the authors can improve the METHODS section to more clearly define the two groups and what they are assessing, then it will make the results and interpretation more meaningful.

Reply: Thank you for this comment.

We have explained the similarities and differences between the two groups/institutions more clearly in the methods section as advised (lines 101-104; 135-136; 178-181; 184-194).

We have rephrased the section on outcomes to clarify what we assessed: “The primary outcomes studied were difference in the rate of revision surgery and flap loss between both cohorts as well as LOS” (lines 107-108).