

## Peer Review File

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### Review Comments

#### Reviewer A

**Comment 1:** This manuscript demonstrates that the latest findings on immediate implant-based breast reconstruction in Japan was summarized using data published on JOPBS. This review is not balanced, with too much emphasis on the JOPBS data

**Reply 1:** Thank you for the comment. In Japan, breast reconstruction using TEs and SBIs is performed under the initiative of the Japan Oncoplastic Breast Surgery Society (JOBSS), and large-scale data for of all of Japan about such reconstruction is collected only by the JOBSS. Furthermore, the hospitals certified by the JOBSS must abide by the rules regarding operative indications and methods according to the JOBSS guidelines and report on TEs and SBIs used in each hospital once a year. Therefore, in a manuscript regarding breast reconstruction using TEs and SBIs throughout Japan, we could not avoid frequent reference to the JOBSS data.

**Comment 2:** Both Table 1 and 2 are inconsistent with the original data quoted from JOPBS.

**Reply 2:** The 2022 JOBSS annual report includes postoperative complications of immediate one-stage, immediate two-stage, and delayed two-stage surgery. The incidence of postoperative complications in each stage was calculated by truncation in the report, and we therefore initially calculated the incidence by rounding off the figures. According to your comment, I listed the incidence by truncation to use the raw data in the report.

**Changes in the text:** Table 1 and Table 2

**Comment 3:** In Table 1, population parameters should be stated.

**Reply 3:** According to your comment, I revised Table 1, including the number of surgeries.

**Changes in the text:** Table 1

**Comment 4:** In Table 1, the data for 2020 and 2021 are only the immediate breast reconstruction, and the data for 2022 are the total of the immediate and secondary reconstruction, so the data are not uniform.

**Reply 4:** According to your comment, I revised the numerical values for 2022 in Table 1.

**Changes in the text:** Table 1

**Comment 5:** Raw data should be listed in Table 2.

**Reply 5:** The incidence of postoperative complications in each stage was calculated by truncation in the report, and we therefore initially calculated the incidence by rounding off the figures. According to your comment, I listed the incidence by truncation to use the raw data in the report.

**Changes in the text:** Table 2

**Comment 6:** Line 279

Since the guideline for reference 28 is written in Japanese, a figure should be prepared for the guideline written in English.

**Reply 6:** According to your comment, I added Figure 2 and its legends.

**Changes in the text:** Figure 2

**Comment 7:** Line 269-270

Global data on BIA-ALCL are outdated. That data has been updated in September 2022.

**Reply 7:** According to your comment, I revised the global data on BIA-ALCL and reference 26.

**Changes in the text:** Lines 274-275, reference 26

**Comment 8:** Line 272-274

Reference 27 is case report in 2019. Cases in 2021 and 2022 are posted on the JOPBS homepage, so the URL should be added to the reference.

**Reply 8:** According to your comment, I revised the text according to the recent data in Japan on BIA-ALCL, and updated the reference.

**Changes in the text:** line 277-279, reference 28

## **Reviewer B**

**Comment 1:** This review purports to describe the current status of pre- and sub-pectoral breast reconstruction in Japan. Over the past few years there has been a trend towards pre-pectoral breast reconstruction whereby an implant is placed on the surface of the pectoralis major muscle with the latter left intact without the need for development of a sub-pectoral pocket. This renders the surgical procedure much technically straightforward and is associated with reduced immediate post-operative pain and less animation. However, this is usually undertaken with some kind of ‘wrap’ using acellular dermal matrix (ADM) and demand a minimum flap thickness. I note that in Japan ADM is not available for some reason (there are presumably no cost restrictions) and patients tend to be slimmer than in Western populations. However, it is possible to ‘plump’ up the flaps with fat grafting and the authors have alluded to this. As a consequence of no ADM being available, direct-to-implant reconstruction is uncommon in Japan and most cases are two-stage with placement of the implant deep to the pectoralis major and serratus anterior muscles (this technique was championed by Peter Cordeiro in New York).

**Reply 1:** Thank you for the comment. Acellular dermal matrix (ADM) is not available in Japan as it is not covered by insurance. For clarity, I revised the manuscript.

**Changes in the text:** lines 158-159

**Comment 2:** At the outset, this paper is not easy to read and understand and there are several inconsistencies throughout the text. There is no formal structure to the paper (and no conclusion) and the purpose and aims are unclear.

**Reply 2:** The present manuscript was initially edited by a professional English proofreading service (Editage); nevertheless, an additional grammatical revision was performed by this service for the revised manuscript. This manuscript is a mini-review, and the main text should be unstructured according to the guidance for authors. Therefore, I described the current status of pre- or subpectoral breast reconstruction in Japan in each category.

**Changes in the text:** I revised grammatical errors and inconsistencies throughout the manuscript.

**Comment 3:** There is a minimal data presented (only two tables in the paper) and in particular there appears to be no register for implant-based reconstruction (IBR) in Japan with no accurate data collection on numbers of pre- and sub-pectoral IBR.

**Reply 3:** Annual reports published by the JOBSS includes only data on the number of surgeries and postoperative complications in immediate one-stage, immediate two-stage, and delayed two-stage reconstructions. Regarding immediate one-stage IBR in Japan as a whole, the ratio of cases with prepectoral SBIs to cases with subpectoral SBIs is unknown. According to the JOBSS guidelines, many breast reconstructive surgeons may insert the SBI under the pectoralis major muscle (1) (Lines 251-254)

**Comment 4:** It is stated that insurance cover for IBR was approved in 2013 and therefore the number of cases has increased since that time. There is no comparison of IBR with techniques using autologous tissue alone or combined with implant (e.g. implant-assisted latissimus dorsi flap reconstruction).

**Reply 4:** The annual JOBSS reports on TEs and SBIs used in each hospital do not include their combination with other surgeries, and therefore, no large-scale study has been performed to compare IBR with techniques using autologous tissue combined with implants. I showed the time-course changes as a ratio of the number of IBRs to that of autologous tissue-based breast reconstructions in Japan. For clarity, I revised the manuscript.

**Changes in the text:** Lines 191-193

**Comment 5:** There are several statements using the term ‘tended to....’ without being supported by robust data (lines 143, 144, 145).

**Reply 5:** Thank you for pointing this out. Accordingly, I revised the manuscript.

**Changes in the text:** Lines 142-146, reference 6

**Comment 6:** With reference to complications listed in table 1, the author states that major complications ‘tend to be less’ in Japan than in other countries and incidence of seroma and hematoma similar. These are very broad statements and there are many confounders and factors that need to be taken account of when analyzing differences between countries – especially smoking habits and body mass index (these are both likely to be more significant in Western countries in terms of complications in the

setting of IBR).

**Reply 6:** According to your comment, I revised the manuscript.

**Changes in the text:** Lines 224-225

**Comment 7:** There are several statements throughout the text that are non-substantiated and in particular not referenced. For example, it is stated that IBR is not indicated for patients with higher stages of cancer and in particular node positive cases (these might be initially treated with neoadjuvant chemotherapy to downstage both the breast tumor and nodal disease). It would be helpful to distinguish between IBR in the context of either therapeutic or prophylactic mastectomy. There is no evidence that patients with IBR should undergo annual clinical examination and imaging with MRI or ultrasound once every 2 years.

**Reply 7:** In this paragraph, I have summarized the operative indications and methods according to the JOBSS guidelines. This guideline was made by JOBSS committees that include many domestic experts, such as breast surgeons and plastic surgeons, referring to many articles. Therefore, we believe that the guideline is evidence-based and reliable. For clarity, the last sentence in the previous paragraph was moved to the first sentence of this paragraph.

**Changes in the text:** Lines 85-86

**Comment 8:** It is unclear what the author means when referring to implants being appropriate to the contour of breasts in Japanese women. There is no reference to bio-dimensional (anatomical implants) that have a tear drop shape with less volume superiorly than inferiorly.

**Reply 8:** There are many patients whose thickness in the upper pole of the breast is mild to moderate; however, upper-pole fullness is prominent when round SBIs are used in such patients (4) (lines 119-121). Therefore, anatomical SBIs are typically a better match for domestic patients than round SBIs. Furthermore, the appropriate anatomical SBIs for such patients is the oval type (width larger than height); however, this type of anatomical SBI comes in only five sizes in Japan (210–350 cc). Resolving these problems may be the key to increasing the volume of IBRs (lines 121-126).

For clarity, I revised the manuscript.

**Changes in the text:** Lines 119-125.