

Peer Review File

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Reviewer A

Harvesting IMF fat and grafting it to the upper pole of the breast seems to be a novel and good method. I think this method can make the IMF a little clearer.

Comment 1: However, fat harvesting in IMF will be very limited in the amount that can be obtained, and it is expected that it will be difficult to obtain satisfactory results with an amount less than 10 g.

Reply 1: Thank you for your comment. The medial and total scores in the fat onlay-grafting group were significantly higher than those in the non-grafting group. Three patients in the no-grafting group showed poor medial scores; however, no patient in the fat onlay-grafting group showed a poor medial score. Six patients in the fat onlay-grafting group had a fair medial score. Their weight of harvested fat was comparatively low (5.8 [5–7] g), and their BMI was slightly low (20.0 [18.1–22.4] kg/m²) (please refer to page 9, lines 7-18). Considering these results, we described the limitations of our technique as follows, “The upper edge of the SBI may remain visible when the amount of onlay-grafted fat is low. As the results of our study showed, much of the fat was not harvested, particularly in lean patients. In such cases, additional fat harvesting in the caudal or lateral chest should be considered.”(please refer to page 12, lines 12-15).

Comment 2: I don't know what it means in this paper that you were able to get a lot of fat according to the patient's BMI.

Reply 2: We suppose caudal subcutaneous tissue for creating an IMF may be preserved and kept thick in many cases after simple mastectomy and TE insertion. Patients with high BMI have thick subcutaneous tissue, and therefore a large amount of fat may be able to be harvested in such patients.

The extent to which affected pectoral tissue is preserved varies, depending on the breast surgeons, which may affect the results in this study. We have added this limitation in the revised manuscript (please refer to page 12, lines 8-9)

Changes in the text: Page 12, lines 8-90

Reviewer B

In this manuscript, the authors confirmed that the authors' technique, fat onlay-grafting harvested from the affected inframammary fold could result in superior outcomes compared with the no-grafting SBI-based breast reconstruction in

terms of the invisible upper edge of SBI.

This manuscript is well-written with a nice flow and relevant information. The topic is of great significance given the fat onlay-grafting harvested from the affected inframammary fold in SBI-based breast reconstruction. However, there are some issues to be revised and clarified in this manuscript as follows.

Comment 1: In the Introduction section

At "..., the edge of SBI is often visible,... ... a thin pectoral subcutaneous tissue." Does this sentence have some references? Or Is this just describing the authors' thoughts?

Reply 1: Thank you for the comment. We have added a reference (page 6, line 6).

Changes in the text: Page 6, line 6

Comment 2: In the Materials and Methods section, the authors should clarify that this study was really prospectively-designed. Fat-onlay grafting group was enrolled between May 2017 and June 2019, but SBI breast reconstructions with no-grafting were performed between September 2014 and April 2017.

Reply 2: A total of 90 patients who underwent unilateral SBI-based reconstruction following a tissue expander (Natrelle 133; Allergan, Ireland, Dublin) insertion after simple mastectomy were eligible for inclusion in the cohort study. Accordingly, we have revised this sentence in the manuscript (page 6, line 20- page 7, line2)

Changes in the text: Page 6, line 20- page 7, line2

Comment 3: In the Surgical procedure section, the authors described procedures of fat harvesting from IMF. They should clarify which devices were used for partial resection of the caudal subcutaneous tissues.

Reply 3: We performed partial resection by using scissors to cut the caudal subcutaneous tissue to make the caudal skin thin in order to create a clear IMF. For clarity, we have revised the manuscript (please refer to page 7, lines 14-15).

Changes in the text: Page 7, line 14-15

Comment 4: Furthermore, I suggest that the authors will provide a schematic illustration or clinical photo of this fat harvesting procedure.

Reply 4: Per your comment, we have added Fig.1A and B and their legends.

Changes in the text: Figure 1A and B legends

Comment 5: After performing fat onlay-graft without fixation sutures on the

pectoralis major muscle, the authors inserted one suction drain around the grafted fat. Did the authors have any tips to prevent the grafted fat tissue from being sucked into the suction drain?

Reply 5: We inserted one suction drain around the grafted fat, about 5 cm far from it, before fat onlay-grafting. We sometimes fixed this drain loosely to pectoralis major muscle by absorbable sutures without preventing removal of this drain smoothly.

Comment 6: In the Discussion section, the authors should additionally describe general differences between the authors'fat onlay-grafting technique (maybe conventional fat graft) and fat injection (centrifuged fat injection) in terms of procedures, fat survival rate, fat necrosis rate, absorption rate, and need for overcorrection.

Reply 6: Fat onlay-grafting is described in detail in the Materials and Methods section (please refer to page 7, line 12- page 8, line 6). Fat injection involves harvesting by liposuction of which donor site is generally abdomen or thigh and injecting after purification by centrifugation. Fat survival rate, fat necrosis rate, absorption rate, and need for overcorrection in fat onlay-grafting and fat injection are 40-60%/33-45%, less than 10%/less than 10%, 40-60%/55-67%, and 220-300%/170-250%, respectively, and additionally fat necrosis often occurs when a larger amount of fat per volume was grafted (9-13). Accordingly, we have revised the manuscript (page 10, line 20- page 11, line 1 and page 11, lines 5-9)

Changes in the text: Page 10, line 20- page 11, line 1 and page 11, lines 5-9

Comment 7: In the Discussion section, the authors should clarify references of the sentences, "Furthermore, this technique is simple, easy, and the percentage of graft take could increase."

Reply 7: Per your comment, we have clarified the references.

Changes in the text: Page 12, line 5

Comment 8: Any limitations of this study have not been described in detail. At the end of the discussion, the authors must address the limitations of this study and the research being planned in the future.

Reply 8: In the last paragraph of the discussion section, we intended to describe limitations in using this technique. Per your comment, we have revised this section for clarity as follows (please refer to page 12, lines 6-17).

The limitations of this study and our technique are as follows. Tumor location and invasion may affect the aesthetic outcomes in the upper edge of the SBI.

Furthermore, the extent to which affected pectoral tissue is preserved varies, depending on the breast surgeons, which may also affect these outcomes. Two aspects should be considered when performing this technique: First, infection, hardened fat, and fat lysis may occur when the amount of onlay-grafted fat is high. Second, the upper edge of the SBI may remain visible when the amount of onlay-grafted fat is low. As the results of our study showed, much of the fat was not harvested, particularly in lean patients. In such cases, additional fat harvesting in the caudal or lateral chest should be considered.

In a further study, we plan to modify this study including patients undergoing injection of fat, which was harvested from the affected inframammary fold.

Changes in the text: Page 12, lines 6-9, 15-17