Peer Review File

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<mark>Reviewer Comments</mark>

Comment 1: In the abstract and introduction, the authors should have highlight the innovative point (what's the gap), though this is presented in the discussion on page 7, line 14~16.

Reply 1: Thank you for your suggestion, we have now incorporated this into the introduction.

Changes in the text 1: Page 2, lines 5-7, addition of a new sentence. "To date, few studies have focused on the effects of obesity specifically in patients undergoing implant-based breast reconstruction for breast cancer."

Comment 2: Regarding the presentation, in the abstract, the classification of BMI groups needs refine as there're overlaps between the groups.
Also, please present the key results by way of 95% CI.

Reply 2: Thank you very much, the BMI categorization here was a typographical error which has now been corrected. Key results provided with 95%CI.

Changes in text 2:
Page 2, lines 10-13, addition of a new sentence "Patients were classified and compared based on WHO obesity criteria: BMI <=25 - 'not overweight', BMI 25 to <=30 - 'overweight', 'obese to severely obese' BMI 30 to <=40 and 'morbidly obese' BMI > 40."
Page 2, lines 15-23, re-written as follows: "During the study period 5,545 implant-based breast reconstructions were performed post mastectomy. Morbidly obese patients had a markedly greater likelihood of wound complications (OR 2.47 (95%

CI: 1.20-4.38), $P = 0.008$) compared to their non-overweight counterparts. Morbidly obese patients also had 2.91 (95% CI: 1.21-5.94) times the likelihood of wound infection ($P = 0.009$) and 8.54 (95% CI: 2.80-21.41) times the likelihood of wound dehiscence ($P < 0.001$) compared with non-overweight patients. Those that were obese to severely obese also had an increased likelihood of wound infection compared to non-obese patients (OR 1.64 (95% CI: 1.0-2.7), $P = 0.048$).

Comment 3: In the methods, abstract and title, clarify this is a prospective cohort study.

Reply 3: Thank you very much for the suggestion. We have now changed the title and included the required information in the abstract.

Changes in the text 3:

New title: "Association between body mass index and adverse surgical outcomes of implant-based breast reconstruction. A prospective cohort study of 5,545 breast reconstructions"

Page 2, lines 9-11, re-written as follows: "We reviewed the 2007 to 2012 ACS-NSQIP databases identifying encounters for implant-based reconstruction (immediate, delayed, and tissue expander), as a prospective cohort study."

Comment 4: Please address the bias issue in the methods part.

Reply 4: Thank you for the suggestion, further description of the bias has been integrated into the discussion.

Changes in text 4: Page 9, paragraph 8, lines 14-18, additional sentences:

"Additionally, data drawn from this database is non-randomly assigned. Surgical techniques are known and selection is made, leading to a selection bias which may account for the differences in patient outcomes. This implies that variables pertaining to patient demographics and comorbidities are a potential source of confounding in these analyses."

Comment 5: Clarify the grouping reason in the methods for the variables.

Reply 5: Patients were grouped based on their BMI's and the international WHO classifications for obesity. This reason has now been included in the methods.

Changes in the text 5: Page 4, Paragraph 5, lines 39-40, Additional sentence included: "Patients were grouped based on their BMI's and the WHO classifications for obesity (6)"

Comment 6: Clarify why the timeframe was determined (2007~2012).

Reply 6: The timeframe was based on accessibility and also consistency in surgical billing item numbers in subsequent years.

Changes in text 6: This has been stated in the methods. Page 4, Paragraph 2, lines 13-15.

Comment 7: Clarify how the missing data was addressed.

Reply 7: Thank you for identifying this issue. This has now been addressed in the methodology.

Changes in text 7: Page 5, Paragraph 6, line 3. Sentence added: "Missing data were excluded."

Comment 8. Consider the most recent data. E.g. replace reference 1 with the 2020 GLOBOCAN data.

Reply 8: Thank you for your suggestion. Reference 1 has now been updated with the most recent data for that statement.

Changes in text 8: Page 16, Line 3-3, new reference is: "Sung, H, Ferlay, J, Siegel, RL, Laversanne, M, Soerjomataram, I, Jemal, A, Bray, F. Global Cancer Statistics 2020: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin*. 2020."

9. Last but not the least, the tables should be organized as suggested below.

Comment 9.1: Participant characteristics, grouped by outcome complications (as heads) and listed with variables including BMI. This should also be listed with p value.

Response 9.1: Thank you very much for your suggestion. Table 1 has now been edited to include a chi-squared analysis with p-values.

Adjustment made in text to table 1 and in the methods section, paged 4-4, lines 49 – 3.

Comment 9.2: Then, it's needed to clarify relationship between BMI and related factors (as shown in table 1). This should also be shown with p values between groups.

Response 9.2: Thank you very much for your suggestion. This has now been included in table 1.

Comment 9.3: The table 2, table 3 and table 4 should include adjusted odds ratios and 95% CI which do not only shown the BMI parameter.

Reply 9.3: These tables show the adjusted OR and the 95% CI of the significant subgroups in terms of the defined hybrid outcome variables.