

Peer Review File

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Reviewer A

Summary: The authors present an interesting and informative study comparing the effects of adjuvant radiation therapy on complication rates after immediate breast reconstruction performed at a single institution over a 10-year period. 134 patients received immediate breast reconstruction using either autologous tissue, implant-based, or a combined technique using both autologous tissue and implant. 68 patients received adjuvant radiation and 66 patients did not receive adjuvant radiation therapy. Patients who received adjuvant radiation therapy had a higher rate of moderate to severe Grade III/IV capsular contracture than the group that did not receive radiation and all other complication rates were comparable between the two groups. The authors found that the rate of capsular contracture was not associated with radiation type, radiation dose, radiation field, pocket plane, bolus material or adjuvant chemotherapy.

Comment 1. The Methods section of the Abstract, states, “ Autologous tissue, implant-based, and combined reconstruction were performed in 40, 94 and 39 patients, respectively.” This implies that $40+94+39 = 173$ patients were included in the study and not 134 patients. Please explain this discrepancy.

Reply 1: Thank you for the comment. The patients who were in combined reconstruction were also in the implant-based groups as well, because we would like to detailed the type of implant and autologous tissue. The combined patients were 39 and implant-only were 55. We have changed the number in the manuscript

Comment 2: How many different surgeons performed the breast reconstruction procedures included in this study?

Reply 2: We have three plastic surgeons perform the procedure. All of the plastic surgeons included in this study have more than 10 years of experience.

Comment 3. It is difficult to determine the impact of adjuvant radiation therapy on outcomes after immediate breast reconstruction using 3 different surgical techniques including autologous tissue, implant based, or combined technique. Please show complication rates in radiated and non-radiated groups separately for patients who underwent autologous tissue, implant-based and combined technique.

Reply 3: We have insert the information to the table 3.

Comment 4: Table 1 contains a lot of information but would be easier to read if the information contained in this table was presented in separate tables, ie, a Table for Demographic information, Operative Characteristics, Histology/Margin Status/Staging, Adjuvant Chemotherapy or Radiation, and Complications.

Reply 4: We have separated the table 1 into three tables of Table 1 (Patient characteristics), Table 2 (Operative and adjuvant characteristics), and Table 3 (Complications)

Reviewer B

Comment: It is well known that capsular contracture can occur after PMRT.
I can't know the difference from the previous thesis.

Reply: We appreciate your comment. This paper concentrates on the immediate reconstruction of Asian populations, despite the fact that this research provided results from previous studies. And to corroborate the toxicity of implant reconstruction immediately following radiotherapy.

Reviewer C

The paper is well written and the topic still important.
Unfortunately the sample size is small.

Comment: Please stress the difference between autologous and DTI reconstruction in "what is known"

Reply: I have added the difference between two options in the ' what is known'
Changes in the text : I have added the sentence ' There are two main types of immediate breast reconstruction: autologous and direct-to-implant (DTI). Each is what is known as a single-stage reconstruction. The difference is that patient-owned tissue or a silicone implant will be used to replace volume.'

Comment: remove the second note on surgery costs

Reply: I have removed it from the method part.

Comment: was there a difference after you changed to smooth implants regarding the contracture?

Reply: There was no difference of severe capsular contracture with textured or smooth implants which is higher in radiation group more than non-radiation group.

Comment: I do not get "thoracodorsal vessels skeletonized with only a muscle cuff..." there is no muscle cuff. only after the vessels enter the muscle. the course in the axilla is free of muscle tissue....

Reply: I have changed the text to ' Thoracodorsal vessels were skeletonized and LD muscle insertion was divided , leaving only a cuff of muscle to protect the pedicle'

Comment : you only mention it briefly, but radiation after chemotherapy did not result in lower contracture rates compared to after surgery?

Reply: We have done subgroup analysis and there was no significantly difference between those two groups.

Comment: please explain in the MM why some patients receive more than 50 Gy and what was the indication.

Reply: Some patients were received more than 50Gy in T4 staging. I have added the sentence in the method section.

Comment :how where the complications assessed: e.g. fat necrosis? clinically? ultrasound? MRI

Reply: Fat necrosis was diagnosed by clinical of hard lump and needle biopsy confirmation.

Reviewer D

Comments on Impact of radiation on immediate breast reconstruction: A retrospective single institution cohort study.

RESULTS

Comment 1: page 9. Patients with a previous failed breast conservatieve surgery and a history of chest radiation were included in this study. As you mention in your discussion, they have a high risk on complications after IBR. Where these patients equally dividied between with or without PMRT. If not, would you consider to exclude them from your results.

Reply: When we excluded those patients and did recalculation. The results again showed the higher risk of complications among radiotherapy patients in implant-based and combined reconstruction patients.

Comment 2. page 9. The authors mention that 11 patients (16.2%) died in the irradiated group,due to a higher cancer staging.,Can you clarify more about this high percentage ? is there a relation with higher co morbidity , age, and is there a possible relation with complications of IBR or adjuvant treatment ?

Reply: Thank you for pointing this out. Those patients died because the disease had progressed , and so the reason was due to the higher staging of patients. The age, BMI, and comorbidity were not statistically significant between the two groups.

Comment 3: page 11 You mention that the key to success is patient selection, as I agree completely, but may you can fill in more details how you would advise other practioners to select suitable patients in their own clinic, especially in case of smokers, obesity, prevoius radiation therapy?

Reply 3: We would add our advice in the discussion part.

Changes in text : In our study, all of our patients were non-smokers with a BMI<30 kg/m². The significant amount of severe capsular contracture found in both preoperative and postoperative radiation exposure. Our advice is that implant-based breast reconstruction should be avoided in patient who has to treat with radiotherapy.

Comment 4. Furthermore it is a nice overview with discription of the results and discussion.

Reply4: We are glad to hear your comment. Thank you very very much.