Seroma as a Biological Tissue Expander on Post-Mastectomy Reconstruction: A Case Report

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Seroma as a Biological Tissue Expander on Post-Mastectomy Reconstruction: A Case Report

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Abstract

Introduction. Previous studies have reported that patient satisfaction with breast cancer management is related to the success of breast reconstruction. The tissue expander used in breast reconstruction today has several disadvantages: the high cost, the nature of the foreign body, and the risk of failure. Seroma has the potential as a natural tissue developer in post-mastectomy reconstruction. This case report aims to describe the technique, results, advantages, and limitations of post-mastectomy breast reconstruction using a seroma as a natural tissue expander that has never been done before.

Case Presentation

A 37-year-old woman was diagnosed with stage IIIA non-special type (NST) invasive breast carcinoma stage III without lymphovascular invasion. The patient underwent a modified radical mastectomy (MRM) on the right side breast. Postoperatively, a drain was placed for observation. If no maceration of the skin was found, the drain was removed within the first 24 hours postoperatively to accumulate seroma in the dead space formed in the breast flap. Next, seroma molding is done with a special bra that fits the shape of the bust. Observations were made during the treatment, and the seroma molding process occurred. During the follow-up period, the patient complained of mild pain and did not experience tumor recurrence.

Conclusion. This case report shows seroma as a biological tissue expander that can potentially be used as an alternative breast reconstruction method with body fluid accumulation.

Keywords: everolimus, chronic rejection, living donor liver transplantation liver function improvement, pediatric

Introduction

A recent study reported that patients’ satisfaction with breast cancer treatment is related to the success of reconstruction treatment after breast cancer surgery. This showed that breast reconstruction surgery is a critical aspect of treatment. One method of breast reconstruction is to use a tissue expander. However, Indonesian National Health Coverage did not cover the breast reconstruction treatment cost. Moreover, the cost of a tissue expander is relatively expensive.

A choice of reconstruction technique that can please the patient both for the cosmetic and aesthetic reason, without ignoring the rules of oncology and increasing morbidity, is a new challenge for a surgeon. Some conditions could use a tissue expander for breast reconstruction, such as:

1. There’s a major skin defect caused by tumor resection but still can be closed by primary suture.
2. Requiring other parts of the body for flap donor but specific body part could not be used as a donor.
3. The patient could not afford to buy the patent tissue expander as a reconstructive agent.
4. The patient did not want to have another scar on the other part of their body.
5. The need of delaying the histopathology result for radiotherapy.

On the other hand, seroma is the most common complication of mastectomy. A large amount of seroma would be a discomfort for patients and could lengthen the hospitalization period. Post-mastectomy seroma incidence is about 10 – 81% and usually will disappear in the next few weeks. Seroma is still considered a mastectomy complication and negatively impacts post-mastectomy patients, causing a high risk of infections and discomfort in patients, but there are some advantages; seroma is known as a natural tissue expander. However, there still needs to be further study on the effect of seroma as a biological tissue expander on post-mastectomy reconstruction. This case report aims to describe the technique, results, advantages, and limitations of post-mastectomy breast reconstruction using a seroma as a natural tissue expander that has never been done before.

Case Presentation

A 37-year-old woman with a lump on her right breast that rapidly grow in the past five months. On physical examination, there was a 4.5 x 3 x 3 cm mass on the right breast with lumps on its surface with a firm edge, but there was no inverted nipple, nipple discharge, peau d’orange, and scars. This patient was diagnosed as an invasive carcinoma mamnnae stadium 3A, with no particular type grade III and no lymphovascular invasion on histopathological examination. This patient wasn’t suitable for radiotherapy and indicated modified radical mastectomy. She has no history of cancer, neither from herself nor the family.

Figure 1. Post-mastectomy: Good candidate for reconstructing with seroma, when the skin color is almost the same with the surroundings.
On operation, we did an incision with Steward design, then made a flap cranially and caudally with an anatomical marginal edge on the breast. Tumor, breast, and axilla were dissected with an en block way. We inserted a drain and then monitored the production for hemorrhagic post-surgery observation. In the first 24 hours, we observed the post-operative wound and drain production and made sure there was no maceration on the skin; after that, we removed the drain after 24 hours. This condition can be seen in Figure 1. The drain was removed to collect the breast flap dead space seroma. A molding was completed from the seroma with a specific bra fitted with the patient's breast shape. Breast seroma production could be increased by sleeping into the ipsilateral breast position.

Seroma molding was completed in 4 to 6 weeks until the capsules were made and could maintain the breast shape. We observed the patients until the complete molding. The main aim for seroma molding in patients is for natural tissue expansion and reconstruction; then, the seroma formation was expected to substitute for the removed breast tissue. On the 14th month after surgery, she still had mild pain in her right breast with an analgetic prescription; there were no changes in the breast volume or shape. There were no infections or leaks on the seroma molding as well. Although there was a significant asymmetrical shape on the breast, she was pleased with her breast shape aesthetically, with a scale of 8 out of 10 for her satisfaction rate in the 4th and 6th year after surgery (figure 2 and 3). This subjective scale ranged from 0 to 10, based on the patient's perception and decision. After the breast cancer treatment, she had no other reconstruction therapy or reduction of the contralateral breast.

**Discussion**

Seroma molding is the most important component in reconstruction using Seroma. In this case, several ways can be done to localize the seroma, such as making a fixation suture at the breast margin, asking the patient to lay in a lateral decubitus position to the ipsilateral side of the postmastectomy breast, and suggesting the patient use support bra to localize the Seroma. Further modification procedures by folding and reducing the volume of connective tissue and skin should be performed in elderly patients due to loose skin and connective tissue conditions.

In this case, using Seroma for postmastectomy breast reconstruction was successful. The result of this reconstruction was the formation of a seroma that acted as a tissue expander. Complication from using a tissue expander was not seen in this patient. There was no presence of tissue damage and no change in breast size and shape. Satisfaction from patients with breast reconstruction was obtained on a scale of 8 out of 10 with an excellent aesthetic skin condition and minimal pain. However, the patient found a significant difference in size between the two breasts. This caused aesthetic problems for the patient, but a reduction mastectomy was not performed in this patient.

Some advantages of Seroma as a breast reconstruction are Seroma is not a foreign object, can form a capsule (like a silicone implant), and has the same principle as an osmotic tissue expander. The disadvantage of using Seroma as a breast reconstruction is the variability of the seroma volume in patients, which can lead to failure of the reconstruction. In addition, this technique is very dependent on good skin conditions. It could only provide consistent results on some subjects.

Complications due to seroma formation in the patient are also one of the risks and drawbacks of this technique. Even though pain tolerance differed in each patient, patients with pain scale VAS 1-2 could be used as tissue expander potential candidates. In this case, there was an asymmetry in the size of the reconstructed breast compared to the contralateral breast. As a natural tissue expander, Seroma can be an option for patients who cannot afford the cost of buying a patent tissue developer. However, as a reconstruction technique, Seroma still has many things that could be improved. Incredibly many factors affected the volume and shape of the Seroma so that it could not be achieved aesthetically. But by doing this kind of intervention, the patient did not have to undergo the reduction mastectomy.

**Conclusion**

Seroma as a potential biological tissue extender that can be used as an alternative breast reconstructive method.

**Disclosure**

The authors declare no conflict of interest.

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None.

**Role of authors**

Conceptualization AK, FM, Data curation AK, FM, Formal analysis AK, FM, Funding acquisition AK, FM, Investigation AK, FM, ANDP, Methodology AK, FM, Project administration AK, FM, Resources AK, FM Software AK, FM, Supervision AK, FM, Validation AK, FM, Visualization AK, FM, Writing original draft preparation AK, FM Writing review and editing AK, FM.
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