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Latissimus dorsi flap after mastectomy surgery: case series



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ABSTRACT

Background: Breast cancer is the most common type of cancer in women. Breast cancer can be treated with mastectomy surgery, chemotherapy, hormonal, radiation, and biological agent therapy. Surgery is the primary therapy for breast cancer. The most common surgical procedure is a mastectomy which can be continued with breast reconstruction after mastectomy surgery to improve the shape and close the breast defects. Breast reconstructions can be performed with breast implant surgery and autologous or “flap” reconstruction. Latissimus Dorsi (LD) flap is a pedicled flap often used for breast reconstruction. Mastectomy surgery and breast reconstruction complications are seromas, late hypertrophic scars, hematomas, pain, muscle weakness, and infections. This study aimed to describe the case series of latissimus dorsi flaps in breast cancer patients after mastectomy surgery.

Case presentation: The author presents 6 cases of breast cancer patients after mastectomy surgery performed breast reconstruction using an LD flap. Five patients had a history of surgery on the abdomen, and one did not have a history of abdominal surgery but had planned pregnancy in the future. There were no complications after LD flap reconstruction surgery. LD flap surgery may be accompanied by implants so that the shape and size can be close to another breast, but related to the cost, and the patients refuse to use a breast implant. All patients were given chemotherapy before surgery.

Conclusion: Breast reconstructive surgery is used to close defects after mastectomy surgery and can improve the quality of life of breast cancer patients. Pedicled LD flaps are one of the techniques often used for breast reconstruction cases because of rare complications of necrosis in the donor area or flaps.

Keywords: Breast cancer, Mastectomy, Breast reconstruction, Latissimus dorsi flap.

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BACKGROUND

Breast cancer is the most common cancer in women in Indonesia and the most common cause of death.¹ There are many therapeutic options to treat breast cancer and improve the quality of life of people living with breast cancer. Therapeutic options for breast cancer include surgery, chemotherapy, hormonal therapy, biological therapy, and radiation therapy. Various specialties will work together to treat breast cancer.² Surgery is the primary therapy in most cases of breast cancer, such as mastectomy, which removes cancer and breast tissue. Breast reconstruction surgery is needed after mastectomy surgery to improve the shape of the breast. Breast reconstruction can be performed using breast implant surgery and autologous or “flap” reconstruction.³ There are flap reconstructions that use a pedicled flap, where the tissue is

transferred from the donor to the breast (recipient) without cutting the source of the blood vessel. Flap reconstruction can be done with a free flap by moving the tissue and cutting the donor blood vessels so that microsurgery is performed to connect to the recipient's blood vessels in the breast area. Latissimus dorsi (LD) flap is a type of pedicle flap often used for breast reconstruction.⁴ The LD flap can be chosen for breast reconstruction because it has vascularity from the thoracodorsal blood vessels so that the LD flap can last a long time, uses a pedicled flap, so there is no need for microsurgery, the location of the LD is close to the breast, can be used for patients who already have a history of radiotherapy, and cannot be reconstructed using an abdominal flap. The LD flap can also be used in patients who have failed in previous breast reconstruction.⁵ The complications that may occur in

postoperative reconstruction with an LD flap are seroma, late hypertrophic scars, hematoma, pain, muscle weakness, and infections.⁶ We aim to describe the case series of latissimus dorsi flaps in breast cancer patients after mastectomy surgery.

CASE PRESENTATION

Case 1

A 51-year-old female patient came to the surgical oncology clinic complaining of a lump in the right breast that was getting bigger and not painful. Surgical oncology performed a biopsy, and the results were micro-invasive cancer with high-grade DCIS (Ductal carcinoma in situ). The results of Immunohistochemistry: Her 2 positive 3+. The patient was diagnosed with right breast cancer with T4N1M0 staging. Chemotherapy was carried out 4 times; after that, a subcutaneous mastectomy of the right breast and right axillary



Figure 1. The LD flap reconstruction after mastectomy of case 1.

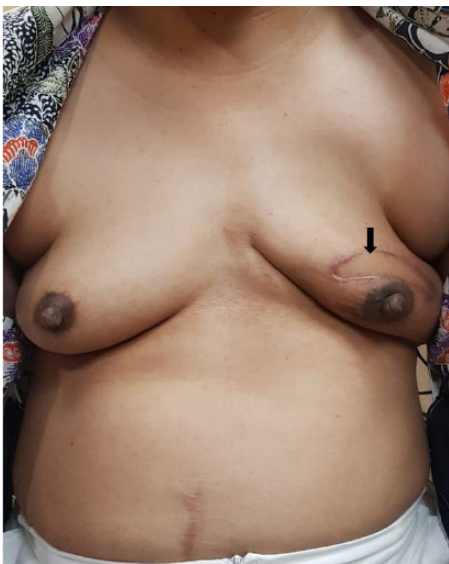


Figure 3. The LD flap reconstruction after mastectomy of case 3.

lymph node dissection was performed by an oncology surgeon and immediately followed by LD flap reconstruction surgery by a plastic surgeon. The patient had a previous history of abdominal surgery: appendectomy, hysterectomy and cesarean section surgery. During the operation, the patient positioned decubitus laterally, and site marking of an elliptical incision with a size of 15x12 cm was performed. A subcutaneous mastectomy removed all breast tissue, nipple area complex, and pectoralis major muscle. After the mastectomy, the LD flap reconstruction

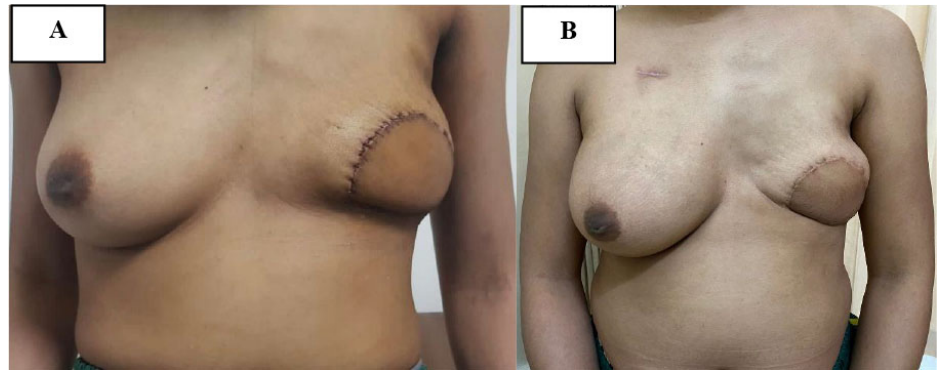


Figure 2. The LD flap reconstruction after mastectomy of case 2. A) A few weeks after surgery; B) After two years following up.

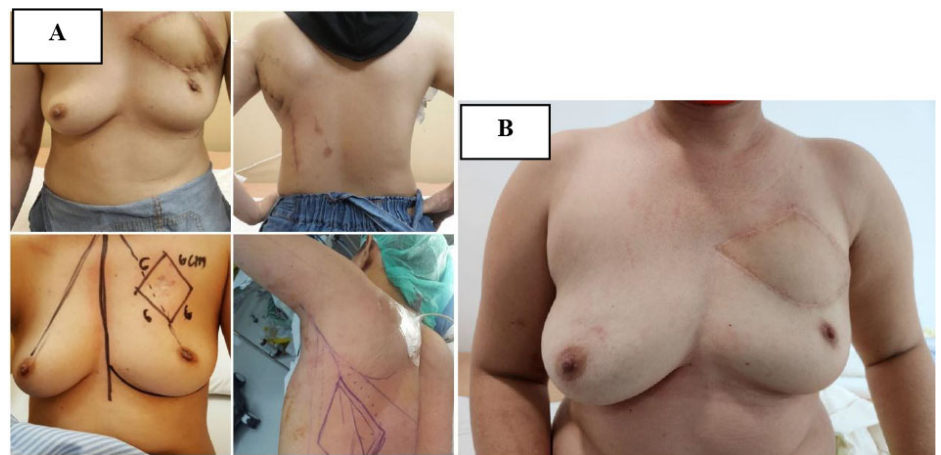


Figure 4. The LD flap reconstruction after mastectomy of case 4. A) Process of LD flap reconstruction; B) After two years following up.

was continued by designing the flap and incision (Figure 1). After the incision, the flap was elevated and tunneled anteriorly, the donor was sutured, and a drain was placed. The patient was positioned supine, the flap was fixed, and a drain was placed. In this patient, implants were not installed due to cost constraints. The drain was removed after 3 days, the allowed outpatient. Chemotherapy was continued up to 18 times. There were no complications in this patient.

Case 2

A 34-year-old female patient complained of a lump in the left breast that had been getting bigger for more than 2 years. A biopsy was performed on the lump with the result of the left breast. Immunohistochemistry: Her 2 positive 2+. The patient was diagnosed with left breast cancer with T4N1M0 staging. The patient had a history of section caesarian surgery. Chemotherapy was done 8 times,

and left subcutaneous mastectomy and left lymph node dissection was performed, followed by LD flap reconstruction surgery. The size of the defect is 10x9 cm. A flap design was performed, then the flap was incised, then the flap was tunneled anteriorly. The donor flap was sutured, and a drain was installed. In this case, implants were not installed due to cost constraints. The drain was maintained for 3 days, and the patient was admitted for outpatient treatment (Figure 2.A). The patient was continued with chemotherapy up to 18 times. At follow-up, the patient had no postoperative complications (Figure 2.B).

Case 3

A 42-year-old female patient complained of a lump in her left breast that had been getting bigger for 8 years. An ultrasound examination showed a solid mass in the left breast. A mammography examination was also performed, and a mass was seen too in the left breast and an enlarged

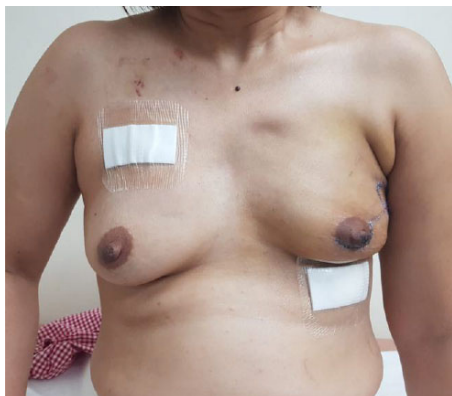


Figure 5. The LD flap reconstruction after mastectomy of case 5.

axillary lymph node. The patient was diagnosed with left breast cancer with T3N1Mx staging. A biopsy was performed on the lump, resulting in a phyllodes tumor of the left breast. The patient had a history of appendectomy and laparotomy exploration of the abdomen. The oncology and plastic surgeons decided to perform a total mastectomy and reconstruction of the left breast with an LD flap. The tumor was surgically removed, and the defect size was 10x6x4 cm; breast reconstruction surgery was conducted by designing the LD flap according to the size and making incisions from the skin, subcutaneous, fascia, and muscle (Figure 3). The LD muscle is elevated and controls any bleeding. Continuing to make a tunnel on the lateral side of the left breast so that the flap can be penetrated. The donor's back was placed with a vacuum drain, fixed, and sewn layer by layer. A vacuum drain was also placed on the left breast. The drain was maintained for 3 days. There are no complications from the surgery. No chemotherapy was given to the patient.

Case 4

A 38-year-old woman complained of a lump in her left breast that had been getting bigger for 1 year. A biopsy was performed, and the result was mixed invasive carcinoma nonspecial type and lobular carcinoma grade I. After finding the malignant result, the patient received 9 times chemotherapy and 30 times radiotherapy. The patient had a history of cesarean section surgery. The patient was diagnosed with left breast cancer and T4N1Mx staging. Wide excision with free margin and axillary node dissection



Figure 6. The LD flap reconstruction after mastectomy of case 6. A) Process of LD flap reconstruction; B) After reconstruction.

was performed and continued with breast reconstruction LD flap. A defect with a size of 10x10 cm. An LD flap was designed by making an oblique skin island of 10x10 cm (Figure 4.A). Flap in the incision, elevation, and control of existing bleeding. The flap is rotated through the axillary tunnel anteriorly. The donor was sutured, and a vacuum drain was installed. A vacuum drain was also installed in the axillary fossa; the flap was inset. The drain was maintained for 3 days. There were no postoperative complications (Figure 4.B).

Case 5

A 49-year-old female patient complained of a lump in the left breast for 1 month. Ultrasound examination of the breast found solid calcified lesions on the left breast. The patient was diagnosed with left breast cancer and T2M1Mx staging. The biopsy was performed, resulting in carcinoma of nonspecial type grade 2 with moderate grade Ductal Carcinoma In Situ (DCIS). The patient had a history of appendectomy and cesarean section. Then a left subcutaneous mastectomy with nipple sparing and axillary node dissection was performed. There was a 16x4 cm defect, followed by reconstruction with an LD flap (Figure 5). The LD flap design was incised and elevated with a skin paddle. Donors were fitted with a drain, and the flap was inset. Drain maintained for 3

days. The patient was given chemotherapy 7 times. There were no complications in this case.

Case 6

A 34-year-old female patient complained of a lump in the right breast for 1 month. Multiple nodules on the right breast and right axillary lymphadenopathy were found on breast ultrasound. A biopsy was performed on the lump, and immunohistochemistry results were invasive breast carcinoma of no special type grade 2. Wide excision with free margin and Axillary node dissection and LD flap reconstruction on the right breast was performed. There is an 11x8 cm defect. LD flap was designed, and the flap was incised and elevated (Figure 6.A). The flap was tunneled anteriorly to the breast defect. A drain was installed on the donor area and was sutured. The recipient was fitted with a drain (Figure 6.B). There were no postoperative complications. Immunohistochemistry results were invasive breast carcinoma type 3. Chemotherapy was given 6 times. No complications in this patient.

DISCUSSION

In this study, the authors present 6 cases of breast cancer that underwent mastectomy and breast reconstruction using an LD

flap. Patients received chemotherapy before mastectomy because chemotherapy is the standard treatment for breast cancer, especially in advanced stages, to make the size of the cancer more minimal so that surgery is possible.⁷ Breast reconstruction is an option that should be considered for breast cancer patients undergoing mastectomy.⁸ Autologous breast reconstruction has long-term benefits because it can produce natural results and has good sensory properties. These factors make many patients consider autologous breast reconstruction rather than implant reconstruction. There are several choices of flaps that can be used for breast reconstruction.⁹ In-flap reconstruction can be done with a pedicle flap, which is tissue transferred simultaneously from the donor to the breast without cutting the blood vessel source. A free flap removes tissue and cuts the donor blood vessel, so microsurgery must be performed to connect with recipient blood vessels.⁴ The donor criteria to be used as a flap are the donor has sufficient subcutaneous fat tissue to form the breast, has sufficient pedicle size to form the chest wall, can be convex to form the breast, has good vascular anatomy, can disguise surgical scars in the donor area, can create a sensory sensation on the flap, has a color similar to the chest wall or other side of the breast, has a fat consistency that is almost similar to breast tissue. The LD flap is usually selected based on the patient's preference; for example, the patient cannot have a flap from the abdomen due to surgery and planning to become pregnant.¹⁰

Flap originating in the back region is not ideal because it has weakness on the esthetic side and because of its size. A small flap is difficult to form fat tissue, but it can still be done in patients with small or medium breast size, whereas in patients with large breasts, it cannot be done.^{9,10} The LD flap technique is quick and easy to perform. The LD flap has the lowest incidence of necrosis.¹⁰ Other complications that can occur in

donors are seroma formation, necrosis, temporarily limited shoulder movement, and back deformity. In all cases, an LD flap was performed because they had moderate breast size and all patients had a history of abdominal surgery. In some patients, autologous flaps and implants can be performed, but the patients refuse to use breast implants due to cost. All of the patients had no complications after surgery.

CONCLUSION

Breast reconstruction surgery after mastectomy is a therapy to improve the quality of life of breast cancer patients. The LD flap reconstruction is often used for post-mastectomy cases because of the minimal complication of flap necrosis. The LD flap can be selected for small or medium breast size patients.

CONFLICT OF INTEREST

All authors declared that there is no conflict of interest related to the publication of this article.

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ETHICAL CLEARANCE

Patient approval has been obtained in this study and fulfilled ethics approval from the International Committee of Medical Journal Editors (ICMJE).

AUTHOR CONTRIBUTION

Each author has an equal contribution to the process of article writing.

REFERENCES

1. Kementerian Kesehatan Republik Indonesia. Kanker Payudara Paling Banyak di Indonesia, Kemenkes Targetkan Pemerataan Layanan Kesehatan. [Online]. Available from: [https://www.kemkes.go.id/article/view/22020400002/kanker-payudara-paling-](https://www.kemkes.go.id/article/view/22020400002/kanker-payudara-paling-banyak-di-indonesia-kemenkes-targetkan-pemerataan-layanan-kesehatan.html)

1. banyak-di-indonesia-kemenkes-targetkan-pemerataan-layanan-kesehatan.html [Accessed 4 September 2022].
2. CDC (Centers For Disease Control and Prevention). How Is Breast Cancer Treated? [Online]. Available from: https://www.cdc.gov/cancer/breast/basic_info/treatment.htm [Accessed 4 September 2022].
3. Cleveland clinic. Breast Cancer Surgery. [Online]. Available from: [https://my.clevelandclinic.org/health/treatments/8338-breast-cancer-surgery#:~:text=The%20two%20types%20of%20surgery,lymphadenectomy\)%20and%20breast%20reconstruction%20surgery.](https://my.clevelandclinic.org/health/treatments/8338-breast-cancer-surgery#:~:text=The%20two%20types%20of%20surgery,lymphadenectomy)%20and%20breast%20reconstruction%20surgery.) [Accessed 4 September 2022].
4. National Cancer Institute. Breast Reconstruction After Mastectomy. [Online]. Available from: <https://www.cancer.gov/types/breast/reconstruction-fact-sheet#:~:text=Breasts%20can%20be%20rebuilt%20using,used%20to%20rebuild%20the%20breast.> [Accessed 4 September 2022].
5. James H. Boehmler, Charles E. Butler. Aesthetic and Reconstructive Surgery of the Breast: Latissimus Dorsi Flap Breast Reconstruction. 1st ed. USA: Elsevier; 2010.
6. Mufid burgić, Cathrine bruant-rodier, Astrid wilk, Frédéric bodin, Adi rifatbegović. Complications Following Autologous Latissimus Flap Breast Reconstruction. Journal of the Association of Basic Medical Sciences. 2010;10(1): 65-67.
7. Josh H hage, Cornelis JH de velde, Sven JSD mieog. Preoperative chemotherapy for women with operable breast cancer. National Library of Medicine. 2007;1(2): 1.
8. Jeffrey gu, Garry groot, Lorraine holtlander, Rachel engler-stringer. Understanding Women's Choice Mastectomy Versus Breast Conserving Therapy in Early-Stage Breast Cancer. Clinical Medicine Insights: Oncology. 2017;11(1): 6.
9. Ramon Garza, Oscar Ochoa, Minas chrysopoulo. Post-mastectomy Breast Reconstruction with Autologous Tissue: Current Methods and Techniques. PRS Global Open. 2017;9(2): 3433.
10. Mohammed A. Rifaat, Ayman A. Amin, Mahmoud Bassiouny, Ayman Nabawi, Sherif Monib. The extended latissimus dorsi flap option in autologous breast reconstruction: A report of 14 cases and review of the literature. Indian Journal of Plastic Surgery. 2008; 41(1): 24-33.



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