

Pedicled latissimus dorsi flap for closure of a chronic postmastectomy breast defect in a previously irradiated patient: a case report

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Abstract

Background: Breast cancer remains the most frequently diagnosed malignancy in women worldwide, with an estimated 2.3 million new cases and 670,000 deaths reported in 2022. Mastectomy continues to play a central role in treatment; however, postoperative soft-tissue defects are not always amenable to primary closure, particularly after large resections, repeated surgery, or prior radiotherapy. The latissimus dorsi flap, first described by Tansini and later reintroduced by Olivari in 1976, remains a well-established reconstructive option.

Case presentation: We report a 57-year-old woman with type 2 diabetes mellitus who presented with a persistent, non-healing 4 × 12 cm soft-tissue defect at the lower pole of the right breast following oncologic treatment for invasive breast carcinoma. The patient subsequently underwent adjuvant chemotherapy and radiotherapy. Despite three months of conservative wound care after mastectomy, the defect failed to heal adequately, consistent with a compromised post-radiation wound environment. Delayed reconstruction was performed using an ipsilateral pedicled latissimus dorsi myocutaneous flap, achieving complete defect coverage and tension-free closure. At 4-week follow-up, the flap remained viable with complete wound healing and no postoperative complications.

Conclusion: The pedicled latissimus dorsi flap provides effective vascularized tissue coverage for chronic postmastectomy defects in irradiated fields, particularly when local tissue quality is poor.

Keywords: Breast Cancer, Latissimus Dorsi Flap, Irradiated Wound, Chronic Defect, Postmastectomy Reconstruction, Indonesia

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resections, repeated surgery, or prior radiotherapy [2]. Radiotherapy, although essential for local disease control, induces structural and microvascular changes such as fibrosis, reduced capillary density, and tissue hypoxia. These alterations impair wound healing and predispose patients to chronic, non-healing defects [2]. In such biologically compromised environments, reconstruction using well-vascularized tissue is critical to restore both structural integrity and tissue viability [2,3]. The latissimus dorsi (LD) flap, first described by Tansini in the early 20th century and later reintroduced by Olivari in 1976 for breast reconstruction, remains one of the most reliable reconstructive options [3]. Its consistent vascular anatomy, based on the thoracodorsal system, along with a wide arc of rotation, makes it particularly suitable for salvage reconstruction in irradiated fields [4]. This report presents a case of a chronic postmastectomy defect in a previously irradiated patient successfully managed with a pedicled LD flap, highlighting its role as a dependable reconstructive modality in challenging wound environments.

Case presentation

A 57-year-old woman presented to the plastic surgery outpatient clinic with a persistent defect in the right breast region following previous surgical treatment for breast cancer. The patient first noticed a single palpable lump in the right breast in 2024. Breast ultrasonography performed on 20 August 2024 revealed a solid multilobulated lesion in the right breast at the 10 o'clock position, approximately 3–4 cm from the nipple, measuring approximately 3.1 × 2.7 × 2.2 cm. The lesion showed intralesional vascularity and was categorized as BI-RADS 4C, suspicious for malignancy. Right axillary lymphadenopathy measuring approximately 1.3 × 0.9 cm was also noted. No mass or axillary lymphadenopathy was identified in the left breast. The patient subsequently underwent surgical management.

Background

Breast cancer remains the most frequently diagnosed malignancy in women worldwide, with an estimated 2.3 million new cases and over 670,000 deaths reported in 2022, representing a major global health burden [1]. Surgical management, including mastectomy, continues to be a cornerstone of treatment; however, it may result in soft-tissue defects that are not always amenable to primary closure, particularly in cases involving large

Histopathological examination of the right breast specimen after modified radical mastectomy following wide excision showed invasive breast carcinoma of no special type (NST), grade 3, with a greatest tumor dimension of 4 cm. Ductal carcinoma in situ was not identified. There was no direct invasion into the dermis or epidermis, and lymphovascular invasion was not identified. The peripheral margin was uninvolved by carcinoma, while the deep margin was close to carcinoma with a distance of less than 1 mm. Lymph nodes were not submitted for examination. The pathological staging was reported as pT2 Nx Mx. Immunohistochemistry demonstrated estrogen receptor positivity in 80% of tumor cell nuclei, progesterone receptor negativity, HER2 negativity, and a Ki-67 labeling index of approximately 70%, consistent with Luminal B-like, HER2-negative breast carcinoma. Following oncologic treatment, the patient underwent six cycles of chemotherapy and radiotherapy. After surgery and adjuvant therapy, she developed a persistent defect in the right breast/chest wall region.



Figure 1. Preoperative condition (chronic non-healing defect at the lower pole of the right breast following mastectomy and radiotherapy).



Figure 2. Intraoperative design (marking of the latissimus dorsi flap and defect site).

The wound was initially treated conservatively with wound care, with the expectation of gradual spontaneous closure. However, after approximately three months, there was no significant wound closure. At presentation to the plastic surgery clinic, the patient had a chronic right breast defect measuring approximately 4 × 12 cm. The patient had a history of type 2 diabetes mellitus treated with metformin 500 mg twice daily and a history of cesarean section.

There was no history of hypertension or known drug allergy. Preoperative laboratory examination showed mild anemia with hemoglobin 10.3 g/dL and hematocrit 31%. Leukocyte count was $4.8 \times 10^3/\mu\text{L}$, platelet count was $320 \times 10^3/\mu\text{L}$, and absolute neutrophil count was approximately 2746/mm³. Red cell indices were within normocytic-normochromic range, with MCV 88.3 fL, MCH 29.3 pg, and MCHC 33.2 g/dL. Preoperative echocardiography showed normal cardiac chamber dimensions, good left ventricular contractility, and preserved systolic function with LVEF 61%. Mild mitral regurgitation was noted, with no evidence of significant cardiac dysfunction. Given the persistent right breast defect in a previously irradiated field, the need for robust vascularized tissue coverage, and the anatomic suitability of the donor site, reconstruction was performed using a pedicled latissimus dorsi flap harvested from the right back. At 4-week follow-up, the flap remained fully viable with complete wound healing, satisfactory contour restoration, and no evidence of postoperative complications.

Discussion

Reconstruction of postmastectomy defects in previously irradiated patients remains a complex clinical challenge. Radiation therapy leads to progressive fibrosis, vascular damage, and decreased tissue perfusion, all of which impair healing and increase the likelihood of chronic wounds. [2] In such cases, reconstructive success depends not only on mechanical coverage but also on restoring a favorable biological environment. Options such as primary closure or skin grafting are often inadequate due to poor vascularity and reduced tissue compliance. Perforator flaps, while less invasive, may not provide sufficient tissue bulk or reliable perfusion in severely compromised beds. Free tissue transfer, including deep inferior epigastric perforator (DIEP) flaps, offers excellent outcomes but requires microsurgical expertise, longer operative time, and may not be ideal in patients with comorbid conditions or limited resources [4]. Compared to free flap reconstruction, the pedicled LD flap offers shorter operative time and does not require microsurgical anastomosis, making it particularly advantageous in resource-limited settings. The pedicled latissimus dorsi flap offers several practical advantages in this context. Its robust vascular supply via the thoracodorsal artery ensures reliable perfusion, even in irradiated fields. Additionally, the flap provides adequate tissue bulk and has a wide arc of rotation, making it suitable for defects involving the lower pole of the breast and anterior chest wall [3,5–7]. In the present case, short-term postoperative outcomes further support the reliability of the pedicled latissimus dorsi flap in irradiated wound beds. At 4-week follow-up, the reconstructed site demonstrated complete wound healing with preserved flap viability, satisfactory contour restoration, and no evidence of complications such as infection, dehiscence, or partial flap loss (Figure 4). This favorable outcome supports the role of the LD flap in introducing well-vascularized tissue into a hypoxic and fibrotic post-radiation wound bed. The absence of early complications in this patient, despite the presence of diabetes mellitus as a comorbid condition, highlights the robustness of this reconstructive option. These findings are consistent with previous studies reporting high success rates and reliable outcomes of pedicled LD flaps in salvage breast reconstruction settings [6–8].

Its relatively straightforward technique and consistent outcomes make it a valuable option, especially in resource-limited environments. This report has several limitations. As a single case report, the findings cannot be generalized to all postmastectomy defects in irradiated patients. In addition, longer follow-up is required to evaluate late complications, donor-site morbidity, functional outcome, and long-term contour stability. Nevertheless, this case highlights the practical value of the pedicled latissimus dorsi flap as a reliable option for introducing vascularized tissue into compromised postmastectomy wound beds.



Figure 3. Postoperative result (Successful closure of the defect using pedicled LD flap).



Figure 4. Postoperative follow-up at 4 weeks (the reconstructed site demonstrates complete wound healing with preserved flap viability, adequate contour, and no evidence of wound dehiscence, infection, or partial flap loss)

Conclusion

The pedicled latissimus dorsi flap remains a reliable and effective option for reconstruction of chronic postmastectomy defects in previously irradiated patients. Its ability to introduce well-vascularized tissue into compromised wound beds supports durable healing and favorable clinical outcomes.

Abbreviation

BI-RADS: Breast Imaging Reporting and Data System; DIEP: Deep Inferior Epigastric Perforator; ER: Estrogen Receptor; HER2: Human Epidermal Growth Factor Receptor 2; LD: Latissimus Dorsi; NST: No Special Type; PR: Progesterone Receptor.

Declaration

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Availability of data and materials

Data will be available by emailing andreparm2@gmail.com

Authors' contributions

Andre Parmonangan (AP): Conceptualization, data collection, manuscript drafting, and final manuscript preparation. Lucretia Yeniwati Tanuwijaya (LYT): Surgical management, clinical supervision, manuscript review, and critical revision.

Ethics approval and consent to participate

This case report was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from the patient for the publication of this report and any accompanying clinical images. The patient also consented to the use of this case to provide new insights within the field of Plastic Reconstructive and Aesthetic Surgery.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

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References

1. World Health Organization. Breast cancer [Internet]. Geneva: WHO; 2024 [cited 2026 Apr 14]. Available from: <https://www.who.int/news-room/fact-sheets/detail/breast-cancer>
2. Ewing JN, Gala Z, Azoury SC. The radiated breast and autologous reconstruction: benefits and alternatives. *Plast Aesthet Res.* 2024; 11:22.
3. Vincent A, Hohman MH. Latissimus dorsi flap. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan– [updated 2024 Apr 1; cited 2026 Apr 14]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK564377/>
4. Dewael S, Vandervoort M, Fabré G, Nanhekhan L. Immediate versus delayed autologous breast reconstruction in irradiated patients. *J Plast Reconstr Aesthet Surg.* 2019;72(11):1769–1775.
5. Escandón JM, Manrique OJ, Christiano JG, et al. Breast reconstruction with latissimus dorsi flap: comprehensive review. *Ann Transl Med.* 2023;11(10):355.
6. Doan L, Sam AP, Li WY. Optimizing the pedicled latissimus dorsi myocutaneous flap in breast reconstruction: lessons learned from 110 consecutive flaps. *Plast Reconstr Surg Glob Open.* 2024;12(5):e5791.
7. Sood R, Easow JM, Konopka G, Panthaki ZJ. Latissimus dorsi flap in breast reconstruction. *Cancer Control.* 2018;25(1):1073274817744638.
8. Zheng H, Zhu G, Guan Q, Fan W, Li X, Yu M, Xu J, Wu X. A retrospective study of latissimus dorsi flap in immediate breast reconstruction. *Front Oncol.* 2021; 11:598604.