

Latissimus Dorsi Myocutaneous Flap Reconstruction Post Resection of a Giant Malignant Phyllodes Tumor of the Breast: A Case Report

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Summary

Phyllodes tumors (PTs) are a rare group of mammary fibroepithelial lesions accounting for up to 1% of breast tumors. They display biologic diversity, ranging from benign to malignant. PTs of the breast are mostly found in females aged 35–55 years and are rare in adolescents and the elderly. They usually present as a fast growing, painless breast mass. The treatment of choice for PTs is complete excision with clear margins. In patients with large PTs, breast reconstruction results in better outcome and increased satisfaction.

Our patient, a 39-year-old female presented with an enlarging breast mass over a period of 6 months. Physical examination showed a large, ulcerated mass involving the entire right breast. Histopathology revealed features of a malignant PT. Total mastectomy

and immediate reconstruction with a pedicled latissimus dorsi myocutaneous flap and symmetrization reduction mastopexy of the left breast was done. At 6 months, the patient has not shown any gross tumor recurrence with acceptable cosmesis.

Keywords: Phyllodes tumor, Mastectomy, Breast reconstruction, Breast imaging, Case report

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Introduction

Phyllodes tumors (PTs) are rare fibroepithelial lesions of the breast which display considerable biologic diversity. They may be benign, malignant, or borderline. While the exact etiology of PTs is unknown, clonal analysis reveal a mixed epithelial and stromal origin (1).

The majority of PTs are benign, accounting for 35–64% of cases with malignant tumors comprising up to 25% (2). Benign PTs are characterized by negligible cellularity of the stroma and nuclear atypia, non-infiltrative margins, and low mitotic activity. Malignant PTs, on the other hand, demonstrate pronounced stromal cellularity and atypia, infiltrative margins, and have

increased mitotic activity. Borderline PTs have intermediate features (3).

Although the median size at the time of presentation of most PTs is 4–5 cm, approximately 20% are larger than 10 cm at presentation and are referred to as giant PTs (1). These tumors present a unique challenge to the surgeon, generally require radical resection, and necessitate some form of reconstruction.

The diagnosis of PTs is fraught with difficulty. Distinguishing benign PTs from cellular fibroadenoma can be challenging due to shared microscopic features, especially when assessed on core needle biopsy. On the

other hand, differentiating malignant PTs from breast sarcoma can be difficult, usually requiring assessment of multiple histologic parameters (2). Whether benign or malignant, surgical excision with negative margins to reduce risk of recurrence constitutes the primary therapy for PTs of the breast (3). The scale of surgery and what constitutes a sufficient resection margin remains unsettled. The role of chemotherapy and radiotherapy is uncertain (3).

The aim of this case report is to highlight the difficulty encountered in the diagnosis of PTs and the utility of the pedicled myocutaneous latissimus dorsi (LD) flap to the treating surgeon in the setting of giant PTs that require radical resection.

Case presentation

We present a 39-year-old female who presented with an enlarging breast mass over a period of 6 months. Despite a breast ultrasound indicating features of a giant fibroadenoma, she was lost to follow-up and presented to our facility 14 months later with an enlarged ulcerated breast mass.



Figure 1. Large, ulcerated breast mass at presentation. Physical examination showed a large, multiply ulcerated mass involving the entire right breast, measuring 35 cm

× 25 cm with engorged cutaneous veins and no palpable axillary lymphadenopathy. The left breast and axilla were grossly normal. Incisional biopsy revealed features of a benign PT/myofibroblastic tumor of the breast. A chest radiograph and abdominal ultrasound revealed no features of distant organ involvement. A breast multidisciplinary team (MDT) meeting recommended mastectomy.

Following the MDT recommendation, a simple mastectomy was performed. However, wound closure could not be attained due to a large skin defect of approximately 12 cm × 15 cm. Reconstruction was deferred awaiting histopathology result. Histopathology revealed features of a malignant PT with involvement of the posterior margins.



Figure 2. Post-mastectomy defect measuring 12 cm × 15 cm.

The patient was re-discussed in the breast MDT which recommended re-excision. The wound was re-excised to include the pectoralis major muscle and immediate reconstruction with a pedicled LD myocutaneous flap and symmetrization reduction mastopexy of the left breast performed. Margins were confirmed to be free of tumor.

The patient had uneventful post-operative period and was discharged on the 6th post operative day. A 6-month follow-up of the patient revealed no gross tumor recurrence and acceptable symmetry of the breasts.



Figure 3. Latissimus dorsi myocutaneous flap—day 3 post-op.



Figure 4. Symmetrization mastopexy of the left breast—day 3 post-op.

Discussion

PTs tend to occur in women between the ages of 35 and 55 years as a fast growing painless breast mass with a proportion of patients presenting with fixed tumors (4). Axillary lymphadenopathy is seen in 10–15% of patients and tend to be reactive and benign in over 90% of patients. PTs are rarely bilateral (2).

The diagnosis of PTs involves triple assessment, which entails history and focused physical examination,

radiological investigations (mammography or ultrasonography), and tissue biopsy for histopathology (4).

Histopathologically, PTs are characterized by a fibroepithelial architecture with an amplified intracanalicular pattern and hypercellularity of the stromal component. The distinction of benign fibroadenoma from benign PT can be challenging, as they belong to a spectrum of fibroepithelial tumors but is critical because while fibroadenomas can be safely observed, PTs must be surgically excised (3).



Figure 5. Skin grafted donor site—day 5 post-op.

Surgical excision with adequate tumor-free margins remains the therapy of choice in PT. However, the extent of surgery and what constitutes an adequate margin is still unclear. A wide local excision is sufficient for the majority of patients and mastectomy is undertaken in individuals with large tumors where breast conservation may be impracticable. A positive tumor margin is associated with both local recurrence and metastases (5). While wide excision with tumor-free margin ≥ 1 cm has traditionally been recommended, emerging studies show that such wide margins may not be required in all PTs (6, 7). Approximately 20% of PTs grow larger than 10 cm and are arbitrarily defined as giant PTs. This subset of tumors usually require radical excision and reconstruction (5).

Post mastectomy breast reconstruction has been shown to have significant psychological benefits (8). Breast reconstruction can be immediate or delayed. Immediate reconstruction avoids the morbidity of repeat surgery and reduces costs. Delayed reconstruction is useful in the setting of advanced disease where adequate control is in doubt and in patients unsure or uninterested in reconstruction at the time of index operation. Various reconstruction options are available to the surgeon. Both autologous (pedicled vs. free flaps) and alloplastic techniques can be utilized. Considerations for the choice of a reconstructive method include patient's body habitus and preference, preservation of muscle function post harvesting, donor site morbidity, patient comorbidities, and surgeon expertise (9).

Autologous breast reconstruction options include, among others, the pedicled myocutaneous LD and transverse rectus abdominis myocutaneous (TRAM) flaps, as well as the free deep inferior epigastric artery perforator (DIEAP), superficial inferior epigastric artery (SIEA), and gluteal artery perforator (GAP) flaps (9).

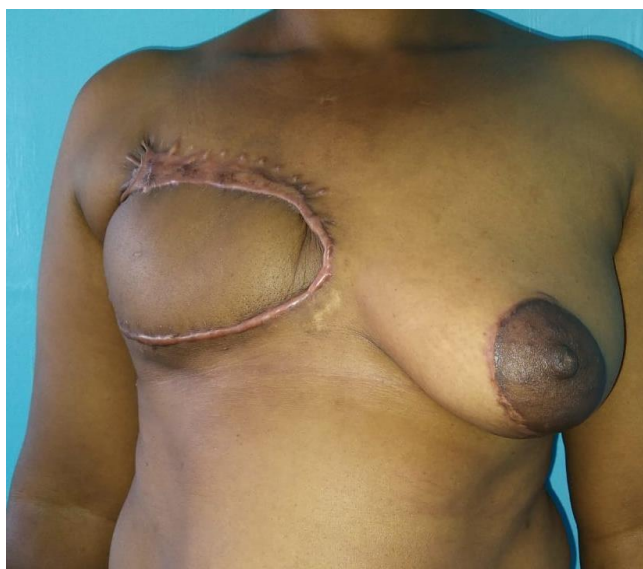


Figure 6. Patient 6 months post immediate reconstruction of the right breast with latissimus dorsi

The LD flap is very versatile and can be utilized in both immediate and delayed reconstruction as well as in staged reconstruction in combination with implants or alone. Its specific indications include patients who have undergone abdominoplasty and thus are not candidates

for a TRAM flap, those who have had a prior TRAM flap, patients with inadequate abdominal wall tissue, as well as those with comorbidities such as diabetes and morbid obesity and those who use tobacco. The LD flap is particularly useful in circumstances where there has been prior breast irradiation as it provides well-vascularized tissue to the relatively ischemic chest wall (10).

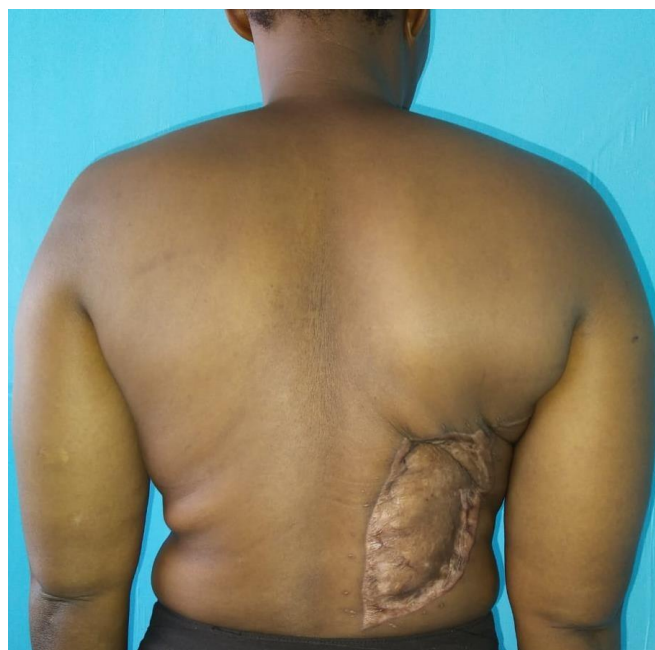


Figure 7. Donor site at 6 months post-op.

The LD flap has been utilized for reconstruction in patients with PT of the breast. Sarvanandan et al. utilized it to provide autologous reconstruction in a patient with a giant PT and reported no complications with acceptable esthetic outcome at 12-month follow-up (11). Rajesh et al. used the pedicled myocutaneous LD flap to reconstruct a 27-year-old female with a recurrent borderline PT after an initial wide local excision in which the patient had positive margins and therefore underwent radiation therapy. At 1-year follow-up, the patient has not shown signs of recurrence (12). Sharma et al. utilized the LD flap in four patients with PT. All but one patient had prior excision of breast lump. One patient developed recurrence 1 year after surgery and was offered adjuvant radiotherapy. All patients in this series reported satisfaction with the cosmetic result (13). The tumor and defect sizes in this series and the

aforementioned case reports are relatively comparable to our case.

The DIEAP flap fully preserves the function of the rectus abdominis muscle, thus leading to reduced donor site morbidity while providing adequate soft tissue that resembles the consistency of the breast and has been used to provide autologous reconstruction in patients with PT of the breast (14, 15). The pedicled TRAM flap has also been utilized in reconstructing breasts after mastectomy for PT of the breast (13).

Conclusion

PTs remain a rare but important group of fibroepithelial tumors of the breast. Surgical excision with negative margins is the therapy of choice. Where radical excision is carried out, various reconstruction options are available.

Ethical consideration

Informed consent was acquired from the patient for publication of the case report.

Author contributions

MD led in the conceptualization and writing of the first draft. All other authors contributed equally to reviewing and editing the original draft.

Conflict of interest

Dr. Wamalwa serves as an editor in the journal. He declared his conflict and was excluded from the handling of this paper.

References

1. Noguchi S, Motomura K, Inaji H, et al. Clonal analysis of fibroadenoma and phyllodes tumor of the breast. 1993; 1: 4071-5.
2. Ben hassouna J, Damak T, Gamoudi A, et al. Phyllodes tumors of the breast: a case series of 106 patients. *Am J Surg.* 2006; 192: 141-7.
3. Tan BY, Acs G, Apple SK, et al. Phyllodes tumours of the breast: a consensus review. *Histopathology.* 2016; 68: 5-21.
4. Kalambo M, Adrada BE, Adeyefa MM, et al. Phyllodes tumor of the breast: ultrasound-pathology correlation. 2018; 210: 1-7.
5. Chen WH, Cheng SP, Tzen CY, et al. Surgical treatment of phyllodes tumors of the breast: retrospective review of 172 cases. *J Surg Oncol.* 2005; 91:185-94.

6. Telli ML, Horst KC, Guardino AE, et al. Phyllodes tumors of the breast: natural history, diagnosis, and treatment. *JNCCN J Natl Compr Cancer Netw.* 2007; 5: 324-30.
7. Jang JH, Choi MY, Lee SK, et al. Clinicopathologic risk factors for the local recurrence of phyllodes tumors of the breast. *Ann Surg Oncol.* 2012;19: 2612-7.
8. Chen W, Lv X, Xu X, et al. Meta-analysis for psychological impact of breast reconstruction in patients with breast cancer. *Breast Cancer.* 2018; 25: 464-9.
9. Emerson DJ. Breast reconstruction. *J R Soc Med.* 1994; 87: 572.
10. Boehmler JH, Butler CE. Latissimus dorsi flap breast reconstruction. *Aesthetic Reconstr Surg Breast.* 2010; 25: 51-60.
11. Sarvanandan R, Thangaratnam R, Leong AC. Immediate latissimus dorsi pedicle flap reconstruction following the removal of an eight kilogram giant phyllodes tumour of the breast: a case report. *J Med Case Rep.* 2011; 5: 1-6.
12. Rajesh A, Farooq M. Resection and reconstruction following recurrent malignant phyllodes: case report and review of literature. *Ann Med Surg (Lond).* 2017; 16: 14-8.
13. Singh G, Sharma RK. Immediate breast reconstruction for phyllodes tumors. *Breast.* 2008; 17: 296-301.
14. Tsuruta Y, Karakawa R, Majima K, et al. The reconstruction after a giant phyllodes tumor resection using a DIEP flap. *Plast Reconstr Surg Glob Open.* 2020; 8: 3-6.
15. Fang C-L, Hsu C-H, Tu C-W. The reconstruction choice for giant phyllodes tumor of breast: bi-pedicled deep inferior epigastric perforator flap. *Aesthetic Plast Surg.* 2017; 41: 768-72.