SVOA Medical Research
ISSN: 2977-3644

ScienceVolks Open Access

Case Report

Apocrine Carcinoma of the Breast in a Young Woman Managed With Oncoplastic Breast-Conserving Surgery: A Case Report From Western Nepal

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https://doi.org/10.58624/SVOAMR.2025.03.022

Received: November 14, 2025

Published: November 28, 2025

Citation: Roshan R, Shah B, Yadav M. Apocrine Carcinoma of the Breast in a Young Woman Managed With Oncoplastic Breast-Conserving Surgery: A Case Report From Western Nepal. *SVOA Medical Research 2025,* 3:6, 187-191. doi: 10.58624/SVOAMR.2025.03.022

Abstract

Background: Apocrine carcinoma of the breast is an uncommon histological variant of invasive breast cancer, representing less than 1% of all breast malignancies. Its unique cellular features and immunohistochemical profile create challenges in both diagnosis and treatment planning.

Case Presentation: A 40-year-old premenopausal woman with small breast volume presented with a palpable lump in her left breast. Core needle biopsy confirmed invasive carcinoma exhibiting apocrine differentiation. She underwent oncoplastic breast-conserving surgery using a volume-displacement technique at Sushil Koirala Prakhar Cancer Hospital, followed by adjuvant chemotherapy and radiotherapy. Surgical margins were negative, and no axillary lymph node involvement was detected. At a 12-month follow-up, the patient remains disease-free with an excellent cosmetic result.

Conclusion: This case demonstrates that oncoplastic breast-conserving surgery can be effectively performed in young women with small breast volume and uncommon tumor types such as apocrine carcinoma, providing both oncological safety and favorable aesthetic outcomes.

Keywords: *Apocrine Carcinoma; Breast Cancer; Oncoplastic Surgery; Breast-Conserving Surgery; Young Female; Nepal*

Introduction

Breast cancer is the most common malignancy affecting adult women globally and is the second leading cause of cancer -related death after lung cancer.(1) While invasive breast carcinoma of no special type (NST) accounts for approximately 70% of all breast cancers, the remaining 30% comprise a range of uncommon or special subtypes characterized by unique morphological, molecular, and genetic features. As a result, these variants exhibit distinct clinical behaviors and require different therapeutic approaches.(2)

Apocrine carcinoma was initially identified and described by Krompecher in 1961.(3). The 2019 WHO Classification of Breast Tumors designates apocrine carcinoma as a distinct special subtype of breast cancer, classified under the term **"carcinoma with apocrine differentiation."(4). Apocrine carcinoma of the breast is an uncommon and well-defined subtype of invasive breast carcinoma, characterized by tumor cells displaying abundant eosinophilic granular cytoplasm and prominent apical snouts.(5)

It accounts for less than 1% of all breast cancer cases. Typically, these tumors are characterized by strong androgen receptor (AR) expression, while estrogen receptor (ER) and progesterone receptor (PR) are usually negative.(6) While breast-conserving surgery is the preferred approach for early breast cancer, patients with smaller breasts may face a particular challenge: ensuring the entire tumor is removed while still preserving the breast's appearance.(7)

The integration of plastic surgery techniques into cancer resection known as oncoplastic surgery enables both a more thorough removal of tissue and a better preserved breast appearance.(8) This report details the management of apocrine carcinoma in a young woman with small breast volume using oncoplastic breast-conserving surgery and adjuvant therapies, followed by a discussion of the relevant surgical and oncologic considerations.

Case Presentation

A 40-year-old premenopausal woman visited the breast clinic at Sushil Koirala Prakhar Cancer Hospital reporting a painless mass in her left breast, which she had first noticed six months prior. Her obstetric history included a single full-term pregnancy, during which she had breastfed her child for over two years. The clinical review revealed no associated nipple discharge or skin changes. She had no significant personal history of breast or ovarian malignancy, and she denied any use of oral contraceptive pills, Depo-Provera, Norplant, or a copper IUD. Furthermore, her family history was negative for both breast and ovarian cancer.

Upon clinical assessment, a 2.0 cm firm yet mobile nodule with irregular border was identified in the left breast's upper inner quadrant. The overlying skin and nipple-areolar complex showed no abnormalities, and the axillary examination was negative for lymphadenopathy.

Imaging with mammography and ultrasound revealed a 2 cm spiculated, suspicious mass, classified as BIRADS V. Subsequent fine-needle aspiration cytology (FNAC) of this lesion confirmed malignancy.

Mammogram

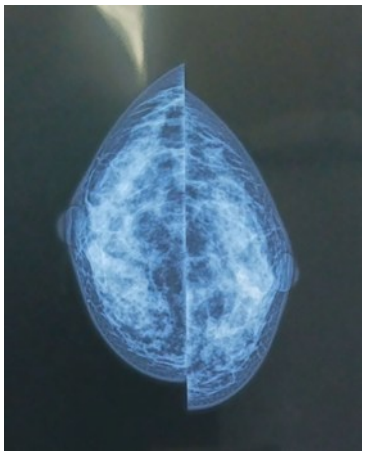

Figure 1. *CC view*

Figure 2. *MLO view*

Histopathological examination of the core biopsy revealed an invasive carcinoma with apocrine differentiation. Subsequent immunohistochemical analysis showed the tumor to be negative for estrogen receptor, progesterone receptor, HER2 and positive for Androgen receptor, findings that are consistent with apocrine carcinoma.

The surgical plan, tailored to the patient's small breast size and tumor location, consisted of oncoplastic breast-conserving surgery. The procedure included a wide local excision (Modified Benelli) and a separate level I-II axillary dissection. The volume-displacement technique was employed to preserve shape and symmetry. Additionally, Liga clips were placed to demarcate the excision cavity for a subsequent radiotherapy boost.

The final pathology report indicated a pT2N1, grade II invasive apocrine carcinoma measuring 2.7 cm with clear surgical margins and metastasis in one of twelve lymph nodes. As part of the adjuvant regimen, the patient completed six cycles of chemotherapy (anthracycline and taxane), after which she received radiotherapy to the preserved breast totaling 50 Gy over 25 fractions.

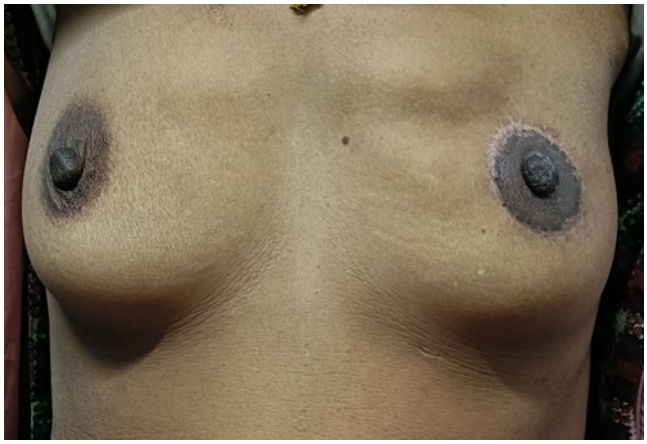

Figure 3. *Post-operative picture at 6-month follow-up.*

The 12-month follow-up revealed no locoregional recurrence or distant metastases. Furthermore, the patient documented good aesthetic satisfaction and no substantial treatment-related side effects.

Discussion

The diagnostic criterion for apocrine carcinoma requires that over 90% of the neoplastic cells exhibit distinct cytological features of apocrine differentiation.(1,5) These carcinomas typically present with a triple-negative receptor status (lacking expression of ER, PR, and HER2). However, they commonly test positive for the androgen receptor (AR), a characteristic that may have implications for targeted therapeutic strategies.(9) The treatment strategy follows the same standards applied to invasive ductal carcinoma, with therapy being tailored to the patient's specific disease stage (5).

Management typically consists of a multimodal protocol: breast-conserving surgery is performed first, followed by chemotherapy and completing with radiotherapy.(10) For patients with limited breast volume, achieving an optimal equilibrium between comprehensive oncologic resection and a satisfactory cosmetic result presents a significant surgical challenge.(11) The modified round block technique provides excellent surgical access for tumor excision while simultaneously enabling dermo-glandular mobilization to fill the resultant defect. This approach minimizes scarring and optimizes the cosmetic outcome. Such volume-displacement oncoplastic methods are instrumental in preserving the breast's natural appearance, even when a substantial volume of tissue is resected during a partial mastectomy.(12)

This case illustrates that a meticulously planned, volume-displacement oncoplastic procedure can successfully achieve the dual objectives of oncology and cosmesis in a young patient with limited breast tissue. It allowed for a wide resection with clear margins, complete axillary staging, and the unhindered delivery of adjuvant therapy, all while preserving an acceptable breast appearance.

This case from a resource-limited setting demonstrates the successful implementation of a multidisciplinary treatment model, incorporating oncoplastic surgery, systemic chemotherapy, and radiotherapy. For invasive breast cancers with apocrine differentiation, which frequently express the androgen receptor (AR), anti-androgen therapy such as darolutamide represents a potential targeted treatment strategy.(13)

Conclusions

Apocrine carcinoma of the breast, while rare, demands the same oncologic rigor as other invasive carcinomas. As demonstrated in this case of a young woman in Nepal, a multidisciplinary approach is paramount. Critical to this process is detailed patient counseling regarding all surgical options, including mastectomy and breast-conserving surgery (BCS).

For patients with small breast volume, where achieving wide surgical margins without cosmetic deformity is particularly challenging, oncoplastic BCS techniques provide an effective solution. The modified round block volume-displacement approach, as used here, successfully enabled wide local excision with clear margins, axillary management, and the unhindered administration of adjuvant chemotherapy and radiotherapy, while preserving an acceptable breast appearance.

Furthermore, the unique biology of apocrine carcinoma, which frequently presents as a triple-negative yet androgen receptor (AR)-positive tumor, opens potential therapeutic avenues for targeted agents like anti-androgen therapy (e.g., darolutamide) in selected cases.

Finally, this case from a resource-constrained setting in Nepal confirms that with careful planning, the successful implementation of complex, multidisciplinary care including specialized oncoplastic surgery is achievable. It serves as a model for adapting advanced surgical oncologic principles to improve patient outcomes in low- and middle-income countries.

Patient Perspective

From the patient's perspective, the success of the breast-conserving approach was twofold. She expressed profound relief at having avoided a mastectomy and reported high satisfaction with the preserved cosmetic appearance of her breast. She has since resumed her normal daily activities and maintains strict adherence to the recommended follow-up schedule.

Declarations

Ethical approval and consent to participate: Written informed consent for publication was obtained from the patient. Institutional review board approval was not required for this single-case report as per institutional policy.

Consent for publication

Written informed consent was obtained from the patient for publication of this case and accompanying images.

Availability of data and material

Not applicable.

Competing Interests

The authors declare that they have no competing interests.

Funding

The authors received no external funding.

Acknowledgements

We thank the surgical oncology, pathology, radiotherapy and nursing teams at Sushil Koirala Prakhar Cancer Hospital for their dedicated care.

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