

Metachronous Contralateral Triple-Negative Breast Cancer with Cutaneous Metastasis 17 Years After Initial Treatment



Michelle Hadad¹, Dr. Jessica Vinsant², MD, FACS

¹DeBusk College of Osteopathic Medicine, Lincoln Memorial University, Knoxville, TN 37932

²Premier Surgical, Powell, TN 37849



Abstract

Background: Recurrence of breast cancer exceeding 15 years is rare. Metachronous contralateral triple-negative breast cancer with sequential cutaneous metastasis is exceptionally rare. Breast cancer relapse rate is highest after 3 years then declines with time. This case report discusses diagnostic challenges with progressive skin changes and repeatedly negative imaging.

Conclusions: This case demonstrates an unusual presentation of late recurrent triple-negative invasive ductal carcinoma with cutaneous metastasis, highlights the limitations in diagnostic imaging for early dermatologic disease, and the implications in evaluating progressive breast skin changes in patients with previous mammary carcinoma. Clinicians should be weary of the limitations that imaging may provide and aim to monitor supplementary signs and symptoms.

Introduction

- Triple negative breast cancer (TNBC) is defined as estrogen receptor (ER) negative, progesterone receptor (PR) negative, and overexpression of HER2 negative, and accounts for 10-20% of all invasive breast cancers.
- Due the lack of endocrine receptors, it is not susceptible to several treatment options that could target these receptors. Generally, chemotherapy is the recommended treatment and breast-conserving surgery.
- Breast cancer relapse rate is highest after 3 years then declines with time. This patient case is notable for recurrence after 17 years of initial treatment, highlighting its rarity.
- Cutaneous metastasis accounts for 1-10% of all metastatic cases with breast cancer being 30% of them.
- This present case is noteworthy for a constellation of uncommon features in breast cancer: late local recurrence of a previously treated right sided invasive mammary ductal carcinoma, metachronous bilateral triple negative breast cancer with unconventional skin changes despite negative imaging, and progression of cutaneous metastasis of the left chest wall months after a mastectomy.
- These array of symptoms and features demonstrate the importance of prompted biopsies of progressive breast skin changes.

Methods

- Retrospective review of a single patient’s clinical course
- Data collected from the electronic medical record (history, labs, imaging, and treatment)
- Case prepared in accordance with institutional guidelines

Case Presentation

Timepoint	Clinical findings
Remote History 2002	Right breast stage II, grade II invasive ductal carcinoma treated with partial mastectomy.
2019 Presentation	Several months of right breast pain. Mammogram unremarkable. Exam showed indentation/dimpling at prior incision, lateral nipple deviation, and faint nipple-areolar rash. MRI displayed no abnormality.
Right breast biopsy due to persistent rash	Skin biopsy confirmed recurrent invasive ductal carcinoma with dermal lymphatic involvement; ER/PR negative, HER2 negative, Ki-67 22%.
Post-neoadjuvant therapy	Right mastectomy performed. Surgical pathology reported minute focus of grade II residual invasive ductal carcinoma after adjuvant therapy and margins free of tumor.
Early left breast concern on 6-month follow-up	Right chest wall and incision were well healed. New slight erythema of left breast despite screening mammogram one month earlier being negative. Patient advised to monitor.
Progressive left breast changes following 4 weeks	Erythema spread with soreness. Punch biopsy was negative. Two weeks later, progressive central breast skin changes with mild pain persisted. Patient underwent elective left mastectomy with sentinel lymph node biopsy.
Left breast pathology postoperative diagnosis	Grade II invasive mammary carcinoma with lobular features; E-cadherin positive; ER/PR negative; HER2 negative; no tumor extension.
1-2 months later	One week after surgery, the patient developed mental status changes with forgetfulness. Brain MRI showed no brain metastases. PET scan showed questionable cecal soft tissue density; colonoscopy recommended.
1 month after staging	Increasing erythema over the left chest wall prompted skin biopsy. Biopsy revealed dermal involvement by invasive mammary carcinoma with lobular features extending to margins (carcinomatous metastasis in skin).
Soon after treatment with Tecentriq	Rapid clinical deterioration after onset of chest wall metastasis.

Key Clinical Insight: This case highlights clinically occult, imaging-negative breast cancer recurrence presenting as progressive cutaneous change, followed by contralateral triple-negative disease and rapid chest wall metastatic progression.

Discussion

- This presentation presents several clinical considerations such as late local recurrence. Patients who have been disease free for 5 years after diagnosis, have a 97% recurrence-free survival rate after 15 years (Freddy et. al, 2017). A patient presenting with recurrence after 17 years provides an exceptionally rare case considering it recurred bilaterally as well.
- This case also presented challenges with diagnostic imaging in TNBC with abnormal skin changes. Increased indentation, dimpling and new-onset rash, presents similarly to inflammatory breast cancer, which coined the term “peu de orange” due to its “orange peel” features. While these skin changes occurred, diagnostic imaging revealed no abnormalities, which raised suspicion to take biopsies.
- Shortly after the patient’s mastectomy procedure, progressive skin changes developed, ultimately concluding with a diagnosis of cutaneous metastasis. The diagnosis of cutaneous metastasis signifies poor prognosis as it reflects systemic spread.
- Progressive skin changes in breast cancer patients require biopsy, even when imaging is negative.

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