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CASE REPORT
Hand

Cutaneous Metastasis of Breast Carcinoma in the Distal Phalanx of the Left Little Finger: A Case Report

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Summary: With breast cancer cases escalating globally, the risk of uncommon sequelae like cutaneous metastatic carcinoma also rises. The identification of such metastases is essential in posttreatment surveillance. A 73-year-old woman with a history of hypertension and diabetes initially presented with postmenopausal bleeding, leading to the discovery and treatment of endometrial carcinoma via hysterosalpingo-oophorectomy. Nearly a decade later, she developed bilateral breast carcinoma, confirmed via radiology and biopsies, necessitating a bilateral-modified radical mastectomy. Her postoperative phase was complicated by the development of sternum bone metastasis and a peculiar metastatic lesion on the left little finger, presenting as a fungating swelling on the distal phalanx. This lesion was later identified as metastatic metaplastic carcinoma from the breast, a rarity for cutaneous metastases. An amputation of the distal phalanx was performed, but her overall condition worsened. Ten months posttreatment, she was hospitalized with a severely deteriorated condition and died shortly after. This case highlights the insidious nature of cutaneous metastases in breast cancer and the potential for unusual presentations, such as the rare involvement of the distal phalanx. It emphasizes the importance of continuous vigilance in the follow-up of breast cancer patients, particularly when unusual symptoms arise, and underscores the value of a multidisciplinary approach in managing complex metastatic diseases to potentially improve survival outcomes. *(Plast Reconstr Surg Glob Open 2024; 12:e6274; doi: 10.1097/GOX.0000000000006274; Published online 12 November 2024.)*

Over the last 40 years, the number of new breast cancer cases has increased significantly.[1] In 2020, around 2.3 million people were diagnosed with this disease globally, and it resulted in approximately 685,000 fatalities.[2] Some breast cancer survivors may face a recurrence of the metastasis in other organs or nearby areas after their initial treatment. The appearance of skin lesions resulting from metastatic breast cancer can vary widely.[3] Upon reviewing the literature, it is evident that although there are numerous common locations for metastases, the incidence of cutaneous metastases (CMs) is rare, accounting for approximately 0.7%–9% of all tumor implants.[4] Often, the cutaneous lesions do not become apparent until quite some time has passed from the initial treatment of the original carcinoma. In light of the current trend among plastic surgeons to perform breast reconstruction immediately after mastectomy, it becomes incumbent on clinicians caring for patients with breast cancer to appreciate the incidence of cutaneous manifestations and to be able to accurately and immediately identify this clinical entity in all its forms. Early detection of metastases can facilitate timely intervention, potentially allowing for more effective management of the disease's progression.

CASE PRESENTATION

A 73-year-old woman, with a medical history significant for hypertension and type 2 diabetes mellitus treated with oral medications, presented to the clinic with complaints of postmenopausal bleeding. Upon evaluation, multiple biopsies were taken, and histopathological examination confirmed a diagnosis of International Federation of Gynecology and Obstetrics grade 2, stage 2b endometrioid

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adenocarcinoma. The patient underwent a hysterosalpingo-oophorectomy as part of her treatment.

Eight years after the initial diagnosis and treatment, the patient developed new symptoms, reporting a left-sided breast mass accompanied by a retracted nipple, persisting for 1 month. Radiological investigations and a Tru-cut biopsy were conducted, revealing left breast metaplastic carcinoma. Additionally, 2 weeks later, a right-sided breast ultrasound-guided biopsy was performed, confirming right breast invasive carcinoma of no special type. Imaging was used to document both the right and left breast masses (Fig. 1), respectively.

Two months after the diagnosis of breast carcinoma, the patient underwent bilateral-modified radical mastectomy. The histopathology report confirmed a left breast metaplastic carcinoma and a right breast carcinoma of no special type, with no sentinel lymph nodes identified on either side. After surgery, the case was referred to the hospital tumor board committee, which recommended a treatment regimen consisting of adjuvant chemotherapy, followed by chest wall irradiation and hormonal therapy. The chemotherapy regimen started with Taxol for 6 weeks. However, the patient developed generalized weakness, poor appetite, and grade 3 peripheral neuropathy, leading to the cessation of chemotherapy. Subsequently, radiotherapy and hormonal therapy were initiated.

Ten months after starting the oncological treatment, the patient underwent a bone scan, revealing evidence of bone metastasis at the sternum. Additionally, the radiological report suggested the presence of soft-tissue infection or cellulitis in the left little finger, as indicated in Figure 2, but laboratory results are shown indicating normal leucocyte counts. (Table 1). Around the same time, the patient presented to the plastic surgery clinic with a complaint of swelling at the tip of the distal phalanx of the left little finger, which she thought was a result of a recent needlestick, which did not improve with herbal medicine treatment. Examination revealed a rounded, fungating swelling at the medial aspect of the left little fingernail fold, measuring 1 cm × 1.5 cm, with associated distal phalanx swelling. Swab culture and sensitivity tests indicated no growth. An x-ray of the left little finger showed an eroded distal phalanx.

One month before the surgery, we performed a similar biopsy of the lesion, which confirmed the presence of metastatic cancer. We performed an amputation at the level of the proximal phalanx, with the entire specimen measuring 6 × 3 × 3 cm. This included the surgical margins to ensure complete removal of the affected tissue. The central part of this specimen, specifically from the distal and middle phalanx, where the tumor was most prominent, measured 4 × 3 × 2 cm. A bone biopsy was performed, which was negative for metastatic malignancy. The histopathology of the skin from the amputated specimen showed metastatic metaplastic carcinoma, with morphology closely resembling the metaplastic component of the primary breast carcinoma (Fig. 3).

The patient underwent amputation of the distal phalanx under local anesthesia. Two months after the amputation, the patient was admitted to the hospital due to a deteriorated general condition and died shortly thereafter. This case underscores the complexity and challenges associated with metastatic disease and the importance of a multidisciplinary approach in providing comprehensive care to patients with advanced cancer.

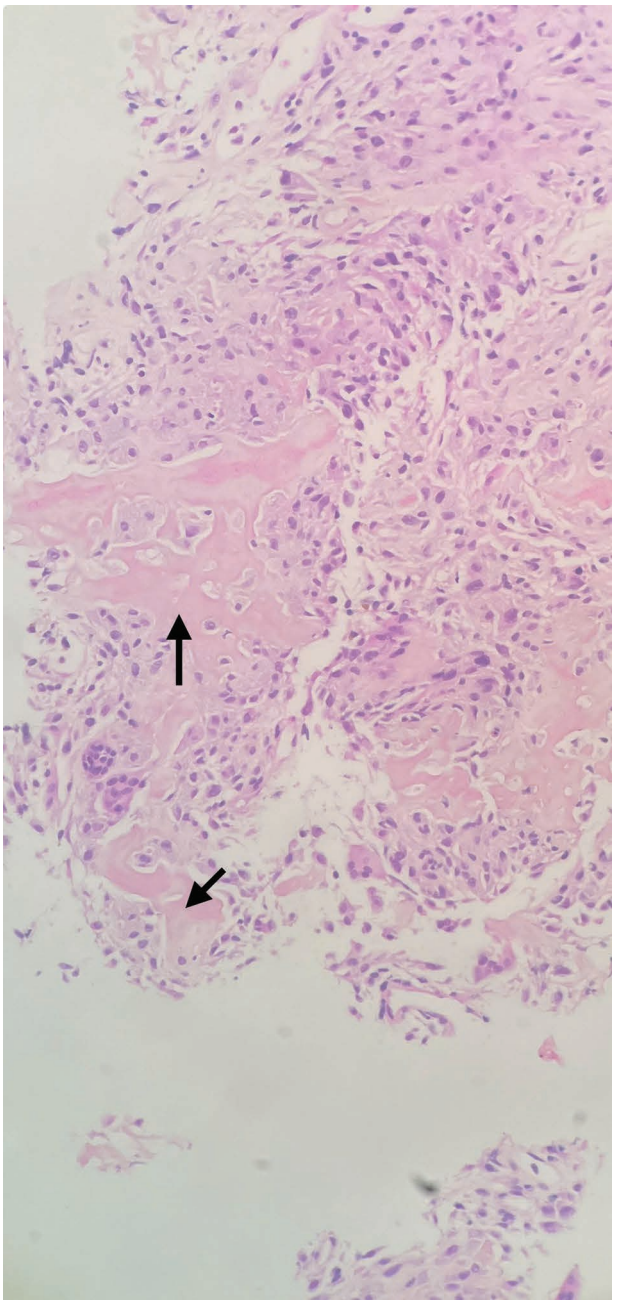

Fig. 1. Left breast Tru-cut biopsy showing malignant epithelial cells, multinucleated giant cells and a pale eosinophilic matrix (osteoid, arrows), consistent with metaplastic matrix producing carcinoma.

DISCUSSION

CMs serve as a pivotal indicator of the systemic spread of malignancies, manifesting a significant clinical challenge

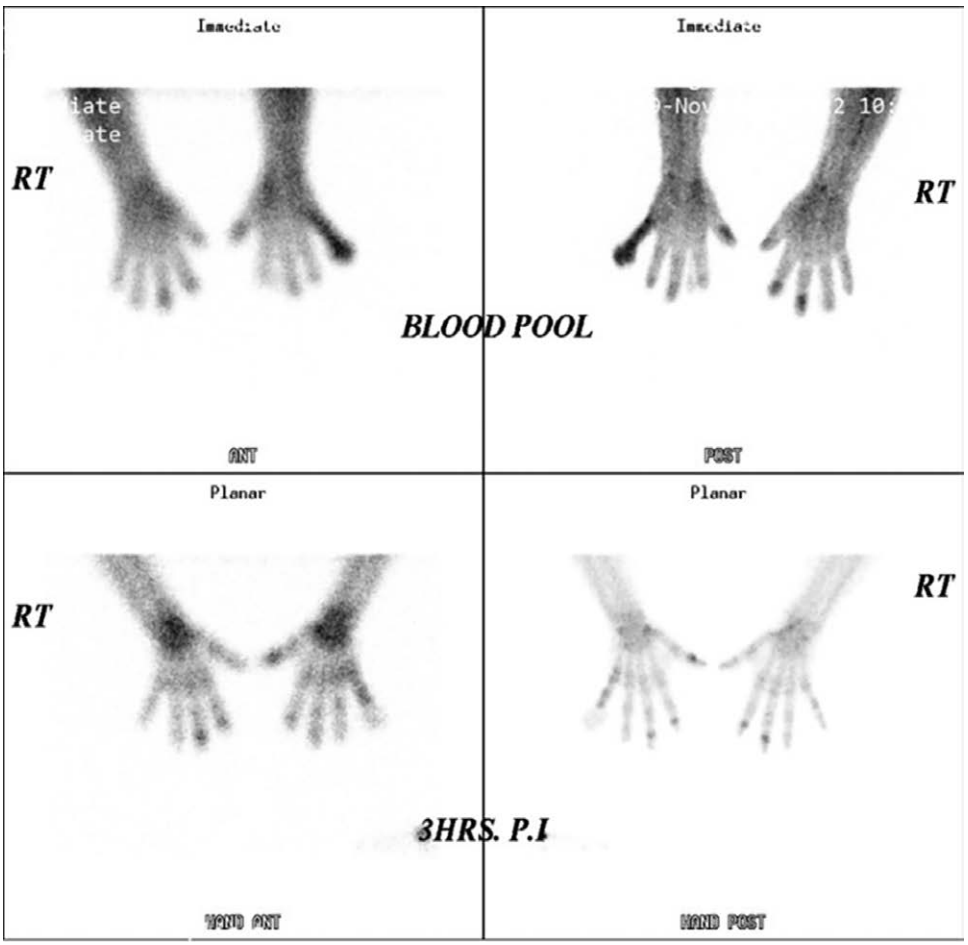

Fig. 2. The bone scan of the hands, conducted with the same technique as in the image, supports the findings with spot views. The flow/perfusion phase images corroborate the diffuse increase in tracer uptake in the left little finger observed. The blood pool/soft-tissue phase maintains this increased uptake, suggesting an inflammatory process or other pathological condition with concomitant soft-tissue swelling. The delayed phase continues to demonstrate decreased tracer uptake in the distal phalanx of the little finger.

in the landscape of oncology and can mimic benign skin lesions. The variety of the clinical presentation of CM necessitates a high index of suspicion, particularly in patients with a history of malignancy.[5] Notably, breast cancer emerges as the principal neoplasm predisposed to cutaneous dissemination, reflecting its aggressive nature. A meta-analysis by Krathen et al[6] shows an overall incidence of CM 5.3%.

Breast adenocarcinoma stands out as the predominant origin of cutaneous metastasis, predominantly manifesting with involvement of the thoracic region among women.[6] Besides, in descending order of prevalence, the common sites of extramammary spread of breast cancer include the lungs, bones, liver, adrenal glands, brain, skin, and kidneys, with the latter being the site of least prevalence.[6] A skin biopsy is essential for confirming a diagnosis of cutaneous metastasis from breast cancer. Therefore, in cases where there is a history of breast cancer or even in individuals without cancer, a biopsy should be considered when evaluating a new or treatment-resistant skin lesion.[7]

These changes, featuring red induration with clearly defined borders, were named "carcinoma erysipelatoides" by Rasch[8] in 1931 due to their resemblance to erysipelas, an infectious skin condition. Hence, the terms "inflammatory carcinoma" are interchangeably used to describe this specific manifestation of breast skin metastases marked by inflammation and dermal lymphatic invasion.[8,9]

There is a necessity for thorough examination of all cutaneous areas and body parts to accurately identify various sites of metastatic involvement, which could otherwise be mistakenly diagnosed as benign lesions. Through such comprehensive assessments, we aim not only to map the extent of the disease more accurately but also to enhance the patient's quality of life and extend their survival. Hence, thorough and detailed clinical evaluations is a cornerstone in the management of patients with metastatic breast cancer, highlighting our commitment to improving patient outcomes in the face of this challenging condition.

The strength of our case lies in its rarity, as cutaneous involvement of the distal phalanx is exceedingly uncommon. Furthermore, the manifestation of a lesion in the distal phalanx represents an exceptionally unusual site for metastasis, underscoring the unique nature of this case.

Table 1. Laboratory Results of the Patient

Test	Normal Values	Result
Renal function test		
Creatinine, µmol/L	49–90	92
Glucose		
Random blood sugar, mmol/L	3.0–7.0	18.8
HB1C/glycosylated hemoglobin, %	4.0–6.0	7.6
Liver function test		
Albumin, g/L	32–48	34
ALT (SGPT), U/L	10–45	24
Hematology		
WBC, 10^3/µL	4.0–11.0	5.24
RBC, 10^6/µL	3.8–4.8	5.24
Hemoglobin, g/Dl	12.0–16.0	8.5
HCT, %	36.0–45.0	26.9
MCH, pg	28.3–30.7	26.3
Coagulaion studies		
Prothrombin time, s	11–14.5	15.20
Test for hepatitis		
HBsAg	Negative	Nonreactive
HCV	Negative	Nonreactive

ALT, alanine aminotransferase; HBsAg, hepatitis B surface antigen; HCT, hematocrit; HCV, hepatitis C virus; MCH, mean corpuscular hemoglobin; SGPT, serum glutamic-pyruvic transaminase; RBC, red blood cells; WBC, white blood cells.

To our knowledge, our case is the first instance in Saudi Arabia documented in the literature that describes this unique presentation and involvement.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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ETHICAL APPROVAL

The authors have ethical approval from the institutional review board of King Salman Armed Forces Hospital in Northwestern Region.

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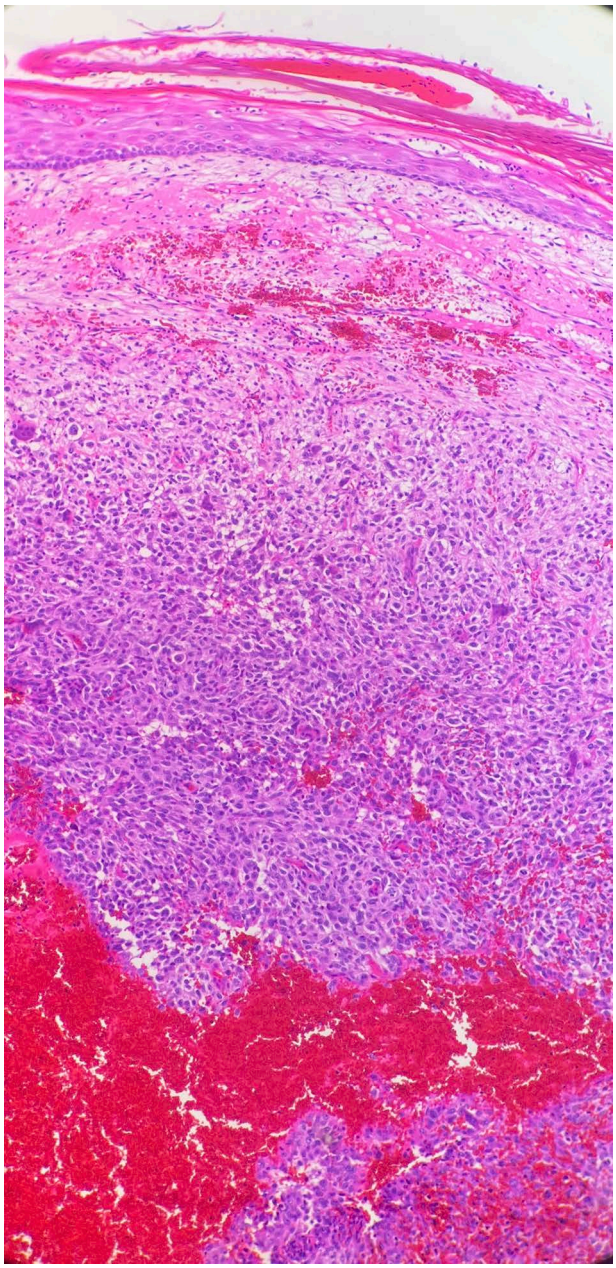

Fig. 3. Skin tissue with metastatic malignancy. The osteoclast-type giant cells are similar to those seen in the breast tumor.

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