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# Recurrent Her-2 positive occult breast cancer presenting with zosteriform cutaneous metastases: a case report

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## ABSTRACT

Various cutaneous metastasis patterns are described in breast cancer. Zosteriform metastases are rare cutaneous metastases, which appear in a dermatomal distribution. A 66-year woman presented with a 1-month history of nodular lesions on the left posterior hemithorax area. Biopsy was reported as human epidermal growth factor receptor (Her) 2 positive, hormone receptor-negative breast carcinoma metastasis. Dual blockade therapy targeting Her-2 overexpression was initiated for the patient. Treatment response was obtained after 3 cycles. There was a significant improvement in skin lesions. Zosteriform cutaneous metastases can be the early sign of systemic spread and can show an initial response to therapy. Therefore, physicians should perform an exhaustive physical examination including that of skin.

**Key words:** zosteriform, cutaneous metastases, recurrent, occult, breast cancer

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## Introduction

Cutaneous metastases of solid malignancy are relatively uncommon, with an incidence ranging from 0.7 to 10.4% [1]. The incidence of breast carcinoma cutaneous metastases is 23.9% [2]. Most of the cutaneous metastases appear as adjacent lesions concerning the breast primary. Various cutaneous metastasis patterns such as zosteriform, ulcers, erysipelas, tinea infections, erythema annulare are described, a nodular pattern is the most common presentation [3]. The sites of cutaneous metastases are the abdomen and chest wall (most common), head/neck region, and extremities. Breast cancer tends to metastasize less frequently to the lower abdomen, back, and upper arms; and unusual to the perianal region, buttocks, eyelids, and lower extremities [4]. Solid cancers' skin metastases are related to the advanced stage of cancer, whereas breast cancers' cutaneous metastases can appear in locally advanced disease [5]. In one study, it was found that skin metastasis emerged as the initial

finding in 12% of breast cancer patients [6]. However, data on the frequency of presentation with skin metastases in patients with recurrent breast cancer are limited.

Diffuse skin metastases without distant spread occur in human epidermal growth factor receptor (Her) 2-amplified disease [6]. Uncommonly, cutaneous metastases can be a sign of cancer recurrence. Often, the period from the initial diagnosis to cutaneous metastasis is 5 years [7]. Zosteriform metastases are rare cutaneous metastases, which appear in a dermatomal distribution [8]. This research aims to present a case of recurrent Her-2 positive breast cancer who presented with zosteriform skin metastases 7 years later.

## Case presentation

A 66-year woman presented with a 1-month history of nodular lesions on the left posterior hemithorax area. In medical history, she had left mastectomy after neo-

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adjuvant chemotherapy for breast cancer 7 years ago. Family history was unremarkable. Vital findings were stable. On physical examination, there were pink-red and black raised skin bumps that were distributed along a single dermatome in the posterior of the left hemithorax (Fig. 1). There was no left breast tissue, there was an approximately 20 cm incision line in this area. CA 15.3 was 12.6 U/mL (0–35) and there was no abnormal value in other laboratory levels. Biopsy was taken from these lesions. The result was reported as Her-2 positive, hormone receptor-negative breast carcinoma metastasis. Positron Emission Tomography-Computed Tomography (PET-BT) findings are as follows: left breast was not observed, there was no mass in the right breast. There were expansive skin lesions of  $17 \times 11$  mm (SUV max: 5.77) in the left posterolateral hemithorax and  $8 \times 5$  mm (SUV max: 3.48) in the medial. Brain magnetic resonance imaging was performed, and no lesions were detected. Although there is no mass in the patient's right breast, according to the patient's history of breast cancer and the biopsy result, occult breast cancer was diagnosed. Skin lesions were evaluated as zosteriform cutaneous metastasis. Echocardiography was performed before treatment and the ejection fraction was 60%. Dual blockade therapy targeting Her-2 overexpression was initiated for the patient. Trastuzumab (8 mg/kg loading dose, 6 mg/kg maintenance dose, every 3 weeks), pertuzumab (840 mg loading dose, 420 mg maintenance dose, every 3 weeks), and docetaxel ( $75 \text{ mg/m}^2$ , every 3 weeks) were initiated. Treatment response was obtained after 3 cycles. There was a significant improvement in skin lesions (Fig. 2). After 6 cycles were completed, maintenance treatment was started with trastuzumab (6 mg/kg, every 3 weeks) and pertuzumab (420 mg, every 3 weeks). The patient was observed with no evidence of progressive disease.

## Discussion

Cutaneous metastases though rare can be the first sign of cancer recurrence. Zosteriform metastases are rare cutaneous metastases, which appear in a dermatomal distribution. This case presented with zosteriform cutaneous metastasis in the back from Her-2 positive breast cancer occurring after 7 years later adjuvant anthracycline-based regimen plus trastuzumab therapy. Most of the cutaneous metastases occur as direct lesions in relation to the breast primary. Zosteriform cutaneous metastases may rarely be in the form of distant metastases in the back, as in this case presented. The mechanism of zosteriform distribution is unknown. Koebnerization at the site of previous zoster infection and neural spread through the dorsal ganglia are theories in



**Figure 1.** Presentation of recurrent breast cancer with zosteriform cutaneous metastases



**Figure 2.** Regression of treatment-related zosteriform cutaneous metastases

the pathophysiology of zosteriform metastasis [9]. The skin does not appear to be the target organ for metastasis development. Cutaneous metastasis is a rare clinical sign. Usually, the development of skin metastases is poorly prognostic [10]. Cutaneous metastases result from hematogenous, lymphatic, or contiguous dissemination [10]. A review of the literature demonstrated

that the incidence of cutaneous metastasis ranges from 0.7% to 10% [1]. Cutaneous metastases may present different appearances in breast cancer. The most common form is the nodule pattern and is seen in the chest wall and abdomen. The sizes of these nodules vary between 1 and 3 cm. and appear as single or multiple hardened lesions located on the dermis and subcutaneous tissue.

Several cases of cutaneous metastases after or during treatment have been defined in the literature [11, 12]. Here in a case is described in which a patient with Her-2-positive metastatic breast cancer had zosteriform cutaneous progression 7 years later treatment. To the authors' knowledge, there was no such case in the literature. In brain metastases, the effectiveness of monoclonal antibodies is generally limited due to the brain-blood barrier or to the so-called "immune privilege" of the brain [13, 14]. Interestingly, immune privilege has been defined also in the skin [15]. It has been claimed that tumour cells are a sanctuary-like region in the cutaneous microenvironment [16].

Zosteriform metastases are a rare clinical presentation of cutaneous metastases and can be the early sign of systemic spread. Zosteriform cutaneous metastases can show an initial response to therapy. Therefore, physicians should perform an exhaustive physical examination including that of skin.

## Conflict of interest

The authors have declared no conflicts of interest.

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