

## A painful rash on a white woman



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**Key words:** cutaneous metastases of lung cancer; radiation recall dermatitis; toxic erythema of chemotherapy.

A 78-year-old woman presented to the dermatology clinic with a 4-week history of an itchy, painful, pink-red progressively worsening rash on her chest and neck (Fig 1). Her history included remote breast cancer and metastatic lung adenocarcinoma with known axillary nodal involvement. At presentation, she was undergoing treatment of her metastatic lung adenocarcinoma with pembrolizumab, carboplatin, and pemetrexed for the last 6 months, and had undergone radiation to axillary lymph node metastases in previous months. Physical examination found thin pink-red plaques around her neck and chest. She denied fever or chills. She was prescribed a 2-week prednisone taper and triamcinolone 0.1% ointment with 1-month follow-up arranged where she demonstrated no response to treatment.



### Question 1: What is the best next step in caring for this patient?

A. Perform biopsy of lesion.

B. Prescribe betamethasone dipropionate to apply 3 times daily.

C. Swab lesion and perform polymerase chain reaction.

D. Reassurance that rash is self-limiting and will resolve.

E. Admit for intravenous cefazolin.

### Answers:

A. Perform biopsy of lesion – Correct. In this patient with history of malignancies, biopsy should be done of the lesion to rule out metastasis of internal malignancy.

B. Prescribe betamethasone dipropionate to apply 3 times daily – Incorrect. This patient had attempted oral and topical steroids with no relief of symptoms/rash. At this point, another round of steroids would be inappropriate.

C. Swab lesion and perform polymerase chain reaction – Incorrect. This would be appropriate if herpes zoster was suspected. This patient's rash does not consist of papules or vesicles expected of herpes zoster and does not follow a dermatomal distribution.

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**D.** Reassurance that rash is self-limiting and will resolve – Incorrect. This patient's rash has persisted for greater than 4 weeks. Her history of malignancy is concerning, and as such reassurance would be inappropriate at this time.

**E.** Admit for intravenous cefazolin – Incorrect. This would be the correct option if erysipelas or severe cellulitis was suspected. We would expect this patient to display acute-onset systemic symptoms such as fever; her rash developed slowly over 4 weeks and not as acutely as one would expect with erysipelas.

**Question 2: Based on the patient's history and photograph (Fig 1), what is the most likely diagnosis?**

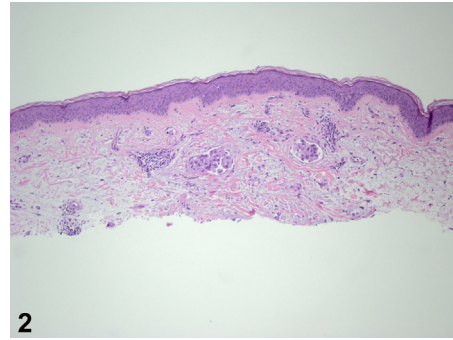
- A.** Morbilliform drug eruption
- B.** Irritant contact dermatitis
- C.** Cutaneous metastasis of internal malignancy
- D.** Erysipelas
- E.** Herpes zoster

**Answers:**

**A.** Morbilliform drug eruption – Incorrect. Morbilliform drug eruption is typically bilateral and symmetric upon presentation. It is commonly caused by recently started antibiotics but may be caused by initiation of multiple classes of drugs. Onset is typically within 4 weeks of beginning a new medication, making this answer less likely, as this patient had been on the same chemotherapy regimen for greater than 6 months.

**B.** Irritant contact dermatitis – Incorrect. The clinical manifestations of irritant contact dermatitis range from mild skin dryness and erythema to acute or chronic eczematous dermatitis and even skin necrosis. This patient did not report exposure to chemical or physical irritants.

**C.** Cutaneous metastasis of internal malignancy – Correct. Cutaneous metastases can display a wide morphologic spectrum of appearance in various locations, which is why in a patient with history of recent malignancy, a new rash located on the trunk should raise suspicion for a cutaneous metastasis. See Fig 2 for biopsy results of this lesion. This variable clinical morphology includes nodules, papules, plaques, tumors, and ulcers. Lung cancer commonly metastasizes to the head, neck, and trunk.<sup>1</sup> Cutaneous metastases occur in 0.7% to 0.9% of all patients with cancer.<sup>2</sup>



**D.** Erysipelas – Incorrect. Erysipelas manifests as areas of skin erythema, edema, and warmth and develops as a result of bacterial entry via breaches in the skin barrier. This rash is sometimes accompanied by symptoms including a high fever of sudden onset with chills, and most cases affect the lower leg, ankle, or foot. This patient's rash slowly progressed over 4 weeks, unlike erysipelas, which develops more acutely and involves desquamation of the skin 5 to 10 days after onset.

**E.** Herpes zoster – Incorrect. Although this patient fits the age group that is commonly affected with herpes zoster, this patient's rash does not fit clinically. The rash starts as erythematous papules, typically in a single dermatome or several contiguous dermatomes and evolves into grouped vesicles or bullae. This patient's rash does somewhat follow along contiguous dermatomes, but does not consist of papules or vesicles as you would expect with herpes zoster.

**Question 3: What is the most likely internal malignancy that has caused this skin lesion for this white woman?**

- A.** Gastric adenocarcinoma
- B.** Hepatocellular carcinoma
- C.** Lung cancer
- D.** Breast cancer
- E.** Primary central nervous system (CNS) lymphoma

**Answers:**

**A.** Gastric adenocarcinoma – Incorrect. The skin is an unusual location for metastasis from visceral neoplasms, the incidence ranging from 0.7% to 9%.<sup>1</sup> The incidence of cutaneous metastasis from carcinomas of

the upper digestive tract has been reported to be less than 1%. Umbilical metastasis, Sister Mary Joseph nodule, is the typical site for a cutaneous tumor resulting from metastasis of gastric cancer.<sup>3</sup>

**B.** Hepatocellular carcinoma — Incorrect. In one study, skin metastases were shown to account for only 2.7% of cirrhotic hepatocellular carcinoma and no cases in noncirrhotic hepatocellular carcinoma. This patient does not have a history of hepatocellular carcinoma and no known risk factors for cirrhosis such as alcohol abuse or hepatitis.

**C.** Lung cancer — Incorrect. Cutaneous metastases occur in 0.7% to 0.9% of all patients with cancer. Although this patient has a history of lung cancer, the correct answer is D because in women, breast cancer is more likely than lung cancer to develop cutaneous metastases. Although it would have been statistically more likely for this cutaneous metastasis to have stemmed from her breast cancer, upon biopsy, this patient was found to actually have cutaneous metastasis of her lung adenocarcinoma. Lung cancer is rarely a source of cutaneous metastasis in women.

**D.** Breast cancer — Correct. Breast cancer is the most frequently diagnosed malignancy in women and is the most common solid organ malignancy to metastasize to the skin in women, most often to the chest wall, either from direct extension of underlying tumor or by lymphatic spread.<sup>4</sup> Breast cancer, colorectal cancer, and melanoma frequently metastasize to the skin in women. In men, melanoma,

lung cancer, and colorectal cancer are the most common sources of cutaneous metastases. Because of the high incidence of breast cancers relative to other internal malignancies, breast cancer accounts for almost 33% of all solid organ malignancy cutaneous metastases.<sup>5</sup>

**E.** Primary CNS lymphoma — Incorrect. Primary CNS lymphomas are found to carry risk for secondary malignancies, including nonmelanoma skin cancers. However, this patient is unlikely to have a primary CNS lymphoma without history of immunodeficiency, and this skin lesion is unlikely to be a nonmelanoma skin cancer based on its appearance.

#### Abbreviation used:

CNS: central nervous system

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