

# A 73-Year-Old Woman With a Burning Rash on Her Upper Back

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**A** 73-year-old woman presented to our dermatology clinic with a chief concern of a rash on her upper back. She had a medical history of essential hypertension, hypothyroidism, and breast cancer, the latter of which had been treated with surgery, chemotherapy, and radiation 4 years prior. The patient stated the rash had been present for 3 months and was associated with a burning sensation; however, she denied associated pain, pruritus, purulent drainage, or bleeding. The lesion previously had been treated with topical antibiotics and antifungals without relief; therefore, she had been referred to us for dermatologic evaluation.

On physical examination, well-demarcated pink to erythematous plaques and nodules were noted on the patient's left upper back (**Figure 1**).



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**Based on the patient's history and physical examination findings, which one of the following is the most likely diagnosis?**

- A. Cellulitis
- B. Herpes zoster
- C. Cutaneous metastasis of breast cancer
- D. Dermatofibrosarcoma protuberans

## Answer: Cutaneous Metastasis of Breast Cancer

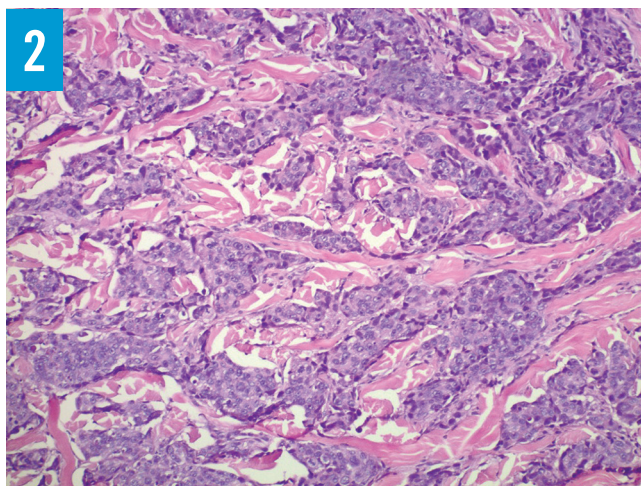


Erythematous nodules coalescing into a plaque on the patient's upper back.

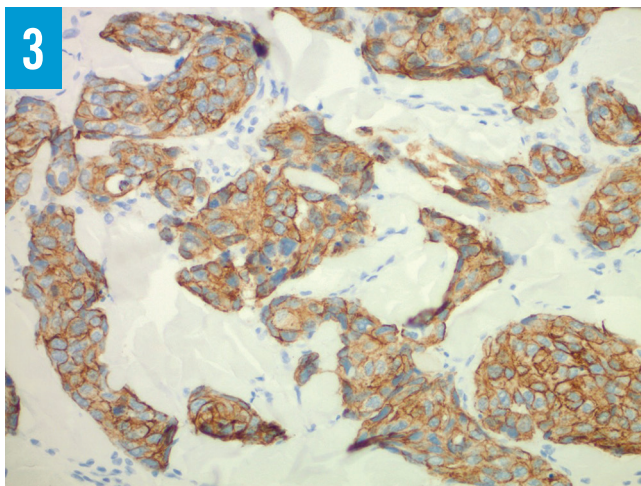
Histopathologic test results from a punch biopsy specimen obtained from the left upper back demonstrated poorly differentiated adenocarcinoma with angiolymphatic invasion that stained positively for cytokeratin (CK) 7 and negatively for CK 20, CDX2, estrogen receptor, and progesterone receptor, findings supportive of a diagnosis of cutaneous metastasis of breast carcinoma (**Figures 2 and 3**).

Metastatic breast cancer is one of the most common malignancies to metastasize to the skin.<sup>1</sup> Up to 24% of patients with metastatic breast cancer develop cutaneous metastases, occasionally as the presenting sign of disease, making metastases an important diagnostic consideration.<sup>1</sup> Cutaneous metastases typically appear as erythematous nodules on the scalp and trunk that do not respond to typical corticosteroid or antibiotic therapy, as in our patient's case.<sup>2</sup>

Histopathologic analysis is helpful in ascertaining the diagnosis. Usually, the cutaneous manifestations have similar pathology to that of the primary lesion.<sup>2</sup> Immunohistochemical stains may be a particularly helpful tool. CK7 is found in the epithelia of various organs and can be used as a marker to detect breast, thyroid, and lung cancers. In contrast, CK20 is found in adenocarcinomas of the colon and lower body.<sup>3</sup> Cutaneous metastases are indicative of widespread disease and portend a poor prognosis. Treatment requires multidisciplinary care and is aimed at treating the underlying malignancy. How-



Histopathology test results from a punch biopsy specimen obtained from the left upper back demonstrated poorly differentiated adenocarcinoma (hematoxylin-eosin, original magnification  $\times 10$ ).



Poorly differentiated adenocarcinoma stained positively for CK 7 (cytokeratin 7 stain, original magnification  $\times 20$ ).

ever, occasionally patients benefit from treatment of the cutaneous metastasis itself. In these cases, surgical excision and radiation are mainstays of treatment.

### DIFFERENTIAL DIAGNOSIS

Cellulitis classically presents as a poorly demarcated erythematous plaque, often found on an extremity. Affected areas are often painful, warm to the touch, and edematous as a result of underlying infection and inflammation of the deep dermis.<sup>4</sup>

**Table. Differential Diagnosis**

Condition	Characteristics
Cellulitis	Erythematous, warm, edematous plaque that may be tender to palpation. Underlying cause is infection.
Herpes zoster	A viral infection characterized by vesicles on an erythematous base in a dermatomal pattern. Often associated with a prodromal burning sensation.
Cutaneous metastases	Erythematous, nodular lesions with similar pathology to the primary malignancy.
Dermatofibrosarcoma protuberans	Violaceous plaque with multinodular appearance, often on the trunk or upper extremity of an adolescent person.

Patients may exhibit systemic symptoms including fevers and malaise, and treatment includes antibiotic therapy.

Herpes zoster, often referred to as shingles, is due the reactivation of a latent infection with the varicella-zoster virus. Although herpes zoster most commonly occurs on the trunk and is often associated with a burning sensation, it is characterized by vesicles or crusted papules on an erythematous base in a dermatomal pattern. Postherpetic neuralgia associated with herpes zoster may cause significant morbidity.<sup>5</sup>

Dermatofibrosarcoma protuberans presents as a slow-growing erythematous to brown plaque, often with a multinodular appearance, and is most commonly found on the trunk and proximal extremities in young to middle-aged adults. It is characterized by translocation t(17;22)(q22;q13) leading to *COL1A1-PDGFB* fusion, which results in upregulation of platelet derived growth factor subunit B (PDGFB) and thus tumor formation.<sup>6</sup> Histopathologic analysis would reveal a diffuse dermal tumor that infiltrates the fat in a honeycomb pattern.

The **Table** summarizes the differential diagnosis of cutaneous metastases. ■

#### REFERENCES:

1. Chraïet N, Zenzri Y, Bouaziz H, et al. Generalized cutaneous metastases of breast cancer: an uncommon presentation. *Clin Case Rep*. 2020;8(4):667-671. doi:10.1002/ccr3.2693
2. Ko CJ, McNiff JM. Cutaneous metastases. In: Bologna JL, Schaffer JV, Cerroni L, eds. *Dermatology*. Vol 2. 4th ed. Elsevier; 2017:2160-2167.
3. Kim KW, Krajewski KM, Jagannathan JP, et al. Cancer of unknown primary sites: what radiologists need to know and what oncologists want to know. *AJR Am J Roentgenol*. 2013;200(3):484-492. doi:10.2214/AJR.12.9363
4. Raff AB, Kroshinsky D. Cellulitis: a review. *JAMA*. 2016;316(3):325-337. doi:10.1001/jama.2016.8825
5. Schmader K. Herpes zoster. *Clin Geriatr Med*. 2016;32(3):539-553. doi:10.1016/j.cger.2016.02.011
6. Thway K, Noujaim J, Jones RL, Fisher C. Dermatofibrosarcoma protuberans: pathology, genetics, and potential therapeutic strategies. *Ann Diagn Pathol*. 2016;25:64-71. doi:10.1016/j.anndiagpath.2016.09.013