

Metastatic adenocarcinoma mimicking hidradenitis suppurativa



Imran T. Baig, BS,^a Quoc-Bao D. Nguyen, MD, MBA,^{b,c} Mary Alice Sallman Hickson, MD,^b and Ana Ciurea, MD^c

Key words: CDX2; cutaneous adenocarcinoma; cutaneous metastasis; cytokeratin 7; hidradenitis suppurativa.

CASE PRESENTATION

A 56-year-old Hispanic male patient with a notable past medical history of metastatic adenocarcinoma of unknown primary site diagnosed 1 month ago and hidradenitis suppurativa diagnosed 10 years prior was evaluated by dermatologists in July 2020 during hospitalization for lesions in the right axilla present for several months. The patient had a history of hidradenitis suppurativa in the past, but the lesions on the right axilla progressively increased in size and became purulent. The patient denied fever, cough, dysuria, and diarrhea but complained of persistent hip and back pain. The patient's medications included oral antibiotics for his hidradenitis suppurativa. Family history was significant for his niece having hidradenitis suppurativa. On physical examination, the patient was noted to have 2 exophytic red nodules on the right axilla. Although no frank drainage was noted, 1 of the nodules presented with minimal yellowish exudate (Fig 1, A). Given persistent back pain, a spinal magnetic resonance imaging was obtained 2 months ago, showing widespread osseous metastases. A positron emission tomography scan further showed multiple hypermetabolic lesions in the left upper lobe, right axilla, right adrenal gland, lytic lesions in the skull, and bony disease, especially in the pelvis and right femur. A right pelvic bone/soft tissue biopsy performed 1 month ago exhibited metastatic adenocarcinoma, which stained heterogeneously positive for cytokeratin 7 (CK7) and CDX2.

Two skin punch biopsies of the right axilla were consistent with known metastatic adenocarcinoma.

Abbreviation used:

CK7: cytokeratin 7

Immunostaining of the skin biopsy revealed that the tumor was positive for CK7 and CDX2 (Fig 1, B and C). This tumor exhibited a similar immunohistochemical phenotype to the adenocarcinoma in the previous right pelvic bone/soft tissue biopsy examined, suggesting a gastrointestinal/pancreaticobiliary origin.

The patient completed palliative radiation to the right pelvis and femur 1 month later. Restaging scans showed progression of osseous metastasis, and systemic therapy with ipilimumab and nivolumab was started. Unfortunately, his physical status continued to decline despite treatment; therefore, systemic therapy was discontinued in favor of a palliative care program.

DISCUSSION

Cutaneous metastasis of internal malignancies occurs only in 0.7% to 9.0% of all cases.¹ This usually arises when cancer cells separate from the primary tumor and travel through the lymphatic system or blood circulation to the skin. Generally, cutaneous metastasis occurs during the late stages of disease, indicating a poor prognosis.² A study by Schulman et al determined that the most common locations for cutaneous metastasis were the head and neck, followed by the trunk, upper extremities, and lower extremities, respectively.³ Saeed et al⁴ reported a

From the UTHealth McGovern Medical School at Houston, Houston, Texas^a; Department of Dermatology, UTHealth McGovern Medical School at Houston, Houston, Texas^b; and Department of Dermatology, University of Texas MD Anderson Cancer Center, Houston, Texas.^c

Funding sources: None.

IRB approval status: Not applicable.

Patient consent: The patient has unfortunately passed away, and the photographs provided are not identifiable. Our institution (University of Texas MD Anderson Cancer Center) does have generic consent forms signed by the patient.

Correspondence to: Quoc-Bao D. Nguyen, MD, MBA, Department of Dermatology, University of Texas MD Anderson Cancer Center, 6655 Travis St, Suite 980, Houston, TX 77004. E-mail: quocbao.d.nguyen@gmail.com.

JAAD Case Reports 2022;27:91-3.

2352-5126

© 2022 by the American Academy of Dermatology, Inc. Published by Elsevier, Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

<https://doi.org/10.1016/j.jidcr.2022.07.026>

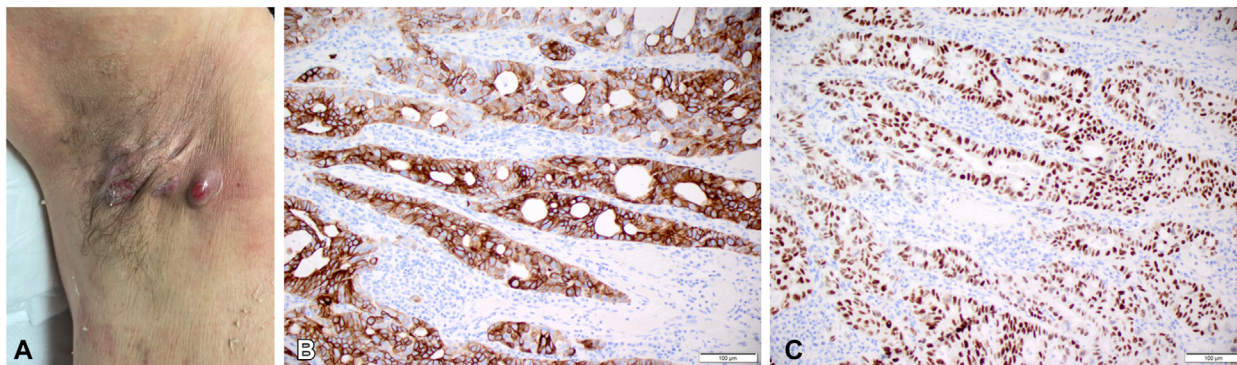


Fig 1. **A**, Exophytic red papulonodular lesions with no drainage or fluctuance on the right axilla. **B**, Histopathologic analysis after skin biopsy and cytokeratin 7 staining (magnification: $\times 20$). **C**, Histopathologic analysis after skin biopsy and CDX2 staining (magnification: $\times 20$).

mean survival of about 7.5 months after the diagnosis of cancer. Ultimately, diagnosing cutaneous metastasis depends upon pathological and morphological qualities, and immunostaining is helpful because it is often consistent with the primary site.⁵

A reported case of a patient with a history of uterine papillary adenocarcinoma and hidradenitis suppurativa, who had painful lesions on her suprapubic and inguinal regions, highlights the importance of prompt recognition of this unique condition in the setting of widespread malignancy.⁶ Although the lesions resembled hidradenitis suppurativa, her history of adenocarcinoma warranted a biopsy, which ultimately led to the diagnosis of metastatic uterine papillary carcinoma. It is important to be able to distinguish between cutaneous metastasis and hidradenitis suppurativa because management can drastically differ. Hidradenitis suppurativa is a chronic inflammatory skin disease that affects the apocrine glands. It commonly presents as lesions in the axilla, groin, and under the breasts as furuncles and abscesses. On the other hand, cutaneous metastases have a variety of presentations; therefore, a clinician must have a high index of suspicion for them. Their presentation can range from nonspecific firm, rubbery, round, nodules to mimicking inflammatory conditions and fungal or bacterial infections.⁵

In this case, a punch biopsy of the cutaneous lesion was performed. Determining the primary cause of malignancy can be difficult to do based on histological examination alone. Therefore, immunohistochemical staining can better differentiate the origin of the malignancy. The cutaneous lesion stained positive for CK7 and CDX2, similar to an earlier biopsy of the right pelvic bone/soft tissue. CK7 is a useful marker because it is found in ductal and glandular epithelium. It tends to stain positive in adenocarcinomas of the lung, breast, and ovary.⁷ In

rare circumstances, CK7 has also been seen expressed in colorectal carcinoma.⁷ Because of this overlap, additional markers such as CDX2 can help narrow down suspected primary sites of metastasis. CDX2, a protein derived from a homeobox gene, encodes a transcription factor that is responsible for the proliferation and differentiation of intestinal epithelial cells. A tissue staining positive for CDX2 is highly sensitive and specific for metastatic colorectal carcinoma, given 97% of all colorectal adenocarcinomas are CDX2 positive.⁷ Based on these results, it could be suggested that the primary site of malignancy in this patient was of gastrointestinal origin.

Cutaneous metastases are rare complications and often signify a poor prognosis due to their appearance late in the course of malignancy. Any novel growths or changes in the skin should raise suspicion for metastatic tumors especially in patients with a history of carcinoma. The next step would be to obtain a biopsy with histological and immunohistochemical examination to help distinguish whether it is a primary or metastatic lesion. A multidisciplinary approach including but not limited to oncology, surgery, and radiology should be taken to create a comprehensive treatment plan for these patients.

Conflicts of interest

None disclosed.

REFERENCES

- Dehal A, Patel S, Kim S, Shapera E, Hussain F. Cutaneous metastasis of rectal cancer: a case report and literature review. *Perm J*. 2016;20(1):74-78. <https://doi.org/10.7812/TPP/15-078>
- Nashan D, Müller ML, Braun-Falco M, Reichenberger S, Szeimies RM, Brückner-Tuderman L. Cutaneous metastases of visceral tumours: a review. *J Cancer Res Clin Oncol*. 2009;135(1):1-14. <https://doi.org/10.1007/s00432-008-0432-0>
- Schulman JM, Pauli ML, Neuhaus IM, et al. The distribution of cutaneous metastases correlates with local immunologic

- milieu. *J Am Acad Dermatol*. 2016;74(3):470-476. <https://doi.org/10.1016/j.jaad.2015.10.012>
4. Saeed S, Keehn CA, Morgan MB. Cutaneous metastasis: a clinical, pathological, and immunohistochemical appraisal. *J Cutan Pathol*. 2004;31(6):419-430. <https://doi.org/10.1111/j.0303-6987.2004.00207.x>
 5. Wong CY, Helm MA, Kalb RE, Helm TN, Zeitouni NC. The presentation, pathology, and current management strategies of cutaneous metastasis. *N Am J Med Sci*. 2013;5(9):499-504. <https://doi.org/10.4103/1947-2714.118918>
 6. A case of cutaneous metastatic adenocarcinoma mimicking lesions of hidradenitis suppurativa. *J Am Acad Dermatol*. 2014;70(5_suppl_1):AB113. <https://doi.org/10.1016/j.jaad.2014.01.471>
 7. Bayrak R, Haltas H, Yenidunya S. The value of CDX2 and cytokeratins 7 and 20 expression in differentiating colorectal adenocarcinomas from extraintestinal gastrointestinal adenocarcinomas: cytokeratin 7-/20+ phenotype is more specific than CDX2 antibody. *Diagn Pathol*. 2012;7:9. <https://doi.org/10.1186/1746-1596-7-9>