

Cutaneous Metastasis From Primary Gastric Cancer: A Case Report and Review of the Literature

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Practice Points

- Cutaneous metastasis may occur as a manifestation of internal malignancy and can present as the first sign or late in the course of advanced metastatic disease.
- Skin biopsy can help confirm the diagnosis of a primary tumor, and immunohistochemical marker studies can be used to delineate the tissue of origin.
- When possible, early treatment should be administered to avoid rapid tumor progression.

Cutaneous metastases of internal neoplasms are uncommon. They can be metachronous or synchronous to the primary tumor and typically appear late in the course of advanced malignant disease. Gastric cancer rarely is reported as a cause of cutaneous metastasis; the most common metastatic sites are the liver, peritoneal cavity, and lymph nodes. We report a case of cutaneous metastasis from a primary gastric tumor that had been treated 6 years prior. There was no visceral invasion. The patient was treated successfully via a relaparotomy to exclude any macroscopic abdominal recurrence and complete excision of the lesion with a plastic flap to compensate for the tissue lost in the resection. Treatment plans vary depending on the diameter and number of lesions, the presence of visceral metastases, and the physical status of the patient. Therapy generally includes local excision, irradiation, or chemotherapy.

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Cutaneous metastases of internal neoplasms are uncommon, with a reported incidence rate of 5.3%.¹ Although they can be metachronous or synchronous and typically appear late in the course of advanced malignant disease, some authors reported cutaneous metastases as the first sign of an internal malignancy.² Skin involvement of cancer cells can occur through several mechanisms, including hematogenous or lymphatic routes, direct contiguous tissue invasion, and iatrogenic implantation. The first 2 pathways are the most common in metastatic involvement of the skin. Paget³ first described the “soil and seed” hypothesis, which stated that tumors (seed) preferentially metastasize to organs with an intrinsically favorable environment (soil). It is possible that the interaction between tumor cells and certain factors secreted from the dermis or epidermis plays a crucial role in the skin-homing mechanism of metastatic cells. Chemokines and their receptors have been shown to be involved in tumorigenesis and metastasis.⁴ We report a case of cutaneous metastasis from a primary gastric tumor that had been treated 6 years prior.

Case Report

A 60-year-old man presented for evaluation of an erythematous lesion on the anterior aspect of the chest wall and upper central quadrant of the abdomen of 15 days' duration (Figure 1). The patient

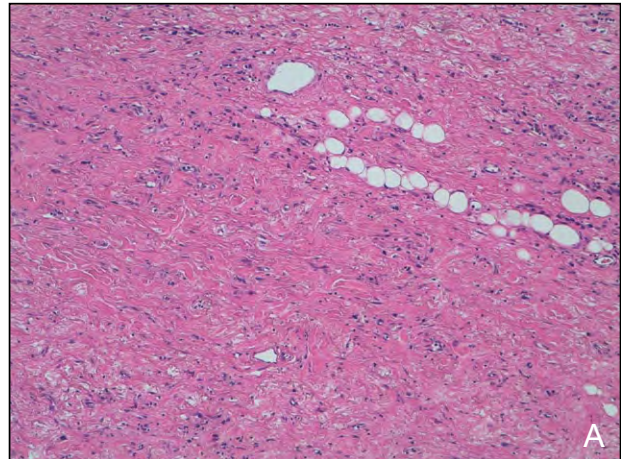
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Figure 1. Erythematous lesion on the anterior aspect of the chest wall and upper central quadrant of the abdomen.

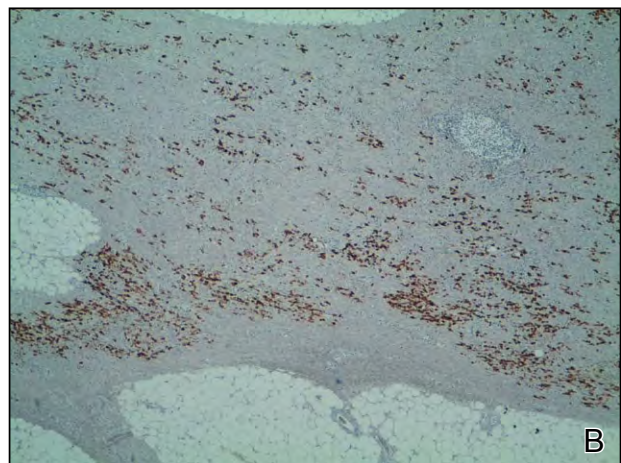


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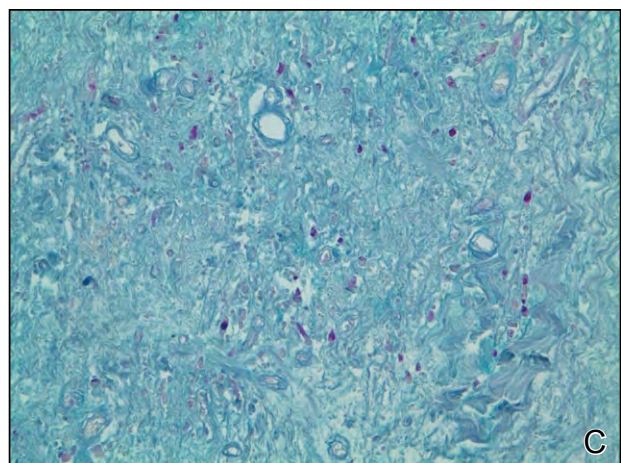
denied any history of allergies or medications. He reported that the lesion was painless and nonpruritic. Physical examination revealed a 5×10-cm erythematous lesion that extended from the center of the chest wall just above the sternum to the epigastric region of the abdomen. There were no palpable axillary, laterocervical, supraclavicular, or inguinal lymph nodes. No other lesions were noted elsewhere on the body, and there was no evidence of pathology of other skin lesions other than the identified lesion.

Six years prior to presentation, the patient was diagnosed with a poorly differentiated diffuse gastric adenocarcinoma with locoregional metastatic lymph nodes (T3N3MXG3). He underwent a total gastrectomy with Roux-en-Y reconstruction and extended (D2) lymphadenectomy. Following surgery, the patient received 1 cycle of adjuvant chemotherapy with epirubicin, cisplatin, and 5-fluorouracil (ECF regimen). Computed tomography (CT) and complete blood cell counts administered at 3, 6, and 12 months postsurgery with subsequent annual follow-up showed no evidence of disease recurrence or metastases.

At presentation, laboratory test results (ie, complete blood cell count, liver and renal functions, tumor markers) were within reference range. An incision biopsy of the lesion and a full-body CT scan were performed. Histology revealed a cutaneous anaplastic proliferation with a stromal desmoplastic component, which confirmed the diagnosis of cutaneous metastasis of gastric carcinoma (Figure 2). The full-body CT scan revealed no evidence of recurrent disease. One month later we performed a relaparotomy and complete excision of the lesion with a cutaneous flap to compensate for the tissue lost in the resection. Abdominal exploration during surgery showed no macroscopic secondarisms



B



C

Figure 2. Histology and immunohistochemistry confirmed the diagnosis of cutaneous metastases from a primary gastric tumor (A)(H&E, original magnification ×400). There was fibroadipose tissue with isolated hyperchromatic core components that cytokeratin 7 revealed to be epithelial (B), while Alcian blue stain pointed out the gland secretions (C)(both original magnification ×100).

(eg, jejunoesophageal anastomosis, peritoneal carcinomatosis). There were no postoperative complications and the patient was discharged 3 days following surgery. He returned for follow-up at 1, 3, 6, 12, and 24 months following surgery. Complete blood cell counts and full-body CT scans were performed at each follow-up visit. At more than 40 months' follow-up, the patient was free of disease.

Comment

In 1913, Kaufmann-Wolf¹⁵ first reported 65 cases of cutaneous metastases from internal malignancies, with 23 from gastric carcinomas. Traditionally, cutaneous metastases indicated advanced disease and a poor prognosis, but more recent studies have revealed that the prognosis varies based on the location of the primary internal malignancy.^{6,7} For example, breast cancer patients with cutaneous metastases seem to have a better prognosis, suggesting that the origin of the primary malignancy is an important factor in determining the patient's prognosis.⁸

The most common internal malignancies leading to cutaneous metastasis are lung cancer, colon cancer, squamous cell carcinoma of the oral cavity, renal cell carcinoma, breast cancer, and ovarian cancer.^{8,9} Gastric cancers rarely are reported as the cause of cutaneous metastasis,¹⁰ with the most common metastatic sites being the liver, peritoneal cavity, and lymph nodes.¹¹ When cutaneous involvement is present, commonly affected sites are the chest, head, and neck.⁶ Cutaneous metastasis to the extremities and multiple sites is uncommon. Cutaneous metastases associated with primary gastric tumors often present as firm hyperpigmented nodules (eg, Sister Mary Joseph nodule [periumbilical nodule], Troisier ganglion [supraclavicular node]) and rarely as an erythematous lesion arising from the chest or abdomen as seen in our patient.¹² Carcinoma erysipelatoides has been reported in conjunction with a primary tumor of the stomach; it presented as an ill-defined area of warm, tender, erythematous and edematous skin closely simulating erysipelas or cellulitis.¹³

After cutaneous involvement is noted, histopathologic study of the lesion is necessary to determine the primary tumor. Expression of cytokeratins on immunohistochemical evaluation of biopsies indicated an epithelial tumor origin. Differentiation between primary and metastatic tumors is possible because metastases of a given carcinoma share the same pattern of cytokeratins as the primary tumor. When diagnosis of cutaneous metastasis of a primary carcinoma is confirmed, imaging studies should be performed to determine the presence of other sites of metastasis. A full-body CT scan is the most important staging modality, followed by ultrasonography.

Reported Cases of Cutaneous Metastases From Primary Gastric Cancer (N=72)¹⁵⁻⁵³

Characteristics of Reported Cases	No. of Patients
Lesion site ^a	
Abdomen	12
Ankle	1
Anus	1
Arms/hand	6
Face	6
Gluteal region	1
Head	4
Inguinal region	2
Neck	10
Palpebral region	1
Scalp	3
Scrotum	1
Thorax	19
Umbilical region	2
Widespread	23
Occurrence	
Synchronous ^b	46
Metachronous	26
Therapy	
No therapy ^c	28
Chemotherapy	20
Surgery + radiotherapy + chemotherapy	12
Surgery	8
Radiotherapy + chemotherapy	2
Radiotherapy + surgery	1
Surgery + chemotherapy	1

^aSome patients had lesions in >1 location.

^bFirst sign of disease in 14 patients.

^cPatients died before therapy was initiated.

According to one analysis, the sensitivity and specificity of a CT scan was higher than ultrasonography for detecting metastases in the liver, lung, and celiac lymph nodes.¹⁴ In contrast, ultrasonography had a higher sensitivity than CT for the detection of malignant lymph nodes in the neck. A combination of staging investigations results in the highest accuracy.¹⁴

Treatment options for cutaneous metastases of primary gastric tumors differ depending on the diameter and number of skin lesions, the presence of visceral metastases, and the physical status. Therapy generally includes local excision, irradiation, or chemotherapy. An ORCID search as well as a PubMed search of articles indexed for MEDLINE using the terms *skin and metastasis and gastric cancer* and *cutaneous metastasis and gastric carcinoma* revealed that surgery was performed the most for treatment, often by a simple excision followed by radiotherapy or chemotherapy (Table).¹⁵⁻⁵³ Multiple lesions or successive recurrences are not usually amenable to curative resection; systemic chemotherapy is the most commonly used treatment.¹⁴ Combination chemotherapy (eg, etoposide, Adriamycin, and cisplatin [EAP regimen]; cisplatin, mitomycin-C, tegafur-uracil, and etoposide [PMUE regimen]) has shown greater efficacy than monochemotherapy. It also has less severe toxic effects (eg, nausea, vomiting, leukopenia).⁴¹

Conclusion

Although our patient presented with a large cutaneous lesion, the absence of other secondary malignancies with CT imaging allowed us to surgically excise the lesion affected by the disease, which resulted in a complete remission of the tumor. After more than 40 months' follow-up, the patient was free of disease.

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