Peripheral T-Cell Lymphoma With Erysipelaslike Spread

Fiona P. Blanco, MD; Marlyanne M. Pol-Rodriguez, MD; Sameera Husain, MD; Marc E. Grossman, MD

An 88-year-old man from the Dominican Republic with a history of gastric adenocarcinoma was admitted with one month of fatigue, anorexia, weight loss, and abdominal pain. The dermatology department was consulted to evaluate an asymptomatic, shiny, firm, red nodule on the lower left chest, with an expanding rim of erythema. Skin biopsies were performed from the nodule and surrounding rim of erythema, which were both diagnostic of peripheral T-cell lymphoma (PTCL). This case is a unique example of PTCL with erysipelaslike spread.

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Peripheral T-cell lymphomas (PTCLs) are predominantly nodal T-cell lymphomas classified by the World Health Organization as peripheral T-cell/natural killer (NK)–cell lymphomas. The skin is a frequent site of extranodal involvement of this malignancy. Cutaneous erythema is an uncommon manifestation of tumor spread and even more unique in the setting of lymphoma. Rarely, cases of primary skeletal muscle lymphoma[1] and extranodal T-cell and NK-cell lymphoma[2] have been reported mimicking erysipelas or cellulitis. We report a rare case of PTCL presenting as a violaceous nodule with a rim of erythema mimicking erysipelas.

Case Report

An 88-year-old man from the Dominican Republic presented with a one-month history of fatigue, anorexia, weight loss, and abdominal pain. He had a past medical history of hypertension, atrial fibrillation, and gastric adenocarcinoma treated with a total gastrectomy in 2000. The adenocarcinoma had clear surgical margins, but he had metastasis in 1 of 20 perigastric and omental lymph nodes. The dermatology department was consulted to evaluate an asymptomatic mass on the chest of unclear duration that was noted on admission in April 2004.

On physical examination, the patient was alert but disoriented, cachectic, hemodynamically stable, and in no distress. There was a 3.5×4.5-cm oval, shiny, firm, nontender, red nodule on the lower left chest (Figure 1). There were three 1- to 2-cm lymph nodes in the left axilla. No cervical, supraclavicular, or inguinal adenopathy was noted.

Laboratory studies revealed pancytopenia, 4% atypical lymphocytes (reference, 0%), 0.1% reticulocytes (reference range, 0.8%–2.0%), hypoalbuminemia, CA-19-9 antigen level of 127 U/mL (reference range, 0–37 U/mL), and a prostate-specific antigen level of 15 ng/mL (reference range, 0–4 ng/mL). Liver function tests and serum carcinoembryonic antigen were within reference range. Magnetic resonance imaging of the chest, abdomen, and pelvis demonstrated a small amount of ascites, an enlarged prostate, and no abdominal lymphadenopathy, though small retroperitoneal lymph nodes were seen on computed tomographic scan.

A punch biopsy from the chest nodule showed an atypical, medium- to large-cell lymphoid infiltrate involving the dermis and subcutaneous fat (Figure 2). Immunohistochemistry was positive for CD3, CD7, CD8, CD30, CD43, CD56, and T-cell intracellular antigen-1, and negative for CD20, CD34, terminal deoxynucleotidyl transferase, and cytokeratin. There was down-regulation of CD2, CD4, and CD5. These features were consistent with PTCL, not otherwise specified. Further workup included peripheral blood for flow cytometry, which showed no definitive evidence of

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From the Department of Dermatology, Columbia University Medical Center, New York, New York.
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Correspondence: Marc E. Grossman, MD, Columbia University Medical Center, Department of Dermatology, 12 Greenridge Ave, White Plains, NY 10605 (marcmeg9@aol.com).

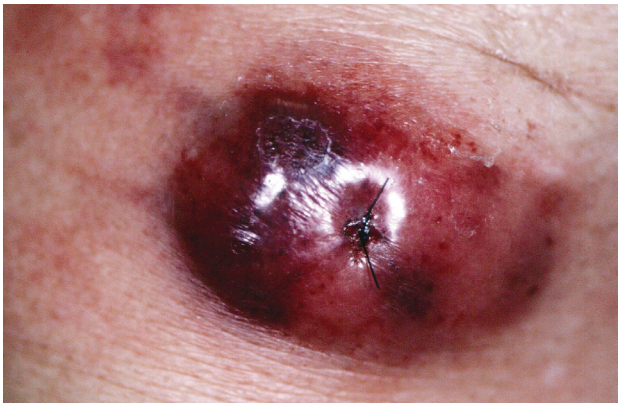

Figure 1. Shiny, firm, nontender, red nodule on the lower left chest.

non-Hodgkin lymphoma. Human T-lymphotropic virus (HTLV) 1 and 2 antibodies were negative. The lactate dehydrogenase level was 247 U/L (reference range, 115–221 U/L).

A few days after admission, an erythematous patch was noted to be spreading medially from the site of the original tumor nodule (Figure 3). A biopsy specimen from this area of erythema demonstrated a patchy perivascular and periadnexal infiltrate of atypical medium to large lymphocytes involving the dermis and subcutis. The immunohistochemical characteristics of this infiltrate were identical to those observed in the infiltrate of the tumor nodule, confirming the presence of the lymphoma spreading in an erysipelas-like fashion (Figure 4). During the next month, the erythematous patch thickened and became a red violaceous plaque.

The patient and his family refused treatment and further workup, including bone marrow and lymph node biopsies secondary to his frail state and advanced age, and he was ultimately discharged and returned home. Three weeks later, the patient died during transfer to a hospice facility.

Comment

PTCLs are rare, predominantly nodal T-cell lymphomas classified by the World Health Organization as peripheral T-cell/NK-cell lymphomas. These tumors account for approximately 7.6% of non-Hodgkin lymphomas and a substantial

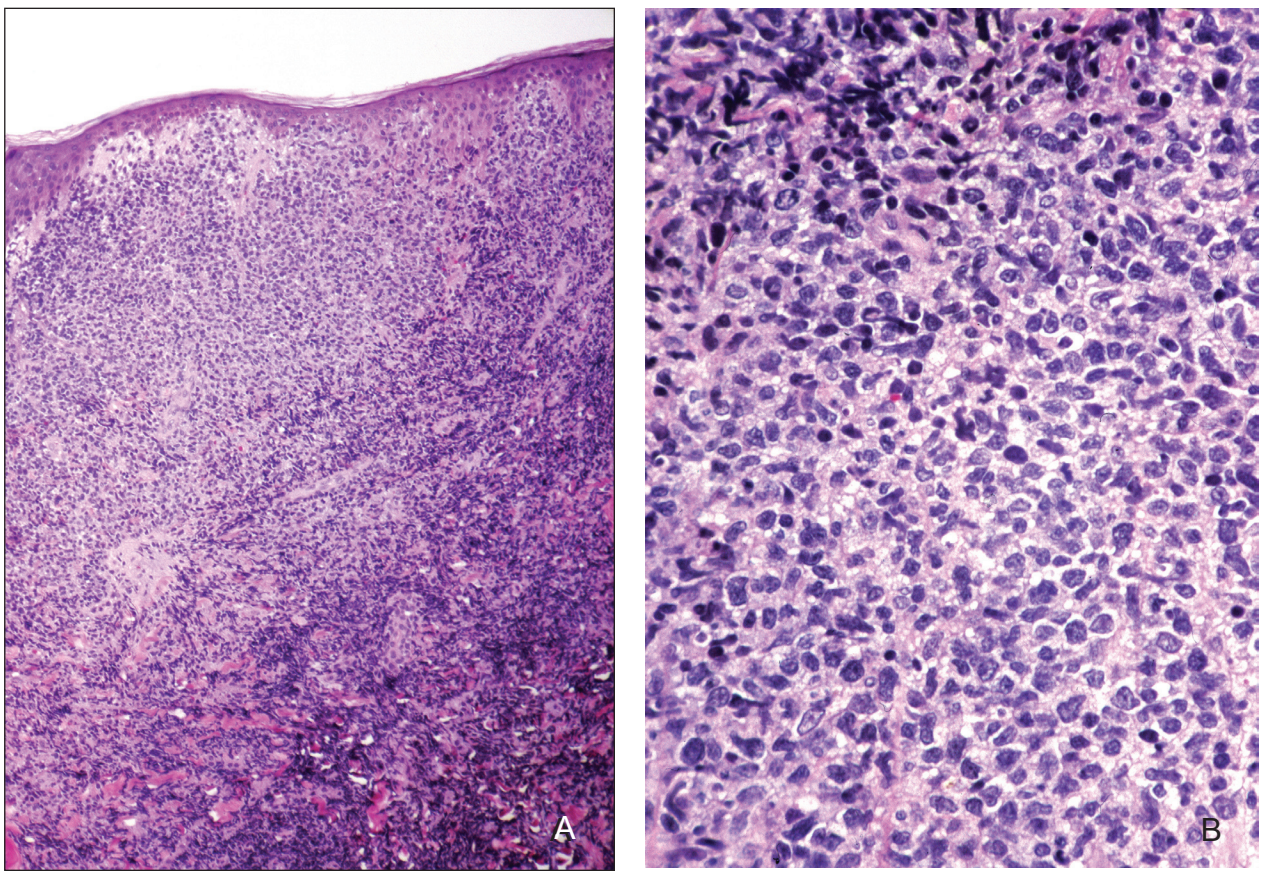

Figure 2. Histopathologic features of a chest nodule. Atypical, medium- to large-cell lymphoid infiltrate involving the dermis and subcutaneous fat (H&E; original magnifications ×25 and ×100, respectively)(A and B).

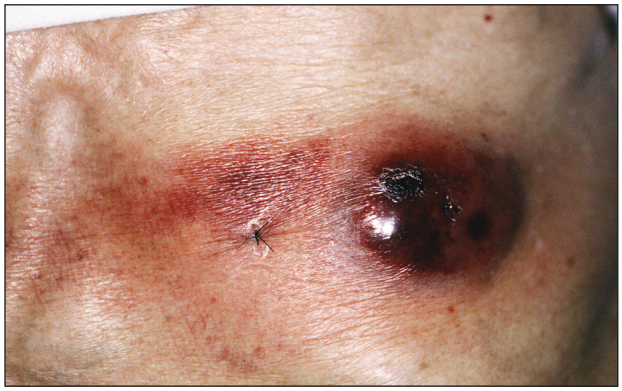

Figure 3. Erythematous patch spreading medially from the site of the original tumor nodule.

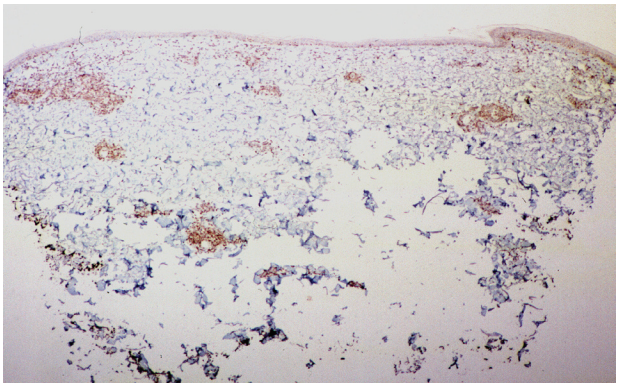

Figure 4. Histopathologic features of the erythematous patch. Lymphoma cells stained positive for CD30 on immunohistochemistry (original magnification ×10).

proportion of T-cell lymphomas in the Western world.[3] The prevalence of PTCL is increased in Japan and other Eastern countries, secondary to factors such as endemic HTLV-1 infection.[4] The subheading of PTCLs includes angioblastic T-cell lymphoma; adult HTLV-1$^+$; and PTCL, unspecified, which is reserved for those tumors not conforming to a known subtype.[5] PTCL, unspecified, accounts for one half of all PTCLs, primarily affecting adults, with an equal incidence in men and women. The etiology of these tumors is unknown and they are derived from postthymic lymphoid T-cells at different stages of differentiation.[6] Patients usually present with generalized advanced disease with nodal involvement, as well as constitutional symptoms (B symptoms), and an overall poor prognosis.[7] Patients may have infiltrates in the bone marrow, liver, spleen, and extranodal tissues. The skin is a frequent site of extranodal involvement.[8] Skin lesions of PTCL may present as solitary or multiple nodules or scaly plaques.[9] Patients may have peripheral blood involvement or a leukemic presentation. Our patient presented with pancytopenia but lacked clear evidence of peripheral blood involvement on flow cytometry.

Lymph node biopsy in most cases shows diffuse infiltrates of polymorphous medium or large cells with pleomorphic nuclei and effacement of the unaffected lymph node architecture. Clear cells and Reed-Sternberg cells may be present. The immunophenotypic features of PTCL, unspecified, are usually CD4$^+$ more often than CD8, frequent antigen loss (CD5, CD7), and CD30 positivity. However, aberrant T-cell phenotypes are common. Epstein-Barr virus usually is absent in these tumor cells. These tumors are more aggressive than other non-Hodgkin lymphomas, respond poorly to therapy, and have a very low overall and disease-free survival.[10]

In general, cancer metastasizes to the skin in up to 9% of patients and rarely may be the presenting sign of an internal malignancy.[11] Metastases are indicative of intralymphatic and/or intravascular dissemination of the tumor and often portend a poor prognosis. In one study of cutaneous metastases, lung carcinoma was the most common cause of cutaneous metastases in men compared with breast adenocarcinoma in women. The abdomen is the most common site of cutaneous metastases in men and the second most common site in women, particularly after surgery for an abdominal tumor.[12] Our patient had a prior history of gastric adenocarcinoma treated with gastrectomy and a solitary cutaneous nodule of the lower chest. The initial clinical impression, metastatic gastric adenocarcinoma, was a more likely diagnosis than cutaneous lymphoma, given the patient's medical history and the overall prevalence of the 2 malignancies.

PTCLs are rare and intracutaneous extension is more unusual, especially when the presentation mimicks erysipelas or cellulitis. Of greatest interest in our case was the development of a rapidly progressing rim of erythema surrounding the cutaneous nodule, which also demonstrated PTCL on biopsy. Tumor extension in an erysipelaslike fashion may be considered a cutaneous marker of disseminated disease and is most likely associated with a poor prognosis. Efforts to cure these patients with radiation and chemotherapy may be unsuccessful and at best palliative.

Very few examples of noncarcinomatous erysipelaslike spread of tumor exist, mainly in association with melanoma.[13] We present this case as another rare example of a hematologic malignancy, specifically PTCL, spreading in an erysipelaslike pattern.

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Announcement

The Certifying Examination of the American Board of Dermatology will be held at the Crowne Plaza Chicago O'Hare in Rosemont, Illinois, on August 11, 2008. The deadline for receipt of applications is March 1, 2008.

The Recertification Examination of the American Board of Dermatology will be administered online May 1 to June 12, 2008. The deadline for receipt of applications was December 15, 2007.

The examination for subspecialty certification in Dermatopathology will be administered September 15, 2008, at the testing center of the American Board of Pathology in Tampa, Florida. The deadline for receipt of applications is May 1, 2008. (Dermatologists must submit applications to the American Board of Dermatology, and pathologists must submit to the American Board of Pathology.)

The date and location for the 2008 examination for subspecialty certification in Pediatric Dermatology has not been determined. An announcement will be made as soon as a decision is available. The deadline for receipt of applications is April 1, 2008.

The In-Training Examination for dermatology residents will be administered online at dermatology residency training centers in the United States and Canada on April 17, 2008. The deadline for receipt of applications is February 1, 2008.

For further information about these examinations, please contact:

Antoinette F. Hood, MD
Executive Director
American Board of Dermatology
Henry Ford Health System
1 Ford Place
Detroit, MI 48202-3450
Telephone: 313-874-1088
Fax: 313-872-3221
E-mail: abderm@hfhs.org
Web site: www.abderm.org