Mycosis Fungoides Manifesting as a Morbilliform Eruption Mimicking a Viral Exanthem

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PRACTICE **POINTS**

- Mycosis fungoides classically occurs in patch, plaque, and tumor stages, with lesions preferentially occurring on regions of the body spared from sun exposure; however, the condition may present atypically, mimicking a variety of other conditions.
- Lymphomatoid papulosis exists within a spectrum of primary cutaneous CD30$^+$ lymphoproliferative disorders and is associated with increased incidence of lymphomas.

To the Editor:

Mycosis fungoides (MF) is the most common type of primary cutaneous lymphoma, occurring in approximately 4 of 1 million individuals per year in the United States.[1] It classically occurs in patch, plaque, and tumor stages with lesions preferentially occurring on regions of the body spared from sun exposure[2]; however, MF is known to have variable presentations and has been reported to imitate at least 25 other dermatoses.[3] This case describes MF as a morbilliform eruption mimicking a viral exanthem.

A 30-year-old man with a 12-year history of nodular sclerosing Hodgkin lymphoma (HL) presented with a widespread rash of 2 weeks' duration. At the time of diagnosis of HL, the patient had several slightly enlarged, hyperdense, bilateral inguinal lymph nodes seen on positron emission tomography–computed tomography. He achieved complete remission 11 years prior after 6 cycles of ABVD (doxorubicin-bleomycin-vinblastine-dacarbazine) chemotherapy. He initially presented to us prior to starting chemotherapy for evaluation of what he described as eczema on the bilateral arms and legs that had been present for 10 years. Findings from a skin biopsy of an erythematous scaling patch on the left lateral thigh were consistent with MF. One year later, new lesions on the left lateral thigh were clinically and histologically consistent with lymphomatoid papulosis (LyP).

At the current presentation, the patient denied any changes in medications, which consisted of topical clobetasol, triamcinolone, and mupirocin; however, he reported that his young child had recently been diagnosed with bronchitis and impetigo. Physical examination revealed pink-orange macules and papules on the anterior and posterior trunk, medial upper arms, and bilateral legs involving 18% of the body surface area. A complete blood cell count showed no leukocytosis or left shift. A respiratory viral panel was positive for human metapneumovirus. Two weeks later, the patient noted improvement of the rash with use of topical triamcinolone.

Four months later, the rash still had not completely resolved and now involved 50% of the body surface area. A punch biopsy of the left lower abdomen demonstrated an atypical lymphoid infiltrate with focal epidermotropism and predominance of CD4 over CD8 cells (approximately 4:1 ratio), and CD30 labeled rare cells. Polymerase chain reaction analysis of the biopsy revealed monoclonal T-cell receptor gamma chain gene rearrangement. Taken together, the findings were consistent with MF.

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The patient started narrowband UVB phototherapy and completed a total of 25 treatments, reaching a maximum 4-minute dose, with minimal improvement.

Three months later, the patient had 90% body surface area involvement and started treatment with intramuscular interferon alfa-2b at 1 million units 3 times weekly. He noticed improvement within the first week of treatment and reported that his skin was clear until 5 months later when he woke up one morning with a morbilliform eruption on the anterior trunk, thighs, and upper arms (Figure 1). Biopsy from the right thigh showed an infiltrate of $CD3^+$ lymphocytes with a predominance of CD4 over CD8 cells (approximately 6:1 ratio), both in the dermis and epidermis (Figure 2). CD30 highlighted approximately 10% of cells (Figure 3). Findings again were consistent with MF. Flow cytometry was negative for peripheral blood involvement.

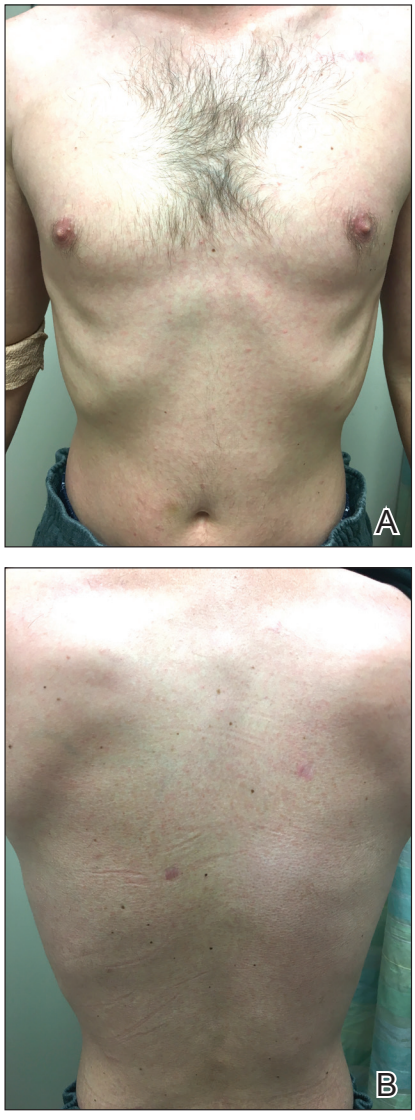

FIGURE 1. A and B, Morbilliform rash on the chest and back.

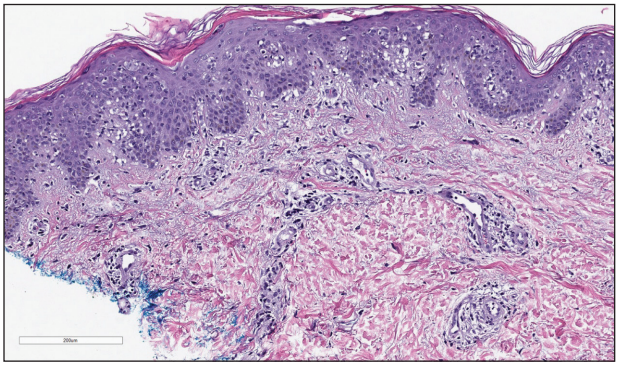

FIGURE 2. A biopsy showed a lymphocytic infiltrate involving the dermis and epidermis (H&E, original magnification ×100).

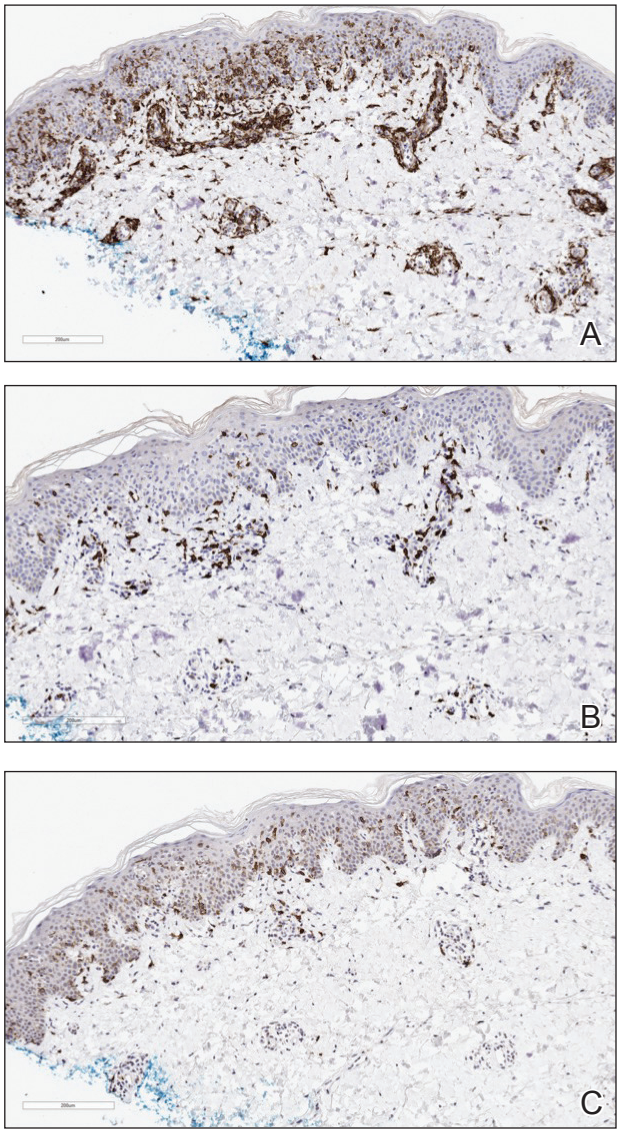

FIGURE 3. A–C, Immunohistochemistry showed positivity of lymphoma cells to CD4, CD8, and CD30, respectively. The predominance of CD4 over CD8 was highlighted, supporting the diagnosis of mycosis fungoides (original magnifications ×100).

Three months later, the patient reported enlargement of several left inguinal nodes. Fine needle aspiration of 1 node demonstrated an atypical lymphoid proliferation consistent with MF. Positron emission tomography–computed tomography showed several mildly enlarged inguinal lymph nodes, which were unchanged from the initial diagnosis of HL. There were no hypermetabolic lesions. One month later, the patient started extracorporeal electrophoresis in addition to interferon alfa-2b with notable improvement of the rash. The rash later recurred after completion of these treatments and continues to have a waxing and waning course. It is currently managed with triamcinolone cream only.

At the time of the initial diagnosis of MF, the patient's lesions appeared as eczematous patches on the face, abdomen, buttocks, and legs. Based on the history of a sick child at home, viral panel positive for human metapneumovirus, and clinical appearance, a viral exanthem was considered to be a likely explanation for the patient's new-onset morbilliform eruption rash occurring 12 years later. A drug reaction also was considered in the differential based on the appearance of the rash; however, it was deemed less likely because the patient reported no changes in his medications at the time of rash onset. Persistence of the eruption for many months was less consistent with a reactive condition. A biopsy demonstrated the rash to be histologically consistent with MF. This patient was a rare case of MF manifesting as a morbilliform eruption mimicking a viral exanthem.

Various inflammatory conditions, including drug eruptions and lichen sclerosus et atrophicus, may mimic MF, not only based on their histophenotypic findings but also occasionally clonal proliferation by molecular study.[4,5] In our patient, one consideration was the possibility of a viral infection mimicking MF; however, biopsies showed both definite histophenotypic features of MF and clonality. More importantly, subsequent biopsy also revealed similar findings by morphology, immunohistochemical study, and T-cell gene rearrangement study, confirming the diagnosis of MF.

Another interesting feature of our case was the occurrence of HL, LyP, and MF in the same patient. Lymphomatoid papulosis is a chronic condition characterized by self-healing lesions and histologic features suggestive of malignancy that lies within a spectrum of primary cutaneous $CD30^+$ lymphoproliferative disorders. There is a known association between LyP and an increased incidence of lymphomas, including MF and HL.[1] In a 2016 study, lymphomas occurred in 52% of patients with LyP (N=180), with MF being the most frequently associated lymphoma.[6] Notably, biopsies consistent with both HL and MF, respectively, in our patient were positive for the CD30 marker. Patients with HL also are at increased risk for developing other malignancies, with the risk of leukemias and non-HLs greater than that of solid tumors.[5] There have been multiple reported cases of HL and MF occurring in the same patient and at least one prior reported case of LyP, HL, and MF occurring in the same patient.[6,7]

This case highlights the myriad presentations of MF and describes an unusual case of MF manifesting as a morbilliform eruption mimicking a viral exanthem.

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