Unmasking Tumors: A Case of a CD30-Negative MycosisFungoides Masquerading as Erythema NodosumLeprosumin a Filipino Male

Ma. Cristina Georgina T. Paloma, MD, MBA[1]
Andrea Marie Bernales-Mendoza, MD, DPDS, FDSP-PDS[2]

Abstract

Mycosis Fungoides is the most common type of primary cutaneous lymphoma. Early in its course, it usually presents as erythematous patches and plaques similar to a lot of cutaneous conditions. A 68-year-old male presented with a 13-year history of multiple erythematous patches and plaques on the arms and trunk. The lesions were pruritic and chronically relapsing over the years, temporarily relieved by topical corticosteroids. Thereafter, there was onset of multiple nodules on the trunk, extremities and face. Initial biopsy was done by a different dermatologist, revealed Hansen's Disease, Borderline Borderline spectrum. Fitefaraco stain was positive but no bacillary index was given. The patient was subsequently started on rifamcpicin 600mg/capsule once a day, Ofloxacin 400mg/tablet once a day, and Minocycline 100mg/capsule once a day. The lesions were noted to worsen, eventually developing ulcerations over the trunk and extremities prompting referral to our institution. The biopsy results were as follows: Cutaneous T-Cell Lymphoma, diffuse cluster of differentiation (CD) 3 staining, focal CD20 staining, and negative FiteFaraco stain. The histopathologic findings combined with the clinical presentation led to the diagnosis of Mycosis Fungoides. He was then referred to medical oncology for proper staging and definitive management. The prognosisof Mycosis Fungoides is generally dependent on the stage as determined by the extent of skin involvement as well as presence of lymph node invasion and/or metastasis.

Keywords: *Mycosis Fungoides, Lymphoma, T-Cell, Cutaneous*

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INTRODUCTION

Mycosis Fungoides is a type of primary cutaneous T-cell lymphoma that begins as erythematous patches and plaques before progressing to the tumor stage. It can be similar in presentation to a multitude of other cutaneous conditions making it difficult to diagnose early in the course. Multiple biopsies are often needed before a definite diagnosis can be reached. This case report intends to discuss a cutaneous disorder that is difficult to diagnose and is usually diagnosed later in its course.

CASE REPORT

We present a 68-year-old male with a 13-year history of multiple erythematous, pruritic, and chronically relapsing patches and plaques, which started on the arms then spread to the trunk. The patient applied clobetasol propionate cream intermittently over

*Department of Dermatology, Dr. Jose N. Rodriguez Memorial Hospital & Sanitarium, Caloocan City

the years which gave temporary relief. One year prior to admission, he developed erythematous nodules on the trunk that progressed to the upper and lower extremities. No consult was done during this time and no medications were applied or taken. Seven monthsprior, the nodules increased in number now involving the face. The tumors were noted on the trunk and extremities. He sought consult with a private dermatologist where a biopsy was done which revealed Hansen 's disease, Borderline Borderline spectrum. Fitestain was positive but no bacillary index given. He was subsequently started on rifamcpicin 600mg/cap once a day, Ofloxacin 400mg/tab once a day, and Minocycline 100mg/cap once a day. No improvement was noted during the interim.

Two months prior to admission, ulcerations started to develop on existing plaques and nodules on the trunk and extremities. He followed up with his dermatologist and daily wound care with plainnormal saline solutioncompress, mupirocincream, and dry gauze. All his oral medications were continued. Despite compliance to medications and wound care, new ulcerations appeared on the trunk and extremities while old ulcers enlarged, with some forming crusts. Impression during this time was Erythema NodosumLeprosum. The patient was referred to our institution for further evaluation and management. The referral team had a different clinical suspicion hence a skin punch biopsy was done and the patient was subsequently admitted. Upon admission, physical examination showed multiple well-defined erythematous to violaceous plaques and nodules on the face; multiple well-defined erythematous to hyperpigmented plaques, nodules and tumors some topped with ulcerations over the trunk and extremities; and multiple well-defined erythematous to hyperpigmented plaques and nodules some with hemorrhagic crusting over the trunk and extremities (Figure 1).

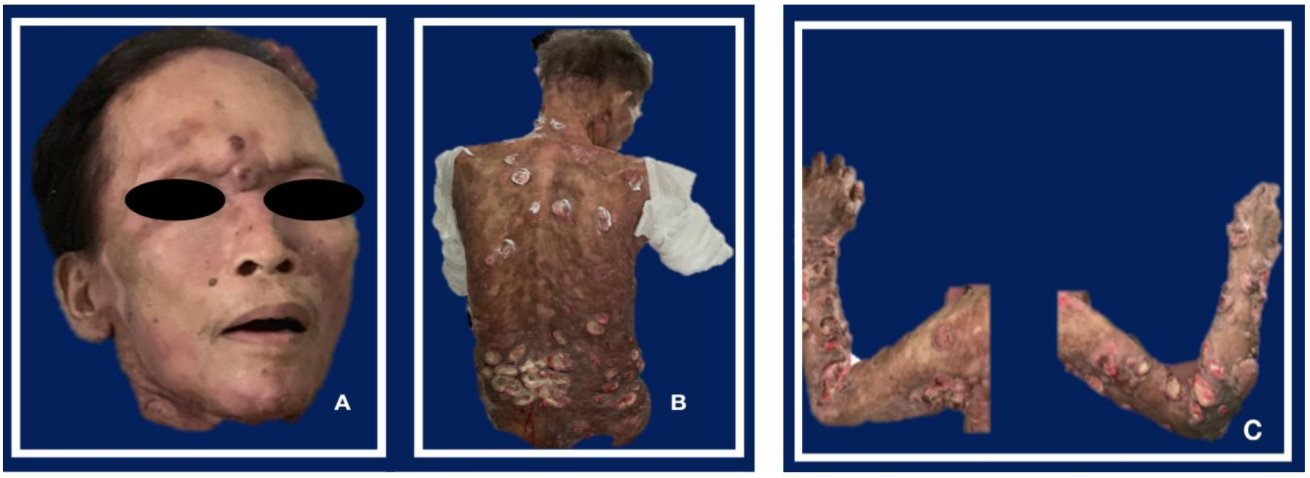

Figure 1. Multiple well-defined erythematous plaques, nodules, and tumors some with erosions and ulcerations on the face (A) , trunk (B) and extremities (C)

Histopathological findings revealed Cutaneous T-Cell Lymphoma (Figures 2 and 3). Fite- Faraco was negative.

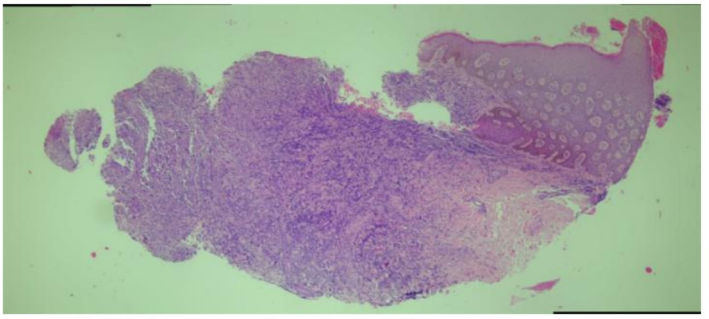

Figure 2. Skin biopsy specimen from abdomen shows an acanthotic epidermis with mild spongiosis and Pautrier'smicroabscess. (Hematoxylin-eosin stain; original magnification: X4.)

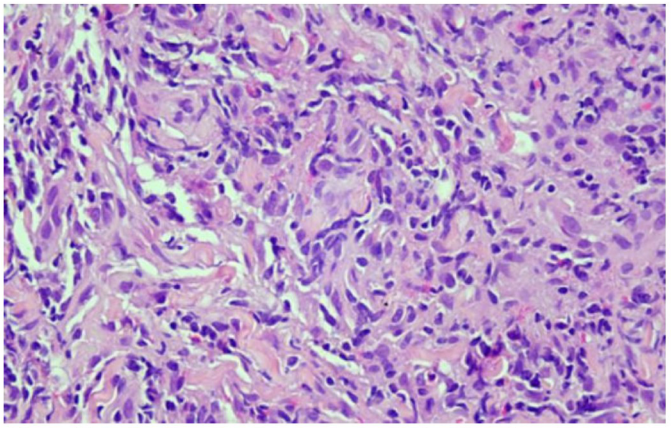

Figure 3. In the dermis are numerous atypical lymphocytes in between the collagen bundles. (Hematoxylin-eosin stain; original magnification: X40.)

Immunohistochemistry was also done for confirmation of diagnosis: CD3 strong and diffuse (Figure 4), CD20 and CD30 negative (Figures 5 & 6).

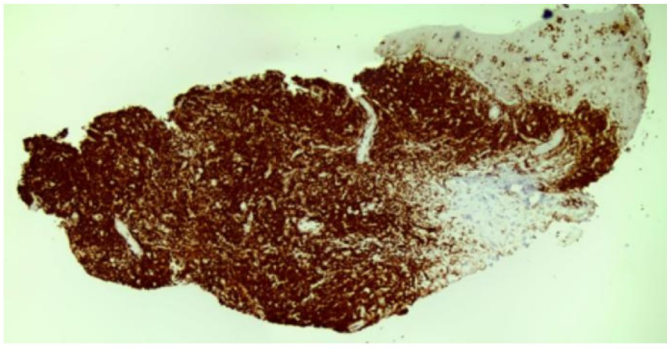

Figure 4. CD3+ atypical lymphocytes in both the epidermis and dermis. (Original magnification: X4.)

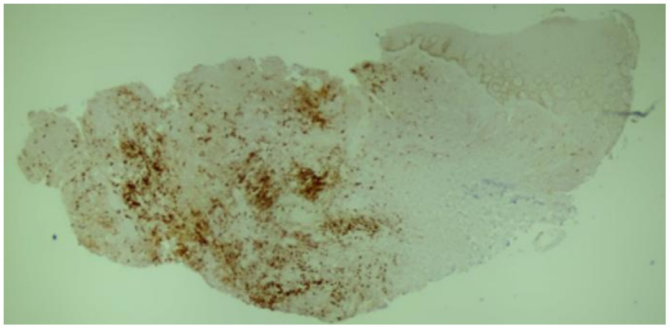

Figure 5. CD20 negative. B lymphocytes are less than 30% of the section. (Original magnification: X4.)

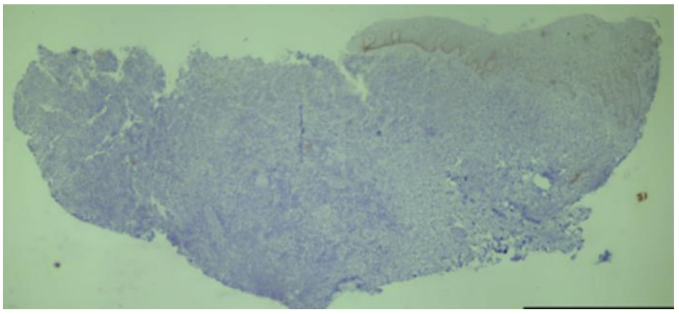

Figure 6. CD30 negative. No evidence of large cell transformation. (Original magnification: X4.)

DISCUSSION

The diagnosis of Mycosis Fungoides is challenging. Its early presentation consists primarily of erythematous patches and plaques that resemble more common cutaneous conditions such as eczematous dermatitis or psoriasis. More often than not, there is a delay in diagnosis. The median time from onset of symptoms to diagnosis usually takes 3-4 years but in some instances, may exceed four decades.[i] Histopathologic findings of acanthosis and mild spongiosis are non-specific and can be seen in numerous dermatologic conditions such as drug reaction, spongiotic dermatitis, scabies, arthropod bite, and mycosis fungoides.[ii] Dermal lymphocytic infiltration is manifested in many inflammatory and infectious dermatoses, including Hansen's Disease.

Skin punch biopsy with immunohistochemistry are warranted to arrive at a definitive diagnosis. When there is a high index of suspicion for Cutaneous T-Cell Lymphoma, CD3 and CD20 stains must be requested. A CD3 positive stain will confirm that the lymphoma is of T-cell origin while a CD20 positive stain is indicative of B-cell origin.[iii] Different thresholds have been set for determining the positivity of CD3. Certain studies have deemed a stain of 30% T-lymphocytes as CD3 positive while other studies have set 60% as their threshold.[iv] T-cell lymphomas have been shown to be positive for CD3 in 85-100% of cases with the exception of anaplastic large cell lymphoma (ALCL) for which CD30 is the preferred marker.[v] CD30 will help determine whether or not this is a case of Mycosis Fungoides transforming into Anaplastic Large Cell Lymphoma, a CD30 positive variant of Cutaneous T-Cell Lymphoma with a more aggressive course.[vi] In terms of clinical presentation, it is

common in Anaplastic Large Cell Lymphoma to have ulcerative nodules and tumors easily mimicking Erythema NodosumLeprosum. Thus, it is important to rule out Erythema NodosumLeprosum through slit-skin smear and Fite-Faraco.

There are many treatment options for Mycosis Fungoides. For early stages, particularly the patch and plaque stages, the approach to treatment is skin-directed therapy. This includes topical corticosteroids, imidazoquinolines, mechlorethamine hydrochloride, carmustine, topical retinoids and phototherapy.[vii] In addition, methotrexate may also be given for patch and plaque stages as it not only causes remission, but may also prevent progression to later stages.[viii] Mycosis Fungoides is highly radiosensitive and thus, radiotherapy is administered on all stages of the disease. For the early stages, radiotherapy can be curative and for the later stages, it serves as part of palliative care.[ix] On the other hand, late stages of mycosis fungoides are commonly treated with biologic response-modifying agents.[x] Several of these have already been approved by the Food and Drug Administration for the treatment of cutaneous T-cell lymphoma, namely: vorinostat, denileukindifitox, romidepsin, brentuximab and mogamulizumab; all of which may be used after at least one failed systemic therapy.[xi] Lastly, chemotherapy may be considered depending on the patient's tolerance of adverse effects and risk of infection.

For prognosis, the serum lactate dehydrogenase may be requested as there is a significant correlation between a high LDH level with advanced stages of mycosis fungoides. In a retrospective study conducted by the department of dermatology at King Saud University, 100% of their patients with advanced stage had high LDH.[xii] Thus, it is recommended to request this marker as an independent prognostic factor.

Histopathology of Cutaneous T-Cell Lymphoma may appear non-specific on routine H&E staining. Immunohistochemistry remains the gold standard for diagnosing this condition. The histopathologic and immunohistochemistry findings combined with the clinical presentation of the patient will confirm the diagnosis of Mycosis Fungoides.

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