Mycosis Fungoides Presentation in Emergency

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Abstract: We present the case of a young lady who presented to the department of emergency medicine (DEM) for evaluation of painful breast swelling and skin indurations involving 90% of the body surface. She stayed long in the DEM for 3 days and managed for breast abscess she was consulted to dermatology for evaluation of skin lesions and preliminary diagnosed as rare skin T cell lymphoma. Final diagnosis based on clinical and histopathological was Mycosis Fungoids (MF).This case reveals that prompt referral from the DEM to the concerned speciality even for the rare type of diseases like MF can facilitate diagnosis and management and overall positive impact on disease outlook. Our patient was finally admitted under oncology unit and managed appropriately.

Keywords: Mycosis Fungoids, Cutaneous lymphoma, Tcell lymphoma, Breast swelling.

INTRODUCTION

MF is one of the adult types T cell lymphomas and is characterized by the localization of neoplastic T lymphocytes to the skin. These disorders present as a mixture of cutaneous manifestations with the abnormal proliferation of peripheral T cells. This condition must be distinguished from other types of cutaneous T cell lymphomas such as the Sezary syndrome, CD30+ T-cell lymphoproliferative disorders of the skin, Subcutaneous panniculitis-like T-cell lymphoma and others. Following case report, despite the rarity of condition, reflects that holistic approach in evaluating patient and prompt referral to respective speciality by DEM can play a important role in the management of the patient.

CASE REPORT

A 26 year old single female presented to the emergency department (ED) of King Khalid University Hospital, King Saud University, Riyadh KSA, complaining of painful swelling of her left breast and adjacent chest wall for few months reason for her presentation was increased frequency of pain for the week. She also reported swelling of the forehead and diffusely distributed rashes over her body for the same duration. She also gave history of fatigue, generalized body aches and joint pain. She reported regular menses and denied any anorexia, weight loss or accompanying fever. Her past medical history was unremarkable.

EXAMINATION

On the left side breast and surrounding soft tissues were swollen measuring 10 x 10 cm with reddened, indurated skin and a purulent discharge. Another lesion of the same morphology was on her forehead; and this lesion measured 5 cm x 3 cm. In addition to these lesions, there were scattered, patchy, areas of indurated skin involving approximately 90% of the body surface area (Fig. **1**). Enlarged lymph nodes of the neck were noted bilaterally on both cervical chains; but no palpable lymph nodes were noted elsewhere. Her pulmonary, cardiovascular and neurological examinations were normal, whereas abdominal exam revealed an enlarged and palpable liver with a 16 cm span. The spleen was impalpable and no ascites.

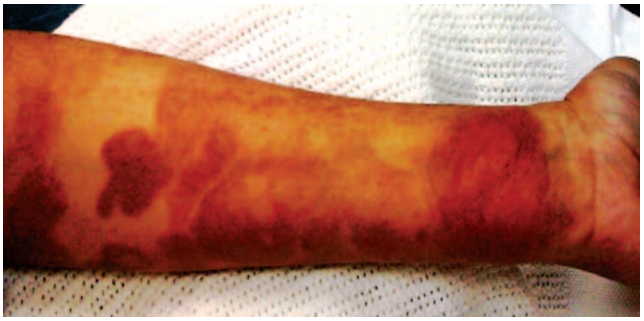

Fig. (1). Forearm with heterogeneous skin patches, plaques and erythrodermic lesions with brown pigmentation (poikiloderma).

In the DEM her workup was initiated. Samples of the purulent drainage from the chest lesion were sent for gram staining, culture and sensitivities. Intravenous ceftriaxone was administered empirically treat breast abcess. Laboratory testing demonstrated the following: WBC 10.8 thousand comprising 81% lymphocytes, Hgb 11.8 gm/l, platelets 168,000/L, urea 3.6 mmol/L, creatinine 47 micromol/L, Na 138 mmol/L, K 4.0 mmol/L, Cl 104 mmol/L, total bilirubin 4.1 micromol/L, total protein 71.6 g/L, albumin 35 gm/L, alanine aminotransferase 430 u/L, aspartate aminotransferase 33 u/L, gamma-glutamyltransferase 45 u/L, alkaline phosphatase 97 u/L, Calcium 2.03 mmol/L, lactate dehydrogenase 41.5 u/L.

While in the DEM due to her features the possibility of occult underlying condition was suspected hence, the patient was referred to the dermatology service and after review a preliminary diagnosis of T cell lymphoma versus non-

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Hodgkin's lymphoma was made. The patient was admitted under dermatology for evaluation. She underwent radiological and histopathological evaluation. Ultrasound and computerized axial tomography (CAT) scan revealed enlarged cervical, axillary and inguinal lymph nodes; multiple thyroid and lung nodules, and thickened skin of the left lateral thoracic wall due to skin infiltration (Figs. **2-8**). Her liver was enlarged at 18 cm and multiple small nodules were noted. Her skin biopsy showed perivascular, atypical mononuclear infiltrates into dermis forming aggregates. The atypical mononuclear cells were $CD4^{+ve}$ and $CD8^{-ve}$, a large number of cells were $CD\ 30^{+ve}$ while $CD68^{+ve}$ cells were present in intervening dermal histiocytes. These findings were confirmatory for T cell lymphoma/MF. Histopathology of biopsied lymph node demonstrated large T cells ($CD30^{+ve}$) consistent with blastic transformation of T cell lymphoma. A bone marrow biopsy showed no involvement.

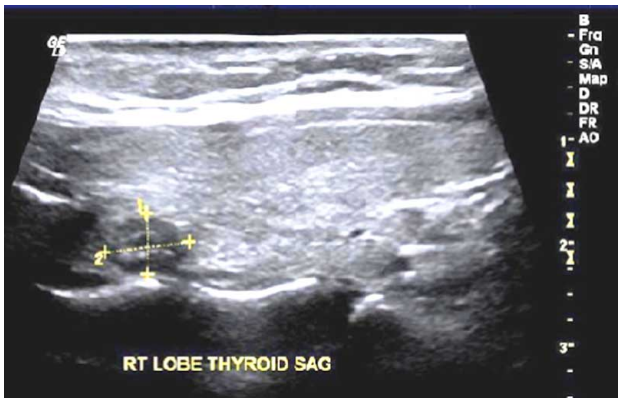

Fig. (2). Thyroid ultrasound showing well defined hypoechoic lymph nodes posterior to the right lobe of the thyroid gland.

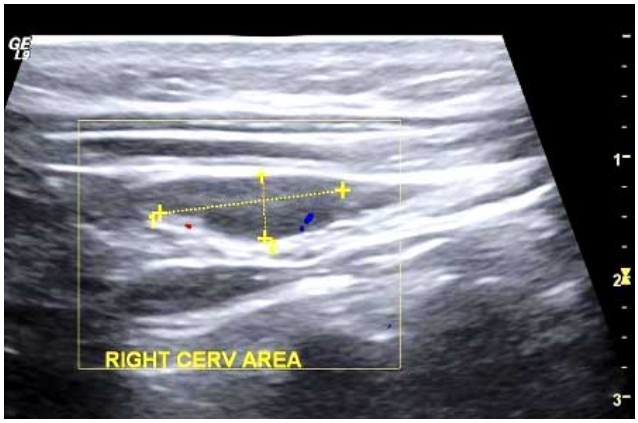

Fig. (3). Ultrasound of the neck showing an oval shaped hypoechoic cervical lymph node.

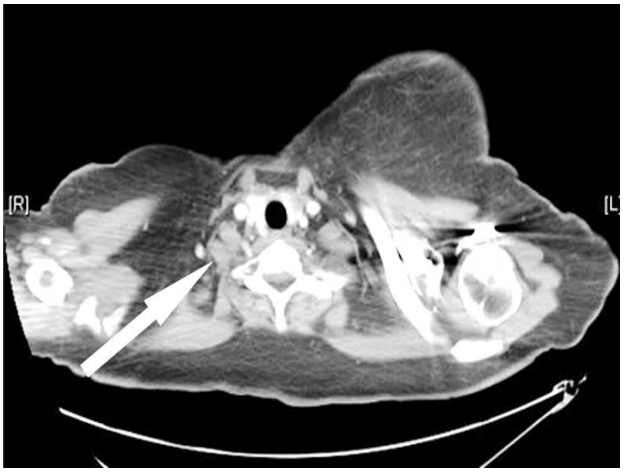

Fig. (4). CT image of the neck demonstrating large cervical lymph nodes on the right (arrow).

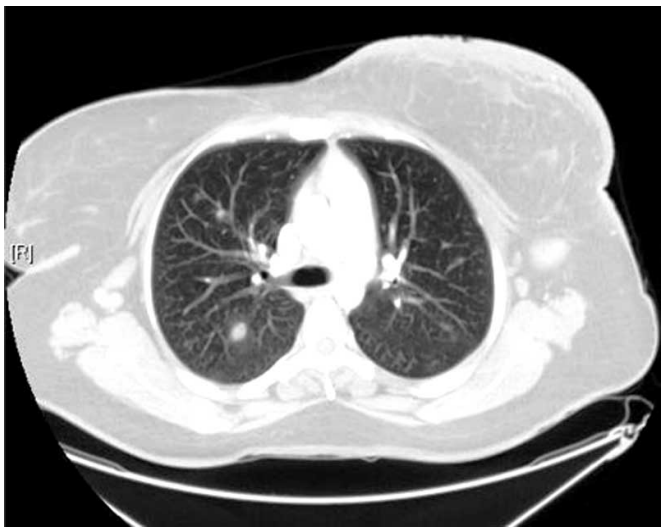

Fig. (5). CT axial image 1 of chest showing at level of arch of aorta multiple well defined lymph nodes in right lung of variable sizes.

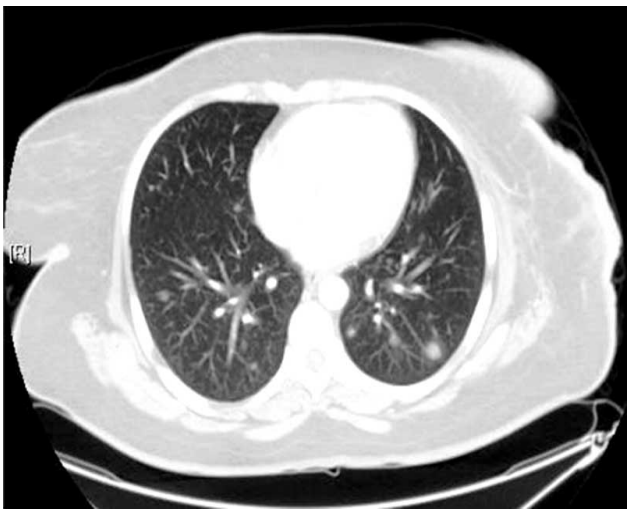

Fig. (6). CT axial image of chest showing multiple well defined and variably sized lymph nodes in both lungs at the level of the heart.

The patient was taken over by the Oncology unit and received chemotherapy in combination of Cyclophosphamide, Rituximab, Doxorubicin and Vincristine.

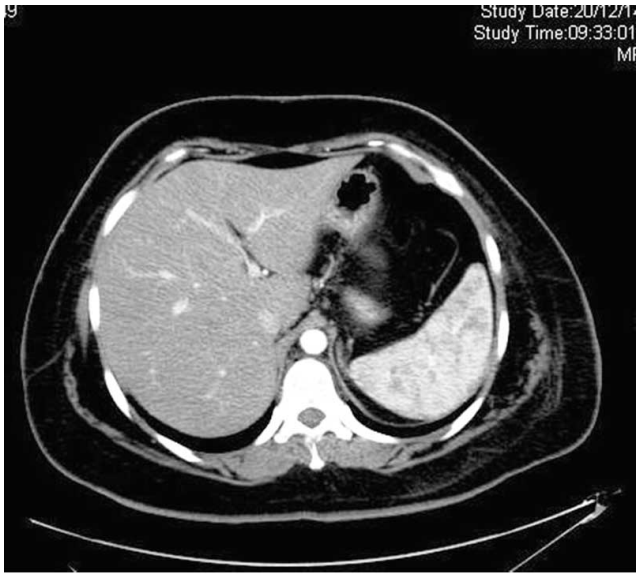

Fig. (7). CT axial image of the liver at gastrohepatic level showing well defined and variably sized lymph nodes.

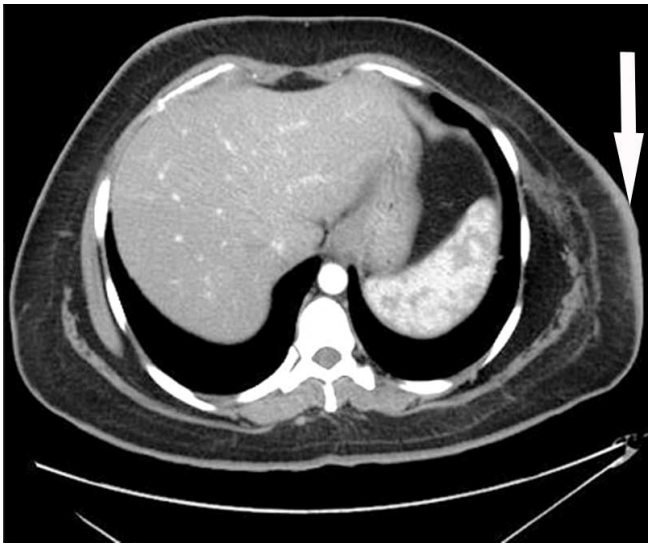

Fig. (8). CT axial image of the left lower chest showing left lateral chest wall thickening with thickening of the underlying muscles.

DISCUSSION

T cell lymphoma is an indolent non-Hodgkin lymphoma of T-cell origin and MF is a variant of T cell lymphoma with characteristic skin involvement. This disorder differs from other primary T-cell lymphomas by its own unique clinical features and histopathology [1,2].

MF has no definite etiology [3] but hypothetical genetic involvement [4,5], chemicals and environmental exposure [6] human T cell virus type 1 (HTLV1) [7] and chromosomal abnormalities in the form of deletions and translocations have been implicated [8,9]. MF is a rare disease reported incidence is six cases per year per million [10]. The peak age of presentation is 55-60 years. *Mycosis fungoids* has a male to female ratio of 2:1 and is more common in black than white patients [11].

Skin lesions are the most common presenting features which include generalized patches, plaques, and erythroderma like features. The promyelocytic type is a pre-diagnostic manifestation of MF which may prolong for decades until rapid progression to advanced disease. In the promyelocytic phase skin lesions are often misdiagnosed as psoriasis and non specific dermatitis due its resemblance to these conditions. The rate of misdiagnosis is very common at this stage [12-14]. Another uncommon feature is the mottled skin pigmentation known as poikiloderma [15]. The skin lesions are typically multiple and often more than 5 centimeters in size. These lesions tend to increase in size with disease progression [16].

Extradermal manifestation can involve any part of the body but the organs commonly involved are lymph nodes, lungs, liver, spleen peripheral blood and bone marrow [17-19].

Histopathologic hallmarks include epidermotropism or localization of abnormal T lymphocytes within the epidermis involving adhesion molecules soluble intercellular molecule 1 and 3 (sICAM1 and sICAM3). Aberrant cytokine production of helper T cells type 2 and low production of helper T cell type 1 cytokines are pathognomonic. This results in an impaired T cell response to mitogen which eventually leads to atypical progression of T cells [20-22].

The standard staging system for MF is based upon an evaluation of the skin (T), lymph nodes (N), visceral involvement (M), and blood (B). Therefore, the diagnostic strategy should include direct examination of the skin lesions followed by biopsy, complete blood count, blood chemistry, chest radiograph and computed tomography with or without positron emission tomography (PET). Molecular and immunohistopathologic studies are necessary to confirm the diagnosis in a patient with suspected skin lesions. The diagnostic criteria for MF is demonstrated in Table **1** [23]. The prognosis of patients with MF is variable. In those with extensive skin lesions and extradermal involvement the prognosis is poor. Treatment of MF depends upon the staging and includes localized topical therapy for early stages. The standard treatment of early lesions includes psoralens in association with UV-A irradiation (PUVA - psoralens and UVA), interferon α-2a, retinoids, or a combination of these three modalities. Many new treatment protocols have been introduced for treatment of early MF including, among others, photodynamic therapy with 5-aminolaevulinic acid, new retinoids such as bexarotene. For advanced disease systemic retinoids, interferon, vorinostat, Denileukin, methotrexate, chlorambucil, and etoposide are also used in different combinations as per individual response. Bone marrow transplantation has also been used in certain cases. As a rule management of MF particularly in advance stage needs the specialized manage of a hematology-oncology service [24-26].

CONCLUSION

This case report demonstrates that the presentation of occult conditions in DEM is quite frequent, and in such encounters prompt and speciality focused consultations can facilitate early diagnosis and should be considered by DEM to play active role in improving health care system.

Table 1. Diagnostic Criteria of Mycosis Fungoids*

Criteria	Scoring
Clinical *Basic:* Persistent and/or progressive patches/thin plaques 1. Non-sun exposed location 2. Size/shape variation 3. Poikiloderma	2 points for basic criteria and two additional criteria 1 point for basic criteria and one additional criterion
Histopathological: *Basic:* Superficial lymphoid infiltrate Additional: 1. Epidermotropism without spongiosis 2. Lymphoid atypia	2 points for basic criteria and two additional criteria 1 point for basic criteria and one additional criterion
Molecular biology: Clonal T cell receptor (TCR) gene rearrangement	1 point for clonality
Immunopathologic: 1. <50 percent CD2+, CD3+, and/or CD5+ T-cells 2. <10 percent CD7+ T cells 3. Epidermal/dermal discordance of CD2, CD3, CD5, or CD7	1 point for one or more criteria

*A total of 4 points is required for the diagnosis of MF based on any combination of points from the clinical, histopathologic, molecular biological, and immunopathologic criteria. Adapted by ref. [23]: Pimpinelli, N, Olsen, EA, Santucci, M, *et al*., Defining early mycosis fungoides. J Am Acad Dermatol 2005; 53:1053.

CONFLICT OF INTEREST

None declared.

ACKNOWLEDGEMENT

None declared.

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