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Mycosis Fungoides: A Clinical Case Report & Review

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Abstract: Mycosis fungoides is the commonest type of cutaneous T-cell lymphoma. It is also called as Alibert-Bazin syndrome or granuloma fungoides. Mycosis Fungoides are an uncommon, heterogeneous group of non-Hodgkin lymphomas (NHLs) of T- and B-cell origin where the skin is the primary organ of involvement. Its clinical manifestation includes many clinical and histological forms; such as a patch, plaque, tumor nodules; erythrodermic and poikoilodermous stages which may differ with different stages. The very severe stage of Mycosis fungoides is extracutaneous where any organ may be involved. Only 20 cases of Bulla formation are reported in the literature so far, making it a very rare finding in mycosis fungoides. The majority of reported cases are in adult males. *Case presentation:* A 45-year-old male, a case of mycosis fungoides IIB, is described in this case report. He presented in an advanced stage of disease with multiple ulcers over the face, bilateral upper limbs, trunk, and back for 6 Months. *Conclusion:* mycosis fungoides is a very important clinical subtype of cutaneous T-cell lymphoma. Mycosis fungoides IIB represents a particularly aggressive form of mycosis fungoides. The progression of extracutaneous spread in our patient confirms the advanced stage of the disease. The patient was given topical glucocorticoids, which will show improvement. Still, further awareness of the disease among physicians and pathologists is needed.

Keywords: Mycosis Fungoides, Tumor Stage, Skin Nodule, Cutaneous T-Cell Lymphoma

1. Introduction

Mycosis Fungoides are a rare disease, from a heterogeneous group of non-Hodgkin lymphomas (NHLs) of T- and B-cell origin where the skin is the primary organ of involvement [1]. Mycosis fungoides is a cutaneous type of disease frequently found in adult males, children are occasionally affected [2, 3]. It has mushroom-like skin neoplastic lesions. It is a torpid type of cutaneous T-cell lymphoma that slowly evolves skin and ultimately leads to systemic involvement [4, 5]. Skin involvement begins with the presentation of dermatitis patches and plaques, and leads to nodules and systemic dissemination when left untreated. The later stage of the disease is more biologically active. The patch/plaque stage of the disease is the result of medium-sized malignant T-cells while the more advanced stage develops as a consequence of exclusively dermal involvement of non-epidermotropic malignant T-cells [2, 3]. The presence of small or medium-sized lymphocytes with a cerebroid nucleus is the classical cell presentation of mycosis fungoides. It can manifest in a variety of clinical and histological forms, but blistering is not a feature normally associated with the condition [6]. Indeed, of the many variants that have been reported in the literature, approximately 20 cases of the bullous variant have been reported so far [7].

2. Case Presentation

A 45 years old male patient was brought to the skin department of a tertiary care hospital with multiple ulcers over

his face, bilateral upper limbs, trunk, and back. He had been facing this health problem for the last six months. (Figure 1). Before, he was in his normal state of health. However, according to the patient, he developed a fever first that lasted for almost five days. The fever was undocumented, high grade, intermittent, and not associated with rigors and chills. No specific time of occurrence was noted by the patient during its course and sometimes relieved with antipyretics. It was not associated with cough, sore throat, ear pain, or burning micturition. According to the patient, he went to a nearby doctor and received some Intra-muscular injections for the fever on his left upper arm. After 1 week he noticed an erythematous, painless pea-sized swelling over the injection site, which progressively increased over a period of 1 month. After the passage of some time, the swelling ruptured with purulent discharge, leaving behind a non-healing painless ulcer, which increased progressively over 3 months. These swellings and ulcers increased in number to involve his left eyebrow, left cheek, and then the whole face, back, upper limbs, and over the chest in a similar course. These ulcers were associated with generalized body itch. Although the itch was mild to moderate in intensity but was persistent, and not specific with time. The patient is not known of any co-morbidity. He has no family history of itching, night sweats, lumps, and bumps. No history of erythroderma, electric shock-like sensations, nasal discharge, bleeding from any site, or chronic sun exposure. On Systemic Evaluation of Central Nervous System, no history of loss of consciousness, weakness, or fits was found. On respiration examination, no dyspnoea, wheeze, cough, sputum, hemoptysis, or chest pain was present. On GIT examination, no history of diarrhea, melena, hematemesis, hematochezia, nausea or vomiting, or painful/difficult deglutition was present. On examination of the cardiovascular system, no history of palpitation, edema, or Shortness of breath was found. On examination of the genitourinary, endocrine, and musculoskeletal system; no significant finding was found. All systems were normal. The patient had no co-existing disease, like diabetes, Hypertension, HEPATITIS B or C, TB contact, or any autoimmune disease. His surgical history was insignificant as well. On the evaluation of personal habits, his appetite, sleep, micturition, and bowel habits, all were normal. The patient is addicted to opium (afeem) and is a chain smoker as well. While asking about a history of blood transfusion, occupational hazards, travel, and drug allergy, no significant finding were observed. Family members of patients are all healthy and none had or has any similar skin problem. The patient has no pets. Throughout the physical examination, the patient was very comfortable and cooperative. He was vitally active, afebrile, with B.P 100/70 mm Hg (no postural drop), Pulse: 90 b/m (Regular), R/R: 20 breaths/min. Subvitally, no pallor, no jaundice, no clubbing, no Leuconychia, no Koilonychia, no Dupuytren contracture, no Palmer erythema, no cyanosis, no Pedal Edema, no enlarged lymph nodes, no raised JVP, no enlarged thyroid was found. On cutaneous examination, multiple ulcerated plaques were present over the Face, Upper limbs, Trunk, and Back. The largest ulcerated, Necrotic, indurated lesion with well-defined raised margins, having an erythematous base was on the left arm about 6*5 cm in diameter. The lesion had a hemorrhagic crust with purulent discharge oozing from its center (Figure 2, and Figure 3). It was nontenderous, with no temperature gradient, and non-adherent to underlying structures. Surrounding skin showed hypopigmented patches. The patient had multiple, discrete, well-circumscribed, hypopigmented patches with ill-defined borders present symmetrically over bilateral upper and lower limbs, trunk, and back, with no hair loss, sweating, and sensations (Figure 4). Some small skin color erythematous nodules were also appreciated over, the forehead, nose, and lower lips with overlying hemorrhagic crusting. Palms, soles, scalp, and mucosa were spared. On thorough examination of CNS, showed intact HMF, cranial nerves, gait, speech, and motor system intact with normal bulk, tone, power, reflexes, and planters. Sensory and coordination were intact too. The results of other body system examinations were otherwise unremarkable. On microscopic analysis, the histology of skin biopsy showed elongated rete Ridges, epidermotropism and Pautrier Microabscesses and Inflammatory Infiltrate on 10X (Figure 5), while on 40X Atypical Lymphocytes can be visualized from a sample of the left arm (Figure 6, and Figure 7). While from the right arm sample Pautrier Micro abscess lymphoid Infiltrate can be seen (Figure 8). On immunohistochemistry, CD3 was positive, with an increased CD4 to CD8 ratio (Figures 9, 10). Ki67 was also high, while CD20 and CD30 were negative. Two samples were taken from the patient's lesions, sample 1 showed the Mycosis fungoides nodule stage, and sample 2 showed the Mycosis fungoides plaque stage. laboratory investigations showed Hemoglobin 12.1 gm/dl, Rbc count 4.37* 10^6 mil/ ul, HCT 38%, MCV 86.1 fl, TLC 8.0* 10^9 /L, Neutrophils 54%, Lymphocytes 35%, Eosinophils 5%, Monocytes 6%, PLT 239*10^9/L, CRP 1.4mg/dL, ESR 13 mm/hr, on Peripheral Film No Atypical Lymphocytes Seen. On biochemical analysis, liver function test Total Bilirubin 0.28mg/dl, SGPT 12 U/L, SGOT 30 U/L, GGT 33U/L, Alkaline Phosphate 113 U/L, while total protein, serum albumin, serum globulin, A/G ratio all are in the normal range. In renal profile BUN 9 mg/dl, creatinine 0.8 mg/dl, sodium 137 mEq/L, potassium 3.7 mEq/L, chloride 99 mEq/L Calcium 9.8 mg/dl, Magnesium 2.0 mg/dl, Phosphorus 4.0 mg/dl, Random Blood Sugar 103 mg/dl. His PT 11.5 sec, APTT 23.5 sec, INR 1.1, and His Urine analysis and virology assessment were also insignificant. No significant finding was observed in radiology of the chest, abdomen, and pelvis. slit skin smear for Mycobacterium leprae was negative. The tissue culture of AcidFast Bacilli Smear, Fungal Smear, and culture were negative. CT scans chest, abdomen, and pelvis were unremarkable. PET scan study showed an abnormal baseline with multiple FDG non avid subcutaneous nodules scattered all over the body. A hypermetabolic subcutaneous nodule can be seen at the posterior chest wall at the level of the D6 vertebra. The rest of the axial and appendicular skeleton showed physiological FDG distribution.

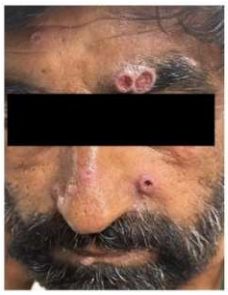

Figure 1. *Multiple ulcers over his face.*

Figure 2. *The lesion had a hemorrhagic crust with purulent discharge oozing from its center.*

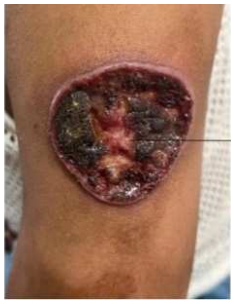

Figure 3. *Closer exposure of figure 2.*

Figure 4. *Multiple, discrete, well-circumscribed, hypopigmented patches with ill-defined borders.*

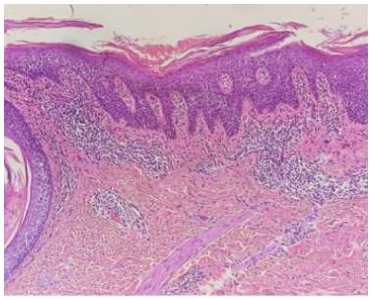

Figure 5. *Microscopic analysis, the histology of skin biopsy showed elongated rete Ridges, epidermotropism and Pautrier Micro abscesses and Inflammatory Infiltrate on 10X.*

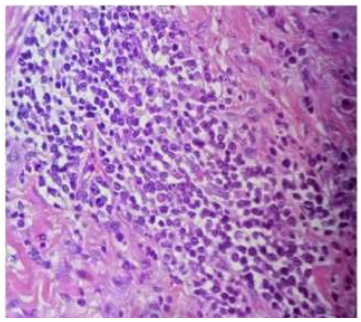

Figure 6. *Atypical Lymphocytes can be visualized from a sample of the left arm on 40X.*

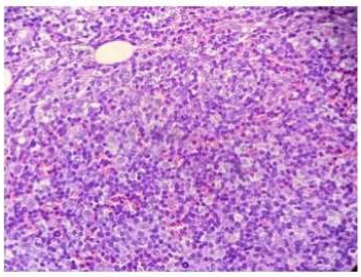

Figure 7. *Atypical Lymphocytes can be visualized from a sample of the left arm on 40X.*

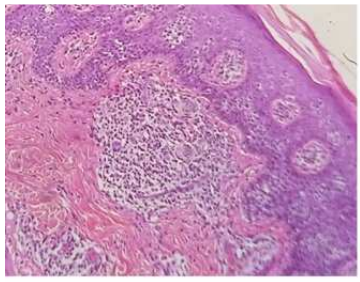

Figure 8. *Pautrier Micro abscess lymphoid Infiltrate on the right arm sample.*

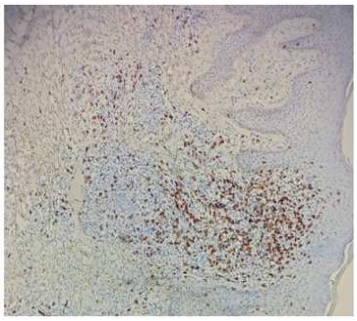

Figure 9. *Histology of CD4.*

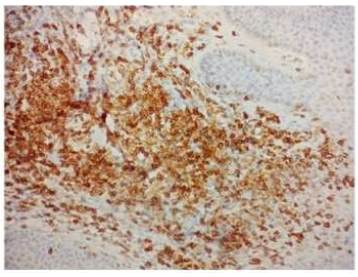

Figure 10. *Histology of CD8.*

On the basis of all clinical presentations, labs reports, and investigations, the diagnosis of Mycosis Fungoides (STAGE IIB), T3 tumors, lesions>1cm with deep infiltration. NO-2, MO No visceral metastases is established.

3. Management & Treatment

The Treatment Guidelines for mycosis fungoides are as follows; skin-directed therapy with PUVA (photochemotherapy) +IFN-a (interferons,), PUVA+BEX, and then TSEBT, topical steroids, and short courses of UVB can be given in the winter months [8]. A drug known as topical nitrogen mustard (mechlorethamine), oral retinoid therapy, and/or photopheresis are known methods of management of Mycosis Fungoides [9].

4. Discussion

Mycosis fungoides is the common T-cell lymphoproliferative disorder that arises primarily in the skin, it may lead to generalized lymphoma [10]. A viral etiology has been suspected because of certain similarities to HTLV-1-associated adult T-cell leukemia-lymphoma but has not been proved as yet [11, 12]. The frequency of the cases occurs in adult males but adolescents can also be affected [13, 14]. It has various patterns of presentation and progression. Mycosis fungoides is divided into three stages; premycotic, mycotic, and tumor stages [15, 16]. In the premycotic stage, involvement is less severe, and the presentation of skin is erythematous, scaly, and pruritic [17]. The microscopic appearance may be non-diagnostic, but the small number of frankly atypical lymphoid cells can be visualized [18]. These cells may evade the dermis to form Pautrier's micro abscess cells to expand the dermis. The characteristic presentation of mycosis fungoides is a lymphocyte with a cerebroid nucleus. The term cerebroid nucleus refers to the highly irregular contour of the thick nuclear membrane, which results in an appearance somewhat reminiscent of brain convolutions [19]. The patient in our case is presented with a tumor stage with an extracutaneous spread of the disease. However, there were no atypical cells in the peripheral blood, ruling out the possibility of Sezary Syndrome [20]. In mycosis fungoides cases of extracutaneous spread, lymph nodes, liver, spleen, and lungs are often involved, in addition to the peripheral blood [21, 22]. Transformation to large highly atypical lymphocytes with the development of an aggressive biological course [23, 24]. Although mycosis fungoides is a malignant lymphoma of low-grade malignancy but has prolonged survival and good prognosis, with early diagnosis, and absence of cutaneous spread [25]. Approximately 20 cases have been reported in the literature with bulla formation [26-29]. Mycosis fungoides bullosa is largely restricted to older patients without predominance of gender. Predilection sites are the trunk and limbs. Vesicles and blisters usually arise in typical plaques and tumors but also in normal-appearing skin [30, 31]. The most common causes of acquired bulla formation on inflamed skin areas are acute contact dermatitis as well as infections with Staphylococci, or viruses of the herpes group [32]. An association with concomitant bullous pemphigoid or previous treatment with psoralen UVA photoche- monotherapy has been reported [33]. Bowman et al. proposed the following criteria for the diagnosis of mycosis fungoides. 1. Presence of apparent vesiculobullous lesions; 2. Typical histologic features of mycosis fungoides (atypical lymphoid cells, epidermotropism, Pautrier's microabscesses) with intra-epidermal or subepidermal blisters [34]; 3. Negative immunofluorescence ruling out concomitant autoimmune bullous diseases; and 4. Negative evaluation for other possible causes of vesiculobullous lesions (for example, medications, bacterial or viral infection, porphyria, phototherapy) [35]. The pathological mechanism underlying blister formation has not been clarified. The confluence of Pautrier's microabscesses in mycosis fungoides lesions may lead to intra-epidermal bulla formation [36]. Alternatively, the proliferation of neoplastic lymphocytes may result in a loss of coherence between basal keratinocytes and basal lamina [37] or the cohesion of keratinocytes may be affected by the release of lymphokines by atypical lymphocytes [38]. A severe form of Mycosis fungoides representing an especially aggressive presentation can lead to a poor prognosis. Approximately 50% of patients die within 1 year after the appearance of the blistering of the lymphoma plaques [39-41].

5. Conclusion

Mycosis is rare and very difficult to treat, yet many patients experience long remission phases of the disease [42]. Quality of life is a major objective for mycosis fungoides [43], in addition to curing, and extending periods of remission or disease control. Minimizing treatments and toxicities are two central concerns in clinical care [44]. Treatment, therefore, is considered palliative for most patients, though major symptomatic improvement is regularly achieved [45, 46].

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Author Contributions

All authors contributed to the management of the patient, writing of the manuscript, and reviewing the literature. All authors read and approved the final manuscript.

Competing Interests

The authors have no competing interests.

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