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CLINICAL AND EPIDEMIOLOGICAL STUDY OF MYCOSIS FUNGOIDES IN A SAMPLE OF IRAQI PATIENTS

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ABSTRACT

Background: Mycosis fungoides (MF), the most common variant of cutaneous T-cell lymphoma, is a rare malignancy characterized by the clonal proliferation of skin-resident T-cells. It exhibits diverse clinical presentations and stages, often mimicking benign dermatological conditions. This study aimed to investigate the clinical and epidemiological characteristics of mycosis fungoides in a sample of Iraqi patients. **Methods:** A cross-sectional study was conducted on 48 patients diagnosed with mycosis fungoides in Babylon, Iraq, from December 2023 to November 2024. Comprehensive dermatological examinations, skin biopsies, and immunohistochemical analyses were performed to confirm diagnoses. Data on demographic characteristics, clinical presentations, disease stages, and lesion morphologies were collected and analyzed. **Results:** The mean age of diagnosis was 45.3 years, with a peak incidence between 41–55 years. A female predominance was observed (male-to-female ratio of 1:1.5). Patch-stage lesions were the most common presentation (47.9%), followed by combined patch and plaque involvement (39.6%). Advanced tumoral (8.3%) and erythrodermic (4.2%) stages were less frequent. Notably, 66.7% of patients exhibited >10% body surface area involvement, while lymph node and visceral involvement were present in 14.6% and 6.3% of cases, respectively. Eczematous lesions were the most frequent morphological presentation (79.2%), followed by psoriasiform lesions (52.1%) and large plaque parapsoriasis (39.6%). **Conclusion:** This study highlights unique epidemiological patterns of mycosis fungoides in Iraq, including a younger age at diagnosis and a female predominance compared to global trends. The high proportion of advanced-stage disease underscores the need for improved awareness, early diagnosis, and timely intervention to mitigate disease progression. Further research is warranted to explore genetic, environmental, and healthcare system factors contributing to these findings.

INTRODUCTION

Mycosis fungoides (MF), the primary variant of cutaneous T cell lymphoma (CTCL), is characterized by the clonal proliferation of skin-resident mature T cells, mostly CD4 positive, with a strong propensity for epidermal infiltration. The primary demography of diagnosed patients is those aged 50 years or older; however, this lymphoma may also affect younger individuals. Three to five patients with classic mycosis fungoides (MF), as originally defined by Jean Alibert (1768-1837) and Ernest Bazin (1807-1878), typically manifest in the early stage of the disease, characterized by persistent, progressive erythematous patches or thin plaques of varying size and shape, displaying a scaly atrophic surface, situated in sun-protected regions. Patients may then progress to the advanced stage of the illness, often presenting as tumors.[1]

Mycosis fungoides presents in many stages with characteristic lesions. These stages signify disease progression, associated with worse outcomes and extracutaneous dissemination.[2] The patch stage of MF is marked by erythematous or brownish, scaly patches that may resemble eczematous lesions, mostly appearing on the non-exposed areas of a patient's body.[3] As MF progresses to the plaque stage, it presents as plaques with significant infiltration, distinguished by well-defined raised boundaries, and may often resemble common dermatological disorders. During the tumor stage, the advanced phase of MF, substantial erythematous nodules develop, resembling tumors seen in other cutaneous lymphomas, and are associated with an increased risk of lymph node or visceral dissemination.[4]

This study was conducted aiming to investigate the epidemiological and clinical features of mycosis fungoides in a sample of Iraqi patients.

PATIENTS AND METHODS

This is a cross sectional study that included 48 patients with mycosis fungoides and was conducted in Babylon, Iraq during the period from 10/12/2023 to 7/11/2024.

Informed agreement was acquired from each participant, followed by a comprehensive dermatological history and examination for each case. Skin biopsy and immunohistochemistry investigation were carried out in all patients. Incisional biopsy was done for all patients from the most representative skin lesions at various places. Lymph node biopsies were done for four patients who presented with palpable lymph glands.

The diagnosis of MF was based on the histological criteria proposed by Smoller et al., these include the following[5]

1. Lymphocyte atypia characterised by nuclear enlargement, hyperchromasia, and irregular nuclear outlines or cerebriform morphological characteristics.
2. Lymphocyte epitheliotropism, including the development of Pautrier microabscesses.
3. Arrangement of morphologically abnormal lymphocytes along the epidermal aspect of the dermo-epidermal interface.
4. Expansion of the papillary dermis characterised by thickened collagen fibres and a dense infiltration of morphologically abnormal lymphocytes.

A conclusive diagnosis of MF requires the presence of at least three of the four morphological criteria for MF.

RESULTS

The mean age at diagnosis was 45.3 ± 11.2 years. Table (1) shows that the majority of patients (50.0%) fall within the 41–55 age group, followed by 18.8% in the 30–40 age range and 16.7% under 25 years, while only 14.6% are aged 55–65 years. This indicates that middle-aged adults are most commonly affected. Regarding sex distribution, females constitute a larger proportion, accounting for 60.4% of cases compared to 39.6% males, reflecting a female predominance in this sample.

Table 1: Basic characteristics of patients with mycosis fungoides.

Parameter	Frequency	Percentage
Age group (years)		
<25	8	16.7
30 – 40	9	18.8
41 – 55	24	50.0
55 – 65	7	14.6
Sex		
Male	19	39.6
Female	29	60.4

Table (2) shows that patch-stage lesions as the most common clinical presentation (47.9%), followed by combined patch and plaque involvement (39.6%), while advanced tumoral (8.3%) and erythrodermic (4.2%) stages are less frequent. Two-thirds of patients (66.7%) have >10% body surface area affected, indicating significant skin involvement. Lymph node involvement occurs in 14.6% of cases, a critical prognostic marker, while visceral involvement is rare (6.3%), reflecting the disease's primarily cutaneous nature.

Table 2: Disease characteristics of patients with mycosis fungoides.

Parameter	Frequency	Percentage
Clinical phase		
Patch	23	47.9
Patch and Plaque	19	39.6
Tumor (nodules)	4	8.3
Erythrodermic	2	4.2
Body surface area		
<10%	16	33.3
>10%	32	66.7
Lymph node involvement		
Yes	7	14.6
No	41	85.4
Visceral involvement		
Yes	3	6.3
No	45	93.8

Table (3) highlights the distribution of skin lesion morphologies in mycosis fungoides at diagnosis. Eczematous lesions were the most common, present in 79.2% of cases (38 out of 48), followed by psoriasiform

lesions in 52.1% (25 cases) and large plaque parapsoriasis in 39.6% (19 cases). Lymphomatoid papulosis was observed in 29.2% (14 cases). Poikiloderma was relatively rare, occurring in only 8.3% of cases (4 out of 48). Hypopigmented patches, erythroderma, and nodules were the least frequent features, each identified in just 4.2% of cases (2 out of 48).

Table 3: Morphology of skin lesion of mycosis fungoides at diagnosis.

Parameter	Frequency	Percentage
Poikiloderma		
Yes	4	8.3
No	44	91.7
Psoriasiform lesion		
Yes	25	52.1
No	23	47.9
Eczematous lesion		
Yes	38	79.2
No	10	20.8
Large plaque parapsoriasis		
Yes	19	39.6
No	29	60.4
Hypopigmented patches		
Yes	2	4.2
No	46	95.8
Erythroderma		
Yes	2	4.2
No	46	95.8
Nodules (tumor)		
Yes	2	4.2
No	46	95.8
Lymphomatoid papulosis		
Yes	14	29.2
No	34	70.8

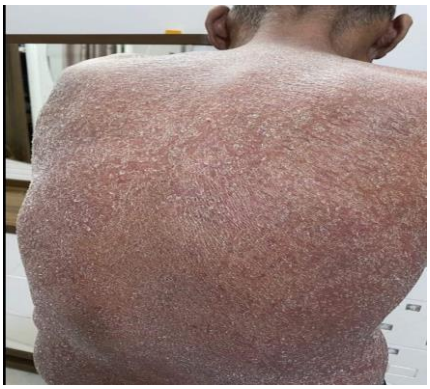

Figure 1: 63 years old male with stage 3 erythrodermic Mycosis Fungoides for 5 years duration.

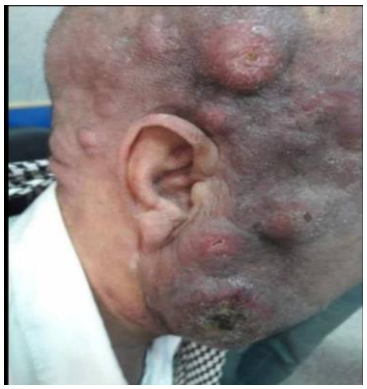

Figure 2: 48 years old male with stage 4 mycosis Fungoides for 7 years duration.

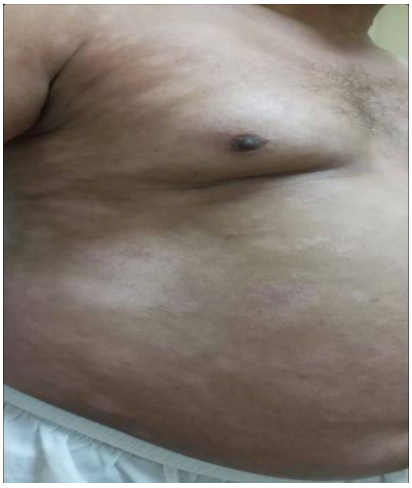

Figure 3: 47 years old male with hypopigmented mycosis Fungoides.

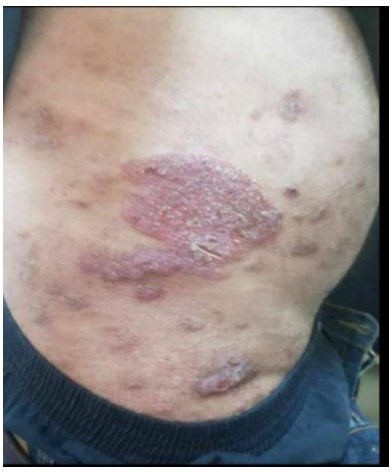

Figure 4: 38 years old male with stage IIB mycosis Fungoides for 10 years duration.

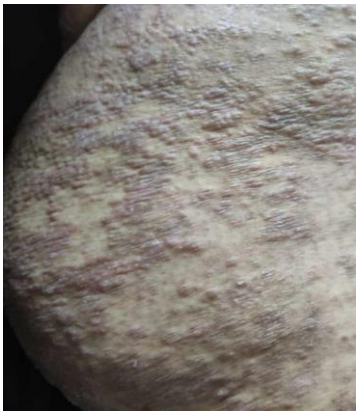

Figure 5: 45 years old female with follicular mucinosis mycosis Fungoides.

DISCUSSION

The present study found that the diagnosis of mycosis fungoides peaked at 41 – 55 years. Most studies report a median age of 55–60 years at diagnosis, with incidence peaking in late adulthood or elderly populations. For example, SEER registry data (US) showed a median age of 58 years, with 25% diagnosed at ≥69 years.[6] In Saudi Arabia, a study by Alghubaywi et al. reported a mean age of 44 years.[7] On the other hand, an Indian study by Shana et al. reported that among 24 cases, 12 (50%) were <50 years at time of diagnosis.[8]

This study revealed a female predominance in mycosis fungoides cases, with a male-to-female ratio of 1: 1.5. This finding is in agreement with the results reported by **Alghubaywi et al**., who observed a male-to-female ratio of 1:1.3, indicating a female predominance.[8] However, these findings contrast with most literature, which typically reports male predominance in mycosis fungoides. For example, SEER data (2004–2008) showed incidence rates of 5.6 per million males vs. 3.6 per million females.[9]

The present study found that patch presentation was the most common, followed by plaques, nodules, and erythrodermic stage. This is in concordance with the study by **Alghubaywi et al.** who reported that patch was the most common presentation (71.2%), followed by plaque (42.5%) and nodule (1.4%).[7]

The present study revealed that 66.7% of participants exhibited greater than 10% skin involvement, 14.6% presented with lymph node involvement, and 6.3% demonstrated visceral involvement, all indicative of stage II or higher disease. This is in concordance with an Iraqi study by **Al-Hammami et al.** who reported that 56% of cases were in stage II and above.[10] On the other hand, global epidemiological data typically indicate early-stage mycosis fungoides (MF) as the predominant presentation, with stages IA, IB, and IIA being most frequently observed. For instance, an analysis of US cancer registry data reported a preponderance of diagnoses at stage IA.[6] The discrepancy between the current findings and global trends suggests a potential trend towards delayed diagnosis of MF within the Iraqi patient population.

Regarding clinical presentation, eczematous lesions were the most common presentation, followed by psoriasiform lesions and large plaque parapsoriasis. Poikiloderma, hypopigmented patches, erythroderma, and nodules were the least frequent features. The study by **Budair et al.** regarding clinical presentations, 35.7% patients had patches, 39.2% had plaques, 7.14% presented with nodules, 3.5% had erythroderma, 3.5% had poikiloderma, 3.5% had follicular eruptions, and 7.14% had macules.[11]

CONCLUSION

This study highlights unique epidemiological patterns of mycosis fungoides in Iraq, including a younger age at diagnosis and a female predominance compared to global trends. The high proportion of advanced-stage disease underscores the need for improved awareness, early diagnosis, and timely intervention to mitigate disease progression. Further research is warranted to explore

genetic, environmental, and healthcare system factors contributing to these findings.

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