

Dermoscopy of Mycosis Fungoides and Mycosis Fungoides like Chronic Dermatitis

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ABSTRACT:

BACKGROUND:

Mycosis fungoides is the most common form of cutaneous lymphoma. Many benign diseases can mimic it clinically or histologically and from which should be differentiated.

OBJECTIVE:

To evaluate M.F. dermoscopically and how it can be differentiated from the dermoscopic features of C.D.

PATIENTS AND METHODS:

The study is a cross sectional study performed at the Dermatology center - Medical city of Baghdad from (August 2021- September 2022). Twenty-five patients with mycosis fungoides and equal numbers of chronic dermatitis were evaluated dermoscopically. Variables studied includes: 1. Vascular patterns, 2. Scales 3. Background color, and 4. Pigments patterns, and 5. Other features.

RESULT:

The most frequent vascular pattern in MF were linear vessels (84%) followed by dotted vessel (64%), spermatozoa like blood vessels which is the most striking vascular pattern present in (32%) of cases of MF, while in C.D., the most frequent vascular pattern is dotted vessels in (100%) of cases with different distribution pattern.

White scales are present in 64% of patients with MF while yellow scales are present in all cases of C.D. Pigment pattern are present in (44%) of cases of MF, while only 28% of C.D. cases are present with pigment pattern.

Light red homogenous background is present in (76%) of cases of MF, while in C.D pink homogenous and dull red background have an equal incidence of (44%)

CONCLUSION:

Presence of dotted vessels with Yellow scale is suggestive for C.D.

Short linear vessels, spermatozoa like blood vessels and white scale are suggestive for M.F.

KEYWORDS: Mycosis fungoides, chronic dermatitis, Dermoscopy, Atopic dermatitis, chronic actinic dermatitis.

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INTRODUCTION:

A variety of T-cell neoplasms can involve the skin, either primarily or secondarily. The term "primary cutaneous T-cell lymphoma" refers to CTCLs that is present in the skin with no evidence of extra cutaneous disease at the time of diagnosis, with Mycosis fungoides and sezary syndrome being the most prominent representatives.⁽¹⁾

MF is the most common type of CTCL representing almost 80% of all cutaneous T-cell lymphoma cases. It has an incidence of about 0.5 per 100 000 inhabitants per year⁽²⁾. It affects older adults (median age at diagnosis: 55–60 years), but it may occur in children and adolescents as well. Men are affected more often than women, with a male-to-female ratio of 1.6–2.0: 1, blacks have twice the incidence of whites.

It generally runs an indolent course, where it may persist in early stages as patches or plaques for years, before progressing to develop tumour stage or erythroderma in 10% of cases.^(1,2)

Dermoscopically, fine short linear vessels in combination with orange-yellowish patchy areas represent the most frequent morphologic pattern in MF. A peculiar vascular pattern resembling spermatozoa might represent a specific finding of the disease. Additional dermoscopic features are represented by fine white scaling, dotted vessels and purpuric dots. None of the above structures were observed in Chronic dermatitis, which represents the most common differential diagnosis.⁽³⁾

Histologically, it presents with superficial band like or lichenoid infiltrates, mainly consisting of

lymphocytes and histiocytes, epidermotropism, and Pautrier microabscesses⁽⁴⁾. With progression to tumour stage, the dermal infiltrates become more diffuse and epidermotropism may be lost.

Transformation to a diffuse large-cell lymphoma may occur and is often associated with a poor prognosis.⁽¹⁾

Many chronic diseases can be confused with MF clinically or histologically and should be differentiated from the latter as hair dyes dermatitis, chronic actinic dermatitis, or atopic dermatitis.

AIM OF THE STUDY:

Is to evaluate the dermoscopic features of mycosis fungoides and how it can be differentiated from the dermoscopic features of chronic dermatitis that can mimic mycosis fungoides.

PATIENTS AND METHODS

This study is a single center, cross sectional comparative study held at the dermatology center-medical city of Baghdad- Iraq between August 2021 and September 2022. All patients attending the dermatology center with skin lesions suspicious of mycosis fungoides were included in the study. Thorough history was taken from each patient including (age, duration of the disease, associated symptoms, and any drug use). Careful examination for each lesion (a mean of 50 lesions for each patients) and dermoscopic examination was done for each lesion including centre and periphery of the lesion. All pictures were taken by Samsung A52 mobile with 64-megapixel camera and then transferred to the personal laptop for advanced security. Dermoscopic images capture was performed using the manual dermoscope (DL4 Dermlite) with x¹⁰ magnification power connected to the phone by smart phone adapter. Alcohol gel was used to decrease glare with both polarized and non-polarized mode were used.

Diagnosis of patients with M.F. and C.D. were done according to the clinical, histo pathological, and immunohistochemical criteria for diagnosis of each disease.

RESULTS:

Fourteen males (56%) and 11 females (44%) with confirmed diagnosis of MF were enrolled

with male to female ratio (1.3/1), their age range from 20_71 years (at time of disease onset) with a mean age of (49.2±11.9 years) with 32% of cases presented between 40-49 years.

Duration of the illness range from (0.25 - 11years) with the mean of (4.7±3.8y) with most cases presents with less than 5 years' duration (56%).

According the MF variants presented, the most common one was the classical type (n=15) which account for (60%) followed by poikilodermatous MF (7) (28%) then hyper pigmented MF (2 cases) (8%) with one (4%) case was hypo pigmented subtype.

Twenty-five patients with C.D. were included in the study, 20 males and 5 females with male to female ratio of 4/1 with age ranging from 20-73 years with most cases (68%) presented with disease duration of less than 5 years with no statistically significant association regarding age of onset, duration of the disease and sex predominance (p value >0.05).

Regarding the first group (hair dye dermatitis) 8 patients (6 males and 2 females) included with male to female ratio of 3/1, half of the patient have onset of disease before the age of 50 years.

Regarding CAD, 12 patients enrolled, all of them were males, and the most common age of onset of the disease after 50 years old (n=5).

In regard to the last group (adult onset atopic dermatitis) 2 males and 3 females included with age of onset of disease before 50-year-old.

Dermoscopic evaluation

Vascular pattern (morphology and distribution)

The most frequent vascular morphology seen in mycosis fungoides was short linear pattern encountered in 21 patients (84%) followed by dotted pattern in 16 patients (64%), spermatozoa like blood vessel in 8 patients (32%), and 5 patients (20%) for each of the Y shape arborizing pattern and globular vessels.

In chronic dermatitis; the most common vascular pattern was dotted pattern in 25 patients (100%), 8 of them with mixed linear dotted pattern followed by linear vascular pattern in 8 cases (32%) with no case presented with spermatozoa blood vessel.

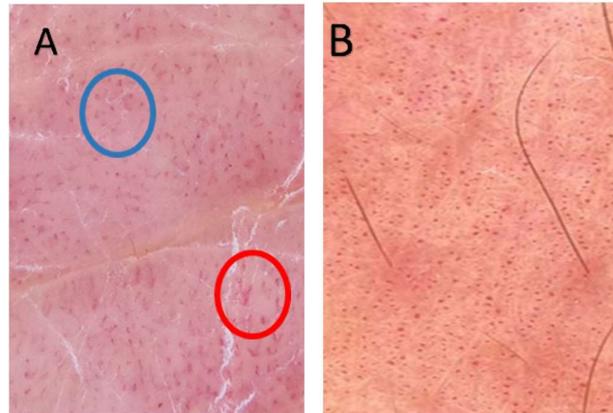


Figure 1: Vascular morphology (A) short linear vessels (blue circle) and spermatozoa like blood vessels (red circle) in MF (B) shows dotted vessels in a patchy distribution in C.D

Table 1: Vascular morphology in M.F. and C.D.

Vessel morphology		Mycosis fungoides		Chronic dermatitis		P value
		No	%	No	%	
Linear	Yes	21	84.0	8	32.0	0.0001*
	No	4	16.0	17	68.0	
Spermatozoa	Yes	8	32.0	-	-	0.002*
	No	17	68.0	25	100	
Dotted	Yes	16	64.0	25	100	0.001*
	No	9	36.0	-	-	
Dotted type	Patchy	24	96	15	60	0.030*
	Clustered	1	4	10	40	
Globular vessel	Yes	5	20.0	1	4	0.018*
	No	20	80.0	24	96	
Arborizing	Yes	5	20.0	-	-	0.018*
	No	20	80.0	25	100	

Scale (color, morphology and distribution)

Sixteen cases (64%) of mycosis fungoides have white scale color, 12 cases (75%) with geometrical and 4 cases (25%) with fine scale configuration. Those white scale have patchy distribution in 10 cases (62.5%) and clustered pattern in 6 cases (37.5%). No case present with yellow scale. Twenty five cases of C.D. (100%) presented with scales, its color was only yellow in 5 (20%), only white in 5 (20%), and mixed yellow white in 15 (60%), its shape was fine in 18(72%) and geometrical in 7 (28%) cases .the distribution was patchy in 23, clustered in 1, and diffuse in 1 .

Background color: The most common background color in MF was pink in 19 cases

(76%) followed by dull red in 6 cases (24%).

In C.D., 11 cases present with pink background and 11 cases with dull red (50%) and 3 devoid of those two colors.

Regarding Pigmentation in MF, it is presents in 11 cases, which classified according to the distribution into multifocal in 2 cases, polygonal in 7 cases, and black globules in 2 case in a patchy distribution.

In C.D., it is present in 7 cases, as 5 cases with multifocal configuration and 2 cases with dark globules as shown. With statistically significant association in background between both comparative groups (p value <0.05)

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Table 2: Background color and pigmentation in MF and C.D.

Background		Mycosis fungoides		Chronic dermatitis		P value
		No	%	No	%	
Color	Pink	19	76.0	11	44.0	0.037*
	Dull red	6	24.0	11	44.0	
	No color	-	-	3	12.0	
Pigmentation	Dark globule	2	8.0	2	8.0	0.012*
	Multifocal hyperpig.	2	8.0	5	20.0	
	Polygonal structure	7	28.0	-	-	
	No pigmentation	14	56.0	18	72.0	

Others

White structure less area is present in 10 cases (40%) of MF in versus C.D. which resent in only 1 case. Orange yellow hue present in 21 cases (84%) of MF and 1 case of C.D. Fissures

are present in 12 cases of C.D. (48%) but no case of MF present with fissures. while hemorrhage is present in 3 cases of C.D. in combination with fissures (25%).

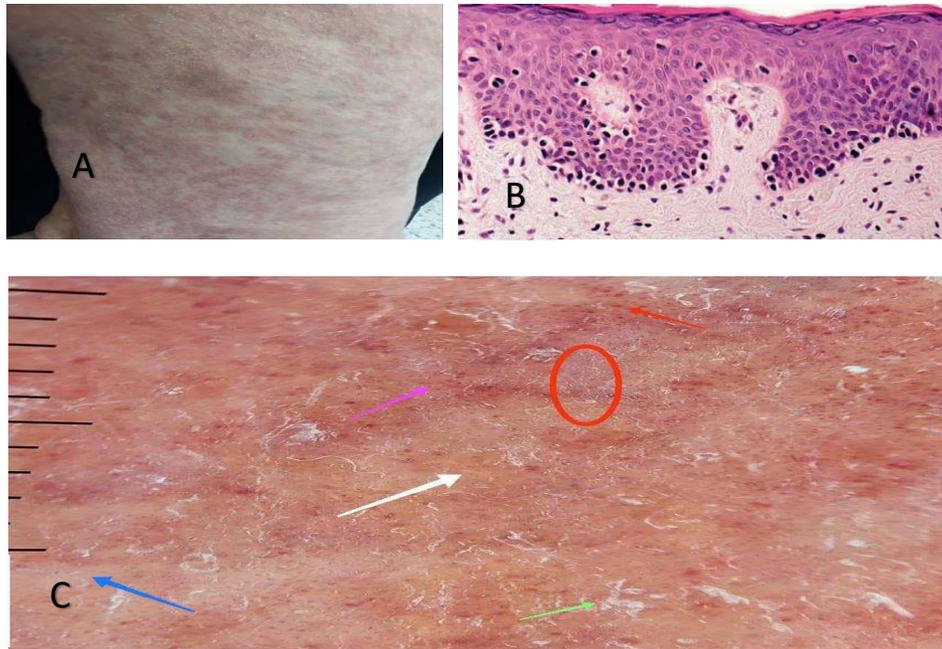


Figure 2: Mycosis fungoides (50 year old female) A: eczematous eruption with white scales on lower limbs B: Histology (H&E stain) show epidermotropism by atypical lymphocytes C: dermoscopy show white scales (green arrow) dotted vessels (purple arrow), globular vessels (red arrow) short linear vessel (red circle) orange yellow hue (white arrow) and structureless area (blue arrow) (original magnification $\times 10$).

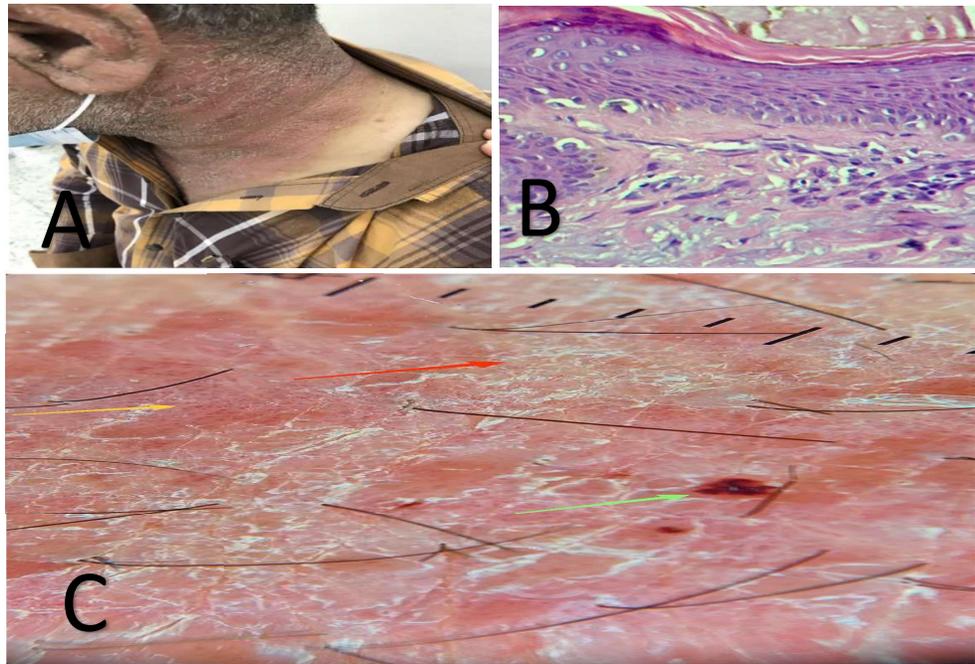


Figure 3: chronic actinic dermatitis (60 year old male) A: sharp demarcation of erythema and scales to the neck B: histology (H&E stain) show disproportionate epidermotropism (power x⁴⁰) C: dermoscopy using PD show white yellow scales (red arrow) patchy dotted vessels (yellow arrow), and hemorrhage (green arrow) (original magnification x¹⁰)

DISCUSSION:

This study, which examine 25 Iraqi patients with MF shows slight male predominance with male to female ratio of 1.3/1. This finding is in consistency with Alhamamy et al., sharquie et al., alghamdi et al., and Saleh et al. as 1.5/1 ,3/1, 2/1, and 1.1/1 respectively. (5,6,7,8)

The present study shows the most common age of onset of MF at the fifth decade with mean of (43.3y) which is consistent with Sharquie et al., and Alhamamy et al. Parallel data is seen in C.D. with mean of (49.7y) similar to Lallas et al. and Saleh et al. classified with earliest onset with atopy consistent with Barbarot et al. followed by HDD as in Sharquie et al. study which show mean of 52.4 years. (6,5,3,8,9,10)

In regard to the disease duration, most cases of MF present with less than 5 years' duration with mean of (4.7 years) which is similar to Alhamamy et al. study. Similarly, C.D. shows the most common sickness duration before diagnosis was less than 5 years (mean of 4.2) with strikingly all cases of HDD present with short disease duration of less than 5 years consistent with Gupta et al study which shows

that about 65%of cases present with around 1-3 years duration. This may be attributed to the disease symptoms which aggravated by continuous use of the dye. With no statistical significant association between the two comparative groups regarding disease duration. (5,12)

Regarding disease variant frequency, This study shows the most common variant of mycosis fungoides is the classical type followed by poikilodermatous, hyper pigmented MF, and hypo pigmented MF, this result is parallel to what is seen in Sharquie et al.

Dermoscopic pattern

Vascular pattern

In MF short linear vessels predominate the picture followed by dotted vessels. As in Lallas et al. with 93.8% and 56.3% of linear and dotted vessel respectively. Xu et al. also reach the same conclusion of 90.3% and 67.7% linear and dotted vessel respectively. Conversely, Bilgic et al., and Bosseila et al. results show dotted vessel to be the most common vascular pattern followed by linear vascular pattern (3,14,11,15). This variability in the studies may be

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attributed to the difference in the resolution of the optical system and the magnification power of the dermoscopy in addition to the examiner experience with these structures.

Peculiar finding seen in 32% of MF patients which called spermatozoa like blood vessel which is not seen in the comparative group. This result was similar to Lellas et al. and Ozturk et al. results which show this finding in 50% and 29.4% respectively. ^(3,16)

Globular vessels seen in about 20 % of the MF cases while Ozturk et al. study show less number of cases (6%) to have this finding. But only one case (4%) of dermatitis showed this finding ⁽¹⁶⁾. This variability because the globular vessel is highly subjective finding and so there is interobserver variation.

In C.D., the most common vascular morphology was dotted vessels which is seen in all cases, followed by linear vascular pattern. No spermatozoa or arborizing vascular pattern seen in C.D. Those data correlate with Lellas et al. and Ankad et al. which show dotted vessels to be the most common finding. ^(3,17)

Scale color, morphology, and distribution

The most encountered scale color in MF was white (64%). This result is supported by Bilgic et al study which shows 80% white scales color. On the other side: Lallas et al. shows very lower percentage of 18.8%. ⁽¹¹⁾⁽³⁾.

In C.D., all cases dermoscopically present with scales of different colors, yellow alone (20%), white alone (20%) or mixed yellow white scale (60%). Bilgic et al. show nearly similar color pattern of 30%, 20% and 50% respectively. ⁽¹¹⁾ 40% of MF cases present with patchy scale distribution similar to Bilgic et al. study.

While in C.D. (92%) of cases have patchy distribution similar to the result of Bilgic et al. and Lallas et al. which show 95%, 66% patchy distribution respectively. ^(11,18)

Background color

Two important colors encountered in this study, light or dull red which present in both groups in a different percentage. In MF, 76% of cases with light red background as in Wohlmuth et a.l and Bilgic et al. showing 60% and 45% respectively. ^(19,11)

In C.D., the present study shows equal percentage of light and dull red background (44%). comparable result of Bilgic et al, shows parallel results of 40% and 50% dull and light red respectively, while Lellas et al. show 66% and 15% of dull and light red background respectively. This may be attributable to the duration of the lesion at time of the diagnosis. ^(11,18)

Other features

In the present study we encountered yellow orange hue in (84%) of MF cases, Ozturk, Lallas, and Xu et al. studies show 88%, 93%, and 90% respectively which is equal to this study result. ^(16,3,14). On the other hand, only 1 case of C.D. (4%) present with orange yellow area , similar to Bilgic et al. and Xu et al. studies with (5%) and (8%) respectively. ^(11,14)

Structure less area present in (40%) of MF similar to Ozturk et al. showing 35% in versus to Ghahramani et al. showing 100% of patch plaque MF. Those two finding found in (4%) CD, no reported study showing presence of absence of this result. ^(16, 20)

Table 3: The comparison of the vascular and scale pattern between this study and different thesis regarding dermoscopy of mycosis fungoides.

	This study N=25	Bosseila et al (2015) N=25	Lallas et al (2013) =32	Ozturk et al (2020) N=17	Bilgic et al (2015)N=20	Xu et al N=31 (2017)
Short linear	84%	48%	93.8%	82%	65%	90.3%
Dotted vessel	64%	64%	56.3%	29.4%	100%	67.7%
Spermatozoa like blood	32%	16% (comma	50%	29.4%	20%	74.2%
Arborizing blood vessel	20%	-	-	29.4%		-
Globular vessel	20%	-	-	5.8%		-
White scales	64%	-	18.8%	70%	80%	3.2%
Orange yellow hue	84%		90.6%	88.2%	35%	90.3%

CONCLUSION:

Dermoscope is a very important tool that aids in the diagnosis and differentiation between various types of skin lesions and also to it can reduce the need for unnecessary biopsies.

-Short linear vascular pattern, white scales, orange yellow hue, and structure less areas are suggestive of MF. Highly peculiar finding of spermatozoa like blood vessel is characteristic of MF. These findings, when seen, it necessitates performing biopsy.

-Dotted vessels in a patchy distribution, and yellow white scales crust are suggestive of C.D.

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