

## Dermoscopic Characteristics of Cutaneous Lupus Erythematosus According to Subtype, Lesion Location, Lesion Duration, and CLASI Score

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**ABSTRACT** **Introduction:** Dermoscopic findings are used to diagnose and evaluate disease activity in patients with cutaneous lupus erythematosus (CLE).

**Objectives:** This study aimed to characterize the dermoscopic features of discoid LE (DLE) and LE tumidus (LET) by lesion duration and CLE Disease Area and Severity Index (CLASI) scores and to examine the dermoscopic findings of lesions in different locations in DLE patients.

**Methods:** Dermoscopic findings (follicular features, perifollicular surface, interfollicular features, and vessel pattern) were assessed and lesion duration ( $\leq 12$  and  $> 12$  months) and CLASI scores (grouped as mild or moderate) were calculated. DLE lesion locations were categorized as, non-scalp, scalp and lip.

**Results:** Forty-eight dermoscopic images from 35 DLE and 4 LET patients were analyzed. The most common dermoscopic findings in non-scalp DLE were follicular keratotic plugs (82.8%) and white scales (69%). In scalp DLE (n=9), the most common findings were absent follicular openings (77.8%), white structureless areas (77.8%), and perifollicular scaling (66.7%). All LET patients had pink-white background and linear vessels. Follicular plugs, peripheral pigmentation, and polymorphous vessels were lower in patients with mild CLASI activity than moderate activity (P = 0.036, 0.039, and 0.019, respectively). Fibrotic white dots, honeycomb pigment pattern, and blue-gray dots/globules were lower in those with mild CLASI damage scores than moderate damage (P = 0.010, 0.010, and 0.020, respectively). Peripheral pigmentation was more common in patients with lesion duration  $\leq 12$  months, while blue-gray dots/globules were more common with lesion durations  $> 12$  months.

**Conclusions:** Certain dermoscopic features may facilitate the differential diagnosis of DLE and LET.

## Introduction

Discoid lupus erythematosus (DLE) is the most common type of cutaneous lupus erythematosus (CLE) [1]. DLE is defined as a subtype of chronic CLE (CCLE) and is categorized as one of the specific skin manifestations of lupus erythematosus [2,3]. Lupus erythematosus tumidus (LET), the most photosensitive type of lupus erythematosus, was recently classified separately as intermittent CLE (ICLE) [4].

DLE heals with scarring and dyspigmentation, and severe inflammatory DLE impacts patients' quality of life [5-7]. The differential diagnosis of DLE includes many diseases, and early treatment leads to complete clearance of active lesions [8,9]. For patients with CLE, using the CLE Disease Area and Severity Index (CLASI) is recommended at baseline, while monitoring treatment response, and in the assessment of the disease impact on quality of life [7,8]. CLASI is used in most CLE patients, with the exception of a few rare subtypes [10].

Dermoscopy of inflammatory dermatoses, also known as inflamma-scopy, has become an important tool not only for diagnosis but also for evaluating disease activity [11]. Authors recommend using dermoscopic findings from inflamma-scopy examination along with a patient's history, clinical picture, and macroscopic features [12]. In this respect, it is important to know the dermoscopic characteristics in different locations.

## Objectives

This study aimed to evaluate the dermoscopic findings of patients with DLE and LET and summarize the dermoscopic features of DLE lesions in various anatomical locations. We also aimed to evaluate differences in the dermoscopic findings of patients with CLE according to lesion duration and CLASI scores. Thus, having more detailed knowledge of dermoscopic findings will guide clinicians in the diagnosis and follow-up of patients with DLE and LET.

## Methods

This study was planned as a retrospective cohort study including patients diagnosed with DLE and LET who presented to the Skin and Venereal Diseases outpatient clinic of Trakya University between 2018 and 2022. Approval was obtained from the Trakya University Faculty of Medicine Ethics Committee (2023/69).

Patients diagnosed with DLE or LET whose medical records contained complete clinical, histopathological, and direct immunofluorescence data were included in the study. The patients sociodemographic and clinical characteristics (age, sex, tobacco and alcohol use, family history, CLE subtype,

age at onset, duration and location of lesions, Fitzpatrick skin type, topical and systemic treatments received, and antinuclear antibody [ANA] positivity) were retrospectively screened by an independent dermatologist (MŞD). Exclusion criteria were: 1) age younger than 18 years, 2) lack of definitive diagnosis, 3) diagnosis of overlap syndrome/mixed connective tissue disease, and 4) receiving topical and/or systemic treatment in the last 3 months [13,14].

Cutaneous Lupus Erythematosus Disease Area and Severity Index Activity (CLASI-A) and CLASI Damage (CLASI-D) scores were calculated at initial presentation by a different dermatologist (MÜ). Clinical and dermoscopic lesion locations were determined according to the CLASI classification [15]. CLASI-A scores were grouped into disease activity levels of mild (0-9), moderate (10-20), and severe (21-70) as recommended by Klein et al [16]. CLASI-D scores were grouped into disease severity levels of mild (0-5), moderate (6-16), and severe ( $\geq 17$ ) [17].

Dermoscopic images were divided into three regions (non-scalp, scalp, and lip [cutaneous and/or mucosal]) by an independent dermatologist (MÜ). Lesions on the rest of the face, ears, back, nose, chest, arms were included in the non-scalp category [18]. CLASI-A and D scores were calculated separately for each location (non-scalp, scalp, and lip).

All dermoscopic findings were evaluated at 20X magnification with a video dermoscope (FotoFinder Systems GmbH) by the same dermatologist (YGÜ), who was blinded to the patients macroscopic photographs and lesion locations. Both "dry" (without immersion fluid) and "wet" (with ultrasound gel) dermoscopy was performed. During the procedures, minimal pressure was applied for better visualization of blood vessels.

Using a review by Zychowska et al. as a reference, dermoscopic images were examined under four main headings: : 1) follicular features (Figure 1A-I), 2) interfollicular features (Figure 2A-F, Figure 3A-D), 3) perifollicular surface (Figure 4A-D), and 4) vessel pattern (Figure 5A-E) [18]. In this study, the appearance of arborizing vessels was described as similar to the dermoscopic appearance of vessels in basal cell carcinoma but thicker and irregular. The study by Lallas et al was used for the description of thin and linear vessels (with and without bends or branches) [19]. The vessel patterns in our study were evaluated as recommended by Lallas et al. The standardized dermoscopic terms for non-neoplastic dermatoses published by Errichetti et al were used to describe the dermoscopic images [20].

## Statistical Analysis

The data were analyzed using SPSS (Statistical Package for Social Sciences) version 18.0. In descriptive analyses, frequency data were expressed as number (N) and percentage (%), and numerical data were presented as mean, standard

deviation (SD), and range (minimum-maximum). The distribution of categorical data was analyzed using the Fisher exact test. Level of statistical significance was accepted as  $p < 0.05$  for all tests.

## Results

### Demographic and Clinical Characteristics

A total of 39 CLE patients with 48 dermoscopic images were included in the study. The mean age of the patients was  $43.95 \pm 12.61$  years and 71.8% ( $N = 28$ ) were women. CLE type was DLE in 35 patients (89.7%) and LET in 4 patients (10.3%). Most CLE lesions were located on the rest of the face (58.9%) and on the scalp (23%). Lip location was most frequently associated with lesions on the rest of the face ( $N = 4$ ); isolated lip location was observed in only one patient. In the LET group, dermoscopic images were obtained from the back in 3 patients and the chest in 1 patient. Thirty (76.9%) of the patients received topical corticosteroids and 36 (92.3%) received hydroxychloroquine therapy (Table S1).

### Distribution of Dermoscopic Images

The dermoscopic images were most commonly from the rest of the face (45.8%,  $N = 22$  images), scalp (18.7%,  $N = 9$  images), lips (12.5%,  $N = 6$  images), and ears (8.3%,  $N = 4$  images) (Table S2).

### CLASI Scores

The mean CLASI-A score was  $5.23 \pm 3.44$  and the mean CLASI-D score was  $2.52 \pm 2.83$  (Table S1).

### Dermoscopic Findings

The most common dermoscopic findings in DLE patients were white structureless areas (70.5% of images), follicular plugs (65.9%), white scales (63.6%), pink-white background (56.8%), and linear vessels (50%). In patients with LET, the most common dermoscopic findings were pink-white background (100%) and linear vessels (100%). Among DLE patients with scalp location, the most common dermoscopic findings were absence of follicular openings (77.8%) white structureless areas (77.8%), and perifollicular scaling (66.7%).

The most common vessel patterns observed in all patients were linear vessels (54.2%,  $N = 26$  of images) and dotted vessels (33.7%,  $N = 18$  of images). Follicular plugs were observed in 69.6% ( $N = 32$ ) of all lesions but were not detected in any of the lesions involving the lips. White structureless areas and hairpin vessels were present in all lesions involving the lips and were less frequent in the other groups. Perifollicular scaling and perifollicular pigmentation were

not detected in any of the lesions involving the lips but were observed at high rates in the other groups (Table 1).

Distributions of dermoscopic features according to lesion locations in patients with DLE are compared in Table 2. Patients with scalp DLE had significantly higher rates of absence of follicular openings and perifollicular scaling compared to patients with non-scalp DLE ( $P$  values  $< 0.001$  and  $0.009$ , respectively). Dermoscopic images with follicular plugs ( $P < 0.001$ ) and perifollicular white color ( $P = 0.027$ ) were statistically less common in DLE patients with lip location than in patients with non-scalp location. In the lip location group, yellow (scales and crusts) ( $P = 0.016$ ) and hairpin vessels ( $P < 0.001$ ) were more common while dotted vessels ( $P = 0.022$ ) and linear vessels ( $P = 0.019$ ) were less common compared to patients with non-scalp location (Table 2). When grouped and compared according to CLASI-A scores, patients with mild disease activity had significantly lower rates of follicular plugs, peripheral pigmentation, and polymorphous vessels compared to those with moderate disease activity ( $P$  values  $0.036$ ,  $0.039$ , and  $0.019$ , respectively). There was no statistical difference in the distribution of other dermoscopic features between the mild and moderate activity groups ( $P > 0.05$ ) (Table 3).

When grouped and compared according to CLASI-D scores, rates of fibrotic white dots, honeycomb pigment pattern, and blue-gray dots/globules were found to be significantly lower in patients with mild disease severity compared to those with moderate disease severity ( $P$  values  $0.010$ ,  $0.010$ , and  $0.020$ , respectively). There was no statistical difference in the distribution of other dermoscopic features between the disease severity groups ( $P > 0.05$ ) (Table 4).

When differences in the dermoscopic findings of patients with CLE were evaluated according to lesion duration ( $\leq 12$  versus  $> 12$  months), we observed that blue-gray dots/globules, and dotted vessels were more common dermoscopic findings in patients with lesion duration over 12 months ( $P$  values  $0.018$  and  $0.021$ , respectively) (Table 5).

## Conclusions

The sociodemographic characteristics of our study sample (age, sex, age at onset) were similar to those in other studies [7]. Fredeau et al reported that 73% of patients had a Fitzpatrick skin type between I and IV [21]. In our study, Fitzpatrick skin types ranged from II to IV. Although it is known that the incidence of LE is higher in Asian and black ethnic groups than in whites, ethnic background was not evaluated in our study.

Insawang et al reported that the most common lesion locations in patients with DLE were the face and scalp [22]. Between 25% and 90% of patients with DLE are photosensitive, and apoptosis and other immunological mechanisms induced by UV light lead to more frequent manifestations of

**Table 1. Dermoscopic characteristics in all patients and according to disease subtype and lesion locations.**

<b>Dermoscopic features</b>	<b>All (N = 48)</b>	<b>DLE<sup>a</sup> (N = 44)</b>	<b>LET (N = 4)</b>	<b>Scalp DLE (N = 9)</b>	<b>Lips DLE (N = 6)</b>
<i>Follicular features, N (%)</i>					
Follicular plugs	30 (62.5)	29 (65.9)	1 (25.0)	5 (55.6)	0 (0.0)
Absence of follicular openings	9 (18.8)	9 (20.5)	0 (0.0)	7 (77.8)	0 (0.0)
Reduced number of follicular openings	3 (6.3)	3 (6.8)	0 (0.0)	0 (0.0)	0 (0.0)
Fibrotic white dots	8 (16.7)	8 (18.2)	0 (0.0)	4 (44.4)	0 (0.0)
Pinpoint white dots	6 (12.5)	6 (13.6)	0 (0.0)	0 (0.0)	0 (0.0)
Follicular red dots	5 (10.4)	5 (11.3)	0 (0.0)	3 (33.3)	0 (0.0)
Yellow dots	2 (4.2)	2 (4.5)	0 (0.0)	0 (0.0)	0 (0.0)
Black dots	4 (8.3)	4 (9.1)	0 (0.0)	2 (22.2)	0 (0.0)
Red spider on a yellow dot	1 (2.1)	0 (0.0)	1 (25.0)	0 (0.0)	0 (0.0)
Dilated follicles	3 (6.3)	3 (6.8)	0 (0.0)	1 (11.1)	0 (0.0)
<i>Perifollicular surface, N (%)</i>					
Perifollicular white color	19 (39.6)	19 (43.2)	0 (0.0)	4 (44.4)	0 (0.0)
Perifollicular scaling	13 (27.1)	11 (25.0)	0 (0.0)	6 (66.7)	0 (0.0)
Perifollicular erythema	3 (6.3)	3 (6.8)	0 (0.0)	0 (0.0)	0 (0.0)
Perifollicular pigmentation	13 (27.1)	13 (29.6)	0 (0.0)	3 (33.3)	0 (0.0)
<i>Interfollicular features, N (%)</i>					
White structureless areas	32 (66.7)	31 (70.5)	1 (25.0)	7 (77.8)	6 (100.0)
Pink-white background	29 (60.4)	25 (56.8)	4 (100.0)	2 (22.2)	4 (66.7)
Speckled brown pigmentation	14 (29.2)	14 (31.8)	0 (0.0)	2 (22.2)	0 (0.0)
Honeycomb pigment pattern	3 (6.3)	3 (6.8)	0 (0.0)	1 (11.1)	0 (0.0)
Peripheral pigmentation	11 (22.9)	11 (25.0)	0 (0.0)	1 (11.1)	0 (0.0)
White scales	30 (62.5)	28 (63.6)	2 (50.0)	3 (33.3)	5 (83.3)
Yellow (scales and crusts)	10 (20.8)	10 (22.7)	0 (0.0)	3 (33.3)	4 (66.7)
White rosettes	7 (14.6)	7 (15.9)	0 (0.0)	1 (11.1)	1 (16.7)
Shiny white lines	9 (18.8)	8 (18.2)	1 (25.0)	0 (0.0)	3 (50.0)
Blue-gray dots/globules	9 (18.8)	9 (20.5)	0 (0.0)	0 (0.0)	0 (0.0)
Blue-white veil	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Erosions/ulcerations	10 (20.8)	10 (22.7)	0 (0.0)	2 (22.2)	3 (50.0)
<i>Vessel pattern, N (%)</i>					
Thick arborizing vessels	9 (18.8)	9 (20.5)	0 (0.0)	4 (44.4)	0 (0.0)
Dotted vessels	18 (33.7)	16 (36.3)	2 (50.0)	0 (0.0)	0 (0.0)
Hairpin vessels	8 (16.7)	8 (18.2)	0 (0.0)	0 (0.0)	6 (100.0)
Linear vessels	26 (54.2)	22 (50.0)	4 (100.0)	5 (55.6)	0 (0.0)
Coiled vessels	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Polymorphous vessels	2 (4.2)	2 (4.5)	0 (0.0)	0 (0.0)	0 (0.0)

DLE = Discoid lupus erythematosus; LET = Lupus erythematosus tumidus.

<sup>a</sup> The DLE category includes dermoscopic images obtained from patients clinically and histopathologically diagnosed with DLE who presented with non-scalp (rest of the face, ears, back, nose, chest, arms), scalp, and lip location.

the disease in sun-exposed areas [23]. Our findings in this study are consistent with this.

The most common dermoscopic findings in DLE patients with non-scalp lesion locations are follicular plugs,

perifollicular white color, and white scales [18,19,24]. Our dermoscopic findings are similar to those of other studies.

Lallas et al reported that telangiectasias were the most common vessel pattern in DLE [19]. In another study, the most

**Table 2.** Comparison of dermoscopic findings according to non-scalp, scalp and lip location in patients with discoid lupus erythematosus (N = 35 patients, 44 images).

Dermoscopic features	DLE			DLE		
	Non-scalp <sup>a</sup> (N = 29)	Scalp (N = 9)	P value <sup>b</sup>	Non-scalp <sup>a</sup> (N = 29)	Lip (N = 6)	P value <sup>b</sup>
<i>Follicular features, N (%)</i>						
Follicular plugs	24 (82.8)	5 (55.6)	0.174	24 (82.8)	0 (0)	<0.001
Absence of follicular openings	2 (6.9)	7 (77.8)	<0.001	2 (6.9)	0 (0)	1.000
Reduced number of follicular openings	3 (10.3)	0 (0)	1.000	3 (10.3)	0 (0)	1.000
Fibrotic white dots	4 (13.8)	4 (44.4)	0.071	4 (13.8)	0 (0)	1.000
Pinpoint white dots	6 (20.7)	0 (0)	0.303	6 (20.7)	0 (0)	0.561
Follicular red dots	2 (6.9)	3 (33.3)	0.075	2 (6.9)	0 (0)	1.000
Yellow dots	1 (3.4)	0 (0)	1.000	1 (3.4)	1 (16.7)	0.318
Black dots	2 (6.9)	2 (22.2)	0.233	2 (6.9)	0 (0)	1.000
Dilated follicles	2 (6.9)	1 (11.1)	1.000	2 (6.9)	0 (0)	1.000
<i>Perifollicular surface, N (%)</i>						
Perifollicular white color	15 (51.7)	4 (44.4)	1.000	15 (51.7)	0 (0)	0.027
Perifollicular scaling	5 (17.2)	6 (66.7)	0.009	5 (17.2)	0 (0)	0.561
Perifollicular erythema	3 (10.3)	0 (0)	1.000	3 (10.3)	0 (0)	1.000
Perifollicular pigmentation	10 (34.5)	3 (33.3)	1.000	10 (34.5)	0 (0)	0.152
<i>Interfollicular features, N (%)</i>						
White structureless areas	18 (62.1)	7 (77.8)	0.456	18 (62.1)	6 (100.0)	0.146
Pink-white background	19 (65.5)	2 (22.2)	0.051	19 (65.5)	4 (66.7)	1.000
Speckled brown pigmentation	12 (41.4)	2 (22.2)	0.438	12 (41.4)	0 (0)	0.074
Honeycomb pigment pattern	2 (6.9)	1 (11.1)	1.000	2 (6.9)	0 (0)	1.000
Peripheral pigmentation	10 (34.5)	1 (11.1)	0.237	10 (34.5)	0 (0)	0.152
White scales	20 (69)	3 (33.3)	0.115	20 (69)	5 (83.3)	0.649
Yellow (scales and crusts)	4 (13.8)	3 (33.3)	0.322	4 (13.8)	4(66.7)	0.016
White rosettes	5 (17.2)	1 (11.1)	1.000	5 (17.2)	1 (16.7)	1.000
Shiny white lines	6 (20.7)	0 (0)	0.303	6 (20.7)	3 (50.0)	0.602
Blue-gray dots/globules	9 (31)	0 (0)	0.082	9 (31)	0 (0)	0.304
Erosions/ulcerations	6 (20.7)	2 (22.2)	1.000	6 (20.7)	3 (50.0)	0.602
<i>Vessel pattern, N (%)</i>						
Thick arborizing vessels	6 (20.7)	3 (33.3)	0.655	7 (24.1)	0 (0)	0.311
Dotted vessels	16 (55.2)	0 (0)	0.005	16 (55.2)	0 (0)	0.022
Hairpin vessels	3 (10.3)	0 (0)	1.000	3 (10.3)	6 (100.0)	0.001
Linear vessels	17 (58.6)	5 (55.6)	1.000	17 (58.6)	0 (0)	0.019
Polymorphous vessels	2 (6.9)	0 (0)	1.000	2 (6.9)	0 (0)	1.000

DLE= Discoid lupus erythematosus.

<sup>a</sup> Dermoscopic images of the rest of the face, ears, nose, chest, back, and arms were included in the non-scalp group. <sup>b</sup> Fisher exact test.

common vessel pattern in patients with DLE was reported to be polymorphous, linear and linear curved vessels [25]. Thus, considering the literature and our study, linear vessels are more common in DLE with non-scalp lesion locations [18,24,26,27].

The most common dermoscopic findings in scalp DLE include white structureless areas, absence of follicular

openings, and perifollicular scaling [18,33] The prevalence of these findings was significantly higher for patients with scalp lesion locations compared to patients with non-scalp lesion locations [18]. Our findings are consistent with the literature. Absent follicular openings and perifollicular scaling in particular should be kept in mind as important dermoscopic findings in DLE scalp location.

**Table 3. Dermoscopic characteristics according to CLASI activity score groups.**

Dermoscopic features	CLASI activity score		P value <sup>a</sup>
	Mild (N = 41)	Moderate (N = 7)	
<i>Follicular features, N (%)</i>			
Follicular plugs	26 (56.1)	7 (100.0)	0.036
Absence of follicular openings	8 (19.5)	1 (14.3)	1.000
Reduced number of follicular openings	3 (7.3)	0 (0.0)	1.000
Fibrotic white dots	7 (17.1)	1 (14.3)	1.000
Pinpoint white dots	5 (12.2)	1 (14.3)	1.000
Follicular red dots	3 (7.3)	2 (28.6)	0.148
Yellow dots	2 (4.9)	0 (0.0)	1.000
Black dots	4 (9.8)	0 (0.0)	1.000
Red spider on a yellow dot	1 (2.4)	0 (0.0)	1.000
Dilated follicles	2 (4.9)	1 (14.3)	0.384
<i>Perifollicular surface, N (%)</i>			
Perifollicular white color	14 (34.1)	5 (71.4)	0.097
Perifollicular scaling	11 (26.8)	2 (28.6)	1.000
Perifollicular erythema	2 (4.9)	1 (14.3)	0.384
Perifollicular pigmentation	10 (24.4)	3 (42.9)	0.370
<i>Interfollicular features, N (%)</i>			
White structureless areas	26 (63.4)	6 (85.7)	0.398
Pink-white background	23 (56.1)	6 (85.7)	0.219
Speckled brown pigmentation	11 (26.8)	3 (42.9)	0.400
Honeycomb pigment pattern	1 (2.4)	2 (28.6)	0.052
Peripheral pigmentation	7 (17.1)	4 (57.1)	0.039
White scales	25 (61.0)	5 (71.4)	0.696
Yellow (scales and crusts)	7 (17.1)	3 (42.9)	0.147
White rosettes	6 (14.6)	1 (14.3)	1.000
Shiny white lines	7 (17.1)	2 (28.6)	0.601
Blue-gray dots/globules	6 (14.6)	3 (42.9)	0.111
Erosions/ulcerations	10 (24.4)	0 (0.0)	0.318
<i>Vessel pattern, N (%)</i>			
Thick Arborizing vessels	7 (17.1)	2 (28.6)	0.601
Dotted vessels	16 (39.0)	4 (57.1)	0.429
Hairpin vessels	6 (14.6)	2 (28.6)	0.330
Linear vessels	22 (53.7)	4 (57.1)	1.000
Polymorphous vessels	0 (0.0)	2 (28.6)	0.019

CLASI = Cutaneous Lupus Erythematosus Disease Area and Severity Index.

<sup>a</sup>Fisher exact test

Distinguishing between scalp DLE and lichen planopilaris can be difficult in clinical practice [32]. According to Shim et al., the main criterion distinguishing DLE is the presence of follicular plugs [35]. In our study, the prevalence of follicular plugs was 55.6%, similar to the literature. Although the dermoscopic finding of follicular plugs is not as common in scalp DLE as in non-scalp DLE patients, it is highly diagnostic [33].

The term “thick arborizing vessels” is used more often when evaluating dermoscopic findings in DLE patients with scalp location [27-30]. Gomez-Quispe et al. suggested that the term “thick vessels” should be evaluated relative to the thickness of the hair shaft [31]. The second most common vessel pattern in scalp DLE patients in our study was “thick arborizing vessels”. However, we did not evaluate the vessels relative to the thickness of the hair shaft. It is clear that there is still a

**Table 4. Dermoscopic characteristics according to CLASI damage score groups.**

Dermoscopic features	CLASI damage score		P value <sup>a</sup>
	Mild (N = 37)	Moderate (N = 11)	
<i>Follicular features, N (%)</i>			
Follicular plugs	21 (56.8)	9 (81.8)	0.171
Absence of follicular openings	5 (13.5)	4 (36.4)	0.180
Reduced number of follicular openings	1 (2.7)	2 (18.2)	0.127
Fibrotic white dots	3 (8.1)	5 (45.5)	0.010
Pinpoint white dots	4 (10.8)	2 (18.2)	0.609
Follicular red dots	2 (5.4)	3 (27.3)	0.072
Yellow dots	2 (5.4)	0 (0.0)	1.000
Black dots	3 (8.1)	1 (9.1)	1.000
Red spider on a yellow dot	1 (2.7)	0 (0.0)	1.000
Dilated follicles	2 (5.4)	1 (9.1)	0.551
<i>Perifollicular surface; N (%)</i>			
Perifollicular white color	13 (35.1)	6 (54.5)	0.304
Perifollicular scaling	10 (27.0)	3 (27.3)	1.000
Perifollicular erythema	2 (5.4)	1 (9.1)	0.551
Perifollicular pigmentation	9 (24.3)	4 (36.4)	0.458
<i>Interfollicular features, N (%)</i>			
White structureless areas	22 (59.5)	10 (90.9)	0.073
Pink-white background	24 (64.9)	5 (45.5)	0.304
Speckled brown pigmentation	10 (27.0)	4 (36.4)	0.708
Honeycomb pigment pattern	0 (0.0)	3 (27.3)	0.010
Peripheral pigmentation	9 (24.3)	2 (18.2)	1.000
White scales	23 (62.2)	7 (63.6)	1.000
Yellow (scales and crusts)	7 (18.9)	3 (27.3)	0.675
White rosettes	5 (13.5)	2 (18.2)	0.653
Shiny white lines	7 (18.9)	2 (18.2)	1.000
Blue-gray dots/globules	4 (10.8)	5 (45.5)	0.020
Erosions/ulcerations	7 (18.9)	3 (27.3)	0.675
<i>Vessel pattern, N (%)</i>			
Thick Arborizing vessels	6 (16.2)	3 (27.3)	0.409
Dotted vessels	14 (37.8)	6 (54.5)	0.488
Hairpin vessels	7 (18.9)	1 (9.1)	0.661
Linear vessels	20 (54.1)	6 (54.5)	1.000
Polymorphous vessels	1 (2.7)	1 (9.1)	0.410

CLASI = Cutaneous Lupus Erythematosus Disease Area and Severity Index.

<sup>a</sup>Fisher exact test

lack of standardization for dermoscopic terms used to describe vessel patterns, and further studies on this subject are needed.

The dermoscopic appearance of “white perifollicular color” has rarely been reported in DLE patients with scalp location [28,36]. Golińska et al emphasized that this dermoscopic finding had 100% specificity for DLE with scalp location [32]. In our study, it was observed in 44.4% of scalp lesions. This dermoscopic finding demonstrates perifollicular

fibrosis and although it can be seen in both scalp and non-scalp location, it aids in the diagnosis of scalp DLE.

In our study, the second most common vessel pattern observed in patients with non-scalp DLE was observed to be “dotted vessels.” Non-follicular red dots are considered “dotted vessels” [18]. The dotted vessel pattern is mostly seen in subacute cutaneous lupus (SCLE) [25]. While it has been reported that the dotted vessel pattern in DLE is mostly

**Table 5.** Analysis of differences in dermoscopic findings according to lesion duration in patients with cutaneous lupus erythematosus.

Dermoscopic features	Lesion duration		P <sup>a</sup>
	12 ≤ months	12 > months	
<i>Follicular features, N (%)</i>			
Follicular keratotic plugs	9 (50)	21 (70)	0.166
Absence of follicular openings	1 (5.6)	8 (26.7)	0.125
Reduced number of follicular openings	0 (0)	3 (10)	0.282
Fibrotic white dots	1 (5.6)	7 (23.3)	0.229
Pinpoint white dots	1 (5.6)	5 (16.7)	0.388
Follicular red dots	1 (5.6)	4 (13.3)	0.637
Yellow dots	2 (11.1)	0 (0)	0.136
Black dots	2 (11.1)	2 (6.7)	0.624
Dilated follicles	1 (5.6)	2 (6.7)	1.000
<i>Perifollicular surface, N (%)</i>			
Perifollicular white color	8 (44.4)	11 (36.7)	0.594
Perifollicular scaling	3 (16.7)	10 (33.3)	0.317
Perifollicular erythema	2 (11.1)	1 (3.3)	0.547
Perifollicular pigmentation	11 (42.3)	2 (6.7)	0.032
<i>Interfollicular features, N (%)</i>			
White structureless areas	10 (55.6)	22 (73.3)	0.206
Pink-white background	12 (66.7)	17 (56.7)	0.493
Speckled brown pigmentation	4 (22.2)	10 (33.3)	0.412
Honeycomb pigment pattern	1 (5.6)	2 (6.7)	1.000
Peripheral pigmentation	4 (22.2)	7 (23.3)	1.000
White scales	13 (72.2)	17 (56.7)	0.281
Yellow (scales and crusts)	4 (22.2)	6 (20)	1.000
White rosettes	3 (16.7)	4 (13.3)	1.000
Shiny white lines	4 (22.2)	5 (16.7)	0.711
Blue-gray dots/globules	0 (0.0)	9 (30.0)	0.018
Erosions/ulcerations	3 (16.7)	7 (23.3)	0.722
<i>Vessel pattern, N (%)</i>			
Thick Arborizing vessels	3 (16.7)	6 (20)	1.000
Dotted vessels	3 (16.7)	15 (50)	0.021
Hairpin vessels	5 (27.8)	3 (10)	0.132
Linear vessels	7 (38.9)	19 (63.3)	0.100
Polymorphous vessels	2 (11.1)	0 (0)	0.136

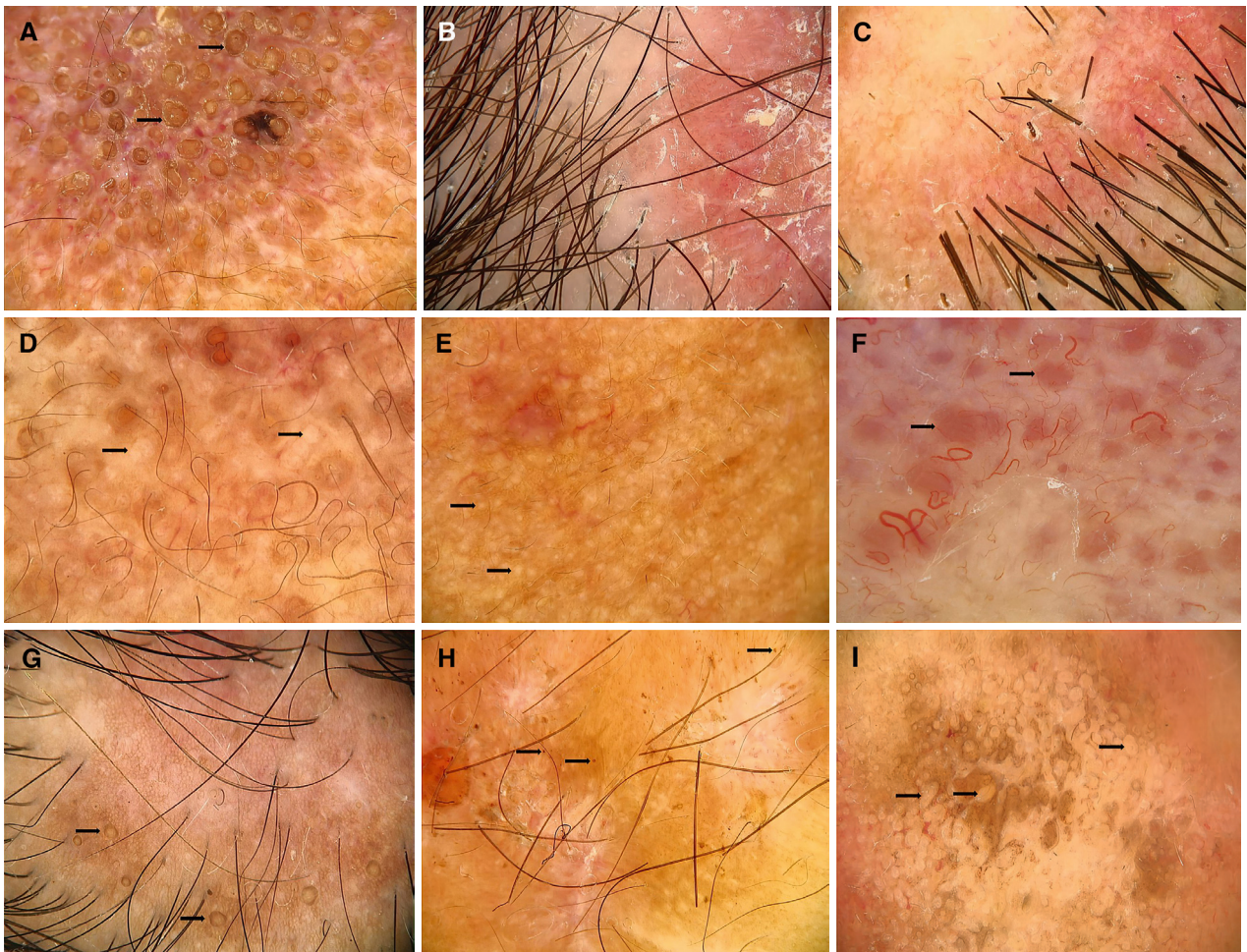
<sup>a</sup> Pearson Chi-Square, Fisher Exact test.

observed in scalp DLE [18], it was found more frequently in non-scalp DLE in our study and a study by Ankad et al [34]. When defining dermoscopic red dot structures, follicular and non-follicular placement should be considered. In addition, as dotted vessels can often be seen in inflammatory dermatoses, the clinician should look for specific clues for diagnosis [35].

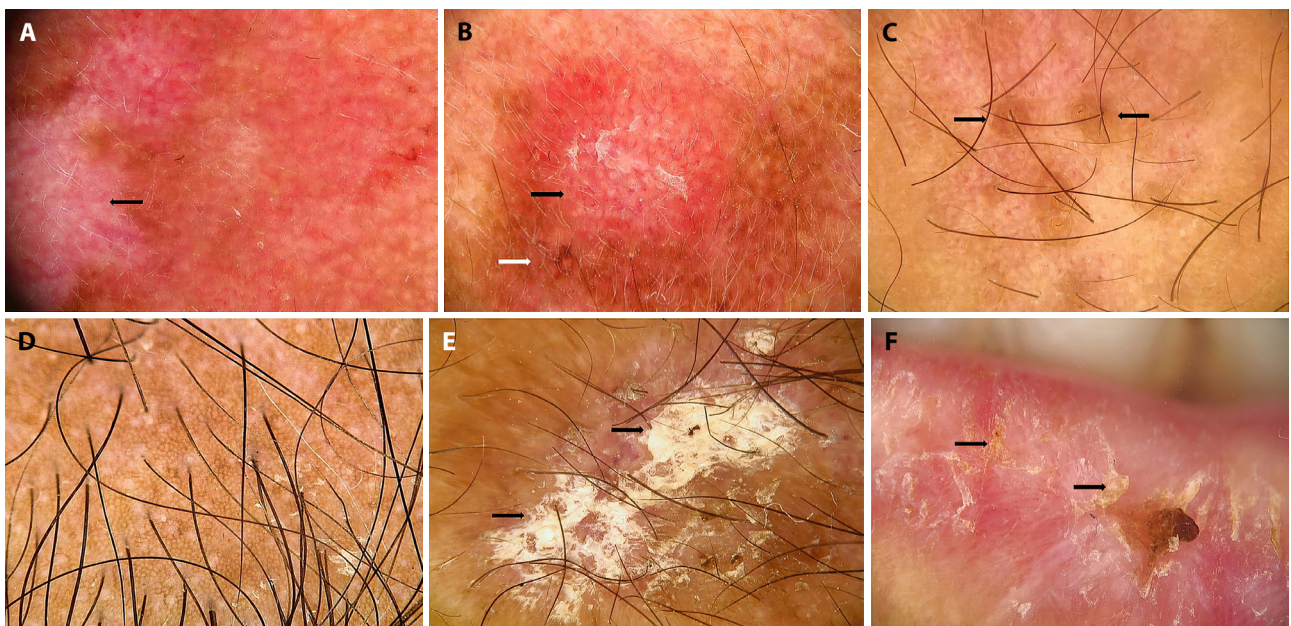
Few studies have examined the dermoscopic findings of LET. Zychowska et al reported that the most common

dermoscopic findings were pink-red background and linear vessels, while follicular plugs were relatively less common [13]. Similar dermoscopic findings were also observed in our study. Due to the clinical course and good prognosis of LET, it is important to differentiate it from classical DLE [36]. Larger studies including the dermoscopic findings of LET are warranted.

It was previously reported that the dermoscopic findings of scalp DLE included “arborizing vessels overlying large



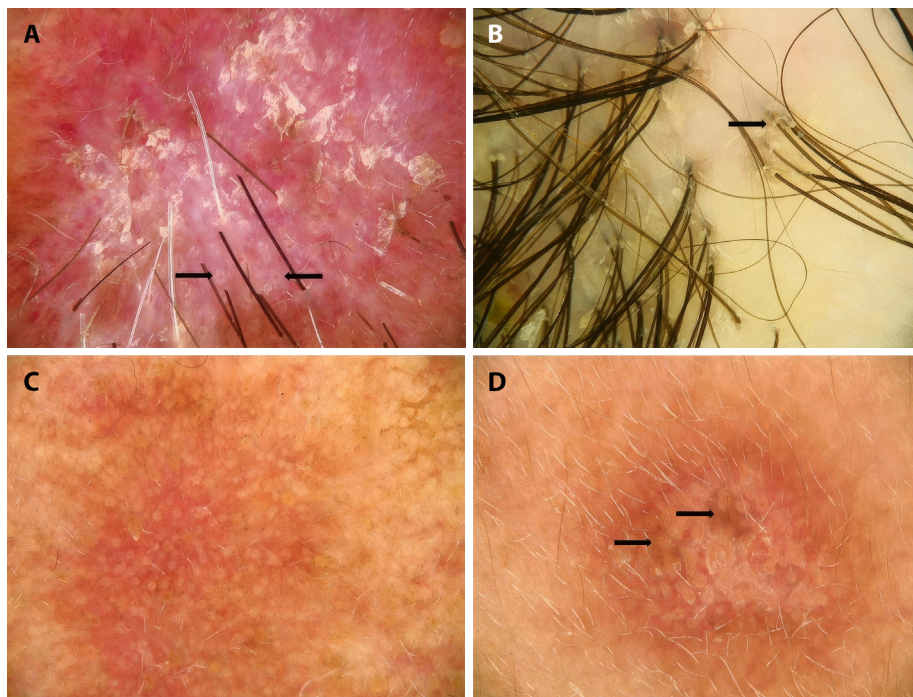
**Figure 1.** Dermoscopic presentation of follicular features. (A) Follicular plugs. (B) Absence of follicular openings. (C) Reduced number of follicular openings. (D) Fibrotic white dots. (E) Follicular red dots. (F) Yellow dots. (G) Black dots. (H) Dilated follicles. (I) Dilated follicles.



**Figure 2.** Dermoscopic features of interfollicular features-part I. (A) White structureless areas. (B) Pink-white background (black arrow) and peripheral pigmentation (white arrow). (C) Speckled brown pigmentation. (D) Honeycomb pigment pattern. (E) White scales. (F) Yellow scales and crusts.



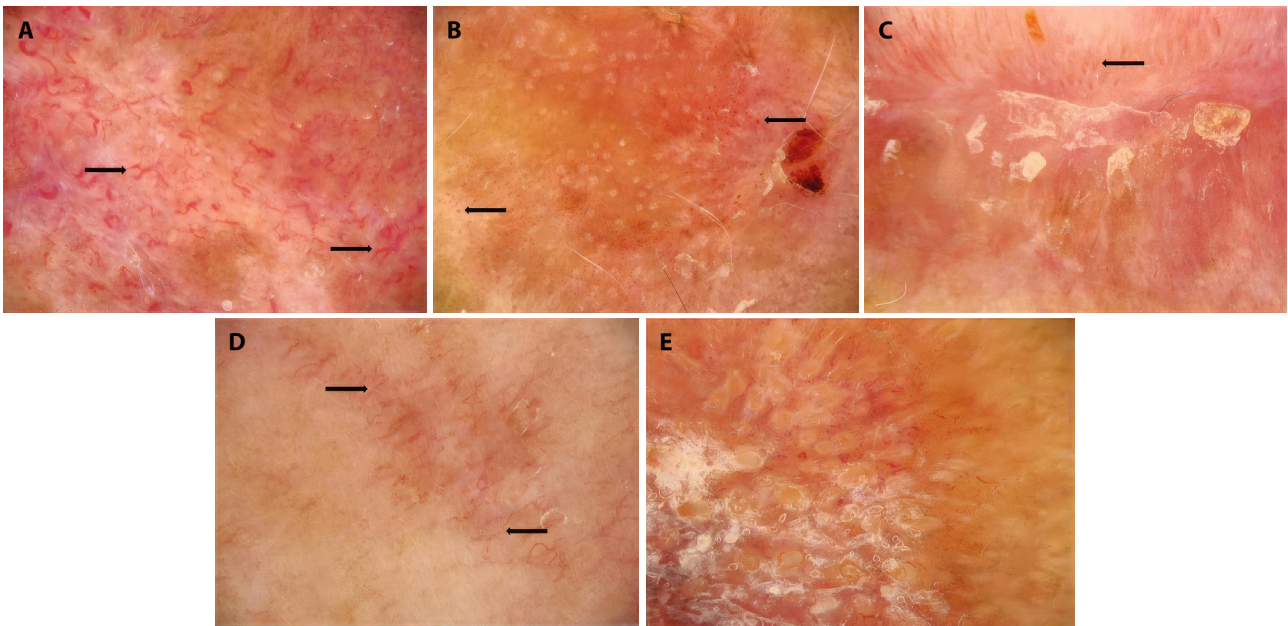
**Figure 3.** Dermoscopic features of interfollicular features-part II. (A) White rosettes. (B) Shiny white lines. (C) Blue-gray dots/globules. (D) Erosions/ulcerations.



**Figure 4.** Dermoscopic features of perifollicular surface. (A) Perifollicular white color. (B) Perifollicular scaling. (C) Perifollicular erythema. (D) Perifollicular pigmentation.

yellow dots,” which was highly specific for inactive DLE lesions [28]. In our study, this finding was observed in a patient with LET. Histopathologically, LET is characterized by minimal epidermal changes (epidermal atrophy, vacuolar degeneration of basal cells, hyperkeratosis) and minimal follicular plugging [37]. In this respect, it should not be forgotten that follicular changes may be observed on dermoscopy.

The dermoscopic appearance of “white perifollicular color” has rarely been reported in DLE patients with scalp location [29,39]. The clinical presentation of DLE with lip location can be confused with premalignant lesions such as actinic cheilitis and lip location of inflammatory skin diseases. Yellow scales and crust formations are among the dermoscopic findings of DLE with lip location and are reported



**Figure 5.** Dermoscopic findings in vessel pattern. (A) Thick arborizing vessels. (B) Dotted vessels. (C) Hairpin vessels. (D) linear vessels. (E) Polymorphous vessels.

to be statistically more common than in the aforementioned diseases [25]. According to a 2018 study, telangiectatic vessels and scales were most common in lip DLE, but scales subtyping was not performed [1]. In another study, the most common vessel pattern in lip DLE was reported to be the hairpin pattern (71.4%) [18]. Scales and hairpin vessels were also among the most common findings in our study.

Although the dermoscopic appearance of “shiny white lines” is mostly seen in scalp DLE [32], it was also detected in 50.0% of patients with lip location in our study. Ayhan et al observed a 20.4% rate of yellowish-white streaks in dermoscopic imaging of the labial mucosa in healthy people [40]. Therefore, comparing involved and uninvolved labial areas in the same patients may enable a clearer evaluation of our study data.

It has been shown in the literature and in our study that follicular plugs are more common in patients with high CLASI-A scores, in parallel with disease activity [1,19]. As DLE lesions expand and grow, squamiae and pigmentation begin to appear at the periphery of the lesion [41]. The peripheral hyperpigmentation associated with high CLASI-A score seen in our study may be an indicator that DLE lesions are growing and have not progressed to the destructive phase.

In our study, findings of polymorphous vessels were more common in the dermoscopic images of patients with high CLASI-A scores. It is known that erythema, one of the CLASI-A components, is associated with the hyperemia that accompanies inflammation [10]. We believe that the more frequent observation of vessels may be related to this inflammation. Since significant dermoscopic findings related

to CLASI-A were not seen in patients with LET, these dermoscopic features were attributed to DLE activity. Although studies have recommended the use of CLASI in patients with LET, CLASI activity and damage scores have been found to be lower than in other CLE subtypes [42]. In this study, we were unable to compare dermoscopic findings in patients with LET according to CLASI activity for reasons such as the small number of patients and the fact that the edema seen in LET patients is not taken into account in the CLASI scoring system.

Fibrotic white dots, honeycomb pigment pattern, blue-gray dots/globules were detected more frequently in patients with a high CLASI-D score. Our data support previous studies indicating that fibrotic white dots are a precursor of white structureless areas [18], and white structureless areas are associated with late DLE [19,32]. As DLE lesions expand and grow, squamiae and pigmentation begin to appear at the periphery of the lesion [41].

In the literature, it was reported that “branching vessels” were more common in late scalp DLE lesions [1,43]. In the present study, no such difference was observed according to CLASI-D score. This may be because CLASI-D does not evaluate vessel patterns.

Patients with discoid LE present distinct pigmentation findings on dermoscopy such as honeycomb pigment pattern, speckled pigmentation, perifollicular pigmentation, peripheral pigmentation, and blue-gray dots/globules [34]. In the literature, different results have been reported regarding the relationship between pigmentation findings and DLE activity. Gomez-Quispe et al. reported a higher incidence of *incontinentia pigmenti* (scattered brown discoloration and

blue-gray dots) on dermoscopy of active scalp DLE [32]. Ankad et al stated that blue-gray dots/globules can be seen in the inactive period [44], while another study emphasized that blue-gray dots/globules can be seen in both active and inactive DLE [34]. Zychowska et al. found that white scales, blue-gray dots/globules, and peripheral pigmentation were more common in DLE lesions present for more than 12 months [25]. In our data, peripheral pigmentation was more common in lesions  $\leq$ 12 months in duration. These findings are also consistent with CLASI-A severity score. When our results are interpreted in the light of the literature, it can be concluded that peripheral pigmentation is seen in active disease and short-term lesions, while blue-gray dots are seen in the damage period and in long-term lesions. CLE variants are not always easily distinguishable from one another. For example, early inflammatory DLE that has not developed scarring is clinically very similar to SCLE [26]. Dermoscopic findings in SCLE are accompanied by whitish scales and a polymorphous vessel pattern on a pinkish-red-dish background [26,35]. Although these dermoscopic findings are seen in all cases of CLE [26], the differential diagnosis is aided by the presence of follicular keratotic plugs, white perifollicular halo, and linear vessels, which are among the dermoscopic findings of DLE as seen in our study. However, it should be noted that follicular keratotic plugs may be common in acute CLE [45]. More extensive studies are needed due to the limited number of patients in CLE-related dermoscopy studies reported in the literature [26,45].

This study has certain limitations. Firstly, dermoscopic findings were evaluated by a single dermatologist, and we did not include dermoscopic findings pertaining to hair shaft abnormalities. In addition, using the CLASI scoring system to evaluate skin lesions in CLE subtypes is not recommended, and its use is especially limited in patients with LET because edema is more pronounced, and lesions less frequently heal with scarring and pigmentation. As expected, studies have reported lower CLASI scores in patients with LET than in those with DLE [46]. We believe it would be more accurate to use the revised CLASI when evaluating patients with LET [47]. Our study was based on dermoscopic findings and CLASI scores at the time of first admission; changes in CLASI scores and dermoscopic findings were not monitored during the patients follow-up. The relationship between CLASI and dermoscopic findings will be better elucidated by studies that follow CLE patients regularly and analyze changes in CLASI scores and dermoscopic findings during follow-up.

In conclusion, dermoscopic findings in patients with DLE vary according to lesion locations, lesion duration, and disease severity assessed by CLASI-A and CLASI-D scores. As similar dermoscopic findings may be seen in other inflammatory dermatoses, it is important to address the clinical features of existing DLE lesions together with dermoscopic

findings. CLASI scoring severity in patients with LET was not associated with dermoscopic findings.

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