Dermatology Practical & Conceptual

Dermatoscopic Characteristics, Lesional Capillaroscopic Features, and Histopathological Correlation of Small Plaque Parapsoriasis and Mycosis Fungoides

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ABSTRACT

Introduction: Dermatoscopy is a frequently used non-invasive diagnostic procedure.

Objectives: Considering that mycosis fungoides (MF) mimics parapsoriasis clinically in early stages, we aim to determine the dermatoscopic criteria and the histopathological correlations in patients with MF and small plaque parapsoriasis (SPP).

Methods: This prospective study involved 28 patients with clinical and histopathological diagnoses of MF and 31 patients with SPP. Videodermoscopy and USB capillaroscope were used to evaluate the patients vessels at ×200 magnification. Vascularity was evaluated through microvascular density (MVD) scoring involving CD34 antibody staining.

Results: Fifty-nine patients were included in this study. The scores corresponding to the presence of short linear vessels, linear-curved vessels, branching linear vessels, and non- structured orange-colored areas were significantly higher in the MF patients than in the SPP patients ($P < 0.05$). The highest MVD ($P = 0.01$) scores were also higher in the MF patients than in the SPP patients.

Conclusions: The SPP and early-stage MF patients differed in their MVD scores, and the findings correlated with the dermatoscopy and lesional capillaroscopy findings. Differentiating features between SPP and MF were thus identified.

Introduction

Primary cutaneous T-cell lymphomas (CTCLs) are a heterogeneous group of clonal T-cell lymphoproliferative diseases. Mycosis fungoides (MF), which is the most frequent subtype of CTCL, constitutes 50–65% of all CTCL cases [1]. Early-stage MF is difficult to diagnose because it can mimic various diseases, such as parapsoriasis, contact dermatitis, and pigmented purpuric dermatosis [2], and the histopathological findings of early-stage MF may be vague or focal. Moreover, MF diagnosis is usually delayed, commonly after the mean onset of signs [1]. Thus, additional methods that can aid in diagnosis are needed.

One of the most challenging differential diagnosis of MF is small plaque parapsoriasis (SPP) [3]. Also called digitate dermatosis or chronic superficial scaly dermatitis, SPP differs from MF on the basis of its being a benign chronic condition [4]. Repeated skin biopsies may be required to differentiate MF from SPP. Meanwhile, data on histopathological correlation in dermatoscopy remain limited [3]. Thus, studies involving videodermatoscopy and lesional capillaroscopy performed at high magnifications are needed to determine the criteria for discrimination. Given that vascular structures in MF can be observed more clearly with dermatoscopy, MF could possibly be differentiated from SPP by dermatoscopy or lesional capillaroscopy [3]. In addition, histopathological correlation with vascular structures was analyzed in the marked dermatoscopic imaging areas.

Objectives

In this study, we aimed to detect dermatoscopic and lesional capillaroscopic features in patients with MF and SPP and correlate these findings with histopathology.

Methods

This prospective, observational, and cross-sectional study, which was approved by the local ethics committee, included 59 patients who gave a written consent allowing the publication of their case details. The included patients were those who attended the dermatology outpatient clinic between October 2021 and June 2022 and were diagnosed clinically and histopathologically as having early-stage MF (N = 28) and SPP (N = 31).

The inclusion criteria were as follows: clinically and histopathologically diagnosis of MF or SPP, having patch/plaque lesions for MF patients and having patch lesions for SPP patients, at least 18-year-old, and without any topical treatment within the last 2 weeks or any systemic treatment within the last 4 weeks. Patients who could not be diagnosed as having MF or SPP both clinically and histopathologically, those younger than 18 years, or those who received topical treatment within the last 2 weeks or systemic treatment within the last 4 weeks were excluded.

Dermatoscopic and Lesional Capillaroscopic Imaging

At least 2 images were taken from the MF or SPP lesions of the included patients by using a FotoFinder videodermatoscope (FotoFinder Systems GmbH) and a Dino- lite Capillaroscope Pro 200 (MEDL4N Pro). Images were taken both from the intact perilesional skin and lesional skin. The skin biopsy site was evaluated through videodermatoscopy and was selected within the area with the highest vascularity. Minimal pressure was applied to evaluate the vascular morphology. To ensure the visibility of the scales, we obtained videodermatoscopy images from dry and wet (with alcohol) mount samples. Then, a 4 mm punch biopsy was obtained from this marked area. The presence of vascular structures (short linear, linear curved, dotted, and branching linear vessels), the follicular findings, the occurrence of a structureless orange/white/purple- colored area, and the presence and localization of scale were recorded. Vascular dermoscopic finding or structureless orange area were categorized based on whether the percentage of occurrence was below or above 50%. Additionally, the vascular pattern, scale localization and morphology of the structureless orange area were assessed by subdividing them into the morphological subgroups. Dermatoscopic terminology outlined in this study are in accordance with the standardized dermatoscopic terminology established by an expert consensus on behalf of the International Dermoscopy Society [5].

Histopathological Evaluation

Paraffin-embedded blocks and hematoxylin and eosin-stained preparations were evaluated by an experienced dermatopathologist, who was blinded to the clinical data of the cases.

Histopathological evaluation involved the assessment of epidermal changes, atypical lymphocytic infiltration, dermal fibrosis, localization of dermal infiltration, loss of CD7, and expression of CD30. Immunohistochemical evaluations involved CD3, CD4, CD8, CD7, CD30, and CD34 antibody staining.

Immunohistochemical Evaluation

Four micrometer-thick sections were prepared from paraffin-embedded blocks and then stained with CD3 antibody (clone: 2GV6, Ventana Medical Systems), CD4 antibody (clone: SP35, Ventana Medical Systems), CD8 antibody (clone: SP57, Ventana Medical Systems), CD7 antibody (clone: SP94, Ventana MedicalSystems) and CD30 antibody (clone: Ber-H2, Ventana Medical Systems) for diagnostic purposes and stained with CD34 (clone: Qend/10 Cell

Marque) for visualization of dermal microvessels. For secondary imaging, the Standard UltraView IHC Protocol was applied and a Roche/UltraView Universal DAB Detection Kit was used; all operations were performed on a ROCHE/Ventana BenchMark XT IHC Stainer device.

CD34 expression was observed in the cytoplasm and cell membrane of the endothelial cells of dermal microvessels. Since lymphatic/vascular endothelium differentiation was not possible, structures with unidentifiable lumens or weak cytoplasmic staining (such as fibroblasts) were excluded from the counting. Counting was performed manually and comparisons were made with H&E stained preparations when necessary. All slides were initially scanned at low power magnification (×40) to identify the hot spot areas (areas showing the greatest degree of CD34 staining). Vascular structures stained with CD34 were counted in these areas at x200 magnification (0.95 mm^2).Three non- overlapping hot spot areas were examined (2.85 mm^2) and the areas with the highest microvascularity and the sum of the number of microvessels in these three areas were determined. Moreover, CD30 expressing cells were identified among the lymphoid cells in the lesion area.

Statistical Analysis

Statistical analysis was performed using SPSS version 23.0. The conformity of the variables to the normal distribution was evaluated using the Kolmogorov–Smirnov/Shapiro–Wilk test. Independent sample t-test and Mann–Whitney U test were used to compare the normally and non-normally distributed variables of the two groups. The categorical variables were analyzed using chi-square (exact) test. The Bonferroni multiple comparison test was used to determine the significant difference between the groups. ROC analysis was performed to determine the threshold value for MF. A P value less than 0.05 indicated statistical significance.

Results

This study included 59 patients, of whom 47.5% had MF and 52.5% had SPP. Of the MF and SPP patients, 39.3% and 48.4% were women, respectively. For the MF patients, the mean age at diagnosis was 55.2±13.2 years, the age of lesion onset was 47.6±13.3 years, and the mean time to diagnosis was 78.9±100.1 months. For the SPP patients, the mean age of lesion onset was 48.1±17.4 years. The total number of biopsies taken was significantly higher in MF (5/patient) than in SPP (2.5/patient) ($P < 0.05$). The follow-up period was also longer in the MF patients (71.1±72 months) than in the SPP patients (27±39 months) ($P < 0.05$). Of the MF patients, 82.2% are in stage 1A at the time of diagnosis.

The demographic and clinical data of the patients are summarized in Table 1.

Dermatoscopy and Lesional Capillaroscopy

Short linear vessels were observed in 85.7% of the MF patients, and 39.2% of them had short linear vessels covering >50% of the lesion ($P = 0.001$). Among the SPP patients, 45.1% had short linear vessels and proportionally only 9.6% of them had vessels covering >50% of the lesion ($P = 0.002$). Linear curved vessels were found in 53.5% and 19.3% of the MF and SPP patients ($P = 0.006$), respectively, and they were proportionally present in >50% of the lesion in 35.7% and 16.1% of the MF and SPP patients ($P = 0.018$), respectively. Dotted vessels were frequently observed in MF and SPP, and no difference was found between the two diseases. Branching linear vessels were found in 39.2% of the MF cases and rarely did they cover >50%

Table 1. Demographic and clinical features of mycosis fungoides and small plaque parapsoriasis.

		Mycosis fungoides		Parapsoriasis		
		N	%	N	%	P
Gender	Female	11	(39.29)	15	(48.39)	0.48
	Male	17	(60.71)	16	(51.61)	
Age at diagnosis, mean ± SD/median (range)		55.22±13.19	58 (24-74)			
Age of first lesion		47.61±13.33	44 (22-70)	48.19±17.43	50 (18-79)	0.88
Time (months) until diagnosis, mean ± SD		78.89±100.16	36 (0-360)			
Total number of skin biopsy, mean ± SD		5.07±3.52	4.5 (1-13)	2.52±2.19	2 (1-11)	0.002
Follow-up duration, mean ± SD		71.11±72.30	36 (3-192)	27.03±38.97	9 (1-144)	0.027
Stage at diagnosis	1A	23	(82.14)			
	2A	5	(17.86)			
Lymph node involvement	None	23	(82.14)			
	Present	5	(17.86)			

SD = standard deviation.

of the lesions (7.1%). In SPP, branching linear vessels were found only in 12.9% of the lesions, and only 3.2% of these cases had the vessels covering >50% of the entire lesion (P = 0.040). While a peripheral, uniform, clustered, or non-specific vascularity pattern was rarely absent in most MF patients (7.1%), a vascularity pattern was often not observed in SPP patients (38.7%) (P = 0.026). Moreover, patchy, orange-colored areas were larger in the MF patients (82.1%) than in the SPP patients (48.4%), and purple coloration was more frequently observed in the MF patients than in the SPP patients (P = 0.024). No significant difference was observed between the groups in terms of purpuric area, presence of scale, localization of scale, follicular findings, or in the other variables included in Table 2 (P > 0.05) (Table 2 and Figure 1).

Histopathology

CD7 loss was significantly higher in the MF patients (57.1%) than in the SPP patients (25.8%) (p=0.014), whereas CD30 expression was not detected in any patient. The presence of spongiosis was significantly lower in the MF patients than in the SPP patients (p=0.029). By contrast, lymphocytic infiltration with large/convoluted nuclei was significantly higher in the MF patients than in the SPP patients (p<0.001). The two groups did not significantly differ in terms of dermal fibrosis. The rates of perivascular infiltration and band-type infiltration were significantly lower and higher (p<0.001), respectively, in the MF patients than in the SPP patients (Table 3 and Figure 2).

Microvascular Density Scores

The MF patients had higher microvascular density (MVD) scores than the SPP patients (23.6±9.8 and 18±8.1, respectively) (P = 0.010), as revealed by CD34 staining. Similarly, the total MVD score for the three areas with the highest scores was significantly higher in the MF patients than in the SPP patients (59±24.2 and 43.9±16.8, respectively) (P = 0.07) (Table 3).

Dermatoscopy and Histopathology Correlation

The Guitart score (P = 0.011) for the presence of short linear vessels was significantly higher than that for their absence (Figure 3). The Guitart score for the presence of linear curved vessels was also significantly higher than that for their absence (P = 0.007). Similarly, the Guitart and MVD scores for the presence of branching linear vascularization were significantly higher than those for their absence (Table 4).

Those patients with an MVD score (highest score) higher than 20 were classified as having MF, with 67.9% sensitivity and 67.7% specificity. The area under the curve was 69.6%, which was significant (P < 0.05; 95%CI (0.560–0.831)). Those patients with an MVD score (the total score for three fields) higher than 51.5 were classified as having MF, with 64.3% sensitivity and 71.0% specificity. The area under the curve was 70.3%, which was significant (P < 0.05; 95%CI (0.569–0.837). Those with short linear vessels were classified as having MF, with 85.21% sensitivity and 54.8% specificity and an area under the curve of 70.3% (P < 0.05; 95%CI (0.568–0.838). Those with linear curved vessels were classified as having MF, with a sensitivity of 53.6% and a specificity of 80.6%. The area under the curve was 67.1%, which was significant (P < 0.05; 95%CI (0.531–0.812). The area under the curve for the branching linear vessels was not significant (P > 0.05) (Table 5).

Conclusions

In our study, clinical, dermatoscopic, lesional capillaroscopic, and histopathological findings were evaluated for the differentiation of MF and SPP. Among the CTCLs, MF is the most common subtype and is diagnosed based on clinical and histopathological findings [6]. Given that the findings may be focal or may mimic a wide variety of benign dermatoses, histopathological diagnosis might be difficult to achieve despite the use of advanced algorithms [7-9]. Therefore, the time from the appearance of lesions to the diagnosis of MF is variable and can take between 24 and 51 months. It has even been reported to be approximately 4 years on average [10-13]. In our study, this period was even longer, with an average of 6.5 years (79 months). Therefore, additional tests are required for early diagnosis. All of our patients had early-stage MF. Compared with advanced stages, early-stage MF requires various differential diagnosis to distinguish it from benign dermatoses, hence the need for repeated biopsies [14]. In this study, twice as many biopsies were performed in the MF patients as in the SPP patients. In a study, the first biopsy taken was diagnostic in only 25% of the cases, with a mean diagnostic delay of 2.3 years. Regardless of the number of biopsies taken, the probability of a biopsy resulting in MF was also 25%. This delay in diagnosis was attributed not to the time of biopsy but to the difficulty in histopathological diagnosis [13].

Our knowledge about CTCL dermoscopy has increased in recent years. MF dermatoscopy is especially valuable at early stages when findings are ambiguous. In this study, short linear vessels, linear curved vessels (spermatozoa-like vessels), and branching linear vessels were more frequently observed in the MF patients than in the SPP patients (p<0.05). According to Lallas et al.spermatozoa-like vessels are highly specific for MF [15]. In another study involving patients with early-stage MF, linear and spermatozoa-like vascular structures and yellow- orange-colored areas were also commonly observed [16].

Table 2. Dermoscopy and lesional capillaroscopy findings of mycosis fungoides and parapsoriasis patients.

		Mycosis fungoides		Parapsoriasis		
		N	%	N	%	P
Short linear vessel	None	4	(14.29)	17	(54.84)	0.001
	Present	24	(85.71)	14	(45.16)	
Short linear vessel ratio	None	4	(14.29)	17	(54.84)	0.002
	<%50	13	(46.43)	11	(35.48)	
	>%50	11	(39.29)	3	(9.68)	
Linear curved vessel	None	13	(46.43)	25	(80.65)	0.006
	Present	15	(53.57)	6	(19.35)	
Linear curved vessel ratio	None	13	(46.43)	25	(80.65)	0.018
	<%50	5	(17.86)	1	(3.23)	
	>%50	10	(35.71)	5	(16.13)	
Dotted vessels	None	9	(32.14)	16	(51.61)	0.131
	Present	19	(67.86)	15	(48.39)	
Dotted vessels ratio	Yok	10	(35.71)	16	(51.61)	0.186
	<%50	9	(32.14)	11	(35.48)	
	>%50	9	(32.14)	4	(12.90)	
Branching linear vessels	None	17	(60.71)	27	(87.10)	0.020
	Present	11	(39.29)	4	(12.90)	
Branching linear vessels	None	17	(60.71)	27	(87.10)	0.040
	<%50	9	(32.14)	3	(9.68)	
	>%50	2	(7.14)	1	(3.23)	
Vascularity pattern	None	2	(7.14)	12	(38.71)	0.026
	Peripheral	1	(3.57)	0	(0.00)	
	Uniform	6	(21.43)	2	(6.45)	
	Clustered	1	(3.57)	0	(0.00)	
	Non-specific	18	(64.29)	17	(54.84)	
Purpuric area	None	21	(75.00)	29	(93.55)	0.071
	Present	7	(25.00)	2	(6.45)	
Presence of scale	None	17	(60.71)	22	(70.97)	0.406
	Present	11	(39.29)	9	(29.03)	
Localization of scale	None	17	(60.71)	22	(70.97)	0.609
	Patchy	6	(21.43)	6	(19.35)	
	Diffuse	5	(17.86)	3	(9.68)	
Follicular findings	None	24	(85.71)	30	(96.77)	0.180
	Present	4	(14.29)	1	(3.23)	
Dilated follicle	None	26	(92.86)	31	(100,00)	0.221
	Present	2	(7.14)	0	(0.00)	
Structureless orange area	None	6	(21.43)	16	(51.61)	0.017
	Present	22	(78.57)	15	(48.39)	
Structureless orange area ratio	None	6	(21.43)	15	(48.39)	0.049
	<%50	17	(60.71)	10	(32.26)	
	>%50	5	(17.86)	6	(19.35)	
Structureless orange area feature	None	4	(14.29)	11	(35.48)	0.024
	Patchy	23	(82.14)	15	(48.39)	
	Diffuse	1	(3.57)	5	(16.13)	

Table2 continues

Table 2. Dermoscopy and lesional capillaroscopy findings of mycosis fungoides and parapsoriasis patients. *(continued)*

		Mycosis fungoides		Parapsoriasis		P
		N	%	N	%	
Structureless white area	None	19	(67.86)	27	(87.10)	0.075
	Present	9	(32.14)	4	(12.90)	
Purple color	None	20	(71.43)	29	(93.55)	0.036
	Present	8	(28.57)	2	(6.45)	
Brown reticular network/ poikiloderma	None	25	(89.29)	31	(100.00)	0.101
	Present	3	(10.71)	0	(0.00)	

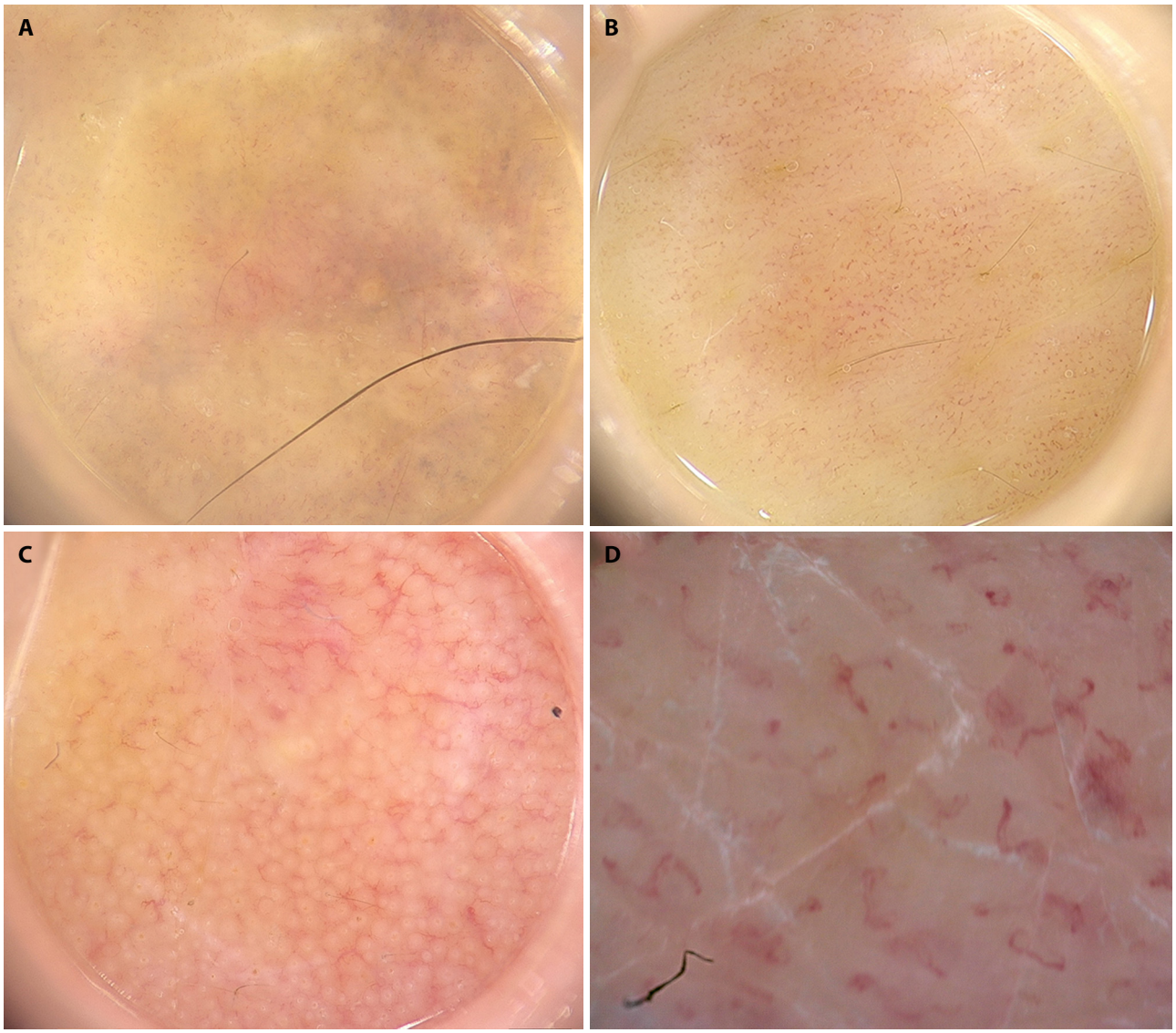

Figure 1. (A) Purple and white areas, minimal linear short vessels in a case of mycosis fungoides (MF) case with videodermoscopy. (B) Linear-curved vessels in MF case with videodermoscopy. (C) Branching linear vessels in facial syringotropic MF case with videodermoscopy. (D) Scales in grooves and linear-curved vessels with lesional capillaroscopy.

In yet another study, spermatozoa-like linear vessels were frequently detected in patch- stage MF, and this characteristic could effectively differentiate MF from other benign dermatoses. Additionally, dermatoscopic patterns were compared according to stages and MF subtypes. During the transition from the patch stage to the tumoral stage, linear vessels begin to branch out, and linear curved vessels in plaque lesions become difficult to observe via dermatoscopy. These vessels are the fine vessels in the deep papillary dermis, and the neoplastic dense cellular infiltrate displaces these vessels in deeper areas [17].

Table 3. Histopathological features and microvascular density scoring of mycosis fungoides and small plaque parapsoriasis patients.

		Mycosis fungoides		Parapsoriasis		P
		N	%	N	%	
CD7 loss	None	12	(42.86)	23	(74.19)	0.014
	Present	16	(57.14)	8	(25.81)	
CD30 expression	None	28	(100.00)	31	(100.00)	0.999
	Present	0	(0.00)	0	(0.00)	
Spongiosis	None	15	(53.57)	8	(25.81)	0.029
	Present	13	(46.43)	23	(74.19)	
Epidermal change	None	15	(53.57)	22	(70.97)	0.146
	Parakeratosis	8	(28.57)	8	(25.81)	
	Acanthosis	5	(17.86)	1	(3.23)	
Lymphocytic infiltration with large/irregular nuclei	None	2	(7.14)	15	(48.39)	<0.001
	Minimal	16	(57.14)	16	(51.61)	
	Marked	10	(35.71)	0	(0.00)	
Dermal fibrosis	None	6	(21.43)	8	(25.81)	0.541
	Minimal	21	(75.00)	23	(74.19)	
	Marked	1	(3.57)	0	(0.00)	
Localization of dermal infiltration	Perivascular	9	(32.14)	26	(83.87)	<0.001
	Band	18	(64.29)	6	(19.35)	
	Perifollicular	3	(10.71)	0	(0.00)	
	Peri adnexal	1	(3.57)	0	(0.00)	
		Mean± SD	Median (Min.-Max)	Mean± SD	Median (Min.-Max)	P
MVD (highest score area)		23.64±9.76	22.5 (9-49)	18.06±8.12	15 (8-42)	0.010
MVD (sum of three highest score area)		59.04±24.21	57 (21-119)	43.94±16.77	39 (22-98)	0.007

MVD = microvascular density.

Structureless orange-colored areas were more frequently observed in MF than in SPP, and they often had a patchy pattern in our study. The two groups did not significantly differ in terms of the presence of scale, scale localization, purpuric areas, dilated follicle, and structureless white-colored areas. The occurrence of purple coloration was significantly higher in the MF patients than in the SPP patients. In other studies, patchy structureless orange-colored area is common in MF. Although a structureless orange-colored area is also found in SPP, it is more often diffuse [3,17]. The presence of structureless orange-colored areas is not specific to CTCL. In a study involving other nodular or plaque-type T- and B-cell primary cutaneous lymphomas, the strongest dermatoscopic predictor for primary cutaneous lymphoma is the structureless orange-colored area s[18].

To our best knowledge, there are very few studies on the use of capillaroscopy in neoplastic lesions exist. In these studies, the occurrence of angiogenesis in basal cell carcinoma was evaluated with videocapillaroscopy. The advantage of videocapillaroscopy is that it could detect the tumoral vascular structures that could not be detected by dermatoscopy [19,20]. In our study, magnification levels that could not be reached with videodermatoscopy were achieved with the image clarity offered by lesional capillaroscopy. For instance, the distinction between short linear vessels and linear curved vessels is not always clear with videodermatoscopy, whereas these vessels can be easily characterized with lesional capillaroscopy.

Lesional capillaroscopy assessment has previously been applied in several studies to evaluate the response of psoriatic lesions to treatments. In these studies, a magnification of up to ×300 was used to evaluate the effects of treatment on angiogenesis and microcirculation [21-23]. Further studies on the use of lesional capillaroscopy in MF patients for prognosis or follow-up treatment are thus needed.

Another advantage of dermatoscopy is that clinically suspicious lesions can be marked. In various skin tumors marking of suspicious areas might increase the rate of diagnosis [24]. Given that histopathological findings are focal in MF, obtaining biopsy samples from areas where evident findings have

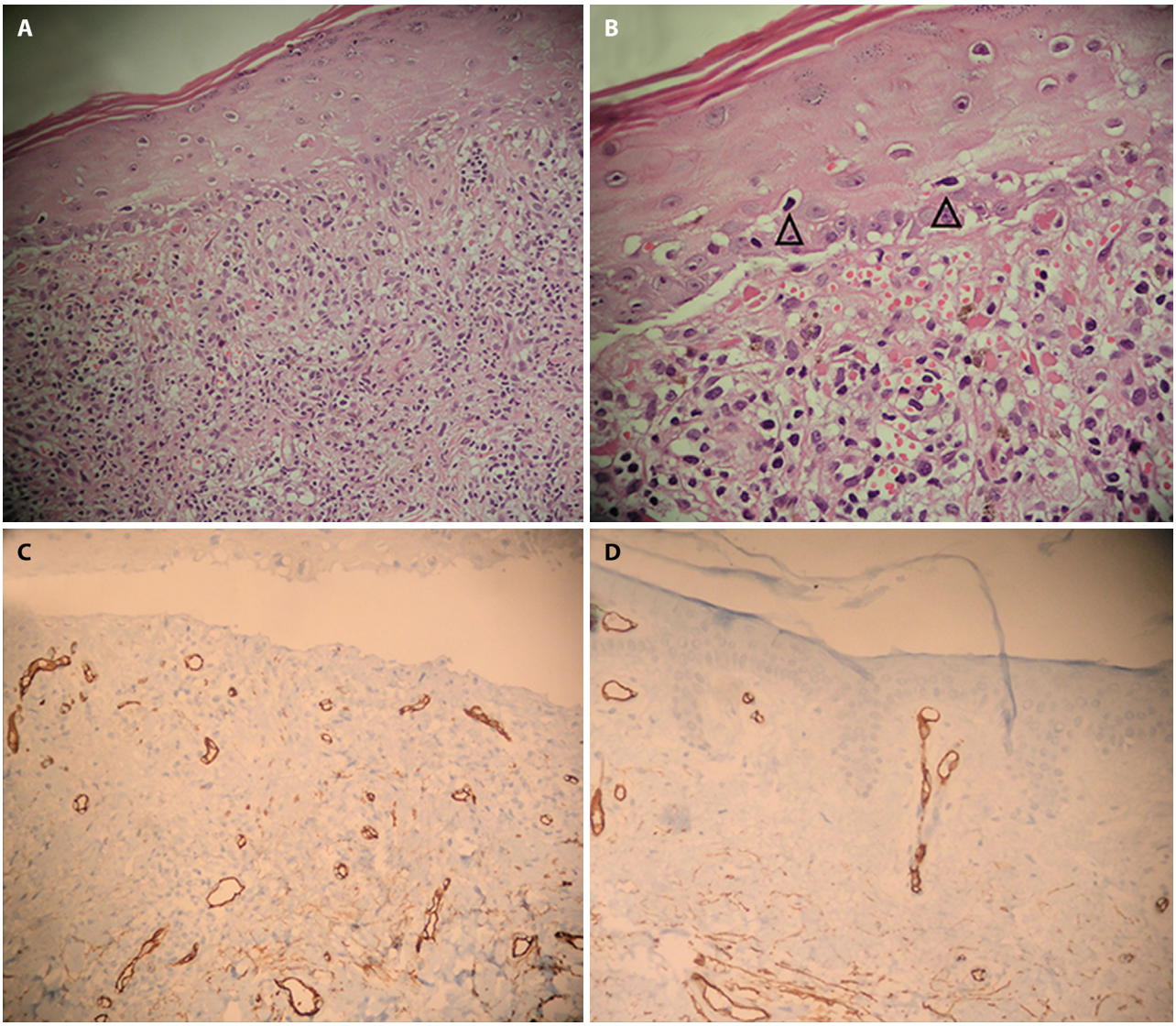

Figure 2. (A) Parakeratosis in the epidermis, focal subepidermal separation, marked vacuolar degeneration in the spongiotic background, severe lymphohistiocytic cell infiltration accompanied by band-forming lymphoid cells with large hyperchromatic nuclei (H&E x200). (B) Atypical lymphoid cells showing hyperchromatic large-nucleated epidermotropism (H&E x400) (arrows). (C) Increased vascularity in the superficial dermis (CD34 x200). (D) Comparison with a case without mycosis fungoides (CD34 X200).

been obtained through dermoscopy and lesional capillaroscopy might increase the rate of diagnostic success.

Angiogenesis has prognostic significance in many solid or hematological cancers, and anti- angiogenic agents are used in treatments [25,26]. In many different non-Hodgkin lymphoma subtypes, angiogenesis is evaluated through MVD scoring, and it has been found to be associated with prognosis [27,28]. In a study where angiogenesis and dermatoscopy findings were evaluated, MVD scores were high in MF patients [29]. In another study in which cell proliferation and angiogenesis were measured with Ki-67 and CD31, MVD was higher in MF than in benign dermatoses. Additionally, angiogenesis is associated with stage [30] .

In our study, patients with an MVD score of >20 were classified as having MF, with 67.9% sensitivity and 67.7% specificity. The reported sensitivity and specificity for MF diagnosis with the loss of CD5 are 65.8% and 72.7%, respectively, and 73.7% and 77.0% for the loss of CD7, respectively [8] .

In terms of dermatoscopic parameters, the respective sensitivity and specificity for MF diagnosis were 85.2% and 54.8% in the presence of short linear vessels and 53.0% and 80.0% in the presence of linear, curved vessel. The sensitivity and specificity of the International Society for Cutaneous Lymphoma (ISCL) diagnostic algorithm are 87.5% and 60.0%, respectively [31]. Thus, MVD determination and application of dermatoscopic parameters might be practical and diagnostically valuable, and further studies on the integration of these parameters into MF diagnostic algorithms are needed.

Although SPP is considered a benign dermatosis, its development into MF has been reported in the

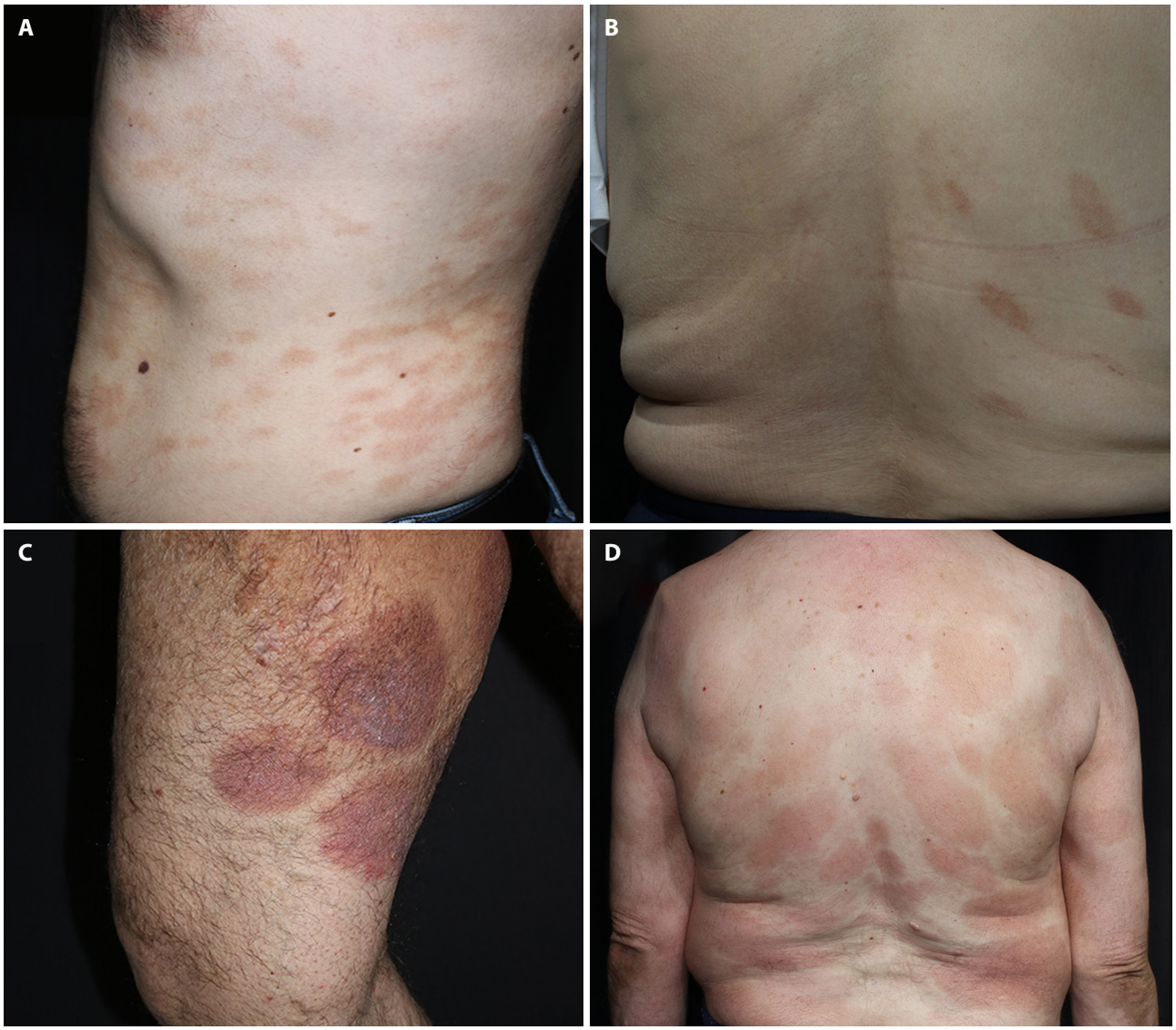

Figure 3. (A) Digitate patches on the trunk of a small plaque parapsoriasis (SPP) patient. (B) Oval shaped digitate patches on the back of a SPP patient. (C) Reddish brown poikilodermic sharply demarcated mycosis fungoides (MF) patches with fine scales. (D) Widespread pink-orange patches of MF on the trunk and extremities.

Table 4. Variation of dermoscopic parameters according to Guitart and microvascular density scores in patients with mycosis fungoides and parapsoriasis.

		Guitart Score		P	MVD (area with the highest score)		P	MVD (sum of three highest score areas)		P
		Mean± SD	Median (Min.-Max)		Mean± SD	Median (Min.-Max)		Mean± SD	Median (Min.-Max)	
Short linear vessel	None	4±1.67	4 (1-7)	0.011	19.76±8.83	18 (9-40)	0.536	47.05±17.34	46 (21-92)	0.424
	Present	5.13±1.82	5.5 (1-7)		21.24±9.61	21 (8-49)		53.34±23.86	50 (23-119)	
Linear curved vessel	None	4.26±1.87	5 (1-7)	0.007	20.39±8.94	18.5 (9-42)	0.715	51.29±21.79	48.5 (22-116)	0.924
	Present	5.57±1.47	6 (1-7)		21.29±10.11	21 (8-49)		50.76±22.42	48 (21-119)	
Dotted vessel	None	4.52±1.76	5 (1-7)	0.315	22.52±10.80	21 (8-49)	0.356	56.24±26.54	52 (22-119)	0.330
	Present	4.88±1.90	5 (1-7)		19.38±7.92	18 (9-40)		47.32±17.03	42 (21-92)	
Branching linear vessel	None	4.43±1.82	5 (1-7)	0.020	18.5±6.93	18 (8-42)	0.018	46.5±16.54	44 (21-98)	0.065
	Present	5.6±1.64	6 (1-7)		27.2±12.24	24 (12-49)		64.6±29.51	56 (32-119)	

MVD = microvascular density; SD = standard deviation.

Table 5. Determination of the cut-off value for mycosis fungoides disease.

ROC Model	Area	SD	Asymptomatic Significance	Asymptomatic 95% Confidence interval		Cut-off	Sensitivity	Specificity
				Lower Bond	Upper Bond			
MVD (area with the highest score)	0.696	0.069	0.010	0.560	0.831	>20.00	%67.86	%67.70
MVD (sum of three highest score area)	0.703	0.068	0.007	0.569	0.837	>51.50	%64.29	%71.00
Short linear vessel	0.703	0.069	0.008	0.568	0.838	>0.50	%85.21	%54.80
Linear curved vessel	0.671	0.072	0.024	0.531	0.812	>0.50	%53.57	%80.60
Branching linear vessel	0.632	0.074	0.082	0.487	0.776	>0.50	%39.29	%87.10

MVD = microvascular density; ROC = receiver operating characteristic; SD = standard deviation.

literature. Therefore, some SPP cases may actually be pre-MF patients [32]. This phenomenon is supported by histopathologically demonstrated epidermotropism, CD7 loss, and atypia in some SPP patients. These patients may display clinical features similar to those seen in SPP patients but do not meet the histopathological criteria for MF, and possibility of having such patients as subjects is the main limitation of this study. Although large plaque parapsoriasis is considered a pre-lymphomatous disease, larger-scale studies are needed to better understand the nature and prognosis of SPP, which is considered a benign entity. Another limitation was that topical treatments were discontinued for a period of two weeks before obtaining dermoscopic images from our patients. This timeframe might be limited for the regression of steroid effects and the findings could have been influenced by the previous therapy.

Our study shows the significant relationship between dermatoscopic parameters and histopathology regarding angiogenesis. Lesional capillaroscopy was useful for the characterization and clear magnification of vessels, which could not be achieved with videodermoscopy. Meanwhile, dermatoscopic findings might be useful for the determination of the timing and location of biopsy in SPP patients. Further studies on the integration of dermatoscopic and histopathologic findings into the diagnostic algorithms of MF are thus needed.

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