Dermatology Practical & Conceptual

Dermatoscopy of Cutaneous Lichen Planus – Attempt to Translate Metaphoric Terminology Into Descriptive Terminology

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ABSTRACT

Introduction: Dermatoscopy is gaining appreciation in assisting the diagnosis of inflammatory dermatoses (inflammoscopy). Lichen planus (LP) is a common inflammatory skin disease with characteristic dermatoscopic features. Over the last few years, numerous articles were published on the dermatoscopy of LP and a high number of terms have been used to describe the dermatoscopic features of this disease.

Objectives: The objective of this study was to review the literature on the dermatoscopy of LP and to re-evaluate the published descriptions in the light of the 2019 expert consensus on the terminology of dermatoscopy for non-neoplastic skin diseases.

Methods: We searched the PubMed database using the keywords 'lichen planus and dermatoscopy', 'lichen planus and dermoscopy', 'lichen planus and epiluminescence microscopy', and 'lichen planus and inflammoscopy'.

Results: Of 408 articles retrieved, we selected 67 articles for full-text review and finally included 58 articles, mostly case reports or small case series, comprising 572 patients with LP. We identified 118 different terms or short descriptions that were used to characterize the dermatoscopy of LP and redescribed them according to International Dermoscopy Society consensus paper. Frequently, authors applied various terms or descriptions to variants of the same feature. Although reported under different designations, Wickham striae were the most consistent dermatoscopic feature of LP. Other characteristics of LP, such as vascular patterns, pigmented structures and follicular findings were less consistent or depended on skin type, anatomic site, disease stage and applied treatment.

Conclusions: While Wickham striae are the single most important clue for the diagnosis, other dermatoscopic characteristics of LP are less consistent. Based on the descriptions published in the literature we established a dictionary of useful terms for the description of LP that is consistent with the terminology suggested by the recent consensus conference.

Introduction

Dermatoscopy is a non-invasive diagnostic technique that is widely used for in vivo examinations of skin lesions. It improves the diagnostic accuracy for pigmented and non-pigmented cutaneous proliferations and enables users to detect criteria that are invisible with the unaided eye. Application of dermatoscopy is straightforward and fast and can be easily incorporated into clinical routine [1-3]. An increasing number of publications on alternative applications of dermatoscopy suggests that dermatoscopy is gaining appreciation for the diagnosis of non-neoplastic skin diseases, such as inflammatory skin diseases and skin infections and infestations [2-4]. Due to its broader scope, the vocabulary of dermatoscopy expanded significantly over the last few years [2]. Dermatoscopic terms used in the literature are numerous and often incomprehensible, which prevents a systematic analytic approach [2-3,5].

In 2019, the International Dermoscopy Society (IDS) published a consensus paper on standardization of dermoscopic terminology in non-neoplastic dermatoses [5]. A set of the following 5 dermoscopic parameters was proposed as a basic guide to use in general dermatology: (I) vessels (including morphology and distribution); (II) scales (including colour and distribution); (III) follicular findings; (IV) 'other structures' (structures other than vessels/scales; including colour and morphology); and (V) 'specific clues' (features that, when present, are strongly suggestive of only 1 diagnosis due to a strict dermoscopic-pathological correlation) [3].

Lichen planus (LP) is an inflammatory skin disorder, often with a chronic course [6]. The term LP was coined by Erasmus Wilson in 1869 [7]. Data on the epidemiology of LP are scarce but it is believed to be common [8]. The disease commonly affects middle-aged adults, between 30 and 60 years of age. The skin (cutaneous LP) and oral cavity (oral LP) are the most frequently involved areas. Other mucous membranes, including the genitalia (penile or vulvar LP), esophagus, conjunctiva, and skin appendages may also be affected [6,8-9]. The typical primary lesion of cutaneous LP is a papular eruption characterized by the development of flat-topped, violaceous papules on the skin [6,8]. In 1895, Wickham noted the characteristic reticulate white lines on the surface of LP papules now recognized as Wickham striae [10]. Often, a mnemonic ('4 P's' or '5 P's') is used to describe the skin lesions associated with LP, which includes planar, polygonal, pruritic, purple papules or plaques [8,10]. Approximately 50% of patients with active LP may show an isomorphic response (the development of lesions of LP in sites of trauma, commonly as a result of scratching) [6,8]. The predilection sites of LP include the extensor surfaces of the lower legs and the volar aspect of the wrists and forearms, trunk and the lumbar region [6]. LP is mainly a self-limited dermatosis. The mean duration of the disease is estimated at about 1–2 years but longer and chronically recurrent courses are possible [6]. Lesions tend to heal with significant post-inflammatory hyperpigmentation especially in individuals with dark skin tone [8]. In addition to the classic variant of cutaneous LP, other multiple clinical presentations of the disease have been described. Combinations of morphological variants are possible in the individual case [6,8]. Examples of variants of LP are given in Table 1 [6,8,11]. In many cases, the diagnosis of cutaneous LP can be made clinically. In doubtful cases a skin biopsy is useful to confirm the diagnosis [8]. Occasionally, direct and indirect methods for immunofluorescence may be helpful in the diagnostic process of LP [6,12].

Objectives

The main aims of this study were (1) to retrieve and analyse the dermatoscopy terminology of cutaneous LP and (2) to revaluate the published descriptions in the light of the IDS consensus 2019.

Table 1. Clinical variants of cutaneous lichen planus.

Clinical variants
Classic LP
Hypertrophic LP
Annular LP
Bullous LP
Erythrodermic LP
LP pemphigoides
Lichen planus-lupus erythematosus overlap syndrome
LP actinicus
LP pigmentosus
LP pigmentosus-inversus
Atrophic LP
Follicular LP (Lichen planopilaris)
LP follicularis decalvans
Regressive lichen planus
Acute generalized lichen planus
Ulcerative LP
Linear LP
Nail LP
Oral LP
Genital LP
Esophageal LP
Otic LP

LP = lichen planus.

Methods

We conducted a systematic literature review searching the PubMed database according the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [13]. We searched for relevant articles in English using the keywords 'lichen planus dermatoscopy', 'lichen planus dermoscopy', 'lichen planus epiluminescence microscopy' and 'lichen planus inflammoscopy' and identified 401 publications. The titles and abstracts were screened and 51 articles were selected for full-text review. Publications on hair, nail and mucous membrane involvement were excluded. A manual search was also carried out by analysing the reference sections of all relevant articles about dermatoscopy of cutaneous LP. In total, 58 articles were selected for full-text-review, including 34 case reports and case series, 9 reviews and overviews, 3 retrospective studies and 12 prospective studies (Figure 1). One of the authors made a list of terms and phrases that were used to describe the dermatoscopy of LP. We excluded phrases and terms that could be understood outside the context of dermatoscopy (e.g. crusting, erosions). The final list consists of 118 terms and phrases (Table 2).

Results

Wickham striae (WS) are the dermatoscopic hallmark of LP. WS most often appear as white lines but occasionally may be yellow or, rarely, even blue, for example in palmo-plantar lesions of patients with darker skin tone [3,14]. The most common arrangement of WS is the reticular pattern [14] (Figure 2). Less commonly, WS may not be arranged in a reticular fashion. These variations in the arrangement of WS have been described in the literature as annular, circular, round, arboriform, perpendicular, veil-like, 'leaf venation', 'starry sky' or structureless, polymorphic and combined [11,14-25].

In scarring or resolving lesions of dermatoses other than LP (e.g. discoid lupus erythematosus, prurigo nodularis), a network-like white structure similar to Wickham striae may be seen. These structures, which result from dermal fibrosis, are defined as pseudo-Wickham striae [3,11]. Additional features of active LP frequently reported in the literature are peripheral dotted or linear vessels; structureless backgrounds of various colours including violet, reddish, pink, brown or yellow; white or yellow dots, and pigmented structures (dots, globules and/or reticular or cloud-like areas) [14].

Palmar LP is characterized by roundish yellowish areas with peripheral projections that may create a star-like appearance [14], which may correspond to the specific manifestation of Wickham striae in palmar skin. Madke et al described black colored patches on the palms for which the term 'hem-like pattern' was coined. It corresponds to pigment distribution along the ridges [26]. Dermatoscopy of a plantar lichen planus, presented in another article published by Madke et al, showed scaling and a reticular pattern [7] (Figure 3).

Dermatoscopy of hypertrophic LP lesions is typified by a rippled surface, comedo-like structures filled with yellow keratinous plugs, round structures ('corn pearls') and blue-gray globules (Figure 4). Less common features include non-specific vascular findings (red globules, linear and dotted vessels), white structureless areas, scaling and central hyperpigmentation [14]. WS are often invisible in hypertrophic LP, as they are covered by the overlying hyperkeratosis [3,22,27].

The main dermatoscopic patterns of LP pigmentosus include a diffuse, structureless, brownish pigmentation, gray, blue or brown dots ('peppering') or globules (clods). Other findings such as perifollicular pigmentation and white dots are less common [14,28-29]. In LP pigmentosus WS are typically absent [30]. It is worth mentioning that a special form of lichen planopilaris - frontal fibrosing alopecia - may coexist with lichen planus pigmentosus. It was firstly reported by Dlova in 2013 [31-32].

Lichen planus pigmentosus-inversus (LPPI), a rare subvariant of lichen planus pigmentosus, first described by

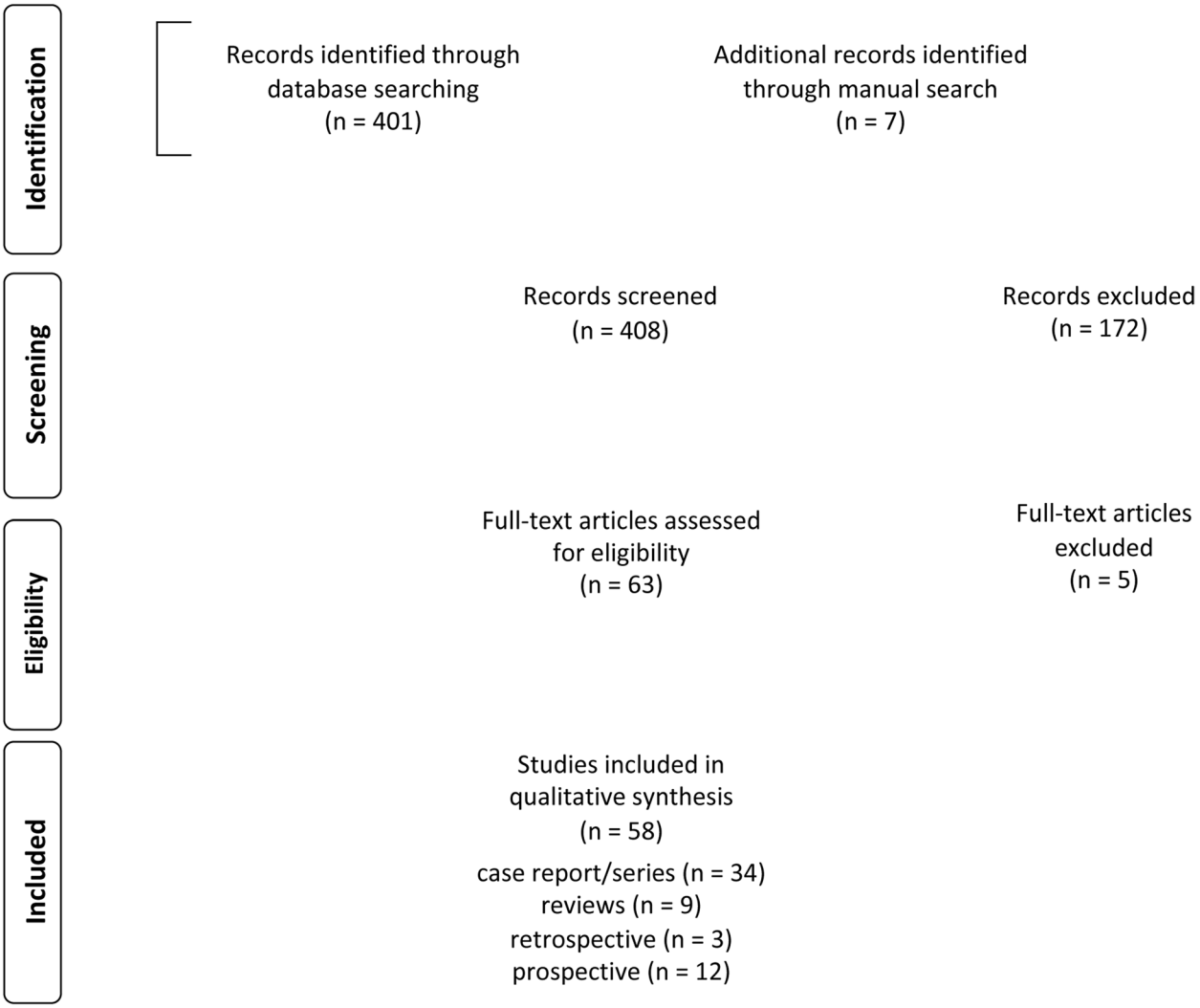

Figure 1. PRISMA flow diagram of study selection for inclusion in the systematic review.

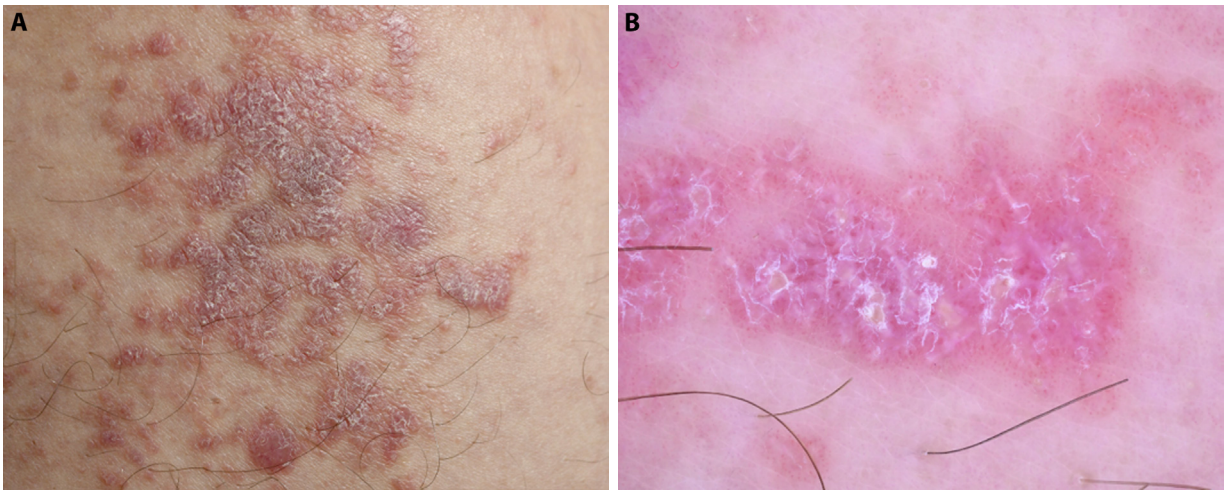

Figure 2. Lichen planus. (A) Clinical image. (B) Dermatoscopy shows classic Wickham striae (white lines in reticular arrangement), keratin plugs that appear as yellow clods and vessels as dots. Scale is also present but this is not a typical feature of lichen planus.

Pock in 2001, is characterized by hyperpigmented macules or plaques located in the intertriginous and flexural areas [8,33]. The dermatoscopy in LPPI is typified by brown structureless areas and gray dots and clods. Initially gray dots are grouped, but with time, they form reticular, linear, and cobblestone patterns. In some instances of LPPIs more than one pattern can be found dermatoscopically. The white dots described in LPPI result from the lack of pigmentation of the follicular

Table 2. Lichen planus metaphoric presented in literature vs. suggested descriptive terminology.

Suggested terminology	Terms and phrases found in literature	References # (where described)
Wickham striae (specific clue)		
White or gray peripheral parallel lines and structureless in the centre	peripheral striations with pearly white areas (or milky-white structures at the centre and grayish strands arranged peripherally)	27
White circles and white branched or curved lines	annular and arboriform whitish line	37
White reticular lines	reticular pearly white areas	35
Blue, gray reticular lines	reticular pigmentation with blue-gray WS	35
Branched or curved lines	WS: arboriform or arborizing	24
Lines	WS: linear	41
Reticular lines	WS: reticular	41
Reticular lines	network of whitish striae	42
Reticular lines	reticular streaks	16
Radial lines	white linear streaks arranged in a radial manner (starburst pattern)	43
White reticular lines	white crossing lines	36
White reticular lines	white crossing streaks	39
Branched lines, connected to a common base at one side, linked together on the other side	WS: leaf venation pattern (mimics snow crystal; 'fern leaf' aspect)	21
Perpendicular lines	WS: perpendicular	11
Reticular lines	WS: cross-linked	16
White radial lines	WS: white streaming lines	24
Radial lines	WS: radial streaming	11
Parallel lines	WS: projections, thin spikes (comb-like appearance)	25
Branched or curved thin or thick lines	WS: thin or broad arboriform projections, ramifications	25
Yellow reticular or branched lines	yellowish structures (in a lacy network), lacy network pattern	37
White straight lines	WS: longitudinal pearly-whitish lines	23
Reticular lines	lacy reticular striae	7
Parallel lines	WS 'brush-like'	47
Clods globules	WS: globular	16,20,37
Circle	WS: round	17,23,41
Circle	WS: circular	17,20,24,37
Circle	WS: annular	1,15,37
White circles	white streaks of annular pattern	24
White circle between brown diffuse dots	invisible WS	11
White circles with white lines	annular crystalline white striae	15
White structureless zone	PWS=pearly white structures	19
Structureless zone	WS: structureless	16,43
More than 1 type, undefined	WS: combined morphology	11
More than 1 type, undefined	WS: polymorphic pearly whitish structure	25
Structureless zone	WS: veil-like	16,20
White structureless zone	WS: homogeneous pearly-whitish configuration	18
White structureless zone	WS: homogeneous crystalline white (striae)	24

Table2 continues

Table 2. Lichen planus metaphoric presented in literature vs. suggested descriptive terminology.

Suggested terminology	Terms and phrases found in literature	References # (where described)
Lines		
Pigmented lines	linear pigment pattern	11
Reticular lines	reticular pigment pattern	11
Brown, blue, gray straight lines	brownish to bluish-gray rods	44
Angulated or polygonal lines	rhomboidal structures	45
Fragmented angulated lines	broken lines, semi-arcuate structures (Chinese letters)	46
Reticular lines	lacy reticular pattern	7
Radial lines parallel to white lines	pigment streaming lines, pigmented lines streaming around a waned WS	24
Globules and dots		
Follicular plugs	follicular plugging	27
Blue, gray, brown, black globules	bluish-gray, brownish-black, brown globules	27,44,45
Blue, gray globules arranged randomly, around white structureless zones	blue-gray globules arranged in diffuse structureless pattern interspersed in pearly white areas	37
Brown, yellow or orange (rarely black) globules or simply 'keratin plugs'	comedo-like openings, comedo-like structures (resembling oil drops)	22,48,49
White globules or dots	milia-like cysts	33,48
Pigmented globules	pigmented globules, pigment globules	16,24
Pigmented polygonal globules	cobblestone pigment pattern	11,12,16
Yellow polygonal globules	roundish yellow areas often having peripheral projections (star-like appearance)	14
Globules (rounded, corned structures)	round corneal structures 'corn pearls'	14
White or black globules	comedones	33
Gray, blue, brown globules and dots	fine/coarse, gray-blue/brown dots or globules	14
Brown clustered globules and dots	mottled pattern	23
Globules and dots located centrally in the lesion	ashy holes	23,50
Brown globules, dots	brown punctate areas	51
Four white dots, 4-dot globule	rosettes	41
White clustered dots and gray dots	starry sky, starry sky pattern	14,16,17,21,24
White follicular clustered dots	starry sky/white dots	14,16,21,24
Black dots	black pepper-like pattern	12
Gray dots	peppered pigment, peppering pigment pattern	16,24
Brown diffuse dots	peppering, diffuse	52
Gray dots and circles	annular-granular pattern	16
Globules and dots arranged in lines	hem-like pigment pattern, hem-like pattern	25
Gray, blue dots	gray, blue-gray granules	19,53
Gray, brown dots	granular gray-brown dots	50,54
Brown dots in the centre of hypopigmented globules	targetoid lesion, owl eye appearance	46
Globules and dots arranged in lines that are connected at an angle	dots and globules in arcuate pattern	55
Circles		
Circle	pigmentation: follicular	56
Gray, brown, blue circles, or dots arranged in circles, or dots	periappendageal, perifollicular, peri-eccrine gray to brown/gray blue pigment deposition	56

Suggested terminology	Terms and phrases found in literature	References # (where described)
Concentric circles	hair follicles with central black dots (isobar sign)	52
Incomplete circles	areas with gray, blue-gray dots arranged in circles	57
White circles	ring-form whitish striae	58,59
Gray, brown, blue circles	circular pigment pattern	11
Structureless		
Polychromatic structureless zone	rainbow pattern	41
Brown structureless zone	brown patches	48,54
Gray structureless zone	gray patches	48
Gray and brown structureless zone	mix of gray and brown	48
Brown or gray dots with brown structureless zones	mixed pigmented pattern	21,60
White and blue structureless zone	blue-white veil	24
White and blue structureless zone	homogeneous white-bluish pattern	33
White and blue structureless zone	blue and white curtain structure	61
White or yellow structureless zone	yellowish or white non-structured pattern	16
Yellow and brown structureless zone	yellow-brown pigmentation	61
Brown, gray, blue structureless zone	diffuse hyperpigmentation	16
Structureless zone	obliteration of the pigmentary network	55
Structureless zone	homogeneous cloud like pattern, homogenous cloud like pattern	16
Brown structureless zone	diffuse brown background, diffuse brown (brownish) areas, diffuse brown colour, diffuse brownish pigmentation	21,30,56,62
Structureless zone	diffuse pigmentation	29,56
Gray, blue structureless zone	gray-blue background	47
Brown structureless zone interrupted by follicular openings	pseudonetwork, pseudoreticular pigmentary network, pseudoreticular pigment network, pseudoreticular pigmentary network pattern	31,55,56
Blue, gray structureless zone interrupted by follicular openings	blue-gray pigmentation around asymmetrically distributed follicular openings	45
Gray structureless zone	gray blotch	30
White structureless zone	chalk-white structureless areas	14,22
Brown, gray, black structureless zone	dark-coloured blotches	63
Red, brown structureless zone	brown and erythematous homogeneous areas	12

WS = Wickham striae

of annular lichen planus, this variant may occur in other regions as well. Dermatoscopic features of annular lichen planus may include circular WS, structureless zones with different pigmentation, which has been described as 'cloud-like', perifollicular-annular pigmentation, diffuse reticular pigmentation, as well as peripheral red dots on a pink background or erythema, which has been described as homogeneous vascular pattern [8,11,34].

The dermatoscopic features of another type of LP, LP actinicus, also known as LP tropicus, include diffuse peppering pigment pattern on a brown background, without WS or vascular patterns [8,11]. The skin lesions are most commonly seen in Middle East, India and east Africa. Sites of involvement include sun-exposed areas [8].

Güngör Ş et al analysed 255 lesions of active and regressive LP and found that the course of the disease has an impact on the dermatoscopic appearance. WS are less common in acute lichen planus. Furthermore, acute LP is typified by the presence of vascular patterns and the absence of pigment patterns [11]. They also found that in regressive LP WS and vascular patterns were absent while pigment patterns were frequently seen. The different variants of pigmentation were described as peripheral dots, diffuse dots, perifollicular -annular pigmentation, peripheral peppering, diffuse

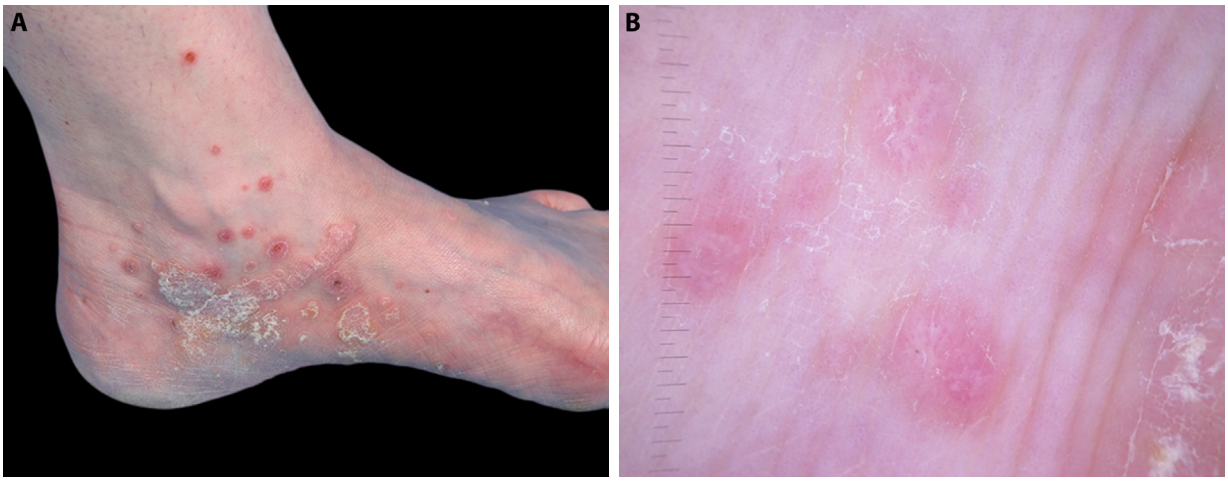

Figure 3. Plantar lichen planus. (A) Clinical presentation. (B) Dermatoscopic picture with typical reticular pattern and white scaling.

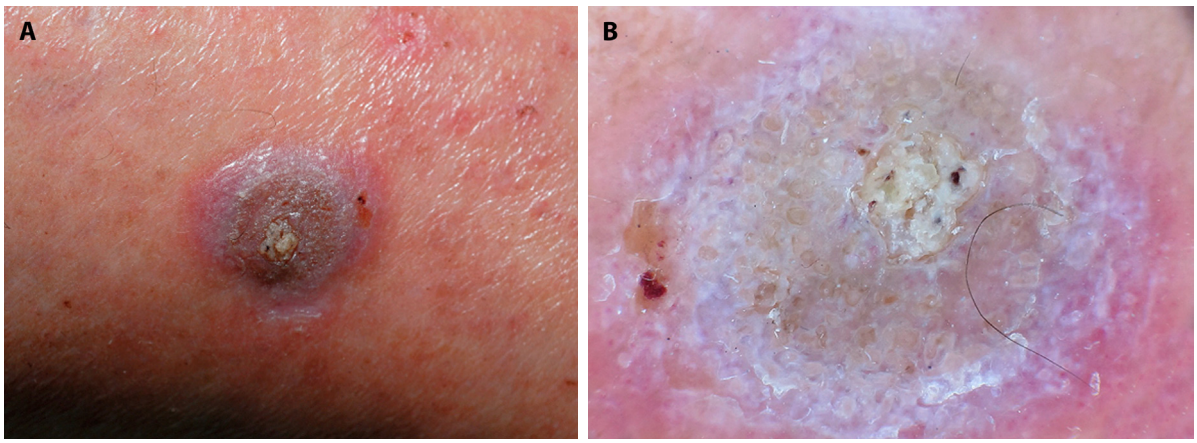

Figure 4. Hypertrophic lichen planus. (A) Clinical (A) and (B) dermatoscopic images showing comedo-like structures filled with yellow keratinous plugs.

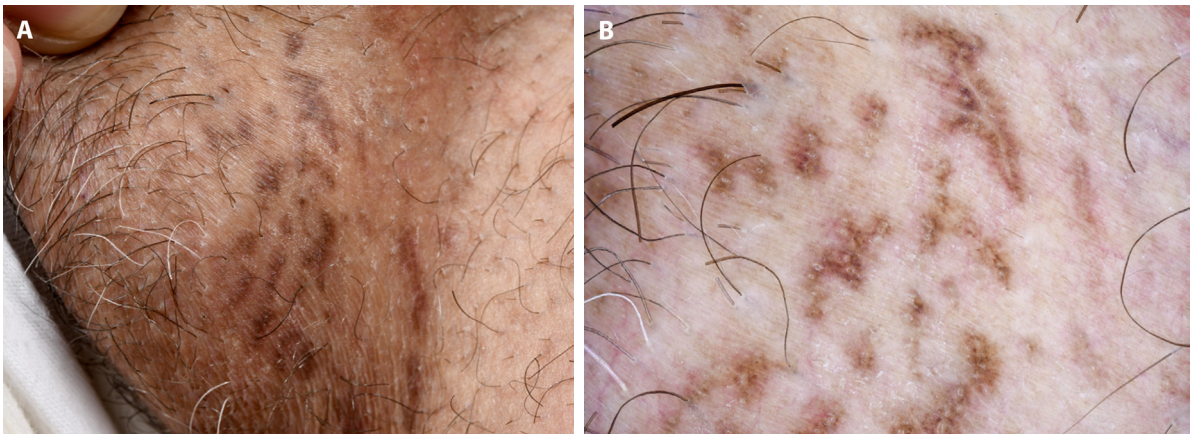

Figure 5. Lichen planus pigmentosus. (A) Lichen planus pigmentosus in the groin of a patient with dark skin tone, clinical image. (B) Dermatoscopy shows brown dots in different arrangements. Wickham striae are absent.

openings. The furrows of the skin (skin markings) are not exposed to friction, which could be the reason for the absence of pigmentation in skin furrows in LPPI patients [11,12]. Clinical and dermatoscopic images of LP pigmentosus are shown in Figure 5.

Annular LP is another rare variant of LP. Typically, the centre of the lesion is atrophic. Friedman and Hashimoto reported that the annular and central atrophy results from elastolytic activity of inflammatory cells. Although the genital and intertriginous areas are common sites of involvement

peppering, linear pigmentation, cobblestone pigmentation, reticular pigmentation, circular pigmentation, peripheral homogeneous cloud-like pigmentation, and diffuse homogeneous cloud-like pigmentation. Furthermore, brown and yellow background colours were also observed [11].

Conclusions

The increased use of dermatoscopy for inflammatory skin diseases resulted in an expansion of publications which caused the dermatoscopic vocabulary to grow substantially. LP is a particularly interesting example because it is equally common among all ethnic groups and has a variable course. The dermatoscopic features of LP vary significantly depending on skin tone, course, variant, and anatomic site. These idiosyncratic features of LP led researchers to use different terms for the same structures, which is confusing and diminishes the comparability between studies. Natural language is expansive in nature and constantly creates new terms and phrases, but this may not be desirable in science. Technical languages in- and outside of medicine typically limit their vocabulary to a few, well defined standard terms. The same approach is recommended in dermatoscopy. The standardized terminology and standardized description suggested in the two consensus papers on dermatoscopic terminology [2,5] will prevent the undesirable growth of terms. The first main idea is to narrow down descriptions of dermatoscopic structures to 3 basic elements: 'lines', 'dots or clods' and 'circles'. If none of these basic elements is present, the term 'structureless' can be applied [2]. This approach is sufficient to describe even complex dermatoscopic structures [2]. The second idea is to use a standardized way to describe non-neoplastic lesions including vessels, scales, follicular findings, other structures and specific clues as put forward by Errichetti et al [5].

Many articles included in this paper were published before the consensus on dermatoscopic terminology for non-neoplastic skin diseases. Lack of guidelines resulted it in a wild growth of terminology for a single disease. We were able to identify 118 terms and phrases for LP. This is clearly too much. Some terms and phrases describe the same structures in different words, for example 'white crossing lines', 'cross-linked WS', 'white crossing streaks', 'reticular pearly white areas' [2,16,35-39]. These abundant number of terms for basically the same structure have no additional value and it is better to use just one term, either reticular white lines or simply Wickham striae – a specific clue [2].

The largest numbers of terms and phrases used for dermatoscopic features of LP were those addressing manifestations of patterns formed by Wickham striae and clods and dots. We have summarized the terms found in the literature in Table 2. Here, we also tried to translate the remaining terms or phrases into a standardized terminology using the basic elements lines, circles or 'structureless' if absence of basic elements. Due to the distinctiveness of the vocabulary describing vascular structures and limited vocabulary for describing scaling, we have listed terms and phrases describing vessels and scaling in a separate table (Table 3).

This paper also demonstrates that the morphology of lichen planus varies according to skin tone, duration, variants and anatomic site. Clinical and dermatoscopic images of LP in different stages in a patient with dark skin tone are shown in Figure 6.

The most consistent dermatoscopic feature of lichen planus are WS. WS correspond to wedge-shaped hypergranulosis in dermatopathology. They are mainly seen in active lesions of LP and can be regarded as an activation marker of LP. WS may disappear after treatment, whereas pigment patterns resist treatment. In this regard it is important to emphasise the correlation between the dermatoscopic patterns and the histological features of LP. Knowledge of histopathology and its correlation with dermatoscopy increases the understanding of dermatoscopy and allows a significant level of interpretation of dermatoscopic patterns and clues [40].

Pigment patterns on dermatoscopic examination correspond to dermal melanophages and pigment incontinence and are a sign of regressing LP. It comes as no surprise that pigment patterns can be resistant to anti-inflammatory therapy (e.g. topical steroids) due to the absence of the inflammatory cells [11].

Dermatoscopy of LP may be used to assess the likelihood of the persistence of post-inflammatory hyperpigmentation. Structureless light brown areas devoid of dots (granularity) are associated with a shorter duration and granular pigmentation being associated with a longer course. Furthermore, the dermatoscopy enables monitoring the evolution of lesions after therapy [3].

All those observations indicate the dynamic course of LP and magnify the importance and the advantages of dermatoscopy. It can be helpful not only for the diagnosis but also for treatment decisions and prognosis. A limitation of this paper is that we did not include dermatoscopic features of non-cutaneous LP (nails, hair, mucosa), which have their own descriptions. According to the level of evidence majority of works are level 4 (case series, low-quality cohort or case-control studies) or 5 (expert opinions based on non-systematic reviews of results or mechanistic studies). The intent of this critical paper is not to discourage researchers from making new observations and describing them in their own words. On the contrary, we want to support researchers by giving them a framework in which their astute observations can be described in a meaningful and repeatable way so that others can benefit maximally from their findings.

It should be noted that in many cases of LP the diagnosis can be established easily with the unaided eye. However, if

Table 3. Lichen planus metaphoris presented in literature vs. suggested descriptive terminology (scaling and vessels).

Descriptive terminology	Metaphoric terminology	References # (where mentioned)
Scaling		
White scale	chalk-like scale	22,27
White scale	white scales; distribution: diffuse, patchy, peripheral	20,39,48,56
White scale with a central distribution	whitish scaly plaques	17
White scale	overlying white scales	24
White reticular scaly lines	a lacy network of white scales	7
Yellow scale	yellowish scales	36,39,43
VESSELS		
Red structureless zone	peripheral homogen vascular pattern	11
Clustered vessels	pattern of vessels: patchy, peripheral; patchy vessels	39, 48
Pink structureless zone or simply erythema	light red background	47

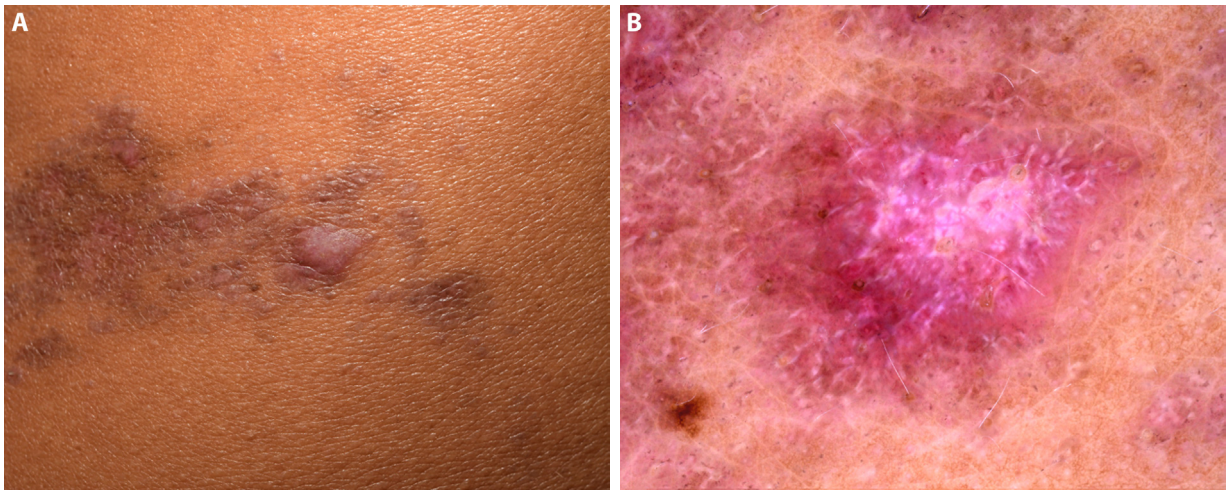

Figure 6. Lichen planus in different stages. (A) Lichen planus in a patient with dark skin tone, clinical image (A). (B) Dermatoscopy shows prominent white lines (Wickham striae) and keratin plugs that appear as yellow clods. The flat pigmented lesions are older lesions with pigmented dots, circles, lines and dots ranged in circles. These structures received many different and colourful names in the literature.

the clinical presentation is atypical, can be a supportive tool in a diagnostic process of this inflammatory skin disease [16]. In doubtful cases the gold standard for the diagnosis is still dermatopathology [6].

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