

# Dermoscopy patterns of cicatricial alopecia resulting from discoid lupus erythematosus and lichen planopilaris

Padrão dermatoscópico das alopecias cicatriciais causadas por lúpus eritematoso discoide e líquen plano pilar

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**Abstract:** BACKGROUND: Dermoscopy is an important tool for the diagnosis of benign and malignant melanocytic diseases. Recently, this method has also been found to be extremely useful in the diagnosis and follow-up of alopecias.

OBJECTIVE: The objective of this study was to describe dermoscopic findings in patients with clinical and histopathological characteristics of cicatricial alopecia.

METHODS: A descriptive cross-sectional study was conducted in which 14 patients with cicatricial alopecia were selected based on clinical and histopathological evaluation of the scalp. The underlying cause was classic lichen planopilaris in four cases, frontal fibrosing alopecia in five and discoid lupus erythematosus in the remaining five. The patients were evaluated using videodermoscopy and conventional dermoscopy (with a handheld dermoscope), performed independently by three different examiners. Magnification ranged from 10x to 70x.

RESULTS: Principal findings in cases of discoid lupus erythematosus were: white patches, branching capillaries, keratin plugs and areas of reduced follicular ostia; in classic lichen planopilaris: perifollicular scales, white dots and reduced follicular ostia; and in frontal fibrosing alopecia: reduced follicular ostia, perifollicular scales, perifollicular erythema and branching capillaries. The blue-grey dots described in this paper were a novel feature in scalp dermoscopy.

CONCLUSIONS: The use of dermoscopy for the clinical evaluation of the scalp in cases of cicatricial alopecia improves diagnostic capacity beyond simple clinical inspection and reveals novel features of the disease.

Keywords: Alopecia; Dermoscopy; Lichen planus; Lupus erythematosus, discoid

**Resumo:** FUNDAMENTOS: A dermatoscopia é método importante de diagnóstico de doenças melanocíticas benignas e malignas. Recentemente, o uso desse método tem demonstrado grande ajuda também no diagnóstico e acompanhamento das alopecias. OBJETIVO: Descrever e demonstrar os achados dermatoscópicos de pacientes com quadros clínicos e histopatológicos de alopecia cicatricial.

MÉTODOS: Estudo transversal descritivo em que foram selecionados, pelos achados clínicos e histopatológicos do couro cabeludo, 14 pacientes com alopecia cicatricial, sendo quatro casos de líquen plano pilar clássico, cinco casos de alopecia fibrosante frontal e cinco com lúpus eritematoso discoide. Os pacientes foram avaliados com videodermoscópio e dermatoscópio manual por três examinadores diferentes, de forma independente. Os aumentos variaram de 10 a 70 vezes.

RESULTADOS: Foram achados predominantes no lúpus eritematoso discoide placas brancas, capilares arboriformes, tampões ceratósicos e áreas de diminuição dos óstios foliculares; no líquen plano pilar clássico, escamas perifoliculares, pontos brancos e diminuição de óstios foliculares; na alopecia fibrosante frontal, diminuição de óstios foliculares, escama e eritema perifolicular, além de capilares arboriformes. As estruturas azul-acinzentadas, demonstradas neste estudo, não foram descritas na literatura.

CONCLUSÕES: O uso da dermatoscopia na avaliação clínica das alopecias ajudou a estabelecer elementos semióticos, melhorou a capacidade de diagnóstico em relação à simples inspeção e revelou novas características das alopecias cicatriciais.

Palavras-chave: Alopecia; Dermatoscopia; Líquen plano; Lúpus eritematoso discoide

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**INTRODUCTION**

In humans, hair is an important indicator of individual characteristics such as self-image, identity, ethnicity and health, among other attributes. Hence, it is unsurprising that diseases that result in hair loss lead to disorders related to self-esteem and psychosocial interactions. Therefore, in scalp conditions such as cicatricial alopecias, prompt diagnosis and timely therapeutic intervention are of extreme importance in the prognosis of patients.

In scalp diseases, clinical diagnosis is not always clear and objective. For the diagnosis of the clinical variants of alopecias, particularly the cicatricial forms, a scalp biopsy is often necessary. Nevertheless, histopathological findings are often insufficient for the physician to reach the correct diagnosis.

Dermoscopy is an important tool for diagnosing benign and malignant melanocytic diseases and for detecting and differentiating the several types of skin cancer and other inflammatory, infectious and parasitic dermatoses.<sup>1</sup>

Recently, this method has proven extremely useful in aiding the diagnosis and follow-up of alopecias. Lacarrubba et al.<sup>2</sup> and Ross et al.<sup>3</sup> initially described dermoscopic findings related to various scalp abnormalities such as androgenetic alopecia, alopecia areata, discoid lupus erythematosus (DLE), lichen planopilaris, psoriasis and seborrheic dermatitis.

The objective of this study was to describe dermoscopic findings in a sample of patients with clinical and histopathological indications of cicatricial alopecia resulting from discoid lupus erythematosus and lichen planopilaris in order to establish criteria to help define diagnosis of these dermatoses.

**METHODS**

A cross-sectional study was conducted with the participation of the alopecia and melanocytic lesions/dermoscopy outpatient clinics of the Department of Dermatology. Four patients with classic lichen planopilaris, five with frontal fibrosing alopecia (FFA) and five patients with discoid lupus erythematosus were selected in accordance with the clinical and histopathological findings in the scalps of these patients. All patients were female and mean age was 55 years.

The patients were examined using videodermoscopy (Bley Med – Skin Cam® and Teachscreen PhotoFinder®) and conventional, handheld dermoscopy (3Gen Dermlite II Pro HR®), by three different independent observers. Magnification ranged from 10x to 70x.

**RESULTS**

The dermoscopic characteristics found in the patients in the present study are shown in Table 1.

In the patients with discoid lupus erythematosus, the principal findings were branching capillaries (Figure 1), white patches, keratin plugs and reduced follicular ostia. In one patient, blue-grey dots were observed inside the patch of alopecia, which were referred to by the authors as forming a “speckled” pattern (Figure 2).

In the patients with lichen planopilaris, perifollicular scales (Figure 3), diminished follicular ostia and white dots (Figure 4) were the principal findings. In two patients, there were blue-grey dots around the follicular structures, a pattern that was referred to by the authors as a “target” pattern (Figure 5).

**TABLE 1:** Dermoscopic findings in discoid lupus erythematosus (DLE), lichen planopilaris (LPP) and frontal fibrosing alopecia (FFA)

Dermoscopic finding	DLE (n=5)	LPP (n=4)	FFA (n=5)
Perifollicular scales	0	4	3
Perifollicular erythema	0	0	3
Coiled capillaries	1	0	0
Branching capillaries	5	0	3
Pigment network	2	2	2
White patches	5	2	1
White dots	2	3	2
Keratin plugs	5	0	0
Vellus hairs	0	0	1
Blue-grey dots	2	1	0
Reduction in the number of follicular ostia	4	4	4

DEL: discoid lupus erythematosus  
 LPP: lichen planopilaris  
 FFA: frontal fibrosing alopecia

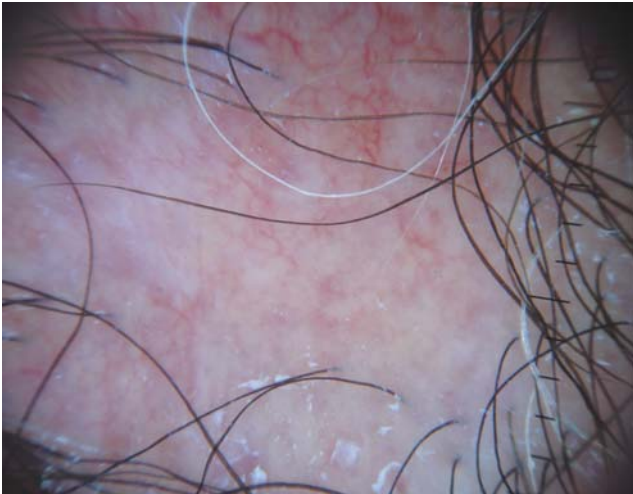


FIGURE 1: Branching capillaries in a patch of alopecia in discoid lupus erythematosus



FIGURE 2: Blue-grey dots (“speckled” pattern), keratin plugs, reduction in follicular ostia and atrophic white patch in discoid lupus erythematosus (50x)

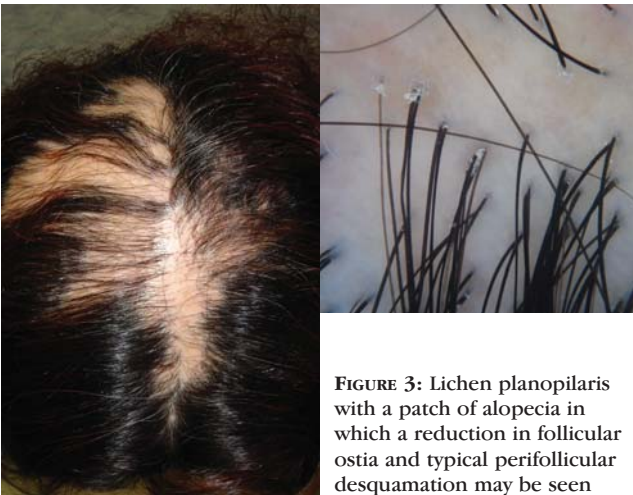


FIGURE 3: Lichen planopilaris with a patch of alopecia in which a reduction in follicular ostia and typical perifollicular desquamation may be seen

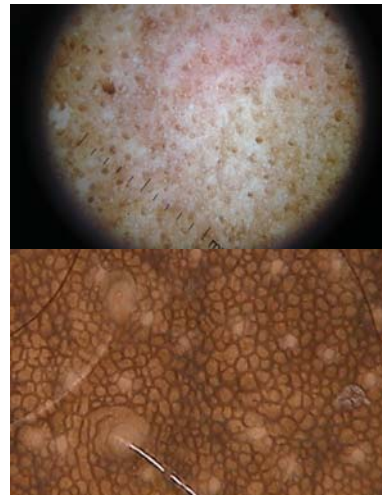


FIGURE 4: Pigment network with a honeycomb pattern in a patch of alopecia in a black female patient with lichen planopilaris. Note the white dots (arrow)

In the patients with frontal fibrosing alopecia, perifollicular erythema, perifollicular scales, branching capillaries and diminished follicular ostia were the most common findings (Figures 6 and 7).

## DISCUSSION

The dermoscopic findings encountered in this study were very similar to those previously reported in the literature, with the exception of the cicatricial white patches and the blue-grey dots.

As in the case of melanomas, the cicatricial white patches appear to constitute a feature of histological regression. They are well-defined, white-colored areas that correspond histopathologically to tissue fibrosis.<sup>4</sup> This may occur in more advanced stages of cicatricial alopecias such as those seen in 8 of the 14 cases studied here.

Histopathologically, the multiple blue-grey dots represent melanophages in the papillary dermis.<sup>5</sup> This finding corresponds to the histopathological abnormalities found in lichen planopilaris and in discoid lupus erythematosus resulting from interface dermatitis and the subsequent pigment incontinence. Nevertheless, it is interesting to note the two distinct patterns found at dermoscopy. The first, referred to as a “speckled” pattern (Figure 2), is similar to the “peppering” described in melanoma lesions.<sup>5</sup> The second, seen in a patient with lichen planopilaris, was referred to as a “target” pattern (Figure 5) because of the circular arrangement around the follicular structures and white dots, possibly corresponding to pigment incontinence, that is predominantly, if not exclusively, follicular, thus preserving the interfollicular epidermis, contrary to what is found in cases of discoid lupus ery-





FIGURE 5: Blue-grey “speckled” pattern around white dots and follicles (annular pattern)



FIGURE 7: Perifollicular scales, pigment network with a honeycomb pattern and white dots in frontal fibrosing alopecia



FIGURE 6: Frontal fibrosing alopecia with perifollicular scales, perifollicular erythema and branching capillaries

thematosis. To the best of our knowledge, this finding of blue-grey dots has not yet been reported in the literature with respect to dermoscopy in alopecias.

A pigment network showing a honeycomb pattern was found in areas of alopecia that had been exposed to the sun as a result of loss of the hair shaft. In some regions in which there was atrophy of the scalp, such as in the patients with discoid lupus erythematosus, this pigment network was not present, which may be explained by the effect of the inflammatory infiltrate on the inhibition of melanogenesis.

It is important to emphasize, moreover, that dermoscopic examination of the scalp was found to be simple to perform and of great use in the diagnosis of alopecias. Visualization of structures previously examined with the naked eye became much simpler with this instrument, principally in patients with skin phototypes IV and V in which dermoscopic findings

were more easily visible. The reduction in the number of follicular ostia, a typical finding in cicatricial alopecias, was noted in all the cases evaluated and often constituted the finding that alerted physicians to the need for further investigation in these patients.

The follow-up of the patients evaluated in this sample was simplified by the use of dermoscopy. Using images from archives, it was still possible to evaluate progress and therapeutic response without any need for invasive tests. The degree of satisfaction obtained in these patients was excellent, since objective examination of the scalp at each consultation was beneficial to the doctor-patient relationship, reassuring patients with respect to the changes in their therapeutic management.

## CONCLUSION

Dermoscopy resulted in significant differences in the characteristics of the cicatricial alopecias studied. In discoid lupus erythematosus, the most common findings were white patches, branching capillaries, keratin plugs and a reduction in the number of follicular ostia. In classic lichen planopilaris, the most notable findings were perifollicular scales, white dots and a reduction in follicular ostia. In the frontal fibrosing alopecia type of lichen planopilaris, a reduction in follicular ostia, perifollicular scales and perifollicular erythema, in addition to branching capillaries were the predominant findings.

The “speckled” and “target” patterns of the blue-grey structures are described for the first time in this study. To the best of our knowledge, no reference has been made to these features in the literature. Their occurrence may be due to degeneration of the basal layer and the presence of melanophages and melanin in the papillary dermis, a finding compatible with active interface dermatitis.<sup>6,9</sup>

In view of the importance of diagnosing the clinical and morphological variations of cicatricial alopecias for which differential diagnosis is at times difficult, it is reasonable to assume that a descriptive study of the dermoscopic characteristics of a series of cases of cicatricial alopecia may represent a significant advance in this field, since it will help detect possible areas of activity of the disease, classifying them and also defining biopsy sites. The use of dermoscopy in

the clinical evaluation of alopecias improved diagnostic capacity in relation to simple inspection and revealed new characteristics of cicatricial alopecias.

Although recent, this method has proven to be simple to perform and useful in the diagnosis and post-treatment follow-up of alopecias; however, larger studies correlating dermoscopic findings with histopathology exams are required to improve understanding of this method. □

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