Our Dermatology Online

Original Article

Dermoscopic features of vulvar lichen sclerosus and their correlation with disease duration

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ABSTRACT

Background: Vulvar lichen sclerosus (VLS) is an underdiagnosed inflammatory disease of the vulva. It may mimic various inflammatory or tumor conditions of the vulva. Dermoscopy is a useful tool to support the non-invasive diagnosis. However, few studies are concerned with determining the specific signs of VLS. Objective: The aim of our study was to determine the vascular and non-vascular features of VLS and to correlate them with the duration of the disease. **Methods:** We conducted a retrospective study including eighty patients over a period from November 2020 to November 2022. **Results:** On dermoscopy, VLS lesions showed reduced overall vascularity and polymorphic vessels with an irregular arrangement. Yellowish-white, structureless areas over a diffuse, whitish background were prominent and constant dermoscopic features. In our study, dotted vessels were detected largely in the early stages of the disease. **Conclusion:** Our results showed that VLS has characteristic dermoscopic patterns that may be effective in the diagnosis of VLS, especially in the early stages.

Key words: Dermoscopy, Vulvar lichen sclerosus, Pattern, Disease duration

INTRODUCTION

Lichen sclerosis (LS) is a chronic inflammatory condition of the vulva with a colossal impact on quality of life. Although its exact etiopathogenesis has not yet been established, several theories have been put forward, including autoimmune and hormonal. Its clinical presentation may be heterogeneous. It may mimic various inflammatory or tumor conditions of the vulva. Dermoscopy, a non-invasive tool, has established its usefulness in the diagnosis, post-treatment follow-up, management, and prognosis of VLS [1,2]. This study aimed to describe the dermoscopic characteristics of a large series of eighty LSV cases and to correlate them with the duration of the disease.

MATERIALS AND METHODS

Objective

The main objectives of our study were to describe the dermoscopic features of VLS and to correlate them with the duration of the disease in patients collected at the Dermatology Department of the HASSAN II University Hospital of Fez during the period from November 2020 to November 2022.

We compared the results of our study with the literature on the differentiation of the specific signs of VLS from other inflammatory or neoplastic conditions of the vulva. In addition, we attempted to correlate them with the duration of the disease and, with the help of the Epidemiology Department of the Hassan II University

How to cite this article: Kalmi N, Baybay H, Choukri S, Douhi Z, Elloudi S, Soughi M, Mernissi F-Z, Mahfoudi H, El Fakir S. Dermoscopic features of vulvar lichen sclerosus and their correlation with disease duration. Our Dermatol Online. 2024;15(4):361-364.

Submission: 04.12.2023; **Acceptance:** 27.02.2024
DOI: 10.7241/ourd.20244.6

Hospital in Fes, conducted an analytical study using the chi-squared test and Fisher's exact test to find the correlation between the signs of LS and the duration of the disease. The latter was divided into less than twelve months and more than twelve months. The *p* value was considered significant if it was less than or equal to 0.05.

Patients and Data Collection

We performed a retrospective analysis of a total of 608 photographs taken from eighty patients.

All patients had a histologically confirmed diagnosis of VLS. The histological examination was conducted by means of dermoscopy directed at the most important site. All patients were in the active phase of the disease, except for two, who were in the near terminal phase with complete stenosis of the vaginal orifice (Fig. 1a). Hypopigmented, indurated papules or macules related or not with pink and/or brown macules were the clinical lesions examined on dermoscopy. Age was not an exclusion criterion, nor was the existence of LS in other skin or mucosal sites.

Dermoscopic Evaluation

Dermoscopy was performed throughout the recurring dermatological consultation. A digital dermoscopy system (dermatoscope DermLite DL4) in the polarized mode was used to capture the analyzed images. Minimum pressure was implemented, which allowed to preserve vessel morphology. We also used transparent gel as the immersion fluid to ensure the best possible visualization. To avoid microbiological contamination, we packed the instrument in disposable food packaging. Dermoscopy was performed by the same dermatologist.

Figure 1: (a) Clinical picture showing a complete stenosis of the vaginal orifice.(b) Clinical picture showing whitish, sclerotic plaques, hooding of the clitoris with effacement of the labia minora, and homogeneous, pigmented macules.

This was done to avoid diversification during the procedure.

A descriptive study was conducted, in which rates and frequencies of the dermoscopic signs of VLS were calculated, and correlations between the dermoscopic signs of VLS and disease duration were analyzed with the chi-squared test and Fisher's exact test.

Variable Selection

The selection of dermoscopic variables was based on the results of the literature and our personal experience [3,4]. The variables included in the dermoscopic assessment were as follows (vascular/non-vascular): dotted, linear, spermatozoa-like, polymorphic vessels, white structureless areas; milky-red areas; ice sliver-like structures; peppery appearance; brown structureless areas; purpuric spots/globules/plaques; brownish linear crosslinks; and comedo-like openings.

RESULTS

From the eighty patients, 608 dermoscopic images were analyzed. The mean age was 45 (ranging from 6 to 86). Hooding of the clitoris, fusion of the labia minora with the labia majora, and whitish sclerotic plaques or homogeneous pigmented macules were the most commonly observed clinical features (Fig. 1b).

On the dermoscopic examination, we described both the vascular and non-vascular patterns. (Fig.2) The vascular pattern was dominated by decreased total vascular density, accounting for 68%. Polymorphic vessels were found in 51.2% (Fig. 2a). These included linear vessels, globular or dotted vessels, and telangiectasias. Linear vessels were detected in 46.3% of the cases in various calibers and sizes. No spermatozoa-like vessels were found in any of the patients on dermoscopic examination. The architectural organization of the vessels was characterized by an irregular distribution with a share of 55%. No vascular distribution in the periphery of the lesions was observed in any of the cases. Red to purple spots, dots, or cells corresponding to bloodstains were seen in 31.2% (Fig. 2b).

Concerning the non-vascular pattern, a whitish background was detected in the majority of the lesions (80%), with irregular, whitish, structureless areas (66.3%) (Fig. 2c). The milky-red areas were observed in 52.5% of the cases (Fig. 2d).

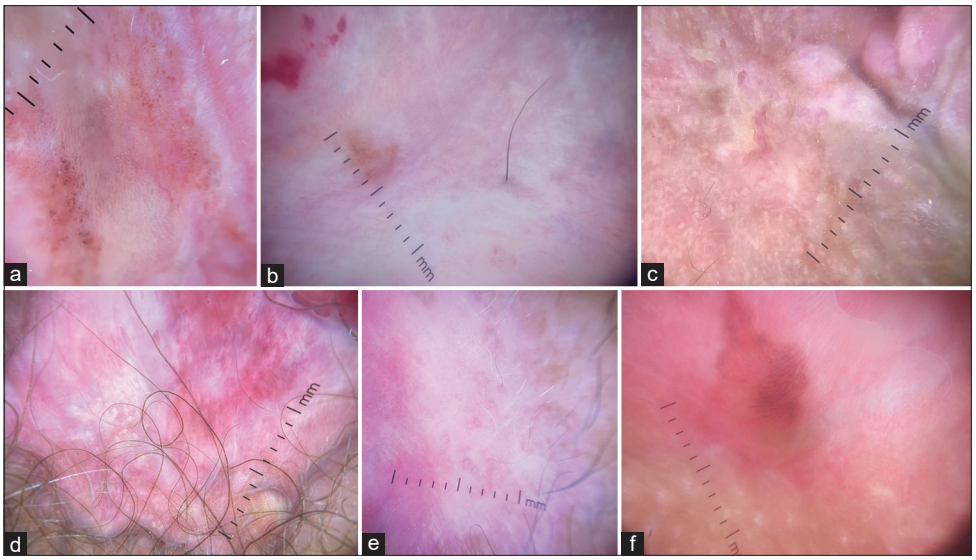

Figure 2: a) Polymorphous vessels made of hairpins, linear vessels, and dot-like vessels. b) Pale background, dot-like vessels, purpuric spots and globules, peppery appearance. c) Pale background, yellowish-white, structureless areas. d) Milky-red areas, ice sliver-like structures, linear and dot-like vessels. e) Comedo-like openings. f) Pale background, pigmented linear reticulations.

Regarding the ice chip-like structures, they were observed in 43.8% of the patients (Fig. 2d), and yellowish, comedo-like openings were present in 38.8% of the cases (Fig. 2e). Brownish linear reticulations or brown structureless areas were observed in 35% of the cases and a peppery appearance in 42.5% of the cases (Fig. 2f).

We also, by cross-tabulations, statistically evaluated the association of each dermoscopic sign found with disease duration. We found that dotted vessels were more likely to be seen in VLS lesions with a less than 12 months duration than in lesions with a longer duration ($p = 0.03$, Fisher's exact test). No other significant associations were found. Table 1 summarizes the dermoscopic features.

Table 1: Dermoscopic features of the 80 included lesions

Dermoscopic variables	Cases (%)
Vascular findings	
Decrease in total vessel density	68%
Type of vessels	
Polymorphic vessels	51,2%
linear	46,3%
Dotted	50%
Spermatozoa-like	0%
Vascular distribution	
Regular	0%
Irregular	55%
Peripheral	0%
Red-purpuric globules or blotches	31,2%
Non vascular findings	
Whitish background	80%
White structureless areas	66,3%
Comedo-like openings	38,8%
Milky red areas	52,5%
Ice silver like structures	43,8%
Brown structureless areas	35%
Peppering pattern	42,5%

DISCUSSION

The dermoscopic features of VLS have been described in a few case series. Our results were consistent with those reported in the literature [1-3]. VLS presents fairly characteristic dermoscopic patterns. It mainly combines irregularly arranged spotted or linear vessels, a peppery appearance, and white areas without a structure. According to the results of a series reported in the literature, different colors frequently coexist in the same patient [2].

The whitish background and structureless areas represent the dominant dermoscopic features of LSV, observed even in the absence of skin lesions. These dermoscopic features correspond to sclerosis and hyalinization which are the main pathological changes in LS [2].

Other dermoscopic structures described in the literature, which were also observed in our cases, may coexist, in particular, ice chip-like structures, which may have different morphologies, either linear or triangular or lanceolated in shape, which correspond to hyperkeratosis of the adnexal structures [2]

Comedo-like openings may be considered a valuable dermoscopic finding that may be seen in extragenital

LS as well as in VLS [2,5,6], especially located on the cutaneous side of the vulvar lesions [2] and correlated on histology with dilated infundibula with follicular cornified plugging [2].

Our patients also had grayish-blue dots in the typical peppery pattern, corresponding to upper dermal and perifollicular melanophages, because of inflammation, explaining why it occurs also in other types of chronic inflammation of the genitals and, therefore, why it cannot be used to diagnose VLS [1,3,7]. The disappearance of red blood globules or dots or well-circumscribed purpuric patches are good indicators for the response to treatment and are the most frequent dermoscopic features in LSV. They correspond to the spots of blood [3,8,9].

A marked decrease in vessel concentration was featured in our study in the context of VLS lesions when compared with unaffected vulvar surfaces is the other dermoscopic signs of the disease. In detail, highly scattered linear vessels were remarked in most of the cases studied, while hairpin and dotted vessels were observed in less than half the cases [2].

The correlation between the vascular pattern and the duration of the disease is controversial. In our study, we found a significant association between dermoscopically assessed dotted vessels and the early stages of LSV, with a significant p value. Indeed, according to Borghi et al., it is likely that dotted vessels occur mainly in the early stages of the disease, which is consistent with our series, while Larre Borges et al. found no such association [3]. It is interesting to note that the presence of dotted vessels appears to depend on the duration of VLS, considering that they appeared mainly in the early stage of the disease. It may be hypothesized that the dotted vessels express the dilated blood vessels immediately beneath the basement membrane, as shown by histology in the early stage of the disease. However, in later stages of progression, dermal fibrosis overrides the vascular changes and may determine the disappearance of the dotted vessels on dermoscopy [3].

CONCLUSION

The recognition of the specific dermoscopic structures of VLS enables it to be diagnosed early and improves its differential diagnosis with other genital inflammatory diseases, particularly in cases of clinical doubt.

Herein, we highlight the characteristic dermoscopic signs of VLS, such as decreased total vascularity, polymorphic vessels with irregular arrangements, yellowish-white structureless areas over a diffuse whitish background, comedo-like openings, and ice chip-like structures. We also found a significance between dotted vessels and the early stage of the disease. However, further studies are needed to confirm the results of our study.

Statement of Human and Animal Rights

All the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the 2008 revision of the Declaration of Helsinki of 1975.

Statement of Informed Consent

Informed consent for participation in this study was obtained from all patients.

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Source of Support: This article has no funding source.

Conflict of Interest: The authors have no conflict of interest to declare.