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Dermoscopy of Nail Fold Capillaries in Connective Tissue Diseases

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Abstract

Background: The periungual dermoscopy is a non-invasive tool to study the qualitative and quantitative microcirculation at the level of proximal fold. It is increasingly used in dermatology in the study of systemic diseases.

Materials and Methods: We describe the dermoscopic periungual appearance of 153 patients followed for various systemic diseases in the dermatology department of CHU HASSAN II in Fes, while comparing our results with those of the literature. The examination was performed with a photofinder dermoscope then dermlite by simple transillumination of the cutaneous epithelium illuminated by the dermoscope light.

Discussion: Dermoscopy makes it easy to distinguish a normal capillaroscopic landscape during primary Raynaud's phenomenon (RP), from a sclerodermic landscape reflecting organic microangiopathy specific to scleroderma, dermatomyositis or mixed connective tissue or overlap. Periungual dermoscopy can also be used to assess the risk of digital ulcers and visceral complications in patients with scleroderma.

Keywords: Dermoscopy; Systemic Disease; Nail Fold; Capillaries; Raynaud Phenomenon.

Introduction

The systematic use of dermoscopy can replace capillaroscopy for the detection of nail abnormalities in systemic diseases and integrate into standard clinical practice because it provides the same information. It is a simple and fast non-invasive tool, the equipment is portable and inexpensive.

Materials and Methods

An observational prospective study has been designed from February 2014 to December 2018 in the dermatology department of CHU HASSAN II in Fes. We initially used a photoFinder dermoscope then dermlite. The evaluation was performed on the back of the third and fourth finger, both hands of our patients by transillumination of the cutaneous epithelium. After the patient has been in a room at 20-23°C for 15-20 min and has not used tobacco or received a recent manicure before consultation, fingers affected by recent local trauma have not been analyzed.

Results

We collected 153 patients including 136 women and 17 men, the average age of our sample was 38 years, 52 patients with a Raynaud phenomenon with an average duration of 3.75 years. A sclerodermiform pattern (Figureure 1) was found in: 75% of 32 patients, 45% of 40 patients, 23,33% of 60 patients, 47% of 17 patients, and in half of patients with

systemic sclerosis dermatomyositis, lupus erythematosus, mixed connective tissue disease and finally Sjogren’s syndrome (Table 1).



Figure 1. The main dermoscopic signs found in a sclerodermiform pattern in our patients.

Table 1. The evaluation of periungual dermoscopy in our study.

| | Distribution | Rarefaction of capillaries | Megacapillaries | Tortuous vessels | Hemorrhages | A vascular zones | Pattern |
|--------------------------|--------------|----------------------------|-----------------|------------------|-------------|------------------|------------|
| SCS N=32 | 19 | 14 | 15 | 18 | 18 | 12 | 24 (75%) |
| DM N=40 | 11 | 9 | 10 | 13 | 10 | 5 | 18 (45%) |
| LES N=56 | 11 | 7 | 14 | 18 | 17 | 2 | 14 (23,3%) |
| Mixed connective N=17 | 10 | 6 | 5 | 10 | 7 | 4 | 8 (47%) |
| Gougerot Sjogren N=4 | 1 | 1 | 1 | 2 | 1 | 0 | 2 (50%) |

Discussion

The sensitivity and specificity of dermoscopy in the diagnosis of systemic diseases has been proven in several studies such as that of Bergman et al. [1], carried out in 106 patients and 170 controls, and which objectified a sclerodermiform pattern in 19/27 patients. Patients with scleroderma (70%), 7/11 (64%) of those with dermatomyositis, 4/8 (50%) with Sharp syndrome, 2/38 (5%) with RP alone, and no subject controls. Periungual dermoscopy in systemic diseases looks for the same abnormalities as in capillorscopy, namely megacapillaries, dilated and branched vessels, haemorrhages and avascular zones in advanced forms, notably in systemic scleroderma [2]. A sclerodermiform pattern is defined (according to Maricq criteria modified by Bergman et al.) [1,3]. Presence of at least 2 following anomalies: megacapillaries, micro haemorrhages, architectural disorganization of the capillary distribution, moderate or extensive loss of the capillaries, tortuous capillaries, crossed or branched. Several studies in the literature have analyzed the perungual dermoscopy in systemic diseases including that of Bergman, Beltran and Tsutomu [1,4,5]. Our results were almost similar for the sclerodermiform pattern in systemic scleroderma and mixed connective tissue with a percentage of ≈70% and 50% respectively, a lower percentage for dermatomyositis (45%), and more important for lupus erythematosus (23%), 85% compared to other studies (Table 2). Sclerodermiform pattern analysis in Sjogren Goujerot syndrome has never been described in the literature found in 50% of our patients. However, there are several factors that limit the penetration of the light beam, thus preventing the visualization of the loops and make the examination difficult

are the skin pigmentation, the epidermal thickening of the manual worker, the recent care of manicure, the application of varnish or henna on periungual areas.

Table 2. The results of our study compared to those of the literature.

| | Study of Bergman | Study of Beltran | Study of Tsutomu | OUR Study |
|------------------|------------------|------------------|------------------|-----------|
| SSc | 70.4% (n=27) | 76,9% (n=26) | 70,4% (n=62) | 75% |
| DM | 63.6%, (n=11) | | 63,6% (n=10) | 45% |
| LES | 4,5%, (n=22) | | 14,3% (n=28) | 23,33% |
| Mixed connective | 50% (n=8) | | | 47% |

Conclusion

Dermoscopy is a powerful diagnostic tool, reproducible, non-invasive and very inexpensive. A small training in dermoscopy allows to recognize the different hair patterns and thus help the clinician whether dermatologist, internist or rheumatologist to differentiate a primary Raynaud from a secondary one, make an early diagnosis of scleroderma. Its use as a prognostic tool in the short or long term to predict peripheral or pulmonary vascular complications during scleroderma, is in full development.

Conflict of Interest

None

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