DIFFERENTIATION OF SCALP PSORIASIS FROM SEBORRHEIC DERMATITIS BY DERMOSCOPY

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ABSTRACT

Dermoscopy is useful in evaluating skin tumours. Nowadays its applicability extends also to the field of inflammatory skin disorders. Psoriasis and seborrheic dermatitis are common dermatoses that may present with scaly erythematous patches on the scalp, but little is currently known about their dermoscopic features.

Objective: To describe and to evaluate the dermoscopic figures of scalp psoriasis and seborrheic dermatitis at National Hospital of Dermatology and Venereology.

Method: A cross sectional study was carried out in 115 patients with scalp psoriasis or seborrheic dermatitis at National Hospital of Dermatology and Venereology from 09/2018 to 06/2019. Dermoscopy images of lesions were taken by 800HD FotoFinder Medicam, with 50 x magnification. Dermoscopic evaluation was performed by two independent doctors, who were unaware of the histopathological diagnosis. Statistical analyses were performed using SPSS version 16.0, using medical statistical algorithms.

Results: Scalp psoriasis was characterized by glomerular vessels (100%), distribute regularly (92.5%). Other common signs were crocskrew vessels (84.9%) and comma vessels (79.2%). In contrast, the most significant dermoscopic features of seborrheic dermatitis were arborizing vessels (72.6%), comma vessels (82.3%) and hairpin vessels (75.8%). Useful dermoscopic findings for differentiation were vessels distribution (p = 0.001), arborizing vessels (p = 0.000), glomerular vessels (p = 0.000, 2), hairpin vessels (p = 0.001) and crocskrew vessels (p = 0.000).

Conclusion: Dermoscopic findingscan be valuable for the diagnosis and differentiation of scalp psoriasis and seborrheic dermatitis.

Key words: *dermoscopy, psoriasis, seborrheic dermatitis.*

1. INTRODUCTION

Psoriasis and seborrheic dermatitis are two erythematous-squamous diseases which are common in dermatological clinical practice [1], [2].

Differential diagnosis is not difficult in typical cases. However, in many cases, especially when lesions are only limited on the scalp, it is often difficult to diagnose clinically and it is necessary to have subclinical supports to get an accurate diagnosis. Currently, the most used subclinical support in this case is biopsy [3], an invasive probe with certain limitations (risk of infection for patients and medical staff in the procedure of biopsy; anxiety of patients, especially young patients; risk of allergy to anaesthetics; risk of bleeding for patients with hypertension or coagulation disorder, etc...).

Dermoscopy is an optical device which has been used in dermatological clinical practice for centuries; firstly, it was used to evaluate hyperpigmented lesions and supporting early diagnosis of malignant cutaneous lesions [4]. Recently, this device is used more and more popular, for the diagnosis and differential diagnosis of variable inflammatory dermatose and other non-hyperpigmented skin lesions [4], [5], [6]. This study was implemented to describe and compare dermoscopic features of scalp psoriasis and seborrheic dermatitis at National Hospital of Dermatology and Venereology from September 2018 to June 2019.

2. MATERIALS AND METHODS

2.1. Study design

We conducted a cross-sectional study on scalp psoriasis and seborrheic dermatitis patients presenting to the National Hospital of Dermatology and Venereology from September 2018 to June 2019. The diagnosis of psoriasis and seborrheic was confirmed by clinicopathological features. These patients were divided into two groups: group 1 consisting of 62 patients with seborrheic dermatitis and group 2 composing of 53 psoriasis patients. We excluded patients with other skin lesion rather than the scalp or having received treatments before. All patients provided consent before participation in the study.

2.2. Study procedures

Eligible patients were interviewed for medical history and examined for clinical signs. Dermoscopic images of lesions were taken by 800HD FotoFinder Medicam, produced by FotoFinder Company, Germany, with 50 x magnification. These images were then evaluated by two independent doctors, who were unaware of the histopathological diagnosis.

2.3. Data analysis

Data were analyzed by SPSS 16.0. Selected data were described as number (percentage) and tested for differences by the chi-square test or Fisher's Exact test where appropriate.

3. RESULTS AND DISCUSSION

3.1. Characteristics of the research subjects

Table 1. Patient characteristics

Features		Seborrheic dermatitis		Psoriasis		p
		(n = 62)		(n = 53)		
		N	%	N	%	
Gender	Men	44	71.0	40	75.5	0.587
	Women	18	29.0	13	24.5	
Average age (years old)		39.60 ± 11.7		38.66 ± 14.54		0.115
Age onset (years old) X ± SD		37.91 ± 11.03		35.27 ± 12.70		0.066
Duration (month) X ± SD		10.89 ± 5.17		24.40 ± 11.52		0.015

Variables were tested for difference using the chi-square test and Fisher's Exact test

We recruited a total of 115 patients who were divided into two groups: 62 patients with seborrheic dermatitis and 53 patients with psoriasis.

The rate of men in the seborrheic dermatitis group was 71.0%, about 2.4 times as high as that of women, 29.0%. The ratio of male : female in the psoriasis group was 3.1:1. The average age of the two groups was 39.60 ± 11.7 and 38.66 ± 14.54 respectively. The average age of onset in the seborrheic dermatitis group was 37.91 years old, and that in the psoriasis group is 35.27 years old. The average duration of suffering from disease of the two groups of seborrheic dermatitis and psoriasis was 10.89 months and 24.40 months respectively. Statistical difference was found in disease duration (p = 0.015). There were no statistically significant differences between 2 groups in all other characteristics. This made the differential diagnosis become difficult.

3.2. Dermoscopic characteristics of psoriasis and seborrheic dermatitis

Table 2. Vascular patterns on dermoscopy in psoriasis and seborrheic dermatitis

Features		Seborrheic dermatitis n (%)	Psoriasis n (%)	p
Distribution	Regular	2 (3.2)	49 (92.5)	**0.001**
	Random	60 (96.8)	4 (7.5)	
Vascular pattern	Arborizing vessels	45(72.6)	4(7.5)	0.000
	Comma vessels	**51 (82.3)**	**42(79.2)**	0.682
	Glomerular vessels	18 (29.0)	52 (98.1)	**0.000**
	Hairpin vessels	**47 (75.8)**	24 (45.3)	**0.001**
	Crocskrew vessels	9 (14.5)	**35 (66.0)**	**0.000**

Variables were tested for difference using the chi-square test.

Statistically signficant p-values were in bold.

In terms of vascular distribution, 49/53 (92.5%) patients in the psoriasis group had vascular images regularly distributed, this rate in the seborrheic dermatitis group was 2/62 (3.2%), this difference was statistically significant with p = 0.001 (Chi-square test). In terms of morphological characteristics of blood vessels, the three most common characteristics in patients with seborrheic dermatitis included arborizing vessels (72.6%), comma vessels (82.3%) and hairpin vessels (75.8%). In the group of psoriasis patients, the most common images included glomerular vessels (98.1%), crocskrew vessels (66.0%) and comma vessels (79.2%). While clinical features have many similarities, the visual features on dermoscopy are very valuable for the differentiation of the 2 diseases. The most important characteristics of scalp psoriasis are regulary distributed blood vessels (92.5%), glomerular vessels (98.1%), crocskrew vessels (84.9%). Meanwhile, seborrheic dermatitis is characterized by randomly distributed blood vessels (96.8%), arborizing vessels (72.6%), hairpin vessels (75.8%). These dermoscopic features are also significant for differential diagnosis of the two diseases, notably vascular distribution (p = 0.002), arborizing vessels (p = 0.000), glomerular vessels (p = 0.000), crocskrew vessels (p = 0.000). The comma vessels were commonly observed in both groups (82.3% in the group of seborrheic dermatitis and 79.2% in psoriasis), but is not useful for differentiation (p = 0.682 > 0.05).

In 2012, A.Lallas and colleagues reported that the most common dermoscopic sign of psoriasis was dotted vessel (83%), with a regular distribution (88 %) (n = 83) [7]. Another study in Egypt (2017, n = 25) also stated that the main feature of psoriasis on dermoscopy was dotted blood (96%) [8]. The different aspect of our study compared to these studies was the use of videodermoscopy with 50x magnification, instead of handheld dermoscopy (10x magnification), leading to higher resolution of images which helped to observe blood vessels clearlier. Dotted blood vessels signs at small magnification correspond to the glomerular vessels at high magnification (Figure 1: E+F).
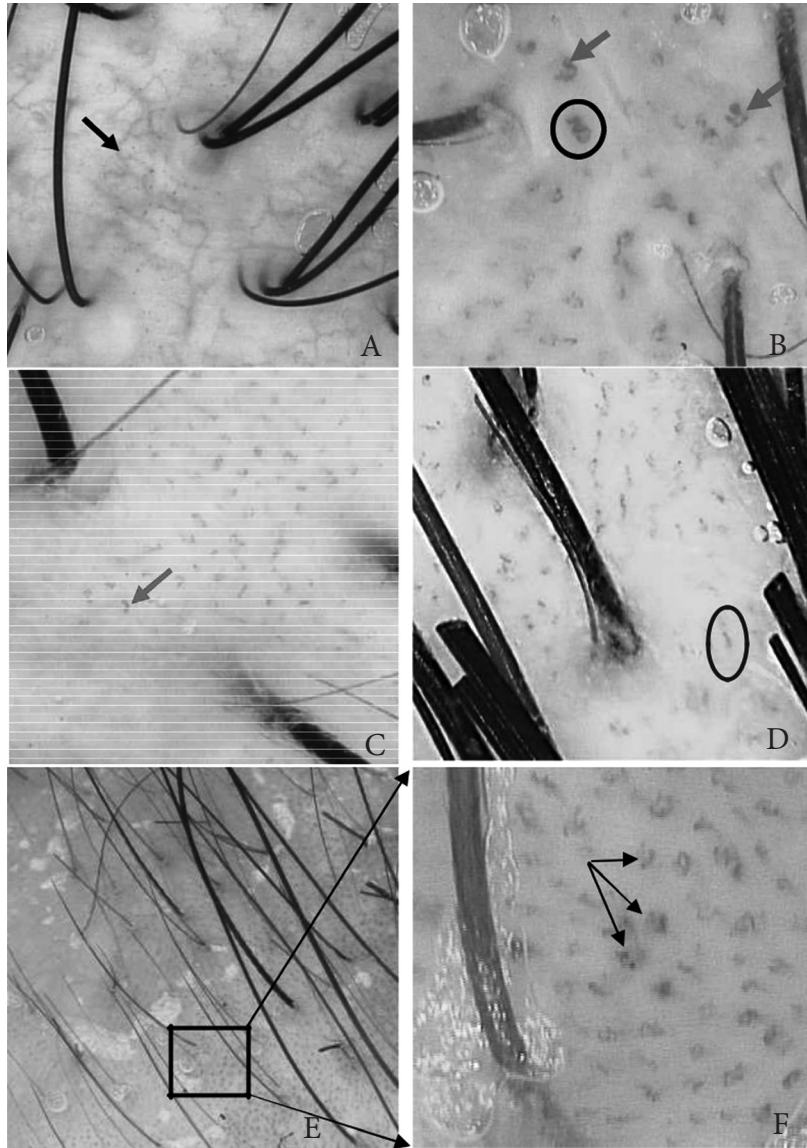
Figure 1. Vascular patterns on dermoscopy

A: Arborizing vessels (arrow)

B: Hairpin vessels (arrow), crocskrew vessels (circle)

C: Comma vessels (arrow)

D: Linear vessels (circle)

E+F: Dotted blood vessels signs at 10x magnification (square) correspond to the glomerular vessels at 50x magnification (arrows)

Other blood vessel characteristics (arborizing vessels, hairpin vessels, comma vessels, crocskrew vessels) were not studied in the two researches mentioned above, which may also be due to the limited magnification of the dermoscopic devices, making it difficult to distinguish vascular patterns.

According to the study of GW Kim et al (2010) [9], as well as the study of Ficicioglu and Piskin (2017) [10], the most frequent dermoscopic feature of seborrheic dermatitis was arborizing vessels (49% and 50% respectively). In our study, arborizing vessels were also strongly associated with seborrheic dermatitis (the incidence is 72.6%). This ratio in our study was higher than the two studies mentioned above, which can be explained by the higher magnification of dermoscopy equipment for better vascular imaging. The percentage of arborizing vessels in our study was similar to other reports using videodermoscopy such as M.Kibar (2015) (73.2%) [11] and Ross EK (2006) (61.5%) [12]

The frequency of comma vessels (82.3%) and hairpin vessels (72.8%) in seborrheic dermatitis group in our study was significant higher than that of Kim et al. (0% and 7%) [9], this was also mainly due to the higher magnification of dermoscopy equipments, allowing more vascular patterns to be detected at the lesion.

Table 2 shows the value of dermoscopy in the differential diagnosis of psoriatic and seborrheic dermatitis. Useful criterias for differentiation were vessels distribution (random/regular) (p = 0.001), arborizing vessels (p = 0.000), glomerular vessels (p = 0.000), hairpin vessels(p = 0.001) and crocskrew vessels(p = 0.000). This result is similar to previous studies in the world [9], [11].

4. CONCLUSION

Scalp psoriasis was characterized by glomerular vessels (100%), regularly distributed (92.5%), other valuable features were crocskrew vessels (84.9%) and comma vessels (79.2%). In addition, we identified three vascular patterns that were strongly related to seborrheic dermatitis, i.e. arborizing vessels (72.6%), comma vessels (82.3%) and hairpin vessels (75.8%). Useful dermoscopic findings to distinguish the two diseases were vessels distribution (p = 0.001), arborizing vessels (p = 0.000), glomerular vessels (p = 0.000), hairpin vessels (p = 0.001) and crocskrew vessels (p = 0.000).

In conclusion, this study clearly shows that dermoscopy is a non-invasive, convenient, highly valuable tool for the diagnosis of scalp psoriasis and seborrheic dermatitis.

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