Acta Dermatovenerol Croat 2016;24(4):291-295 CLINICAL ARTICLE

Dermoscopic Findings in Patients with Pigmented Purpuric Dermatoses

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Received: May 25, 2016
Accepted: October 5, 2016

ABSTRACT Pigmented purpuric dermatoses (PPD) are a group of chronic and relapsing cutaneous disorders characterized by a distinct purpuric rash. The diagnosis is made with clinical and histopathological findings. Dermoscopy has rarely been used in the diagnosis of PPD. The aim of our study is to describe the dermoscopic findings in patients with PPD.
Eighteen patients who were clinically and histopathologically diagnosed with PPD were studied prospectively. The type and duration of PPD, associated diseases, and medication history of the patients were noted. Dermoscopic examination was performed in all of the patients.
Four of the patients were women and 14 of them were men. 16 (88.8%) of them had Shamberg's disease, 1 of them had lichen aureus, and 1 had purpura annularis telangiectoides. Dermoscopic examination revealed multiple irregular red dots, globules and/or patches and brown-coppery coloration on the background in all of the patients, a network of interconnected brown lines in 8, linear vessels in 9, brown dots in 3, grey dots in 3, twisted red loops in 5, comma-like vessels in 2, and red lacunae in 1 patient.
The dermoscopic examination of PPD might improve the accuracy of clinical diagnosis.

KEY WORDS: pigmented purpuric dermatoses, dermoscopy, Schamberg's disease

INTRODUCTION

Pigmented purpuric dermatoses (PPD) are a relatively uncommon group of diseases characterized by petechia, purpura, and brown, red, or orange pigmentation, mainly confined to the lower limbs (1,2). Five types of PPD have been defined, including Shamberg's disease, lichen aureus, purpura annularis telangiectoides, eczematid-like purpura of Doucas and Kapetanakis and pigmented purpuric lichenoid dermatitis of Gougerot and Blum. Dermoscopy is a non-invasive method which can be used to enhance clinical examination (1). Dermoscopic features of PPD have very rarely been reported (3-8). The aim of our study was to describe the dermoscopic findings in patients with PPD.

METHODS

The study was conducted in Numune Education and Research Hospital, Ankara, Turkey. The study was approved by institutional ethical committee (approval number: 733/2014). The contents of the approval included dermoscopy of patients with PPD who gave informed consent. The study was performed on 18 consecutive patients who applied to our outpatient clinic and were clinically and histopathologically diagnosed with PPD and were studied prospectively. The type and duration of PPD, associated diseases, and the medication history of the patients were recorded. *For each patient, a dermoscopic evaluation was performed with Mole Max I Plus® (Derma Medical Systems GmbH, Vienna, Austria).*

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Table 1. Clinicoepidemiological characteristics and dermoscopic features of patients with pigmented purpuric dermatoses (PPD)

Patient no	Sex	Age	PPD type	Associated disease	Medications	Dermoscopic findings
1	Female	18	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines
2	Male	33	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, some brown dots, linear vessels
3	Male	74	Shamberg's disease	Hypertension, atherosclerosis	Diosmin+hesperidin, furocemide, coumadin, osmolac, bosentan	Brownish diffuse coloration of background, round to oval red dots, globules and patches
4	Male	59	Shamberg's disease	Gastritis		Brownish diffuse coloration of background, round to oval red dots, globules and patches, linear vessels
5	Male	70	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, linear vessels
6	Male	37	Lichen aureus			Brownish diffuse coloration of background, round to oval red dots, globules and patches, some grey and brown dots, twisted red loops
7	Male	49	Shamberg's disease	Venous insufficiency	Calcium dobesilate, oxerutin, acetylsalycilic acid	Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, linear and comma like vessels
8	Male	32	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, linear vessels
9	Male	49	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, some brown dots, linear vessels, twisted red loops
10	Male	43	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, linear vessels
11	Male	30	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, linear vessels, some grey dots
12	Female	85	Purpura annularis telangiectoides	Hypertention, aterosclerosis	Metoprolol succinate, losartan pottasium	Brownish diffuse coloration of background, round to oval red dots globules and patches, twisted red loops (more prominent at the periphery of the lesion), some brown dots
13	Male	45	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, linear vessels, some grey dots

14	Male	32	Shamberg's disease	Epilepsy	Levetiracetam	Brownish diffuse coloration of background, round to oval red dots, globules and patches, some grey dots, red lacunae
15	Female	50	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, comma-like vessels
16	Female	28	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches,
17	Male	45	Shamberg's disease			Brownish diffuse coloration of background, round to oval red dots, globules and patches, some brown dots and globules, comma like vessels, twisted red loops
18	Male	68	Shamberg's disease	Hypertention	Candesartan+ hydrochlorothiazide, doxazosin	Brownish diffuse coloration of background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, twisted red loops

The statistical analysis was performed using SPSS software (version 20; SPSS Inc., Chicago IL, USA). Frequencies were calculated for variables related to demographic and clinical patient characteristics. Chi-square test or Fisher's exact tests were used to determine if there were statistical associations between the type of PPD and sex the type of PPD and age group, and the type of PPD and dermoscopic findings.

RESULTS

Four (22.2%) of the patients were women, and 14 (77.7%) of them were men. The ages of the patients ranged between 18 and 85 years (mean ± standard deviation (SD) 47.055±18.092 years). When the ages of the patients were grouped as 18-35 years, 36- 50 years, and 50 years and over, there were 6 (33.3%) patients in each group.

Sixteen (88.8%) of them had Shamberg's disease, 1 (5.5%) had lichen aureus, and 1 (5.5%) had purpura annularis telangiectoides.

Six (33.3%) of the patients had associated diseases, which were hypertension (3 patients), hyperlipidemia (1 patient), coronary artery disease (1 patient), and venous insufficiency (1 patient) (Table 1). The medications of the patients are also listed in Table 1. Notably, none of the patients had a history of onset of sign or symptoms of PPD after the initiation of these medications. Dermoscopic examination revealed multiple irregular red dots, globules, and/or patches and brown-coppery coloration on the background in all of the patients, a network of interconnected brown lines in 8 (44.4%), linear vessels in 9 (50.0%), brown dots in 3 (16.6%), grey dots in 3 (16.6%), twisted red loops in 5 (27.7%), comma-like vessels in 2 (11.1%), and red lacunae in 1 (5.5%) patient (Figure 1, 2 , 3). No significant association was found between the type of PPD and sex, and the type of PPD and age group, and the type of PPD and dermoscopic findings ($P > 0.05$).

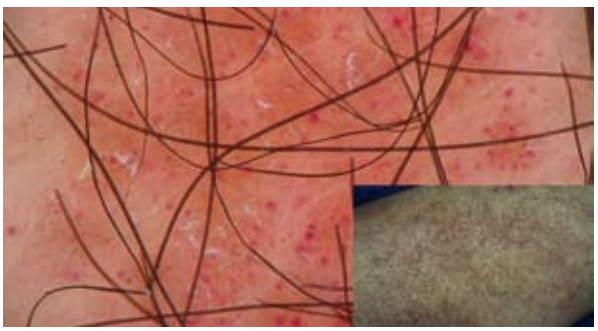

Figure 1. (patient no 6) Brownish diffuse coloration of the background, round to oval red dots, globules and patches, some grey and brown dots, and twisted red loops.

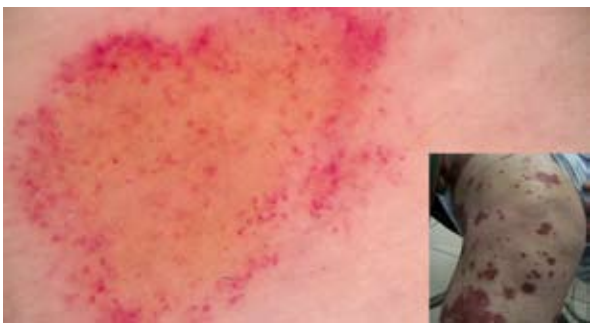

Figure 2. (Patient no 12) Brownish diffuse coloration of the background, round to oval red dots globules and patches, twisted red loops (more prominent in the periphery of the lesion), and some brown dots.

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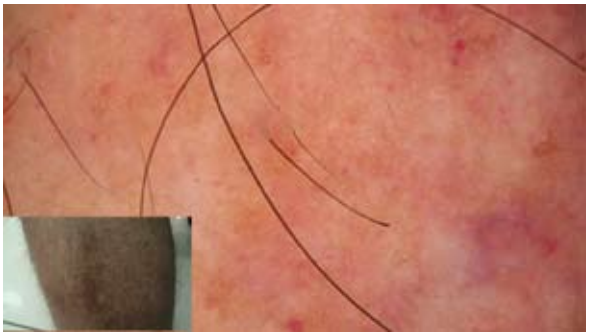

Figure 3. (Patient no 13) Brownish diffuse coloration of the background, round to oval red dots, globules and patches, a network of brownish to grey interconnected lines, linear vessels, and some grey dots.

DISCUSSION

Pigmented purpuric dermatoses are a group of chronic and recurrent diseases that have overlapping clinical and histopathological features (3,9). Symmetrical, petechial, and macular brown, red, and patchy pigmentation is seen clinically (2). The histopathological features include superficial lymphocytic infiltration and marked hemosiderin deposition with erythrocyte extravasation (1).

PPD are more commonly observed in men between their third and fifth decades of life (2,9). Similarly, 82.4% of our patients were men, and the mean age was 44.82±1.6 years. PPD are generally seen in the lower limbs, and in our patients the lesions were confined to the lower limbs except in one patient with PAT who had generalized lesions all over her body (2). Shamberg's disease is the most commonly observed type of PPD: 88.2% of our patients had Shamberg's disease.

The etiology of PPD is unknown, however venous hypertension, exercise, gravitational dependency, capillary fragility, focal infections, alcohol ingestion, and drugs such as acetaminophen, aspirin, adalin, glipizide, glybuzole, hydralazine, and rezerpine have been reported in the etiopathogenesis of PPD (1,2,9). Some disorders have also been found to be associated with PPD, including diabetes mellitus, rheumatoid arthritis, and lupus erythematous (1,2,9). In our study, 3 patients had hypertension, 1 had venous hypertension, 1 had gastritis, and 1 had epilepsy; all were taking medications for their diseases. None of the patients experienced onset of lesions after the initiation of the medications.

The diagnosis of PPD is based on with clinical and histopathological findings (1). Dermoscopy is a non-invasive procedure used for evaluating pigmented lesions of the skin surface (4). It has also been used in the evaluation non-pigmented skin lesions such as psoriasis, lichen planus, eczema, and urticaria (5). There have been few reports describing the dermoscopic features of PPD, of which the majority are case reports or case series. In these reports, the most commonly observed features were brownish or coppery-red diffuse coloration of the background, round to oval red dots, globules, and patches, gray dots, and a network of grey interconnected lines. Punctate and linear vessels were also features of PPD that were described (3-8).

The dermoscopic features we observed in our patients were: multiple irregular red dots, globules and/or patches, and brown-coppery coloration on the background in all of the patients, a network of interconnected brown lines, linear vessels, brown dots, grey dots in twisted red loops, comma-like vessels, and red lacunae.

Brownish or coppery-red diffuse coloration of the background is thought to correlate with the typical histopathological finding of PPD, which is the presence of dermal lymphocyte and histiocytes, extravasated red blood cells, and hemosiderin-laden macrophages. The round to oval red dots, globules, and patches are assumed to correspond to the extravasation of red blood cells and increased number of blood vessels. Grey dots are accepted as the dermoscopic counterpart of hemosiderin-laden macrophages in the dermis and the network of brownish to gray interconnected lines are thought to correlate with the presence of hyperpigmentation of the basal cell layer and pigmentary incontinence of the upper dermis. Brown dots and globules may correspond to melanocytes and melanophages in the dermoepidermal junction. Linear vessels, twisted red looped comma-like vessels, and red lacunae may correspond to an increased number of dilated and swollen blood vessels (3-8).

The differential diagnosis of PPD includes angioma serpiginosum, stasis dermatitis, leukocytoclastic vasculitis, purpura, and scurvy (8).

In angioma serpiginosum, small, relatively well-demarcated, round to oval red lagoons can be seen, which may be accompanied by comma, hairpin-like vessels and patchy pigmentation dispersed through the background (10).

The presence of glomerular-like vessels, red globules, and a scaly surface has been observed in stasis dermatitis (11).

Linear vessels, a homogeneous erythematous purple-brown background, red-purple dots, or globules and development of a prominent purplish hue

over time have been observed in vasculitic lesions in vasculitis, which may resemble the dermoscopic features of PPD (12).

Purpuric globules, wide, homogeneous, structureless purpuric areas, are observed in senile or steroid purpura and purpura due to bleeding diathesis (13).

The dermoscopic pattern of scurvy consists of purpuric halos centered by hair follicles, "corkscrew hairs"; follicular hyperkeratosis can also be observed (13).

We believe that by using dermoscopy it may be possible to avoid performing cutaneous biopsy in PPD cases, as we can use dermoscopy to differentiate between the major diseases in the differential diagnosis as mentioned above.

It has also been suggested that pigmented purpuric eruption could be an early manifestation of mycosis fungoides; alternatively, over the years PPD may progress to cutaneous T-cell lymphoma, and the two conditions may extremely rarely co-exist (14). We do not know if we can differentiate between PPD-like mycosis fungoides and PPD by using dermoscopy, as there are no reports on the dermoscopic findings of PPD-like mycosis fungoides. In further reports, if any differentiating dermoscopic findings between the two diseases are found, dermoscopy might be a useful tool in the follow-up of the patients as well.

We believe that it is beneficial to define and recognize the dermoscopic features of PPD to differentiate them from other causes of purpura and to improve the accuracy of the diagnosis.

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