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Original Article

Regional dermoscopic features of plaque psoriasis vulgaris on (the body, face and scalp)

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Abstract

Objective Dermoscopy is a non-invasive tool used for the visualization of deeper structures in the skin. It aids in the diagnosis of multiple skin diseases. The early uses of dermoscopy were for pigmented skin lesions. Nowadays, it is used for inflammatory, infectious, scalp and nail diseases. The objective of the study id to describe the dermoscopic features of chronic plaque psoriasis on the body, face and scalp.

Methods The study is an observational cross-sectional study performed over one year at Baghdad Dermatology Teaching Center. Dermoscopic features were noted and analyzed in classic plaque psoriasis on the body, scalp and the face. Variables dermoscopically studied were; 1.The pattern of vessels distribution. 2. The shape of vessels. 3. Background color. 4. Scale distribution 5. Scale color.

Results In body psoriasis the most common vascular pattern was regular (52.1%) and the shape of vessels was dots and globules (90.2%), the background was mainly pink (63%), scales were mainly diffusely distributed (34.9%) and white in color (46.7%). On the scalp the presence of vessels were less evident than body, no vessels were seen in (55%) and when found they were mainly regular in (18.4%) and the main shape was dots and globules (46%), the background as on the body was mainly pink in color in (79.4%), scales were diffuse in (56.3%) and white in (42.5%) of cases. In face and scalp psoriasis blood vessels were less than body psoriasis, no vessels were found in (53.6%) and when found they were mainly patchy (28.6%) and the main shape was dots and globules in (46.4%), the background was pink and red equally and scales were mainly diffuse (42.8%) and white/yellow (46.5%).

Conclusion Regularly distributed dots and globules with pink background and diffuse white scales were the most common findings in plaque psoriasis on the body, face and scalp. Vessels were more conspicuous in plaque body psoriasis than face and scalp psoriasis. No vessels could be found in 54% of scalp and face psoriasis. So the absence of vessels does not rule out the diagnosis of psoriasis.

Key words
Dermoscopy; Red dots and globules; Body plaque psoriasis; Scalp psoriasis; Face psoriasis.

Introduction

Dermoscopy is a non-invasive tool that helps the clinician to diagnose multiple skin lesions, a dermoscope is not just a magnifying glass but a more sophisticated and complex optical device, allowing the visualization of the epidermis, dermo-epidermal junction and papillary dermis that are invisible to the naked eye.[1] Dermoscopy light can be non-polarized or polarized which reduces the surface-reflected light (glare).[2] Dermoscopy was originally used to study pigmented lesions to differentiate malignant from benign lesions. It was also used in the study of hair and nail diseases. Its use has

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extended to include infections and inflammatory diseases.[3]

In inflammatory dermatoses five parameter were studied; 1- vessels distribution and morphology 2- scale distribution and color 3- follicular findings 4- specific clues 5- other structures including color and morphology.[4] The aim of the present study is to describe dermoscopic features of chronic plaque psoriasis on the body, face and scalp.

Methods

The study is an observational cross-sectional study performed over one year (September 2020 to September 2021) at Baghdad Dermatology Teaching Center, Baghdad/ Iraq. A total of 191 patients were included. Treated and non-treated lesions were included in the study. A total of 453 lesions were studied dermoscopically (338 plaque body psoriasis, 87 scalp psoriasis, 28 facial psoriasis). Clinical photos were taken by iphone 6s camera with 12 megapixel. Dermoscopic study was performed by Handyscope classic from fotofinder, Germany, 2010, white LED, twin-light, with an iphone 6s. Autofocus images with 20x magnification with non-polarized and polarized mode of light. Variables dermoscopically studied were; 1. The pattern of vessels distribution. 2. The shape of vessels. 3. Background color. 4. Scale distribution 5. Scale color.

Results

Regular pattern of vessels distribution was significantly higher in body psoriasis in comparison to scalp and face psoriasis, with 176 (52.1%) body psoriasis lesions as in **Figure 5**, 16 (18.4%) of scalp psoriasis lesions, and none of face lesions having regular vascular pattern, with a significant p value **(Table 1)**. Patchy distribution was significantly seen more in face psoriasis (28.6%) in comparison with scalp (17.2%) as in **Figure 4** and body psoriasis (12.1%). No vessel could be seen in (54%) of scalp, (53.6%) of face as in **Figure 3** and (6.8%) of body psoriasis, with a significant p value **(Table 1)**.

The most common vessel shapes in all three types of psoriasis were dots and globules **(Table 2)**. However the percentage was significantly higher in body psoriasis (90%) **(Figure 2)** as compared to scalp psoriasis (46%) and face psoriasis (46.4%), with a significant p value.

Table 1 Pattern of vessels distribution.

Vessel-distribution	*Body Plaque n (%)*	*Scalp n (%)*	*Face n (%)*	*P value*
Regular	176 (52.1)	16 (18.4)	-	<0.001
Clusters	52 (15.4)	8 (9.2)	5 (17.8)	0.293
Patchy	41 (12.1)	15 (17.2)	8 (28.6)	0.037
Scattered	39 (11.5)	1 (1.1)	-	<0.001
Rings	5 (1.5)	-	-	0.423
Linear	2 (0.6)	-	-	0.711
No vessels	23 (6.8)	47 (54)	15 (53.6)	<0.001
Total	338	87	28	-

Table 2 The shape of vessels in plaque, scalp and face psoriasis.

Vessel- shape	*Body Plaque n (%)*	*Scalp n (%)*	*Face n (%)*	*P value*
Dots and Globules	305 (90.2)	40 (46)	13 (46.4)	**<0.001**
Linear	35 (10.4)	3 (3.4)	-	**0.030**
Glomerular	16 (4.7)	-	-	0.060
Comma	10 (3)	-	-	0.176
Rings	4 (1.2)	-	-	0.503
Hairpin	2 (0.6)	-	-	0.711
No vessels	23 (6.8)	47 (54)	15 (53.6)	**<0.001**

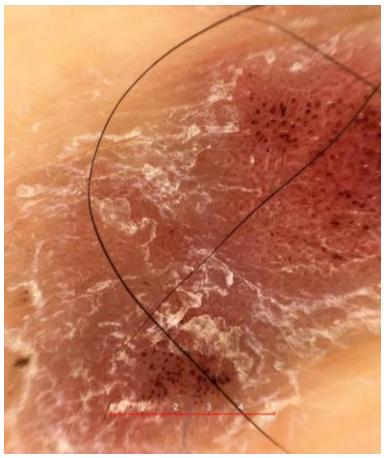

Figure 1 Plaque on the body with hemorrhagic dots and globules.

Figure 2 Lesion on the body with dots and globules in a ring like distribution.

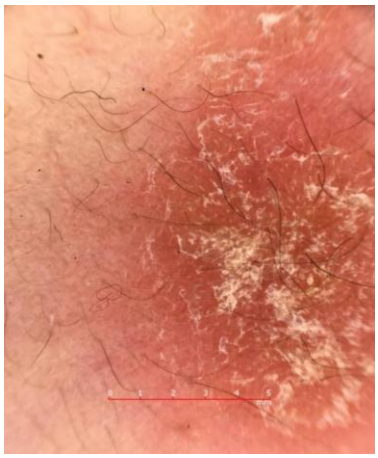

Figure 3 Face psoriasis with no blood vessels red background central yellow and white scale.

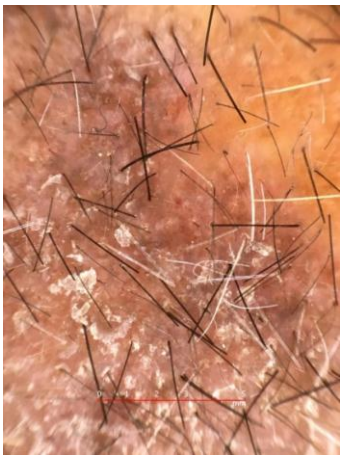

Figure 4 Lesion on the scalp shows patchy dotted vessels with grey background.

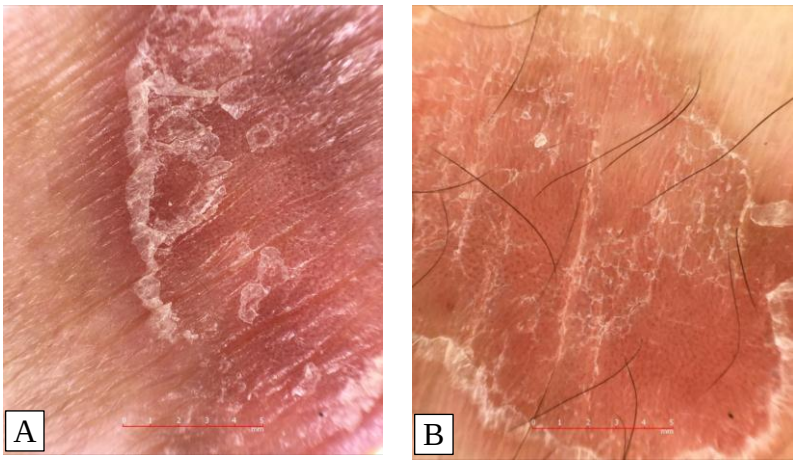

Figure 5 A- Non-polarized light dermoscopy shows peripheral white scale note the glare reflected from the surface B-Polarized light dermoscopic photos shows regular dots and globules and red background.

The background color was mainly pink in body psoriasis (63%) and in scalp (79.4%) while in face lesions the color was equally red and pink. **(Table 3)**.

The main pattern of scale distribution was diffuse in all types; (34.9%) in body psoriasis, (56.3%) in scalp and (42.8%) in face psoriasis. **(Table 4)**.

White scale was the most common color in body psoriasis lesions (46.7%) and scalp lesions (42.5%), while on the face white /yellow was the most common (46.5%) of lesions **(Table 5)**. Hemorrhagic dots were noticed in (22.8%) of total lesions on biological treatment **(Figure 1)**. Of these lesions; (21.5%) were on the body, (25%) on the face and (28.6%) on the scalp. Hemorrhagic dots were not seen in lesions on other types of treatment.

Discussion

In this study the pattern of vascular distribution in body psoriasis was regular dots and globules in 52.1 %. This pattern of distribution was also the most common in other studies with different percentages, it was less than Gavvala *et al*.[5] (100%), while it was comparable to Nwako-Mohamad *et al*.[6] (46%), dotted vessels were

Table 3 Background color.

Variables	*Body Plaque n (%)*	*Scalp n (%)*	*Face n (%)*	*P value*
pink	213 (63)	69 (79.4)	14 (50)	**0.004**
Red	96 (28.4)	13 (14.9)	14 (50)	**<0.001**
Grey	19 (5.6)	5 (5.7)	-	0.434
Yellow	10 (3)	-	-	0.176
Total	338	87	28	-

Table 4 Pattern of scale distribution.

Variables	*Body Plaque n(%)*	*Scalp n (%)*	*Face n (%)*	*P value*
Diffuse	118 (34.9)	49 (56.3)	12 (42.8)	**0.001**
Patchy	86 (25.4)	16 (18.4)	11 (39.3)	0.077
Peripheral	47 (13.9)	4 (4.6)	1 (3.6)	**0.021**
Central	14 (4.1)	1 (1.1)	1 (3.6)	0.403
No scale	73 (21.6)	17 (19.6)	3 (10.7)	0.379
Total	338	87	28	-

Table 5 Scale color.

Variables	*Body Plaque n (%)*	*Scalp (%)*	*Face n (%)*	*P value*
White	158 (46.7)	37 (42.5)	9 (32.1)	0.286
White / yellow	86 (25.4)	22 (25.4)	13 (46.5)	0.051
Yellow	21 (6.3)	11 (12.6)	3 (10.7)	0.112
No scale	73 (21.6)	17 (19.5)	3 (10.7)	0.379
Total	338	87	28	-

considered more sensitive than Auspitz sign which was observed in less than 20%.[7] Grouped as patchy and clusters in body psoriasis observed more than other studies like in Lallas *et al*.[8] (2012). These differences may be due to the variable terminology, for example grouped distribution was described in some studies while in others just clusters or patchy distribution were mentioned without differentiation between the two. On the scalp psoriasis no vessels were found in (55%) and the remaining were regular dots and globules, and on face psoriasis no vessels were found in (53.6%) and the remaining were patchy dots and globules, this is in comparison to other studies like Nwako-Mohamad *et al.* no vessels in (25%) and (63%) in scalp and face respectively.[6] It was suggested that darker skin might affect the visibility of the blood vessels as Nwako-Mohamad *et al*.[6] dealt with Fitzpatrick skin type IV, V, and VI. Vascular structures reflect dilated loops in the dermis; however they are affected by factors such as epidermal hyperplasia and changes due to treatment received.

These differences in results may be due to the differences in magnifications used, some of these studies used up to 70 folds while others used 10 or 20 folds. And it may also be due to choosing non-treated lesions only by some authors while others examined treated and no-treated lesions.

Linear vessels were observed in body and scalp psoriasis more than what was found by Abdel-Azim *et al*.[9] (4%) in body psoriasis. Linear vessels could be due to steroid therapy.[10] glomerular vessels were found in (4.7%) in body psoriasis in the present study, while Gavvala *et al*.[5] mentioned (33%), this difference may be due to the use of a device with higher optical magnification than our study. Also these shapes may be mixed with dots and globules. Many of the recent studies used in addition to the usual magnification of dermoscopy, videodermoscopy with 70 x magnification which shows details of vascular structures which appeared as convoluted tubules or twisted loops instead of the usual shapes mentioned. In the present study

hemorrhagic dots and globules were found in patients on biological therapy only, Lallas *et al*. studied the effects of biological treatment (adalimumab, etanercept, infliximab and ustekinumab) and suggested that hemorrhagic dots represent an early predictor of subsequent clinical response.[11] Background color was mainly pink in body and scalp lesions. This was also mentioned by other studies. Grey color was observed in body lesions and it was also observed by Chandravathi *et al*.[12] Which indicates thicker lesions.[12] In face psoriasis pink and red colors were of equal percent. In Nwako-Mohamad *et al*.[6] red was the most common background color (72.7%). Diffuse white scales were the main findings in all types of psoriasis in the present study. This is comparable to other studies as in Golińska *et al*.[10]

It must be stressed that differences in results may be due to subjective assessment and different terminology used.[13]

References

1. Chen X, Lu Q, Chen C, Jiang G. Recent developments in dermoscopy for dermatology. *J Cosmet Dermatol*. 2021;**20(6)**:1611–7.
2. Ankad, Balachandra S., *et al*. Basic science of dermoscopy. *Clin Dermatol Rev*. 2020;**4.2**:69.
3. Sonthalia S, Yumeen S, Kaliyadan F. Dermoscopy Overview and Extradiagnostic Applications. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 [cited 2022 Mar 11]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK537131/
4. Errichetti E, Zalaudek I, Kittler H, Apalla Z, Argenziano G, Bakos R, *et al*. Standardization of dermoscopic terminology and basic dermoscopic parameters to evaluate in general dermatology (non-neoplastic dermatoses): an expert consensus on behalf of the International Dermoscopy Society. *Br J Dermatol*. 2020;**182(2)**:454–67.
5. Gavvala, Manmohan; GAVVALA, Madhulika. Dermoscopy as a diagnostic tool in Psoriasis. *J Med Allied Sci*. 2021;**11**.1.
6. Nwako-Mohamadi MK, Masenga JE, Mavura D, Jahanpour OF, Mbwilo E, Blum A. Dermoscopic Features of Psoriasis, Lichen Planus, and Pityriasis Rosea in Patients With Skin Type IV and Darker Attending the Regional Dermatology Training Centre in Northern Tanzania. *Dermatol Pract Concept*. 2019;**9(1)**:44–51.
7. Vázquez-López F, Manjón-Haces JA, Maldonado-Seral C, Raya- Aguado C, Pérez-Oliva N, Marghoob AA. Dermoscopic features of plaque psoriasis and lichen planus: new observations. *Dermatology*. 2003;**207(2)**:151–6.
8. Lallas A, Kyrgidis A, Tzellos TG, Apalla Z, Karakyriou E, Karatolias A, *et al*. Accuracy of dermoscopic criteria for the diagnosis of psoriasis, dermatitis, lichen planus and pityriasis rosea. *Br J Dermatol*. 2012;**166(6)**:1198–205.
9. Abdel-Azim NE, Ismail SA, Fathy E. Differentiation of pityriasis rubra pilaris from plaque psoriasis by dermoscopy. *Arch Dermatol Res*. 2017;**309(4)**:311–4.
10. Golińska J, Sar-Pomian M, Rudnicka L. Dermoscopy of plaque psoriasis differs with plaque location, its duration, and patient's sex. *Skin Res Technol*. 2021;**27(2)**:217–26.
11. Lallas A, Argenziano G, Zalaudek I, Apalla Z, Ardigo M, Chellini P, *et al*. Dermoscopic hemorrhagic dots: an early predictor of response of psoriasis to biologic agents. *Dermatol Pract Concept*. 2016;**6(4)**:7–12.
12. Chandravathi, Penmetcha Lakshmi, *et al*. A cross-sectional analysis of dermoscopic patterns distinguishing between psoriasis and lichen planus: A study of 80 patients. *J Evol Med Dent Sci*. 2015:**4.105**:17017-23.
13. Golińska J, Sar- Pomian M, Rudnicka L. Dermoscopic features of psoriasis of the skin, scalp and nails – a systematic review. *J Eur Acad Dermatol Venereol*. 2019;**33(4)**:648–60.