

## A Cross-Sectional Study to Assess the Role of Dermoscopy in Differentiating Palmar Psoriasis, Chronic Hand Eczema, and Eczema in Psoriatico

### Abstract

**Background:** Overlapping clinical features often make the differentiation between palmar psoriasis, hand eczema, and eczema in psoriatico a difficult task. In such cases, history and biopsy often aid in the diagnosis. Dermoscopy acts as a link between clinical dermatology and dermatopathology. **Aim:** To study the dermoscopic features in biopsy-proven cases of palmar psoriasis, hand eczema, and eczema in psoriatico. **Methods:** A 1-year cross-sectional study was conducted using a video dermatoscope, Dinolite premier AM4113ZT, on 60 patients having clinical diagnosis of either of palmar psoriasis, hand eczema, and eczema in psoriatico. Statistical analysis was performed using R i386 3.6.3 software. **Results:** Among 60 patients, 38 were psoriatics followed by 14 of eczema and 8 of eczema in psoriatico. On dermoscopy, characteristic features of psoriasis lesions were diffuse scaling in 76.3% (29/38), white scales in 60.5% (23/38), and dotted vessels in 76.3% (29/38) along with regular distribution of vessels in 71% (27/38); in hand eczema lesions, diffuse scaling in 78.5% (11/14), white and yellow scales in 57.1% (8/14), and dotted vessels in 78.5% (11/14) along with a patchy distribution of vessels in 57.1% (8/14); in eczema in psoriatico, diffuse scaling in 75% (6/8), white and yellow scales in 62.5% (5/8), and dotted vessels in 87.5% (7/8) along with regular distribution of vessels in 50% (4/8). **Conclusion:** The various patterns and combinations reflecting specific features give an insight into the cases of palmar psoriasis, hand eczema, and eczema in psoriatico on dermoscopy. However, a study with larger sample size is required to validate the findings of our study. **Limitations:** Inability to perform a patch test for eczema due to unavailability.

**Keywords:** *Dermoscopy, eczema in psoriatico, hand eczema, histopathology, palmar psoriasis*

### Introduction

Palmoplantar psoriasis causes a remarkable social and functional disability. It presents as well-defined erythematous silvery-white scaly patches along with overhanging of scales peripherally on palms, tips of digits, sides of fingers, and extensor surfaces of joints.<sup>[1]</sup> The hyperkeratotic plaques at times may resemble chronic hyperkeratotic eczema.<sup>[2]</sup> Involvement of knuckles, hypothenar and thenar eminences favors the diagnosis of psoriasis.<sup>[3]</sup>

Hand eczema is a distressing, disabling common condition and has a poor quality of living due to its effects on dexterity, appearance, and social functioning.<sup>[4,5]</sup> It presents as ill to well-defined scaly fissured, occasionally oozy hyperkeratotic patches and plaques proximally or over the center of palms, volar surfaces of fingers.<sup>[6]</sup>

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow\_reprints@wolterskluwer.com

Eczema in psoriatico is a condition, in which patients with preexisting palmoplantar psoriasis present with coexistent allergic contact dermatitis, with history of/or without atopy; on household/environmental and/or occupational exposure of irritants and allergens, they exhibit a type 4 hypersensitivity pattern. This acts as Koebner's phenomenon, maintaining or triggering palmoplantar psoriasis. The diagnosis of which can be made on correlating with clinical, histological, and immunohistochemical examination.<sup>[7]</sup>

The presence of nail pits, joint pains, lesions elsewhere on the body provides a clinical clue when present in patients with palmoplantar psoriasis, whereas history of contact and precipitation of lesions provides

**How to cite this article:** Adabala SS, Doshi BR, Manjunathswamy BS. A cross-sectional study to assess the role of dermoscopy in differentiating palmar psoriasis, chronic hand eczema, and eczema in psoriatico. *Indian Dermatol Online J* 2022;13:78-85.

**Received:** 06-Oct-2020. **Revised:** 11-Apr-2021.  
**Accepted:** 05-Sep-2021. **Published:** 24-Jan-2022.

**Srujana S. Adabala,  
Bhavana R. Doshi,  
B. S.  
Manjunathswamy**

*Department of Dermatology,  
KLE Academy of Higher  
Education and Research, JNMC,  
Belagavi, Karnataka, India*

### Address for correspondence:

*Dr. Bhavana R. Doshi,  
Department of Dermatology,  
KLE Academy of Higher  
Education and Research, JNMC,  
Belagavi - 590 010, Karnataka,  
India.*

*E-mail: bhavs1982@gmail.com*

### Access this article online

**Website:** [www.idoj.in](http://www.idoj.in)

**DOI:** 10.4103/idoj.IDOJ\_782\_20

### Quick Response Code:



a clue to the diagnosis in eczema patients. However, these clinical clues may be absent occasionally.

Due to overlapping clinical features, the differentiation between palmar psoriasis, hand eczema, and eczema in psoriatico becomes a difficult task. In such cases, histopathological analysis aids in many cases to differentiate the two conditions.<sup>[6,8,9]</sup>

Dermoscopy is a diagnostic method that utilizes optic magnification to allow the visualization of patterns and structures that are less visible to the naked eye, thus, forming a link between macroscopic dermatology clinically and microscopic dermatopathology.<sup>[10]</sup>

Hence, we undertook this study to assess dermoscopic features in biopsy-proven cases of palmoplantar psoriasis, hand eczema, and eczema in psoriatico.

## Materials and Methods

This was a hospital-based observational cross-sectional study carried out from 1<sup>st</sup> January 2019 to 31<sup>st</sup> December 2019. Consenting patients, who on history and clinical examination had features of palmar psoriasis, hand eczema, or eczema in psoriatico attending the dermatology outpatient department at our tertiary care hospital, were included after institutional ethical clearance.

Patients with lesions over palms other than psoriasis/eczema and not willing for skin biopsy were excluded.

The sample size was calculated as per the formula  $n = \frac{\lambda}{w^2}$ ,  $\lambda$  is the noncentrality parameter of  $\chi^2$  test; this can be obtained for given level of significance, power, and degrees of freedom. Whereas,  $w$  can be obtained by the

formula =  $\sqrt{\frac{1}{n} \sum_{i=1}^r \sum_{j=1}^c \frac{(O_{ij} - e_{ij})^2}{e_{ij}}}$ , where  $O_{ij}$  is the observed cell count,  $e_{ij}$  is the expected cell count, and  $r$ ,  $c$  represent the number of rows and columns of contingency table.

Considering the power of 80%, level of significance as 5%, degrees of freedom as 1, we assume  $w$  as 0.4. From the above formula, the sample size obtained is  $49.055 \approx 49$ . Therefore, the minimum sample size required was 49. However, the total number of patients attending the OPD during the study period was 60; hence, a sample size of 60 was studied.

After detailed clinical history, dermatological and systemic examination, clinical photographs of the lesions were taken. Dermoscopic examination of the lesions over the palms using both nonpolarized and polarized mode with use of ultrasound gel as linkage fluid when necessary was performed using a video dermatoscope, Dinolite premier AM4113ZT model, and images were captured and recorded for the study.

A 4-mm biopsy over the palms was done under aseptic conditions and sent for histopathological examination to

confirm the diagnosis, which was reviewed by a single dermatopathologist. Final diagnosis of palmar psoriasis/hand eczema/eczema in psoriatico was based on clinical and histopathological findings. Patch test for detecting the allergen could not be done due to the unavailability of the patch test kit.

The results were tabulated and analyzed using R i386 3.6.3 software. Chi-square test for categorical variables and ANOVA/Kruskal–Wallis test for continuous variables were used. Fleiss' kappa was used to check for agreement between the dermoscopy and histopathology. Sensitivity, specificity, positive predictive value, and negative predictive value of the data were calculated.

**Results:** Out of 60 subjects studied, 38 were psoriatics followed by 14 of eczema and 8 of eczema in psoriatico.

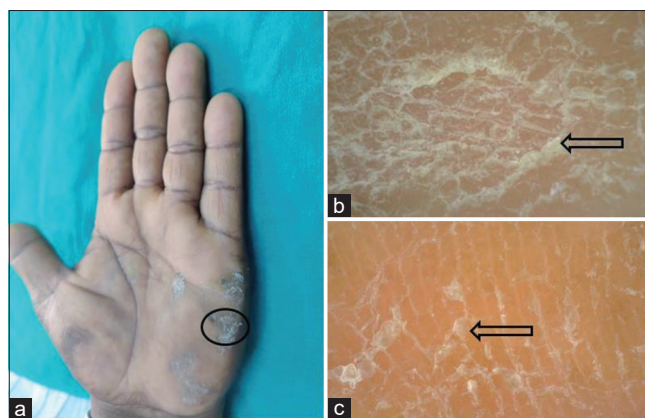
Our study showed a male predominance of 63.3% (38/60). The common age group affected in palmar psoriasis group was 60 years and above, in hand eczema group were between 20–29 years, and in eczema in psoriatico group were between 40–49 years. The mean duration of the onset of the lesions was 1.73 years.

In those with palmar psoriasis, there was a significant aggravation of disease in winters in 89.4% (34/38).

Predominantly nail changes observed in patients of psoriasis were pitting in 55.2% (21/38) followed by onycholysis in 39.4% (15/38), and subungual hyperkeratosis in 36.8% (14/38). There was insignificant nail involvement seen in 14.2% (2/14) in those with eczema.

The commonest allergens causing hand eczema, according to history, were detergents and pesticides 35% (5/14) each followed by cement 21.4% (3/14).

From Table 1, we observed that in the majority of cases, 76.6% (46/60) had diffuse scaly lesions. The association of white color of scales [Figure 1a,1b and 1c] was statistically



**Figure 1:** (a) Clinical picture of palmar psoriasis showing a well-defined plaque with scaling. (b) Corresponding dermoscopic image on 50× magnification on nonpolarized mode showing white scales. (c) Corresponding dermoscopic image on 50× magnification on polarized mode showing white scales

significant in palmar psoriasis, i.e., 60.5% (23/38), whereas the majority of hand eczema cases, i.e., 57.14% (8/14) had a combination of white and yellow scales [Figure 2a, 2b and 2c], followed by only yellow scales [Figure 3a, 3b and 3c] in 28.5% (4/14). Dotted type of vessels was the commonest type in all the three diagnoses, i.e., 78.3% (47/60). Among distribution of vessels, regular and diffuse type [Figure 4a-c] was significantly

associated with psoriasis in 71% (27/38) and in eczema in psoriatico was seen in 50% (4/8), whereas the patchy type of distribution [Figure 5a,5b and 5c] was commonest in hand eczema, i.e., 57.1% (8/14). Glomeruloid/bushy type of vessels [Figure 6a-c] was seen in 15.7% (6/38) in palmar psoriasis cases. Looped (twisted and hairpin) type of vessels [Figure 7a and b] was seen in 7.14% (1/14) in hand eczema cases. Light red background erythema [Figure 8a and b] was significantly associated with

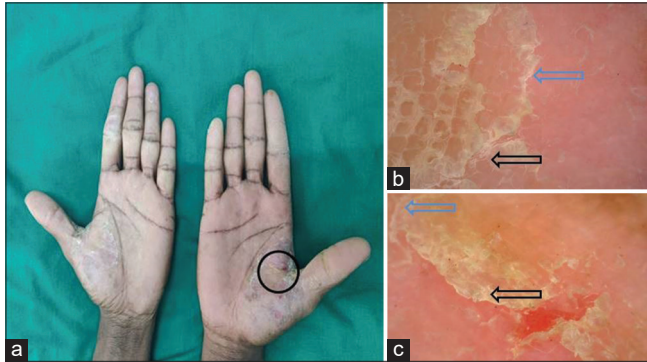


Figure 2: (a) Clinical picture of palmar psoriasis showing a well-defined erythematous plaque with scaling. (b) Corresponding dermoscopic image on 50 × magnification on nonpolarized mode showing white scales (blue arrow) and yellow scales (black arrow). (c) Corresponding dermoscopic image on 50 × magnification on polarized mode showing white scales (blue arrow) and yellow scales (black arrow)

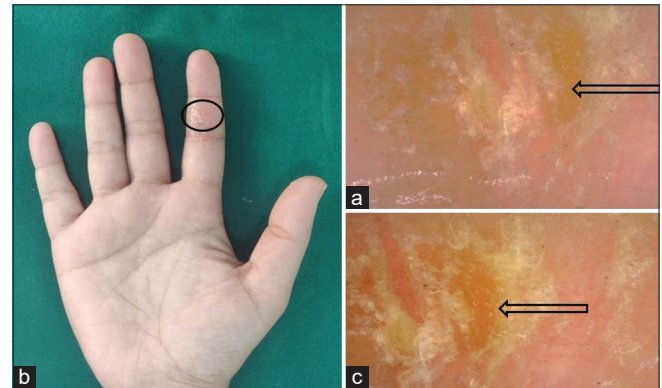


Figure 3: (a) Clinical picture of hand eczema showing an ill-defined plaque with oozing. (b) Corresponding dermoscopic image on 50 × magnification on nonpolarized mode showing yellow scales. (c) Corresponding dermoscopic image on 50 × magnification on polarized mode showing yellow scales

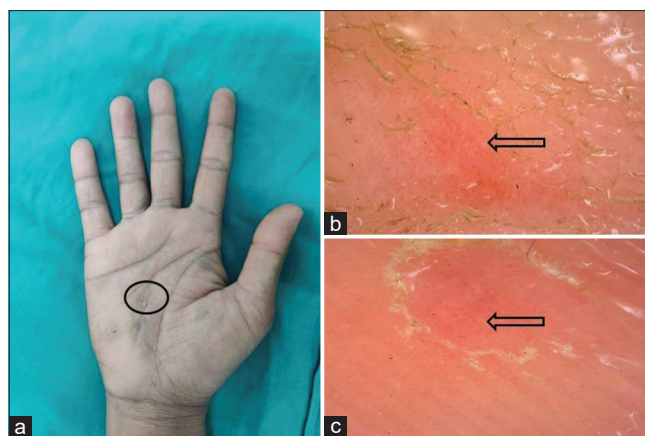
Table 1: Dermoscopic findings in the study patients as per diagnosis

Factor	Subcategory	Total (n=60)	Palmar psoriasis (n=38)	Hand eczema (n=14)	Eczema in psoriatico (n=8)	P
Distribution of scales	Diffuse	46 (76.6%)	29 (76.3%)	11 (78.5%)	6 (75%)	>0.99
	Focal	14 (23.3%)	9 (23.6%)	3 (21.4%)	2 (25%)	
Color of scales	White	27 (45%)	23 (60.53%)	2 (14.29%)	2 (25%)	0.0040*
	Yellow	5 (8.33%)	0 (0%)	4 (28.57%)	1 (12.5%)	
	White+Yellow	28 (46.67%)	15 (39.47%)	8 (57.14%)	5 (62.5%)	
Type of vessels	Dotted	47 (78.33%)	29 (76.32%)	11 (78.57%)	7 (87.5%)	0.3138
	Glomeruloid	6 (10%)	6 (15.79%)	0 (0%)	0 (0%)	
	Loops/Hair pin	1 (1.67%)	0 (0%)	1 (7.14%)	0 (0%)	
	Undifferentiated	6 (10%)	3 (7.89%)	2 (14.29%)	1 (12.5%)	
Array of vessels	Regular	31 (51.67%)	27 (71.05%)	0 (0%)	4 (50%)	0.0005*
	Patchy	10 (16.67%)	1 (2.63%)	8 (57.14%)	1 (12.5%)	
	Undifferentiated	17 (28.33%)	8 (21.05%)	6 (42.86%)	3 (37.5%)	
	Clustered	2 (3.33%)	2 (5.26%)	0 (0%)	0 (0%)	
Background erythema	Yellowish	3 (5%)	0 (0%)	3 (21.43%)	0 (0%)	0.0005*
	Bright red	6 (10%)	5 (13.16%)	0 (0%)	1 (12.5%)	
	Dull red	5 (8.33%)	3 (7.89%)	2 (14.29%)	0 (0%)	
	Light red	28 (46.67%)	25 (65.79%)	0 (0%)	3 (37.5%)	
	Yellow + Bright red	1 (1.67%)	1 (2.63%)	0 (0%)	0 (0%)	
	Yellow + Dull red	11 (18.33%)	0 (0%)	8 (57.14%)	3 (37.5%)	
	Yellow + Light red	5 (8.33%)	4 (10.53%)	0 (0%)	1 (12.5%)	
	Undifferentiated	1 (1.67%)	0 (0%)	1 (7.14%)	0 (0%)	
Additional features	Brownish-orange dots	8 (13.33%)	1 (2.63%)	5 (35.71%)	2 (25%)	0.1669
	Loops of vessels	6 (10%)	4 (10.53%)	1 (7.14%)	1 (12.50%)	
	Yellow clods	1 (1.67%)	1 (2.63%)	0 (0%)	0 (0%)	
	Yellow-orangeclods	4 (6.67%)	0 (0%)	3 (21.43%)	1 (12.5%)	

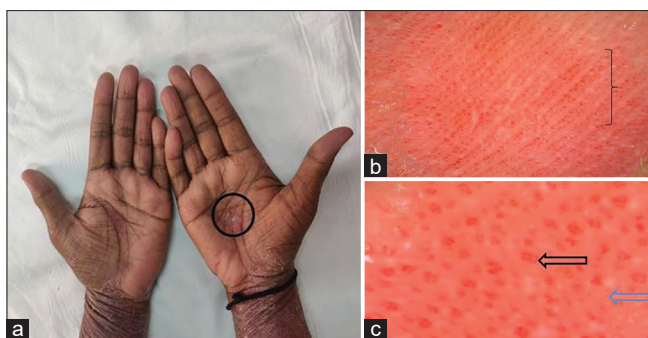
\*P<0.05 is considered to be statistically significant



**Figure 4:** (a) Clinical picture of palmar psoriasis showing well-defined erythematous plaques with scaling. (b) Corresponding dermoscopic image on 50 × magnification indicated by a brace. (c) 200 × magnification indicated by a black arrow on polarized mode using linkage fluid showing diffuse regularly distributed dotted type of vessels in a beaded pattern along the fissure



**Figure 5:** (a) Clinical picture of palmar psoriasis showing a hyperkeratotic plaque with fissuring. (b and c) Corresponding dermoscopic images on 50× magnification on polarized mode using linkage fluid showing dotted type of vessels in a patchy distribution over two different regions of the hyperkeratotic scaly plaque



**Figure 6:** (a) Clinical picture of palmar psoriasis showing a well-defined erythematous plaque with scaling. (b) Corresponding dermoscopic image on 50 × magnification indicated by a brace on polarized mode with linkage fluid showing diffuse regularly distributed glomeruloid type of vessels (c) 200× magnification indicated by a black arrow on polarized mode with linkage fluid showing diffuse regularly distributed glomeruloid type of vessels with bright red background erythema (blue arrow)



**Figure 7:** (a) Clinical picture of hand eczema showing ill-defined hyperpigmented plaque. (b) Corresponding dermoscopic image on 50× magnification on polarized mode with linkage fluid showing twisted loop (black arrow), hair pin (white arrow) type of blood vessels, brown clods (blue arrow)

palmar psoriasis in 65.7% (25/38), yellowish with dull red background in the majority of hand eczema cases, i.e., 57.14% (8/14), and 37.5% (3/8) each of light red and yellowish dull red background in eczema in psoriatico. Additional features of brownish-orange dots/globules in 35.7% (5/14) and yellow-orange clods in 21.4% (3/14) were seen more commonly in hand eczema cases [Figure 9a and b].

Histopathological analysis showed granular layer was  $\leq 2$  cell thick in 78.9% (30/38) of palmar psoriasis,  $\geq 3$  cell thick in 64.2% (9/14) of hand eczema, and 62.5% (5/8) in eczema in psoriatico [Table 2]. Regular acanthosis with statistical significance was seen in 94.7% (36/38) of palmar psoriasis and 75% (6/8) of eczema in psoriatico, and irregular acanthosis in 78.5% (11/14) cases of hand eczema. Psoriasiform hyperplasia was observed in 81% (31/38) of palmar psoriasis, and irregular hyperplasia in 28.5% (4/14) absent in 64.2% (9/14) of hand eczema cases. Supra-papillary thinning was noted with statistical significance in palmar psoriasis, i.e., 86.8% (33/38), 62.5% (5/8) cases of eczema

in psoriatico, whereas in hand eczema, there was no thinning in 92.8% (13/14) cases. The presence of dilated capillaries was statistically significant in palmar psoriasis, i.e., 97.3% (37/38). It was also seen in 87.5% (7/8) cases of eczema in psoriatico, whereas in hand eczema, there was an absence of dilated capillaries in 85.7% (12/14) cases. In the majority, dermal infiltration in palmar psoriasis was of lymphocytes + neutrophils 81.5% and hand eczema had lymphocytes + eosinophils 42.7% and lymphocytes 35.6%, whereas eczema in psoriatico showed the presence of all three types of inflammatory cells in 87.5% cases.

Both dermoscopic provisional diagnosis and confirmatory histopathological diagnosis correlated in 35/38 palmar psoriasis cases, whereas three cases who were given a provisional diagnosis of eczema on dermoscopy turned out to be psoriasis after histopathologic evaluation. All the 14 cases of hand eczema predicted by dermoscopy were confirmed by histopathological evaluation. Three cases having a provisional diagnosis of palmar psoriasis and five

cases of hand eczema by dermoscopy were diagnosed to be eczema in psoriatico after subsequent histopathological evaluation.

Figures 10-12 depict the histological findings in cases of psoriasis, palmar eczema, and eczema in psoriatico, respectively.

### Discussion

In our study, predominantly diffuse scaling was observed, i.e., 76.3% (29/38) in palmar psoriasis and 78.5% (11/14) in hand eczema, similar to 74.3% (26/35) in palmar psoriasis and 56.4% in hand eczema in the study by Cetinarlan *et al.*<sup>[11]</sup> Whereas, focal scaling was observed in 23.6% (9/38) of palmar psoriasis and 21.4% (3/14) in hand eczema in our study near similar to 22.8% (8/35) in palmar psoriasis and 43.6% in hand eczema by Cetinarlan *et al.*<sup>[11]</sup>

Predominantly white scales were observed in palmar psoriasis 60.5% (23/38) followed by both white and yellow scales in 39.47% (15/38) similar to the findings of 65.7% (23/35) and 34.3% (12/35), respectively, by Cetinarlan *et al.* study.<sup>[11]</sup> Whereas in case of hand eczema, our study had a majority

of both white and yellow scales in 57.14% (8/14) followed by yellow scales in 28.5% (4/14) and white scales in 14.2% (2/14), which varied significantly from a study done by Cetinarlan *et al.*<sup>[11]</sup> with predominant yellow scales in 85.5% followed by both in 12.7% and white scales in 1.8%. The study by Errichetti and Stinco<sup>[8]</sup> too showed majorly yellow scales 90.9% (10/11) in eczema. Hence, more studies with a larger sample size are required to verify the significance of these findings. The variation in observation is probably because these studies have not documented or studied the dermoscopic features in context to eczema in psoriatico which must have probably got categorized under eczema.

On dermoscopy, dotted type of vessels was the most common type in both palmar psoriasis and hand eczema with 76.3% (29/38) and 78.5% (11/14), respectively, in our study, but on comparison with study by Cetinarlan *et al.*,<sup>[11]</sup> the values varied, i.e., 51.4% (18/35) and 58.2% in palmar psoriasis and hand eczema, respectively.

In our study, glomeruloid variant was 15.7% (6/38) seen over palms of the psoriatic patients having established

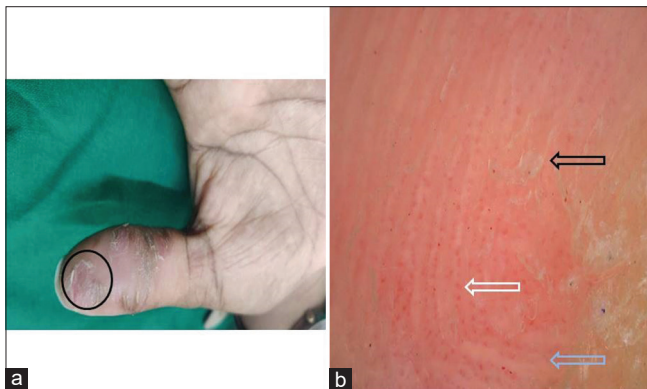


Figure 8: (a) Clinical picture of palmar psoriasis showing erythematous plaque with fissuring. (b) Corresponding dermoscopic image on 50x magnification on polarized mode with linkage fluid of palmar psoriasis showing white scales (black arrow), diffuse regularly distributed dotted type of vessels (white arrow), and light red background erythema (blue arrow)

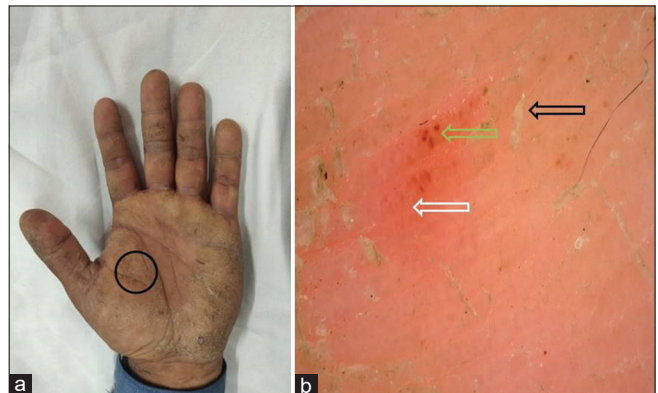


Figure 9: (a) Clinical picture of hand eczema showing ill-defined hyperkeratotic plaques. (b) Corresponding dermoscopic image on 50x magnification on polarized mode with linkage fluid of hand eczema showing yellow scales (black arrow), dotted type of vessels in patchy distribution (white arrow), and brownish-orange globules (green arrow)

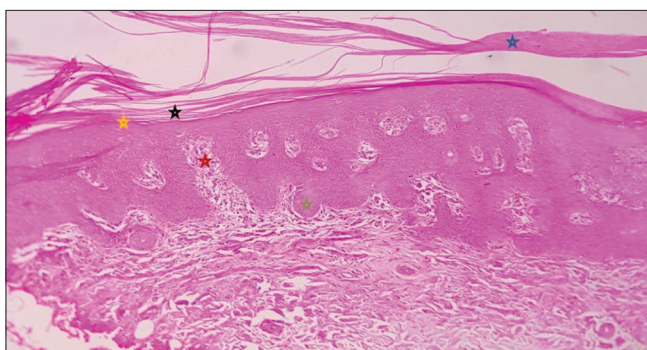


Figure 10: Histologic findings in case of psoriasis showing parakeratosis (blue star), hyperkeratoses (black star), absent granular layer (yellow star), supra-papillary thinning of the epidermis along with dilated capillaries (red star), acanthotic epidermis with regular psoriasiform hyperplasia (green star) on hematoxylin and eosin stain on 10x magnification

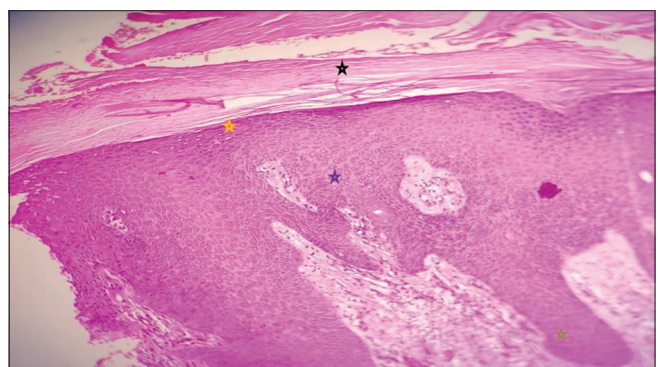
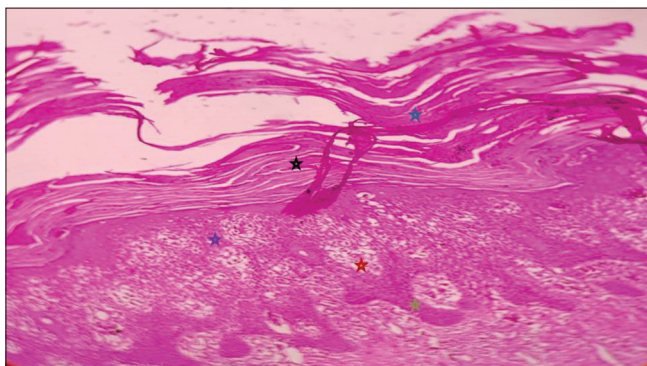


Figure 11: Histologic findings in case of palmar eczema showing compact hyperkeratoses (black star), intact granular layer (yellow star), mild spongiosis with acanthosis (purple star) and irregular psoriasiform hyperplasia (green star) on hematoxylin and eosin stain on 10x magnification

**Table 2: Shows histopathologic/biopsy findings in the study subjects as per diagnosis**

Factor	Subcategory	Total (n=60)	Palmar psoriasis (n=38)	Hand eczema (n=14)	Eczema in psoriatico (n=8)	P
Hyperkeratosis	Present	56 (93.33%)	35 (92.11%)	13 (92.86%)	8 (100%)	0.8376
Parakeratosis	Present	44 (73.33%)	28 (73.68%)	11 (78.57%)	5 (62.5%)	0.8266
Fibrin globules	Absent	30 (50%)	15 (39.47%)	10 (71.43%)	5 (62.5%)	0.1139
	1+	18 (30%)	14 (36.84%)	2 (14.29%)	2 (25%)	0.9225
	2+	9 (15%)	7 (18.42%)	1 (7.14%)	1 (12.5%)	
	3+	3 (5%)	2 (5.26%)	1 (7.14%)	0 (0%)	
Plasma mounds	Absent	37 (61.67%)	25 (65.79%)	7 (50%)	5 (62.5%)	0.5747
	1+	17 (28.33%)	10 (26.32%)	4 (28.57%)	3 (37.5%)	0.5377
	2+	5 (8.33%)	3 (7.89%)	2 (14.29%)	0 (0%)	
	3+	1 (1.67%)	0 (0%)	1 (7.14%)	0 (0%)	
Neutrophils in stratum corneum		29 (48.33%)	24 (63.16%)	2 (14.29%)	3 (37.5%)	-
Granular layer cell thickness	Absent	12 (20%)	10 (26.32%)	1 (7.14%)	1 (12.5%)	0.2929
	1	10 (16.67%)	8 (21.05%)	1 (7.14%)	1 (12.5%)	0.0265*
	2	12 (20%)	9 (23.68%)	2 (14.29%)	1 (12.5%)	
	Absent to 2	4 (6.67%)	3 (7.89%)	1 (7.14%)	0 (0%)	
	3	18 (30%)	8 (21.05%)	5 (35.71%)	5 (62.5%)	
Acanthosis	4	4 (6.67%)	0 (0%)	4 (28.57%)	0 (0%)	
	Absent	3 (5%)	1 (2.63%)	2 (14.29%)	0 (0%)	
	Regular	43 (71.67%)	36 (94.74%)	1 (7.14%)	6 (75%)	0.1824
	Irregular	14 (23.33%)	1 (2.63%)	11 (78.57%)	2 (25%)	0.0005*
Spongiosis	Absent	1 (1.67%)	0 (0%)	1 (7.14%)	0 (0%)	
	1+	39 (65%)	29 (76.32%)	7 (50%)	3 (37.5%)	0.0510
	2+	16 (26.67%)	8 (21.05%)	4 (28.57%)	4 (50%)	0.1504
	3+	4 (6.67%)	1 (2.63%)	2 (14.29%)	1 (12.5%)	
Psoriasiform hyperplasia	Absent	19 (31.67%)	7 (18.42%)	9 (64.29%)	3 (37.5%)	0.0059
	Regular	36 (60%)	31 (81.58%)	1 (7.14%)	4 (50%)	0.0005*
	Irregular	5 (8.33%)	0 (0%)	4 (28.57%)	1 (12.5%)	
Supra-papillary thinning	Present	39 (65%)	33 (86.84%)	1 (7.14%)	5 (62.5%)	0.0005*
Mitotic figures	Present	43 (71.67%)	30 (78.95%)	7 (50%)	6 (75%)	0.1359
Dilated capillaries		46 (76.67%)	37 (97.37%)	2 (14.29%)	7 (87.5%)	0.0005*
Perivascular infiltration		59 (98.33%)	38 (100%)	13 (92.86%)	8 (100%)	0.3758
Deep infiltration		13 (21.67%)	6 (15.79%)	6 (42.86%)	1 (12.5%)	0.0860

\*P<0.05 is considered to be statistically significant



**Figure 12: Histologic findings in case of eczema in psoriatico showing parakeratosis (blue star), orthohyperkeratosis (black star), absent granular layer (yellow star), dilated capillaries (red star), moderate to severe spongiosis (purple star) with regular psoriasiform hyperplasia (green star) on hematoxylin and eosin stain on 10x magnification**

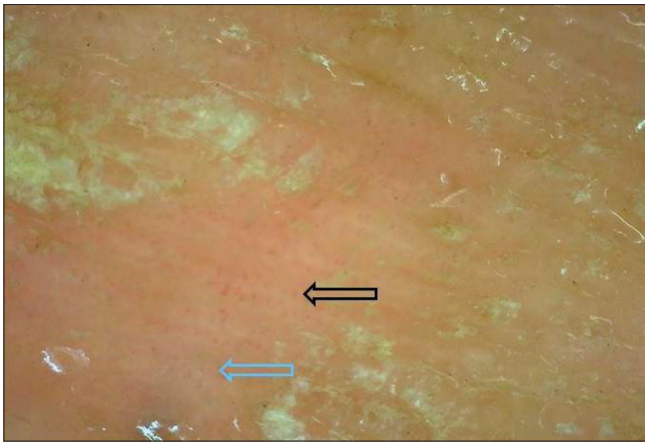
erythroderma or chronic plaque psoriasis which evolved into erythroderma and was absent in those with eczema. This is in contrast with the study by Cetinarslan *et al.*<sup>[11]</sup>

who reported the presence of glomeruloid variant in 7.3% of hand eczema and absent in palmar psoriasis, thereby, a need of more studies to study this variation observed by us.

The hair pin/looped type of vessels in hand eczema was seen in 7.1% (1/14) in our study which varies with 1.8% by Cetinarslan *et al.*<sup>[11]</sup> This feature was not observed in palmar psoriasis in both our study and the study by Cetinarslan *et al.*<sup>[11]</sup>

Undifferentiated vessels [Figure 13] (capillaries not conforming to looped, lines, or glomeruloid morphology) in our study were seen in 7.89% (3/38) of palmar psoriasis and 14.2% (2/14) in hand eczema, which was lesser in number compared to 31.4% (11/35) and 16%, respectively, by Cetinarslan *et al.*<sup>[11]</sup>

Regular distribution of vessels was seen in 71.05% (27/38) cases of palmar psoriasis in our study with a high incidence compared to 40% (14/35) by Cetinarslan *et al.*<sup>[11]</sup> whereas



**Figure 13: Dermoscopic image on 50× magnification showing undifferentiated vessels not conforming to any particular described morphology (white and blue arrow)**

the patchy distribution of vessels in palmar psoriasis was seen in 2.63% (1/38) in our study similar to 2.9% (1/35) by Cetinarlsan *et al.*<sup>[11]</sup>

The patchy distribution of vessels was more common in hand eczema, i.e., 57.14% (8/14), in our study similar to 47.3% by Cetinarlsan *et al.*,<sup>[11]</sup> while a regular array of vessels is 0% in our study but 3.6% by Cetinarlsan *et al.*<sup>[11]</sup>

Light red background erythema was seen in 65.7% (25/38) of palmar psoriasis, which was nearly similar to the study by Cetinarlsan *et al.*,<sup>[11]</sup> i.e., 48.6% (17/35), whereas yellowish + dull red background in hand eczema in our study was 57% (8/14) with a higher incidence compared to Cetinarlsan *et al.*,<sup>[11]</sup> i.e., 36.4% (20/55).

Additional features observed in the form of brownish-orange dots in those with eczema 35.7% (5/14) in our study were identical to their occurrence in 34.5% cases of eczema in the study by Cetinarlsan *et al.*,<sup>[11]</sup> and they greatly varied with the study by Errichetti and Stinco,<sup>[8]</sup> i.e., 72% (8/11). The presence of yellow-orange clods in our study showed lower occurrence, i.e., 21% (3/14), compared to the high incidence values of 43% (24/55) by Cetinarlsan *et al.*<sup>[11]</sup> and 63% (7/11) by Errichetti and Stinco.<sup>[8]</sup> These features give a clue to diagnose hand eczema and, hence, need to be further studied.

Overlapping dermoscopic features, i.e., diffusely distributed white and yellow scaling with the regular dotted type of vessels over background erythema of light red to yellowish dull red, was observed in eczema in psoriatico. However, due to the paucity of studies regarding dermoscopic findings in eczema in psoriatico, the features observed need to be further studied and validated.

Table 3 depicts findings of various studies on histological features in palmar psoriasis and hand eczema along with those in our study. Psoriasiform hyperplasia in palmar psoriasis showed significant regular hyperplasia with a high incidence in our study, i.e., 81.5% (31/38), as compared to 50% (8/16) in the study by Park *et al.*<sup>[12]</sup> Irregular

hyperplasia was absent in our study but seen in 43% (7/16) by Park *et al.*<sup>[12]</sup> Regular and irregular hyperplasia in hand eczema were 7.14% (1/14) and 28.5% (4/14) in our study, which were much lesser than a study by Park *et al.*,<sup>[12]</sup> i.e., 35% and 50%, respectively.

Eczema in psoriatico had 62.5% (5/8) parakeratosis in our study, which differed from the study by Kolesnik *et al.*<sup>[7]</sup> who had a high incidence of 100% (33/33). Neutrophils and plasma mounds in stratum corneum were 50% (4/8) and 37% (3/8) in our study, whereas in Kolesnik *et al.*'s study,<sup>[7]</sup> they were 76% (25/33) and 21% (7/33) depicting a higher incidence. Severe spongiosis with spongiotic vesicles was seen in 12.5% (1/8) in our study lesser than that by Kolesnik *et al.*<sup>[7]</sup> showing 36% (12/33). This was probably due to the larger sample size. Features of regular and irregular acanthosis in our study were 75% (6/8) and 25% (2/8) but in Kolesnik *et al.*'s study,<sup>[7]</sup> they were 52% (17/33) and 0%, respectively. Incidence of hypogranulosis, suprapapillary thinning, and dilated capillaries in our study were 37.5% (3/8), 62.5% (5/8), and 87.5% (7/8), respectively, comparable with the study by Kolesnik *et al.*<sup>[7]</sup> where there were seen in 33% (11/33), 85% (28/33), and 99% (33/33), respectively.

Contact allergy in patients with palmar psoriasis acts as Koebner's phenomenon and exhibits a type 4 hypersensitivity pattern,<sup>[7]</sup> which may possibly result in moderate to severe spongiosis coexisting with more or less preserved histologic features such as hypogranulosis, supra-papillary thinning, and regular psoriasiform hyperplasia in cases of eczema in psoriatico on histologic examination.

## Conclusion

On dermoscopy in our study, characteristic features of palmar psoriasis were diffuse white scaling, dotted type of vessels in a regular distribution over a light red background. In hand eczema, diffusely distributed white and yellow scaling with dotted type of vessels in a patchy vascular arrangement over a yellowish dull red background was noted along with additional features of brownish-orange dots/globules and yellow-orange clods, whereas in eczema in psoriatico, overlapping dermoscopic features of the two, i.e., diffusely distributed white and yellow scaling with regular dotted type of vessels over background erythema of light red to yellowish dull red, were noted. Hence, dermoscopy may act as a useful tool in providing a clue to the diagnosis of palmar psoriasis, palmar eczema, and eczema in psoriatico as observed in our study.

However, more studies with a larger sample size will help to validate the specific features in each of these conditions.

## Acknowledgements

Department of Pathology, KLE Academy of Higher Education and Research, JNMC, Belagavi, for their cooperation in providing the slides.

**Table 3: Comparison of histopathology findings of palmar psoriasis and hand eczema in literature**

Histopathology findings	Our study		Rao et al. <sup>[13]</sup>		Caesinaro et al. <sup>[14]</sup>		Hesari et al. <sup>[15]</sup>		Aydin et al. <sup>[16]</sup>	
	Pso% (n=38)	Ecz% (n=14)	Pso% (n=31)	Ecz% (n=24)	Pso% (n=22)	Ecz% (n=20)	Pso% (n=36)	Ecz% (n=16)	Pso% (n=17)	Ecz% (n=25)
Parakeratosis	73.6	78.5	90.3	62.5	-	-	-	-	-	-
Fibrin globules	60.5	28.4	38.7	33.3	81.8	95	72.2*	100*	11.8	4
Plasma mound	34.2	50	-	-	-	-	72.2	100	-	-
Neutrophils in Str.corneum	63.1	14.2	6.9	-	45.5	35	72.2*	0*	5.9	4
Hypogranulosis	78*	35.7*	22.6	4.2	90.9	80	75*	18.8*	41.2	36
Acanthosis										
Regular	94.7*	7.14*	27.6	9.1	68.5*	35*	30.5	25	88.2	80
Irregular	2.6	78.5	72.4	90.9	31.5	65	69.4	75	11.8	20
Spongiosis										
Mild	76.3	50	35.5	29.2	-	-	44.4	12.5		
Moderate	21	28.5	16.1	20.8	-	-	-	-		
Severe	2.63	14.2	9.7	20.8	-	-	44.4	75		
Supra-papillary thinning	86.8*	7.1*	51.7*	22.7*	-	-	72.2*	25*	58.8	40
Mitotic figures	78.9	50	-	-	-	-	30.6	25	-	-
Dilated capillaries	97.3	14.2	38.7	50	22.7	30	63.9*	6.3*	38.7	50
Dermal infiltrate	100	92.8	84	75	-	-	-	-	-	-

\* $P < 0.05$  is considered to be statistically significant for that study parameter across the above-mentioned studies

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

### References

- Caro MR, Senechal FE. Psoriasis of the hands; non pustular type. Arch Derm Syphilol 1947;56:629-33.
- Chopra A, Maninder, Gill SS. Hyperkeratosis of palms and soles: Clinical study. Indian J Dermatol Venereol Leprol 1997;63:85-8.
- Khandpur S, Singhal V, Sharma VK. Palmoplantar involvement in psoriasis: A clinical study. Indian J Dermatol Venereol Leprol 2011;77:625.
- Agarwal US, Besarwal RK, Gupta R, Agarwal P, Napalia S. Hand eczema. Indian J Dermatol 2014;59:213-24.
- Lakshmi C, Srinivas CR. Hand eczema: An update. Indian J Dermatol Venereol Leprol 2012;78:569-82.
- Sutton RL, Ayres S. Dermatitis of the hands: Etiology and principles of treatment, with observations concerning a hyperkeratotic dermatitis of the volar skin. AMA Arch Derm Syphilol 1953;68:266-85.
- Kolesnik M, Franke I, Lux A, Quist SR, Gollnick HP. Eczema in psoriatico: An important differential diagnosis between chronic allergic contact dermatitis and psoriasis in palmoplantar localization. Acta Derm Venereol 2018;98:50-8.
- Errichetti E, Stinco G. Dermoscopy in differential diagnosis of palmar psoriasis and chronic hand eczema. J Dermatol 2016;43:423-5.
- Xu C, Liu J, Chen D, Liu Y, Sun Q. Roles of dermoscopy in differential diagnosis of psoriasis and eczema. Zhonghua Yi Xue Za Zhi 2014;94:2833-7.
- Argenziano G, Soyer HP, Chimenti S, Talamini R, Corona R, Sera F, et al. Dermoscopy of pigmented skin lesions: Results of a consensus meeting via the Internet. J Am Acad Dermatol 2003;48:679-93.
- Cetinarslan T, Ermertcan AT, Temiz P. Dermoscopic clues of palmoplantar hyperkeratotic eczema and palmoplantar psoriasis: A prospective, comparative study of 90 patients. J Dermatol 2020;47:1157-65.
- Park JY, Cho EB, Park EJ, Park HR, Kim KH, Kim KJ, et al. The histopathological differentiation between palmar psoriasis and hand eczema: A retrospective review of 96 cases. J Am Acad Dermatol 2017;77:130-5.
- Rao A, Khandpur S, Kalaivani M. A study of the histopathology of palmo-plantar psoriasis and hyperkeratotic palmo-plantar dermatitis. Indian J Dermatol Venereol Leprol 2018;84:27-33.
- Cesinaro AM, Nannini N, Migaldi M, Pepe P, Maiorana A. Psoriasis vs allergic contact dermatitis in palms and soles: A quantitative histologic and immunohistochemical study. APMIS 2009;117:629-34.
- Hesari KK, Naraghi ZS, Nikoo A, Ghanadan A, Sabaghi M. Palmoplantar psoriasis versus eczema: Major histopathologic clues for diagnosis. Iran J Pathol 2014;9:251-6.
- Aydin O, Engin B, Oguz O, Sennur I, Demirkesen C. Non-pustular palmoplantar psoriasis: Is histologic differentiation from eczematous dermatitis possible. J Cutan Pathol 2008;35:169-73.