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Original Article

Dermatology Section

Comparison of Dermoscopic Findings of Chronic Hand Eczema and Palmoplantar Psoriasis: A Cross-sectional Study

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ABSTRACT

Introduction: Differentiation between Chronic Hand Eczema (CHE) and Palmoplantar Psoriasis (PP) is a diagnostic challenge. Dermoscopy can help to distinguish between the two conditions.

Aim: To establish and compare the dermoscopic findings of the CHE and PP using DermLite DL4 dermoscope and to confirm the accuracy of the dermoscopic findings with the histopathological findings.

Materials and Methods: A cross-sectional study was conducted at Navodaya Medical College, Hospital and Research Centre, Raichur, Karnataka, India, from January 2017 to June 2018. Fifty patients each of CHE (26 male and 24 female subjects) and PP (25 male and 25 female subjects) were included in the study. A detailed clinical history, cutaneous clinical and dermoscopic findings of each case were noted. A 4 mm punch biopsy was taken from 30 patients for histopathological analysis. The data was tabulated, analysed and tested for significance using the Chi-square test.

Results: The mean age of the patients was 46±4 years. On dermoscopic examination, diffuse white scales in 45 (90%) patients, over a red background in 49 (98%) patients with regularly arranged dots and globules in 45 (90%) patients was seen in PP. Patchy yellow scales 46 (90%), yellow dots, globules and yellow to brown crusts against a yellow background was seen in all patients (100%) of CHE (p-value <0.001). Histopathological findings are in agreement with dermoscopic findings in 9/16 and 10/14 cases of CHE and PP respectively.

Conclusion: Dermoscope is a useful non invasive clinical aid to differentiate between CHE and PP. The presence of diffuse white scales over a red background and regularly arranged vessels indicates PP, whereas the presence of patchily distributed yellow scales, yellow dots and globules; and yellow to brown crusts against a yellow background is more suggestive of CHE.

Keywords: Brown crusts, Diffuse white scales, Globules, Palms, Soles

INTRODUCTION

A dermoscope (dermatoscope, epiluminescence microscope) is an imaging instrument that immensely magnifies the surface and subsurface area of the skin and its lesions. Dermoscopy has now become a valuable tool in the differential diagnosis of psoriasis and other inflammatory skin disorders including dermatitis [1].

The presence of sharply demarcated, symmetrically distributed erythematous plaques,and silvery nature of scales is suggestive of psoriasis. The presence of associated regular and coarse nail pits in the absence of nail-fold lesions, though not specific, favour the diagnosis of psoriasis. Ill-defined and usually asymmetrically distributed plaques, with prior history of exudation are suggestive of dermatitis [2]. Palmoplantar psoriasis accounts for 3-4% of all psoriasis cases and is also responsible for some of the social and functional disability associated with the disease [3]. Thus, clinical and histopathological differentiation between Chronic Hand Eczema (CHE) and palmoplantar psoriasis is difficult [4]. Dermoscopic differentiation can help in noninvasive distinction between the two conditions.There have been very few studies to differentiate between the two conditions in India [5,6]. Currently, there is no structured approach for the diagnosis of non neoplastic disorders using dermoscopy in dermatology [6]. Thus, the aim of the study was to establish the dermoscopic findings in CHE and Palmoplantar Psoriasis (PP), and to compare the dermoscopic findings of the two conditions using Dermalite DL4 with the histopathological findings in cases where biopsies could be performed.

MATERIALS AND METHODS

A cross-sectional study was conducted at Navodaya Medical College, Hospital and Research Centre, Raichur, Karnataka, India, from January 2017 to June 2018. Approval for the study was obtained from the Institutional Ethical Committee (dated 7/10/2016). Informed consent was obtained from the participants.

Inclusion and Exclusion criteria: Patients aged between 20 to 65 years of age and diagnosed based on the morphological pattern of the skin lesions, the site of the skin lesions and the symptoms associated with the skin lesions were included in the study. Patients with secondary infection of the lesions, and patients of acute hand eczema, dermatophyte infection, keratolysis exfoliativa were excluded from the study.

Fifty cases of each clinically diagnosed CHE and palmoplantar psoriasis attending the Skin and Venereal Diseases Outpatient Department of the institute formed the study population.

The study participants were screened by two dermatologists with more than 20 years of experience before being included in the study. They were grouped into

- Group A (clinical diagnosis of chronic hand eczema): Patients with hyperkeratotic pruritic, lichenified plaques with dermatitis elsewhere were included in the group.
- Group B (clinical diagnosis of palmar psoriasis): Patients with sharply demarcated erythematous plaques on the palms and soles with similar lesions on the other sites of the body. These patients had no prior history of exudation from the lesions.

Procedure

After obtaining an informed consent, a detailed history of the disease including demographic data and occupation, duration of the disease in months, distribution of the lesions was taken. A complete physical examination of the lesions was done to find out the evidence of any other dermatological disease, sexually transmitted disease or systemic diseases. The sites of involvement of the body other than the palms were noted down. This was done

for the confirmatory clinical diagnosis of either dermatitis or psoriasis [2]. Dermoscopic examination was done using a Dermalite DL4 set at 10X magnification (4th Gen, San Juan Capistrano, California) and photographs were taken with a Canon Ixus 133 camera. Both clinical and dermoscopic images were acquired and stored. Dermoscopic images were taken using both polarised and non polarised light. For the better visualisation of the dermoscopic features, the thick superficial scales were removed before dermoscopic examination. The following dermoscopic variables were recorded: vessel arrangement, vessel morphology, distribution of scales, scale colour and the background. Relevant laboratory investigations were done to diagnose any underlying disease and other organ-system involvement. The following investigations were done: haemoglobin, total count, differential count, platelets, Erythrocyte Sedimentation Rate (ESR), fasting blood sugars, postprandial blood sugars, bilirubin, Serum Glutamic Oxaloacetic Transaminase (SGOT), Serum Glutamic Pyruvic Transaminase (SGPT), alkaline phosphatase, creatinine, urea, Venereal Diseases Research Laboratory (VDRL), Human Immunodeficiency Virus (HIV), hepatitis B antigen, hepatitis C antibodies and skin scrapings with 10% potassium hydroxide (KOH) staining for fungal infections. Complete Blood Count (CBC), Liver Function Tests (LFT), VDRL, HIV, Hep B, Hep C test was done to determine the patient management for immunosuppressive therapy. Fasting blood sugars, postprandial blood sugars was done to rule out diabetes mellitus as a co-morbidity. A 10% KOH was done to rule out tinea mannum. All patients with KOH positive were excluded from the study. A 4 mm punch biopsy was also done in doubtful cases after obtaining a written consent from the patient. Biopsy was done for the histopathological comparision with the dermoscopic findings. The histopathological samples were evaluated by two pathologists who were blinded to the dermoscopic diagnosis.

Criteria for PP: The presence of psoriasiform epidermal hyperplasia accompanied by tortuous, dilated capillaries in the superficial papillary dermis and a perivascular mononuclear cell infiltrate were the criteria for the histopathological diagnosis of PP [7].

Criteria for CHE: The criteria for CHE included presence of acanthosis, spongiosis and exocytosis of the epidermis, plus a mixed inflammatory cell infiltrate composed of lymphocytes, histiocytes and eosinophils [7].

STATISTICAL ANALYSIS

The data was entered in Microsoft Excel 2010 spread-sheet and was analysed with Statistical Package for Social Sciences (IBM SPSS) software version 2.6. Thus, for Categorical variables, Chi-square test was used to test the association between dermoscopic findings and the disease groups. The Unpaired t-test was used to compare the mean between two independent groups like the number of women and men with CHE or PP. In cases where Chi-square was not applicable, Fischer's test was used for analysis. A p-value <0.05 was considered as statistically significant.

RESULTS

Among the patients of CHE, the most common age group was 41-45 years of age. Among the patients of PP, the most common age group affected was between 46-50 years of age [Table/Fig-1]. Amongst patients of CHE, 24 patients (48%) were male and 26 patients (52%) were female, whereas among patients of PP, 25 patients (50%) were male and 25 patients (50%) were female. The average duration of symptoms for the CHE group was 9±1.49 months, while the average duration of symptoms for the PP group was 10±1.88 months.

Fifty eight percent of the patients and 54% of the patients of CHE and PP had only palmar involvement (p-value=0.0367) [Table/Fig-2]. Among patients of CHE, 45 patients (90%) of the patients had unilateral lesions and five patients (ten percent) had bilateral lesions. Forty nine patients (98%) of the patients of PP had bilateral lesions

Variables	Group A (n,%)	Group B (n,%)	Total	p-value
Age group (years)				
20-25	6 (12%)	2 (4%)	8 (8%)	χ^2=12.45 p-value=0.1322
26-30	1 (2%)	4 (8%)	5 (5%)	
31-35	4 (8%)	5 (1%)	9 (9%)	
36-40	5 (1%)	6 (12%)	11 (11%)	
41-45	15 (3%)	10 (2%)	25 (25%)	
46-50	6 (12%)	13 (26%)	19 (19%)	
51-55	8 (16%)	7 (14%)	13 (13%)	
56-60	4 (8%)	4 (8%)	8 (8%)	
61-65	2 (4%)	0	2 (2%)	
Average duration of the symptoms (months)				
1	2 (4%)	1 (2%)	3 (3%)	χ^2=3.977 p-value=0.9956
2	1 (2%)	2 (4%)	3 (3%)	
3	2 (4%)	2 (4%)	4 (4%)	
4	2 (4%)	3 (6%)	5 (5%)	
5	4 (4%)	5 (10%)	9 (9%)	
6	4 (8%)	4 (8%)	8 (8%)	
7	4 (8%)	5 (10%)	9 (9%)	
8	6 (12%)	6 (12%)	12 (12%)	
9	6 (12%)	7 (14%)	13 (13%)	
10	4 (8%)	5 (10%)	9 (9%)	
11	3 (6%)	3 (6%)	6 (6%)	
12	5 (10%)	3 (6%)	8 (8%)	
13	3 (6%)	2 (4%)	5 (5%)	
14	2 (4%)	2 (4%)	4 (4%)	
15	2 (4%)	0	2 (2%)	
Occupation				
Businessman	1 (2%)	2 (4%)	3 (3%)	χ^2=12.50 p-value=0.2533
Clerk	6 (12%)	1 (2%)	7 (7%)	
Cook	8 (16%)	4 (8%)	12 (12%)	
Coolie	3 (6%)	6 (12%)	9 (9%)	
Driver	5 (10%)	5 (10%)	10 (10%)	
Engineer	2 (4%)	4 (8%)	6 (6%)	
Farmer	6 (12%)	12 (24%)	18 (18%)	
Housewife	12 (24%)	7 (14%)	19 (19%)	
Shop owner	1 (2%)	2 (4%)	3 (3%)	
Student	4 (8%)	2 (4%)	6 (6%)	
Teacher	2 (4%)	5 (10%)	7 (7%)	
History of drug intake				
Systemic drugs	5 (10%)	0	5 (5%)	χ^2=15.24, p-value==0.0005
Topical and systemic drugs	16 (32%)	34 (68%)	50 (50%)	
Topical drugs	29 (58%)	16 (32%)	45 (45%)	

[Table/Fig-1]: Most common demographic findings among 100 patients. p-value <0.05 was considered as statistically significant

Site	Distribution	
	Group A (n,%)	Group B (n,%)
Palms	29 (58%)	27 (54%)
Palms and soles	14 (28%)	11 (22%)
Palms, soles, and the dorsum of the feet	6 (12%)	2 (4%)
Palms, soles and the dorsum of the hands	1 (2%)	0
Palms, soles, arms, legs, and lower back	0	3 (6%)
Palms, soles, arms, legs and back	0	2 (4%)
Palms, Soles, Arms, Legs, Lower Back and Scalp	0	5 (10%)
Test	χ^2=13.43 p-value=0.0367	

[Table/Fig-2]: Distribution of the site of the lesions and nail changes between group A (n=50) and group B (n=50). p-value <0.05 was considered as statistically significant

and only one patient (2%) had unilateral lesions (p-value=0.00001). None of the patients in both the groups had any symptoms suggestive of psoriatic arthropathy.

Total 54% of percent of the patients of CHE and 60% of the patients of PP respectively had no nail changes. The 18% of the patients of CHE and twenty percent of the patients of PP had coarse pitting which was the most common nail finding [Table/Fig-3].

Nail changes	Distribution	
	Group A (n,%)	Group A (n,%)
Absent	27 (54%)	30 (60%)
Coarse pitting	9 (18%)	10 (20%)
Dystrophy	7 (14%)	0
Longitudinal ridging	0	3 (6%)
Onycholysis	0	8 (16%)
Subungual hyperkeratosis	4 (8%)	9 (18%)
Transverse ridging	3 (6%)	0
Test	χ^2=0.714 p-value=0.982	

[Table/Fig-3]: Dermoscopic findings among group A (n=50) and group B (n=50). p-value <0.05 was considered as statistically significant

In a patient clinically diagnosed as PP, numerous plaques with white scales were present on the palms of the patient [Table/Fig-4]. Dermoscopic image of the same patient shows, diffuse presence of white scales with an erythematous background [Table/Fig-5]. Clinical photograph of a patient diagnosed as PP showing confluent scaly erythematous plaques localised mainly in the palmar area with mild contracture of the fingers [Table/Fig-6]. On dermoscopic examination of the same patient, there was regular arrangement of red dots and globules [Table/Fig-7]. Another patient diagnosed as CHE showed hyperpigmented plaques on the palmar aspect of the fingers extending to the tips of the fingers [Table/Fig-8]. Dermoscopic image of the same patient revealed the presence of yellow scales [Table/Fig-9]. In another patient, diagnosed with psoriasis vulgaris having palmar involvement, scaly plaques were also seen on the palms [Table/Fig-10]. Dermoscopic examination of the same patient revealed white scales with an erythematous background [Table/Fig-11]. In one patient diagnosed clinically as CHE who had undergone treatment, diffuse hyperpigmented patches were seen on the fingertips [Table/Fig-12]. Dermoscopic examination of the same patient revealed yellow scales, yellow dots and globules [Table/Fig-13].

In [Table/Fig-14], dotted vessesl was most commonly seen in both the groups forming 86% in each group. Total 78% percent of CHE had yellow scales and only ten percent of PP had yellow scales (p-value<0.001). In 33 (66%) patients of PP, the dotted vessels were regularly arranged. In 10 (20%) patients of PP, the dotted vessels were irregularly arranged. In 3 (6%) patients of CHE had irregularly arranged linear vessels [Table/Fig-15].

Focal parakeratosis was seen in 12 patients (73%) and eleven patients (80%) of the patients of CHE and PP respectively (p-value=0.8175) [Table/Fig-16]

Among 16 patients diagnosed as CHE and biopsied, nine patients had histopathological features that matched with the clinical and dermoscopic features while a histopathological match was present with the dermoscopic findings among 10 out of the 14 patients of PP which underwent biopsy. On histopathological examination of a patient diagnosed as CHE, the epidermis shows hyperkeratosis with alternating orthokeratosis and parakeratosis, foci of hypergranulosis, spongiosis and psoriasiform acanthosis. It was diagnosed as spongiotic dermatitis with features of lichen simplex chronicus. Vertical streaking of collagen in the papillary dermis was present [Table/Fig-17]. On histopathological examination of a patient clinically diagnosed as CHE, features of psoriasiform dermatitis was seen. The epidermis shows hyperkeratosis with alternating orthokeratosis and parakeratosis, foci of hypergranulosis, spongiosis and psoriasiform acanthosis was seen. Scant dermis was seen showing a minimal perivascular lymphocytic infiltrate with scattered melanophages [Table/Fig-18].

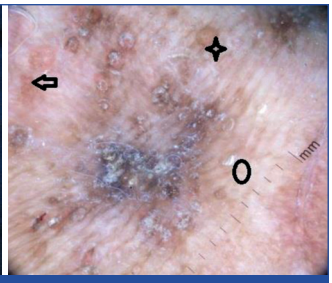
Another patient clinically diagnosed as PP who underwent biopsy and was histopathologically diagnosed as consistent with features of psoriasis, there were neutrophils in the epidermis, hypogranulosis, supra papillary thinning and confluent parakeratosis [Table/Fig-19].

DISCUSSION

In a study by Khandpur S et al., majority of the patients with palmoplantar psoriasis were aged between 21-50 years of age.The similar findings were seen in present study. Thus, often middle age group is commonly affected in both the groups [8].

[Table/Fig-4]: Clinical photograph of a patient with palmar psoriasis. **[Table/Fig-5]:** Dermoscopic image of palmar psoriasis. Circle shows white scale. Diamond shows regular arrangement of red dots and globules. **[Table/Fig-6]:** Clinical photograph of a patient with palmar psoiasis. Confluent scaly erythematous plaques localised mainly in the palmar area with mild contracture of the fingers. **[Table/Fig-7]:** Dermoscopic Image of Palmar Psoriasis. Circle shows white scale. There is a diffuse presence of white scales with an erythematous background. Pentagon shows erythematous background. Diamond shows regular arrangement of red dots and globules. (Images from left to right)

[Table/Fig-8]: Clinical Photograph of a Patient diagnosed as Chronic Hand Eczema. Hyperpigmented plaques on the palmar aspect of the fingers extending to the tips of the fingers. **[Table/Fig-9]:** Dermoscopic Image of the hands of a patient diagnosed with CHE. Star shows yellow to brownish dots and globules. Diamond shows focally distributed vessels. Circle shows whitish scales. Arrow showing yellow scales. **[Table/Fig-10]:** Clinical Photograph of Psoriasis vulgaris with a few lesions on the Palms and wrists. **[Table/Fig-11]:** Dermoscopic Image of Palmar Psoriasis of patient. Circle shows white scale. Diamond shows regular arrangement of red dots and globules. (Images from left to right)



[Table/Fig-12]: Clinical Photograph of a patient diagnosed with Chronic Hand Eczema. Many hyperpigmented plaques distributed all over the palmar area. **[Table/Fig-13]:** Dermoscopic Image of a patient diagnosed with CHE in (Dermalite DL4, 10 x magnification in Polarised light). Arrow shows yellow scales. Star shows brownish yellow dots and globules. Circle shows whitish scales. (Images from left to right)

Parameters	Dermoscopic variables						Statistical test
Type of vessels morphology	Dotted		Linear		Dotted+Linear		χ^2=14.00 p-value=**0.0009**
	CHE	PP	CHE	PP	CHE	PP	
	43 (86%)	43 (86%)	7 (14%)	0 (0%)	0 (0%)	7 (14%)	
Type of vessels arrangement	Regular Arrangement		Irregular Arrangement		-		x^2 =4.76 p-value=**0.029**
	CHE	PP	CHE	PP			
	30 (60%)	45 (90%)	20 (40%)	5 (10%)			
Scale colour	White		Yellow		-		χ^2=46.92 p-value<**0.001**
	CHE	PP	CHE	PP			
	11 (22%)	45 (90%)	39 (78%)	5 (10%)			
Scale distribution	Diffuse		Patchy		-		χ^2=28.27 p-value**<0.0001**
	CHE	PP	CHE	PP			
	4 (8%)	29 (58%)	46 (92%)	21 (42%)			
Presence of yellowish to brown dots and globules	Absent		Present		-		χ^2=96.08 p-value**<0.0001**
	CHE	PP	CHE	PP			
	0	49 (98%)	50 (100%)	1 (2%)			
Presence of yellowish crusts	Absent		Present		-		χ^2=96.08, p-value**<0.0001**
	CHE	PP	CHE	PP			
	0	49 (98%)	50 (100%)	1 (2%)			
Background	Yellow		Red		-		χ^2=96.08, p-value**<0.0001**
	CHE	PP	CHE	PP			
	50 (100%)	1 (2%)	0%	49 (98%)			

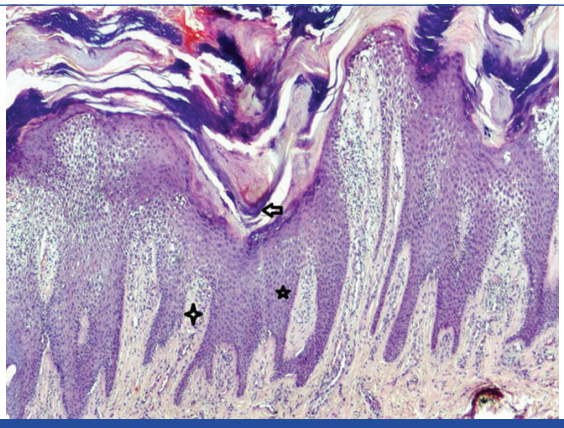
[Table/Fig-14]: Arrangement of vessels, scales and crusts.

Vessel arrangement	Regular		Irregular		Total	
	Group A	Group B	Group A	Group B	Group A	Group B
Dotted	30 (60%)	33 (66%)	13 (26%)	10 (20%)	43 (86%)	43 (86%)
Linear	4 (8%)	0	3 (6%)	0	7 (14%)	0
Dotted+Linear	0	5 (10%)	0	2 (4%)	0	7 (14%)

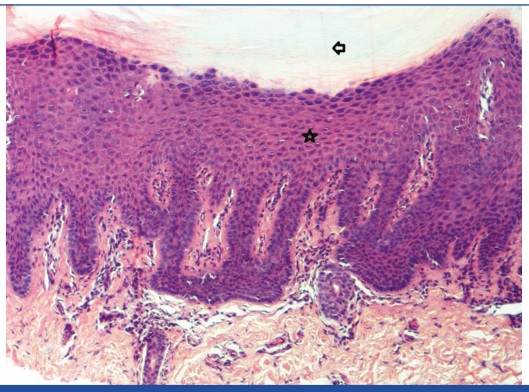
[Table/Fig-15]: Detailed arrangement of vessels as seen on Dermoscopy.

Histopathology findings	Group A (n,%)	Group B (n,%)	p-value
Parakeratosis			
Focal	12 (73%)	11 (80%)	0.8175
Confluent	4 (27%)	3 (20%)	
Granular layer			
Hypogranulosis	7 (44%)	8 (60%)	0.01867
Hypergranulosis	9 (56%)	6 (40%)	
Acanthosis			
Regular	7 (44%)	14 (100%)	<0.055
Irregular	6 (36%)	0	
Not commented	3 (18%)	0	
Spongiosis	10 (64%)	8 (60%)	0.765
Infiltrate in the dermis	16 (100%)	14 (100%)	0.1
Dilated capillaries in the dermis	0	14 (100%)	Not applicable
Suprapapillary thinning	1 (6%)	6 (43%)	0.018

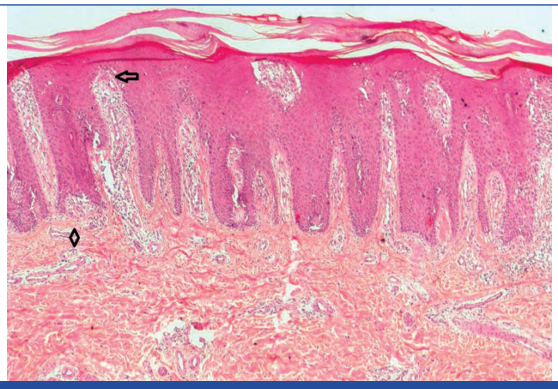
[Table/Fig-16]: Histopathology Findings of the patients of CHE (n=16) and PP. (n=14)



[Table/Fig-17]: Histopathology Image of CHE with H & E Stain with 40X magnification. It was diagnosed as Spongiotic Dermatitis with Features of Lichen Simplex Chronicus. The epidermis shows hyperkeratosis with alternating orthokeratosis and parakeratosis, foci of hypergranulosis, spongiosis (shown by an arrow) and psoriasiform acanthosis (shown by a five point star). The dermis shows a mild perivascular and periadnexal inflammatory infiltrate with vertically streaking of collagen in the papillary dermis (shown by a four point star).



[Table/Fig-18]: Histopathology Image of CHE with H & E Stain with 40X magnification. It was histopathologically diagnosed as Psorasiform dermatitis. Superficial fragments of skin are seen showing only epidermis with compact orthokeratosis (shown by an arrow), focal parakeratosis and psoriasiform acanthosis (shown by a star). Scant dermis seen shows a minimal perivascular lymphocytic infiltrate with scattered melanophages.



[Table/Fig-19]: Histopathology Image of Palmar Psoriasis with H & E Stain with 40 x magnification. It was histopathologically diagnosed as consistent with features of Psoriasis. Epidermis showing compact orthokeratosis, parakeratosis, spongiosis and psoriasiform acanthosis. Suprapapillary thinning (shown by an arrow) and absence of granular layer is seen. The papillary dermis shows dilated capillaries (shown by a diamond) and mild lymphocytic infiltrate.

In a study done by Meding B, females were found to have hand eczema more commonly than males (2:1). This was possibly because of increased exposure to work in moist environment and because females were engaged in household activities [9,10]. In a study by Kumar B et al., and Chopra A et al., males and females had an equal incidence of palmar psoriasis [11,12]. In the present study, amongst 50 patients with CHE, 48% were male and 52% were female. In patients diagnosed with PP, 50% were male and 50% were female. These findings correlated with other studies that both the diseases have a more or less equal sex distribution [11,12].

In a study on palmoplantar psoriasis by Kumar B et al., 70% of the patients presented with isolated palmar and/or plantar involvement without involvement of any other part of the body [11]. The palms were the most commonly affected site forming 58% (29 patients) of the patients who were diagnosed with CHE. Among the patients diagnosed with PP, 27 (54%) patients had palmar involvement. Thus, the findings of the current study correlated with the study done by Kumar B et al., which found that isolated palmar or plantar involvement is more common [11].

Nail involvement: In a study by Khandpur S et al., associated nail involvement was observed in 60 (41%) cases of palmoplantar psoriasis [8]. In the present study, the most common nail change pattern seen in patients with CHE was coarse pitting. However, this was seen only in 9 (18%) patients followed by transverse ridging seen in 6 (12%) patients. The most common nail change in PP again coarse pitting, but seen only in 10 (20%) patients. Subungual hyperkeratosis was seen in 9 (18%) patients of PP. In nail psoriasis, often the pits are fine and cross ridging is uncommon whereas in dermatitis, there is coarse pitting and more often has cross ridging [13]. Thus, with regards to the nail changes in CHE, the findings of the present study correlated with other studies [13,14]. Apart from the other characteristic nail findings in psoriasis, 10 pits in one nail or >50 pits on all nails are regarded as proof of psoriasis [14].

Psoriatic arthropathy: In a study by Khandpur S et al., associated joint pain and swelling suggestive of arthritis, was observed in 9 (5.8%) cases. In this study, none of the patients had psoriatic arthritis. This could have occurred as the sample size was small (only 50 patients in PP group) [8].

Dermoscopic Findings

Scale colour and distribution: Compared to Psoriasis, CHE is characterised by yellowish scaling, with or without white scales, yellowish crusts and focal dotted vessels. The serum exudates of eczema, on dermoscopy is seen as shiny yellow clods and is called as yellow clod sign. This was also seen in a study done by Navarinin AA et al., [15]. In patients diagnosed as CHE, all of the 50 (100%) patients had the presence of yellowish crusts with a yellow background. In dermatitis, the yellow scales and serocrusts occur due to hyperkeratosis and spongiosis/exocytosis. In the acute phases, yellow sero-crusts and dotted vessels, distributed in clusters or randomly are seen in dermatitis, while more or less uniform dotted vessels surrounded by a white halo are the main dermoscopic features in chronic phases (lichenification) [16]. This was seen in all the patients of chronic dermatitis. Similar findings of lichenification were also seen on examining the histopathological sections. Thus, the dermoscope can also help to differentiate between the acute and chronic phases of dermatitis.

Dots and globules distribution: All 50 (100%) patients of CHE had the presence of yellowish to brownish dots and globules and in patients diagnosed as PP, 49 out of the 50 patients (98%) had absence of any yellowish to brown dots and globules. These findings correlated with the study done by Errichetti E and Stinco G. where majority of the patients of CHE had yellowish to brownish dots and globules [17].

Vessel pattern: In the present study, dotted vessels pattern was the most common feature, seen in 43 (86%) patients in each group. The findings of the current study correlated with another study done by Lallas A et al., [18]. The presence of the red dots and globules in psoriasis has a clinical significance. It represents the dilated and torturous capillaries in the papillary dermis. In a study by Lallas A et al., it was shown as an independent predictor of the early clinical response of psoriasis to biological therapies [18].

On examining the histopathological sections, parakeratosis was seen in all patients.The results of the present study correlated with the study by Rao A et al., where majority of the patients of both the groups had focal parakeratosis [4]. There was a significant difference in the number of patients having hypergranulosis in CHE compared to PP (p-value<0.05). Regular Acanthosis was seen in all patients with PP (100%) compared to CHE. There was a significant difference (p-value=0.055) in the findings of acanthosis between the two groups (44% of CHE versus 100 % of PP). Irregular acanthosis was more often seen in 6 (36%) patients with CHE. These findings correlated with the finding by Hesari KK et al., [20].

In Patients diagnosed with PP in our study, on biopsy it was seen that they had findings of psoriasis, psorasiform dermatitis and LSC. As such there is no specific histopathological feature that can be directly correlated to dermatitis. The features in favour of psoriasis include dilated and tortuous papillary blood vessels, neutrophils within the epidermis associated with spongiosis spongiform pustules, subcorneal pustules, neutrophils within the cornified and parakeratotic horn, hypogranulosis, and more keratinocytic mitotic figures above the basal cell layer [21]. In a study by Rao A et al., [4] histopathological correlation between CHE and PP was difficult as they both had many overlapping features. Thus clinical, histopathological and dermoscopic correlation is often difficult to perform.

The dermoscopic differences found in the present study are likely due to their well-known different histological and physio-pathological background of CHE and PP. The white diffuse scales reflect the dry and hyperkeratotic nature of PP whereas the yellowish scales with brownish orange dots/globules and yellowish-orange crusts reflects the spongiotic nature of CHE.

Based on the comprehensive picture of the pathogenesis of psoriasis and eczema, a disease classifier consisting of NOS2 and CCL27 was created [22]. This classifier diagnosed all patients correctly and also identified initially misdiagnosed or clinically undifferentiated patients. This two gene classifier system is useful for distinguishing between the two conditions.

Limitation(s)

The sample size was small. Probably a larger sample size could give the true prevalence of dermoscopic findings. Histopathology could not be done on all patients. Correlation coefficient could not be obtained as all the patients were not biopsied. Majority of the patients in both the groups had a history of topical or systemic cream use prior to their inclusion in the study. This use affects the clinical features and the dermoscopic findings to an extent.

CONCLUSION(S)

The presence of diffuse white scales over a red background and regularly arranged vessels indicates PP with 82% accuracy whereas, the presence of patchily distributed yellow scales; yellow dots and globules; and yellow to brown crusts against a yellow background was more suggestive of CHE. Thus in the present study, a Dermoscope was a useful non invasive clinical aid to differentiate between CHE and PP.

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