



DERMOSCOPIC DIFFERENTIATION OF TWO CLOSE MIMICS- PALMOPLANTAR PSORIASIS AND PALMOPLANTAR ECZEMA: A COMPARATIVE OBSERVATIONAL STUDY.

Dermatology

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ABSTRACT

Psoriasis is a chronic papulosquamous disorder presenting with erythematous, pruritic plaques, silvery-white scales and fissures. Eczema is characterized by hyperkeratotic plaques associated with scaling, occasional oozing and pruritus. Palmoplantar psoriasis and palmoplantar eczema have close resemblance in their clinical presentation and hence, pose a difficulty in diagnosis. Dermoscopy of palmoplantar psoriasis predominantly shows light pink-red background, diffuse white scales, regularly distributed dotted vessels while eczema predominantly shows yellow scales, linear and dotted vessels on a dull red background along with brown dots and globules. In this study, we found that both palmoplantar psoriasis and palmoplantar eczema have distinct dermoscopic findings and thus, dermoscopy is an effective and non-invasive way to differentiate the two conditions.

KEYWORDS

Palmoplantar psoriasis (PPSO), palmoplantar eczema (PPE), dermoscopy.

INTRODUCTION

Psoriasis is an immune mediated polygenic disorder. A variant of psoriasis affecting only palms and soles is known as palmoplantar psoriasis. It is a chronic recurrent condition in which the patients present with silvery white scales and sharply demarcated scalloped edges. They may however, also present with hyperkeratotic plaques which resemble palmoplantar eczema. Other overlapping features between the two conditions are pruritus, scales, fissures etc¹⁻⁶. Due to these closely resembling clinical features it is challenging for a clinician to distinguish the two conditions and it requires a histopathological analysis for a definitive diagnosis.



Figure 1: clinical images of PPSO (top) and PPE (bottom)

AIMS AND OBJECTIVES

To differentiate between palmoplantar psoriasis (PPSO) and palmoplantar eczema (PPE) using a dermatoscope.

MATERIALS AND METHODS

Dermoscopic specifications-

1. DermLite DL4, 30mm lens.
2. Polarized and non polarized modes
3. Two levels of colour spectrum

The study was conducted in a tertiary health care center where 10 biopsy proven cases of PPSO and 8 cases of PPE were enrolled.

In PPSO, there were 5 male patients and 5 female patients, while in PPE there were 5 males and 3 females.

Patients on any topical or systemic treatment in the last 6 months were excluded from the study.

The patients enrolled were subjected to dermoscopic evaluation by 2

dermatologists and findings were recorded individually. Dermoscopic findings were tabulated and statistical analysis was done. P value was calculated. Findings found to be significant are depicted in green colour (<0.05), while the highly significant findings (<0.01) are shown in pink colour in Table 1. The confidence interval (CI) was 95% while interpreting the results.

Dermoscopic Evaluation

Dermoscopic evaluation of the diseases was done on the basis of:

1. Background colour
2. Colour of scales
3. Distribution of scales
4. Type of vessels
5. Pattern of vessels
6. Presence of dots and globules

RESULTS

1. Background Colour

8 patients out of 10 in PPSO had a light red background and 2 patients had a dull red background. In PPE, 6 patients had a dull red background, 1 patient had a yellow-red background and 1 patient had a yellow background [Fig 2, Graph 1].

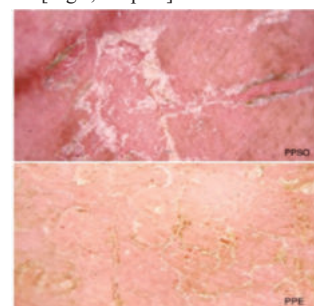
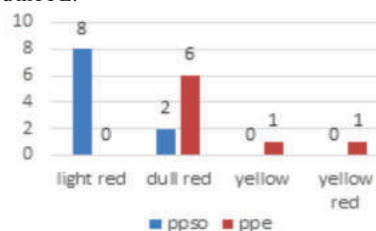


Figure 2: Dermoscopic images showing light red background in PPSO and dull red in PPE.



Graph 1: Background colour in PPSO and PPE

2. Colour Of Scales

All the patients with PPSO showed presence of white scales and 3 patients had a combination of yellow-white scales.

Scales in PPE were predominantly yellow in colour which was seen in all patients enrolled. 2 cases showed a combination of yellow-white scales [Fig 3, Graph 2].

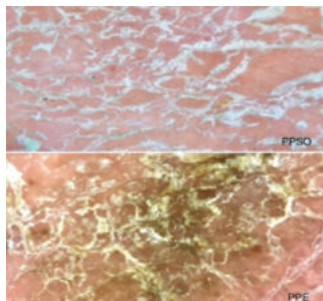
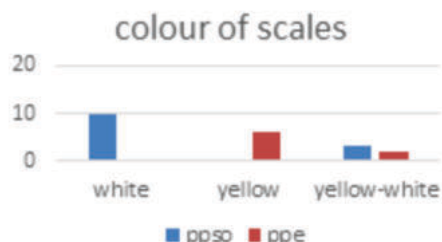


Figure 3: Dermoscopic pictures showing diffuse white scales in PPSO and yellow scales in PPE.

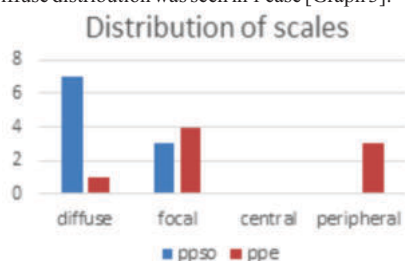


Graph 2: Colour of scales in PPSO and PPE

3. Distribution Of Scales

7 patients in PPSO had diffuse scales while 3 patients showed focal distribution of scales.

In PPE, 4 patients showed focal distribution of scales, 3 had peripheral pattern. Diffuse distribution was seen in 1 case [Graph 3].



Graph 3: Distribution of scales in PPSO and PPE

4. Types Of Vessels

The following are the types of vessels considered in the study:

- Dotted vessels- These are circular vessels with a very small diameter resembling a pin head.
- Linear vessels- these are straight vessels.
- Glomerular vessels- vessels that curl up on one another in a tortuous manner.
- Hairpin vessels- these vessels have a U-shaped bend.
- Undifferentiated type.



Figure 4: Dermoscopic picture showing regular distribution of dotted vessels (black circle) in PPSO

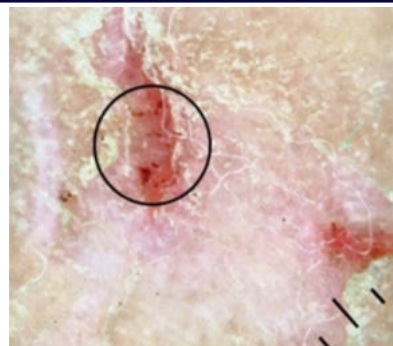
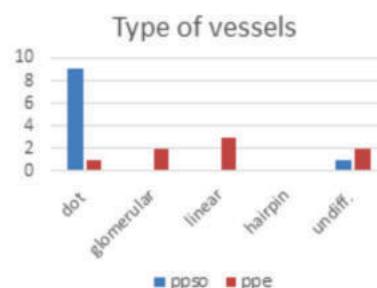


Figure 5: Dermoscopic image showing linear vessels (black circle) in PPE.

9/10 patients in PPSO showed the presence of dotted vessels. 1 patient had an undifferentiated type.

In cases of PPE, the most common type seen was linear, which was found in 3 patients [Fig 5]. Glomerular and undifferentiated vessels were seen in 2 patients each and 1 patient showed dotted vessels. [Graph 4]

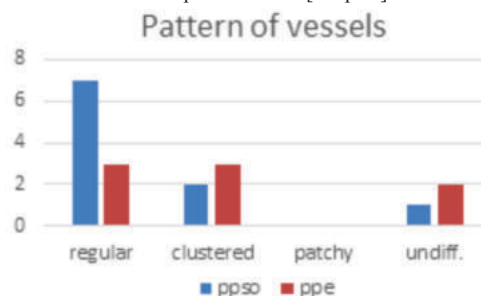


Graph 4: Types of vessels in PPSO and PPE

5. Pattern Of Vessels

In PPSO, the most common pattern was regular distribution. [Fig 4]. It was observed in 7 patients. The others patterns seen were clustered (2 patients) and undifferentiated (1 patient).

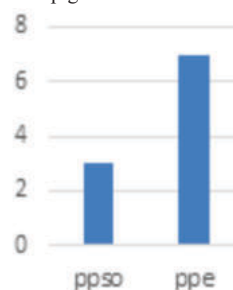
3 patients showed regular distribution, 3 patients had clustered pattern and 1 had undifferentiated pattern in PPE [Graph 5].



Graph 5: Pattern of vessels in PPSO and PPE

6. Dots And Globules

Dots are small round structures of less than 0.1mm in diameter. They may be of brown, black or blue grey colour depending on the depth and concentration of melanin pigment.



Graph 6: Dots and globules in PPSO and PPE

Globules are structures measuring more than 0.1mm diameter and correspond to nests of melanin. Brown coloured dots and globules were seen in 3/10 patients of PPSO while PPE 7/8 patients showed their presence [Fig 6, Graph 6].



Figure 6: Dermoscopic picture showing brown dots and globules in PPE.

Dermatoscopic And Histopathological Corellation

Psoriasis-

White coloured scales correlate to thick hyperkeratosis. Regularly arranged red dots correspond to the dilated and tortuous capillaries within the thinned out dermal papillae. Pinkish red background is due to inflammation.

Eczema-

The scales correspond to hyperkeratosis. Presence of red dots, globules represented dilated capillaries in the dermis. Faint dull-red coloured background corresponds to spongiosis with is usually interspersed with brown coloured pigmented structures like globules, dots, clods etc which suggest evolving pigmentary incontinence.

Table 1: Statistical analysis

	PPSO	PPE	P	CI
Background Colour				
Light red	8(80%)	0	P = 0.0109	1.4475 to 17.2714
Dull red	2(20%)	6(75%)	P = 0.0659	0.0905 to 1.0795
Yellow-red	0	1(12.5%)	P = 0.4947	0.0377 to 4.8781
Yellow	0	1(12.5%)	P = 0.4947	0.0377 to 4.8781
Scale Colour				
White	7(70%)	0	P = 0.0083	1.3969 to 9.6246
Yellow	0	6(75%)	P = 0.0765	0.0060 to 1.2952
Yellow-white	3(30%)	2(25%)	P = 0.8085	0.4645 to 2.6729
Scale Type				
Diffuse	7(70%)	1(12.5%)	P = 0.0327	1.0921 to 7.7895
Patchy	3(30%)	4(50%)	P = 0.4220	0.2566 to 1.7678
Central	0	0	P = 0.9219	0.1223 to 6.6942
Peripheral	0	3(37.5%)	P = 0.2143	0.0139 to 2.6084
Vessel Type				
Dot	9(90%)	1(12.5%)	P = 0.0360	1.1378 to 45.5631
Glomerular	0	2(25%)	P = 0.3155	0.0209 to 3.4831
Linear	0	3(37.5%)	P = 0.2143	0.0139 to 2.6084
Hairpin	0	0	P = 0.9219	0.1223 to 6.6942
Undifferentiated	1(10%)	2(25%)	P = 0.4858	0.1064 to 2.9009
Vessel Pattern				
Regular	7(70%)	0	P = 0.0083	1.3969 to 9.6246
Clustered	2(20%)	3(37.5%)	P = 0.4653	0.2045 to 2.0659
Patchy	0	3(37.5%)	P = 0.2143	0.0139 to 2.6084
Undifferentiated	1(10%)	2(25%)	P = 0.4858	0.1064 to 2.9009
Dots, Globules	3(30%)	7(87.5%)	P = 0.0327	0.1284 to 0.9157

Table 2: Differentiating features

PPSO	PPE
Light red background	Dull red background
White scales	Yellow scales
Dotted vessels	Presence of brown and globules
Regular distribution of vessels	

DISCUSSION

Dermoscope, even though not a gold standard technique, can facilitate diagnosis in cases of clinical dilemma. It proves to be of great importance especially in paediatric and geriatric age groups where invasive procedures are difficult to perform.¹⁻⁶

Over the past years, studies have been conducted to study differences between palmoplantar psoriasis and palmoplantar eczema using a dermoscope. As histopathological evaluation is impractical in all patients, it proves to be a valuable equipment.

The most common background colour in palmoplantar psoriasis was light red in study by Lallas et al.⁷ This was similar to the findings in this study (80%). This was a significant finding ($P < 0.001$) which was also seen in a study by Cetinarslan et al.⁸ and Adabal et al.⁹

Scales in PPSO were predominantly white in colour in this study (70%) which was a highly significant finding. ($P < 0.001$). Similar findings were seen in a study by Lallas et al.⁷ and Cetinarslan et al.⁸ who also found this feature, along with yellow scales in PPE to be significant and an important differentiating clue between PPSO and PPE.

In this study, the most common pattern of scale distribution in PPSO was found to be diffuse ($P < 0.001$) and eczema showed patchy distribution which was also seen in a study by Cetinarslan et al.⁸

Xiaoping Yu et al, 2021¹⁰ reported dotted vessels in 84% in PPSO and 22% in PPE along with regularity in distribution in PPSO. Similar findings were noted in this study (90%- PPSO and 12.5%- PPE) with 70% regularity in distribution of vessels in PPSO.

Enzo et al¹¹ reported presence of brownish- orange dots and globules in 72% cases of PPE ($P < 0.001$). This was also found true in our study which showed 87.5% cases showing brown dots and globules in PPE. This was a significant distinguishing feature in this study ($P < 0.001$).

CONCLUSION

Dermoscopy is a simple, non-invasive technique that can help us differentiate between palmoplantar psoriasis and palmoplantar eczema on the basis of the above mentioned features. PPSO shows light red background, white scales and regularly distributed dotted vessels. PPE shows dull red background, yellow scales and brown dots and globules [Table 2].

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Conflicts Of Interest- There are no conflicts of interest.

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