

Report

Pityriasis rosea: dermoscopic features in Uganda

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Abstract

Purpose The study aimed to describe the dermoscopic features of pityriasis rosea among patients attending the skin clinic at Mbarara Regional Referral Hospital.

Patients and methods A hospital-based cross-sectional descriptive study conducted for a 6-month period in the skin clinic of MRRH in Southwestern Uganda. Data were collected from consecutively recruited patients using structured questionnaires. Patients with a clinical diagnosis of pityriasis rosea were examined using a dermoscope and subsequently sent for KOH and TPHA tests to rule out fungal skin infection and secondary syphilis, respectively, and then received routine care at the skin clinic.

Results There were 54 patients with pityriasis rosea seen. Dermoscopy was done on a total of 162 lesions of which 19 were herald patches, 51 were truncal lesions, 52 on the extremities while 40 were on the face and neck regions. Common dermoscopic features consisted of a violaceous background noted in 145 (89.51%), white scales in 161 (99.38%), diffuse scale distribution in 57 (35.19%), perifollicular scale type in 61 (37.65%), and brown-dotted pigmentary changes in 66 (40.74%). Other unique findings noted in a few lesions were cloudy structures, petechial spots, erosions, and punched out pits.

Conclusion Most prevalent dermoscopic features included: a violaceous background, white scales, diffuse scale distribution, perifollicular scale type, brown-dotted pigmentary changes with no visible blood vessels nor follicular changes. Other unique less frequently seen findings were cloudy structures, petechial spots, erosions, and punched out pits.

Introduction

Pityriasis rosea is a papulosquamous eruption, abrupt and self-limiting in nature, that occurs mostly in otherwise healthy adolescents and young adults.¹ Pityriasis means “fine scale” while rosea is a Latin adjective that translates to “pink” in English.

Dermoscopy is a non-invasive diagnostic method that enables the observation of morphologic characteristics that are not seen by the unaided human eye.^{1,2} The dermoscopic characteristics described in pityriasis rosea are background color, blood vessel type, pattern, scale color, and distribution.³ Additional characteristics include the presence of globules and blood spots.⁴ The characteristic dermoscopic features of pityriasis rosea are collarette of white scales (collarette sign) and yellowish background; however, in dark skin, the background may be brownish-yellow and the vessels are rarely appreciated.⁵ These features vary among patients and in different populations.

Patients with pityriasis rosea have a varied presentation that may pose some difficulty in making a diagnosis.¹ Confirming the diagnosis by histopathologic examination of biopsies from affected skin may be challenging due to the nonspecific histologic findings of pityriasis rosea.⁶ Dermoscopy is a non-invasive tool and may aid in diagnosis avoiding unnecessary investigations, misdiagnosis, and

unnecessary anxiety in the affected patients, despite it being a self-limiting disease. A diagnosis should not be missed owing to the risk of complications such as spontaneous abortion in the first trimester or premature delivery, hence the need for close fetal surveillance in affected pregnant patients.⁷ Therefore, the study aimed to describe the dermoscopic features of pityriasis rosea among patients attending the skin clinic at Mbarara Regional Referral Hospital (MRRH).

Material and methods

Study design

The study was a hospital-based cross-sectional descriptive study. The duration of the study was from September 5, 2022, to March 15, 2023.

Study setting

The study was carried out in the skin clinic of MRRH, a large public teaching hospital for Mbarara University of Science and Technology (MUST) located in Mbarara City in Southwestern Uganda.

Study site

Patients present to the skin clinic with a wide range of skin conditions including infections, inflammatory conditions such as pityriasis rosea, and cutaneous malignancies.

Study population

Patients attending the skin clinic at MRRH during the 6-month study period from September 5, 2022, to March 15, 2023.

Study eligibility criteria

Inclusion criteria

Patients attending the skin clinic across all age groups and both genders were included in the study after obtaining informed consent during the 6-month study period.

Exclusion criteria

Patients who needed emergency treatment as the study could delay patient care and those who were very ill because they may not have been able to withstand the interview were excluded from the study.

The study flowchart is outlined in Figure 1.

Sampling method

The patients were recruited consecutively into the study throughout the study period.

Study procedure and data collection

Selection of eligible study participants

Eligible study participants were selected as they were being registered before their medical care at the skin clinic. The COVID-19 risk management standard operating procedures were observed.

Informed consent

The selected study participants were approached during their visit to the skin clinic, the details of the study were described to them in a language that they understood, and written informed consent was obtained.

Data collection procedure

Data was collected using a pre-tested structured questionnaire administered by trained research assistants in an in-person interview, and the study questionnaire was filled. The skin lesions were also examined using a handheld dermoscope 3Gen[®] attached to a Redmi[®] Note 10S Smartphone with the aid of a MagnetiConnect[®] Clamp (MCC). A clean snap-on IceCap[®] was

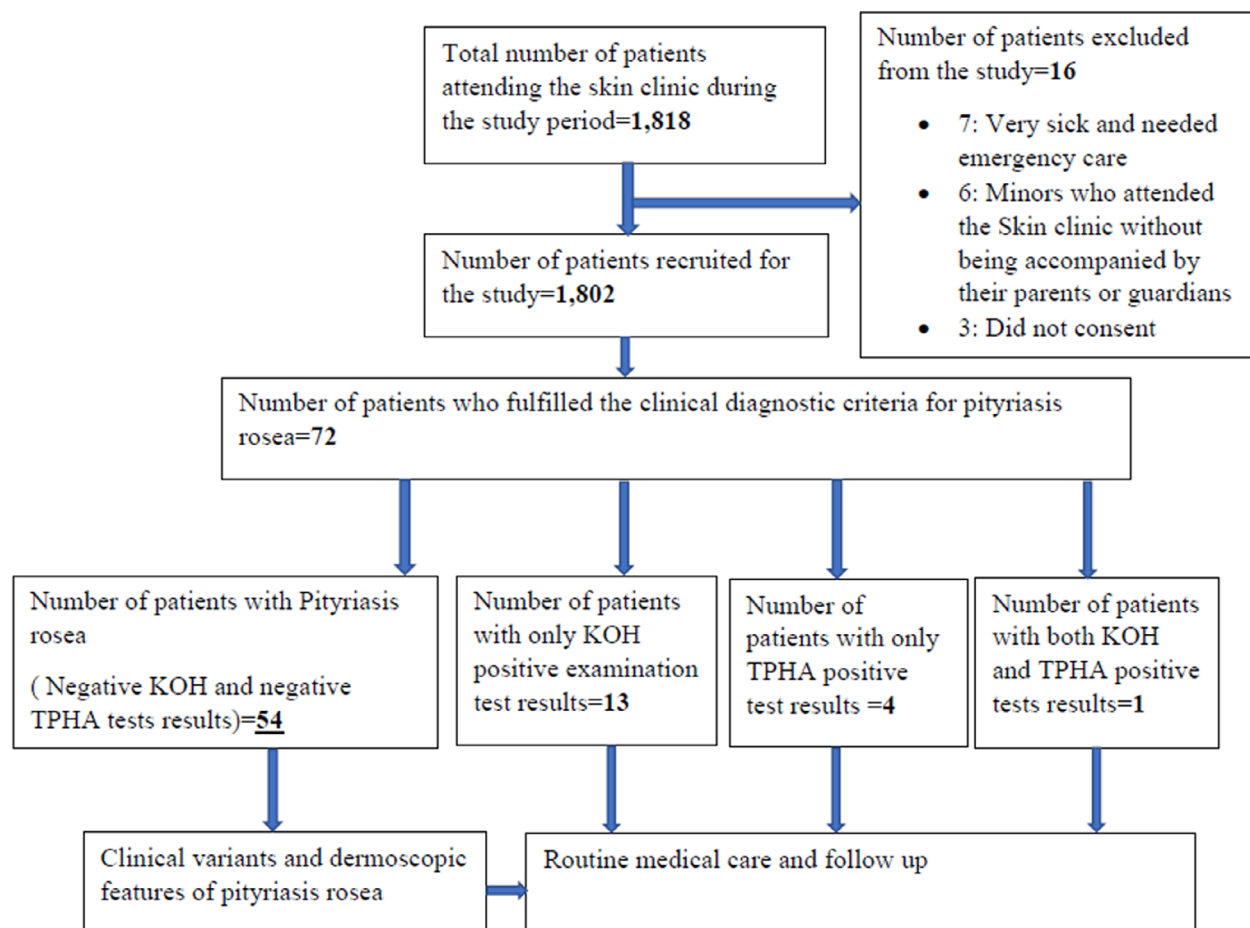


Figure 1 Study flowchart

attached to the dermoscope before it touched the skin of the patient (to prevent patient infection transmission). The skin lesion to be examined by the dermoscope was marked using a removable ink marker that was wiped off using 70% alcohol sanitizer once the examination procedure was completed. The herald patch, when present, was examined, and three other lesions on different parts of the body (trunk, extremity, and face and neck region) were examined if present on the patient's skin. Photographs of these dermoscopic features were captured using the smartphone attached to the dermoscope, and dermoscopic examination section of the study tool was filled. After examination, investigations such as skin scraping for KOH and blood samples for TPHA were taken from patients who fulfilled the clinical diagnostic criteria for pityriasis rosea.

Data collection tool

The data was collected using a structured questionnaire, examination, and investigation tool.

Examination tool

The examination and documentation of the dermoscopy findings were done by the principal investigator.

Investigation tool

This tool was divided into three parts: sample collection, laboratory procedure, and interpretation of results.

Steps taken based on the above results

After laboratory results interpretation, feedback to the study participant by the principal investigator was done. Treatment was prescribed by the clinicians in the skin clinic after review of the KOH and TPHA test results, and the patient was booked for follow-up and subsequent management.

Quality control

The research assistants were trained on data collection procedures and conducting interviews. The data collection tool was pre-tested to ensure that it was valid. The skin examination was conducted by the principal investigator with the help of research assistants. There was review of the diagnosis and physical examination findings by qualified dermatologists.

Study variables

Dependent variable

The primary outcome variable was the presence or absence of pityriasis rosea. Secondary outcomes were the dermoscopic features of pityriasis rosea.

Independent variables

The independent variables were age, gender, history of atopy, and use of any treatment before seeking dermatological care among others.

Data management and analysis

Collected data was verified to be complete and entered into the REDCap® database. The data set was imported into Stata® software version 17 for analysis.

To describe the dermoscopic features of pityriasis rosea among patients attending the skin clinic at MRRH, frequency distribution table was used to present the data.

Ethical considerations

Before the study was conducted, the study proposal was presented for approval to the Department of Dermatology of Mbarara University of Science and Technology (MUST), and then it was submitted to Family Research Council (FRC) and the Research Ethics Committee for consideration, guidance, and approval. Site clearance was sought from the Hospital Director, MRRH, and the research project was approved by Uganda National Council for Science and Technology (UNCST).

Dissemination of results

This manuscript has been created and submitted for publication to this journal.

Results

Dermoscopic features of pityriasis rosea among patients attending the skin clinic at MRRH

Among the 54 study participants with pityriasis rosea, 162 skin lesions from different parts of the body were examined for dermoscopic features.

Out of 162 lesions examined using a dermatoscope, 52 (32.10%) were located on the upper and lower extremities, 51 (31.48%) were truncal lesions, and 40 (24.69%) were located on the face and neck region while 19 (11.73%) were herald patches as shown in Table 1.

The most common dermoscopic features of herald patches were a violaceous background, white scale color, diffuse scale distribution, perifollicular scale type, and brown-dotted pigmentary change.

Prevalent dermoscopic features of truncal lesions were a violaceous background, white scale color, diffuse scale distribution, perifollicular scale type, and brown-dotted pigmentary change.

The predominant dermoscopic features of lesions on the extremities were a violaceous background, white scale color, patchy scale distribution, micaceous scale type (Figure 2), and brown-dotted pigmentary change.

Table 1 Lesions examined for dermoscopic features
N = 162

Lesions examined	Number of lesions, <i>n</i> (%)
Herald patches	19 (11.73)
Lesions on the trunk	51 (31.48)
Lesions on the upper and lower extremities	52 (32.10)
Lesions on the face and neck region	40 (24.69)
Total	162 (100)

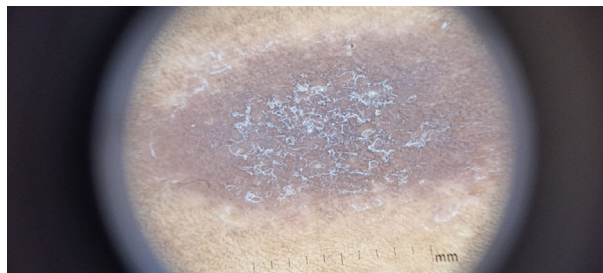


Figure 2 Diffuse micaceous scale type



Figure 3 Cloudy structures



Figure 4 Petechial spots and erosion



Figure 5 Punched out pits

The leading dermoscopic features of lesions on the face and neck region were a violaceous background, white scale color, patchy scale distribution, perifollicular scale type, and brown-dotted pigmentary changes.

Additional features seen in a few of the lesions included cloudy structures (Figure 3), petechial spots (Figure 4), erosions (Figure 4), and punched out pits (Figure 5). We did not see any



Figure 6 Violaceous (dull red) background with patchy perifollicular scale type



Figure 7 Peripheral collarette scale type

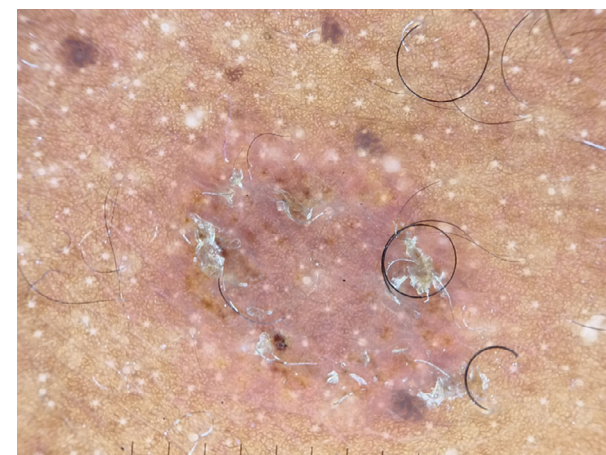


Figure 8 Combined collarette and perifollicular scale types, brown-dotted pigmentary changes

blood vessels nor follicular changes on the lesion upon dermoscopic examination.

Overall, the most frequent dermoscopic features of pityriasis rosea included a violaceous background (Figure 6), white scale (Figures 2, 4, 6 through 11), diffuse scale distribution (Figure 2), perifollicular scale type (Figures 6, 8, and 9), and brown-dotted pigmentary changes (Figure 8).

Other scale types we found include: trailing, peripheral collarette (Figure 7), Wickham striae-like (Figure 10), fading micaceous, scattered, water splash on glass-like (Figure 11), arciform, combined collarette and perifollicular (Figure 8), and



Figure 9 Combined collarette, micaceous, and perifollicular scale types



Figure 10 Wickham striae-like scale type



Figure 11 Water splash on glass-like scale type

combined collarette, micaceous, and perifollicular scale types (Figure 9).

The dermoscopic features of pityriasis rosea are summarized in Table 2, and in Figures 2 through 11 above.

Discussion

Dermoscopic features of pityriasis rosea

In this study, violaceous (dull red) is the most prevalent background color noted in 145 (89.51%) of the lesions. This is similar to the finding in a study conducted in Tanzania whereby a dull red background color was reported in 11 (50%) of the lesions.⁸ This

resemblance is probably because of similarity in patient characteristics, including populations with similar skin phenotypes.

Our findings were different from those in Turkey, Greece, and India that found a central yellow with peripheral structureless background, yellowish, and yellow to yellow-orange background in 40 (40%), 13 (65%), and 52 (86.7%) of the lesions, respectively.^{3,4,9} The differences were attributed to dissimilarity in skin phenotypes.

Concerning scales on the lesions, almost all of the lesions (161, 99.38%) we examined had scales and all the scales were white, similar to findings reported in Tanzania and Greece.^{8,9} The white appearance is due to reflection of light at the air–keratin interface between the layers of scale.¹⁰ Diffuse and patchy scales were the most prevalent scale distribution seen in 57 (35.17%) and 46 (28.40%), respectively, similar to findings in India that reported patchy scales predominant in 38 (63.3%) followed by peripheral scale in 26 (43.3%) of the lesions, in contrast to findings in Tanzania and Greece.^{3,8,9}

This present study is one of the first to describe the various scale types in pityriasis rosea patients. Previous studies in Turkey and India have described a collarette scale type in 84 (84%) and 18 (30%) lesions, respectively, similar to our study where we noted a collarette scale in 17 (10.49%) of the lesions.^{3,4} Other rare scale types seen in our study and barely reported in others were perifollicular, micaceous, trailing, Wickham striae-like, fading micaceous, scattered, water splash on glass-like, arciform, combined collarette and perifollicular, and combined collarette, perifollicular, and micaceous scale types.

We noted brown-dotted pigmentary changes in 66 (40.74%) of the lesions. Similarly, brown pigmentary changes were reported in 12 (54.55%) of the lesions in the study done in Tanzania.⁸ These brown pigmentary changes are reported to be due to hemosiderin deposition.¹¹ Similar to our findings, in a study done in India, they reported brown-dotted pigmentary pattern in 11 (55%) of the lesions of pityriasis rosea while none of the lesions of guttate psoriasis in the same study had this pigmentary pattern.¹² Possibly, this feature may be helpful in differentiating these two diseases. The brown dots correlated histopathologically to spongiotic tissue reaction plus hemosiderin deposits from extravasated red blood cells and lymphocytic infiltrate.¹²

We did not visualize any blood vessels nor follicular changes. This is in agreement with the study done in Tanzania.⁸ This concordance is probably because of similarity in patient characteristics in terms of darker skin phenotypes. A review also reported that blood vessels are not visualized in pityriasis rosea lesions in dark skin.⁵ This is discordant to studies done in Greece, Turkey, and India where they reported different blood vessel types and patterns since they involved mostly patients of types IV and lighter Fitzpatrick skin types.^{3,4,9}

Our other unique findings on dermoscopy rarely seen in other studies included cloudy structures, petechial spots, erosions, and punched out pits.

Table 2 Dermoscopic features of pityriasis rosea

Dermoscopic variables	Specific features	Herald lesions, N = 19 n (%)	Trunk lesions, N = 51 n (%)	Extremities lesions, N = 52 n (%)	Face and neck region lesions, N = 40 n (%)	Total number of lesions, N = 162 n (%)
Background color	Violaceous (dull red)	18 (94.74)	44 (86.27)	44 (84.62)	39 (97.50)	145 (89.51)
	Brown	1 (5.26)	6 (11.76)	5 (9.62)	0 (0)	12 (7.41)
	Light red	0 (0)	0 (0)	3 (5.77)	1 (2.50)	4 (2.47)
	Yellowish	0 (0)	1 (1.96)	0 (0)	0 (0)	1 (0.62)
Scale	Present	19 (100)	51 (100)	52 (100)	39 (97.50)	161 (99.38)
Scale color	White	19 (100)	51 (100)	52 (100)	39 (97.50)	161 (99.38)
Scale distribution	Diffuse	10 (52.63)	20 (39.22)	16 (30.77)	11 (27.50)	57 (35.19)
Scale type	Patchy	4 (21.05)	11 (21.57)	17 (32.69)	14 (35.00)	46 (28.40)
	Peripheral	5 (26.32)	12 (23.53)	12 (23.08)	8 (20.00)	37 (22.84)
	Central	0 (0)	8 (15.69)	7 (13.46)	6 (15.00)	21 (12.96)
	Perifollicular scale	8 (42.11)	17 (33.33)	16 (30.77)	20 (50.00)	61 (37.65)
	Micaceous scale	7 (36.84)	14 (27.45)	19 (36.54)	10 (25.00)	50 (30.86)
	Collarette scale	1 (5.26)	4 (7.84)	10 (19.23)	2 (5.00)	17 (10.49)
	Perifollicular and micaceous-combined scales	1 (5.26)	7 (13.73)	2 (3.85)	5 (12.50)	15 (9.26)
	Perifollicular and collarette-combined scales	0 (0)	6 (11.76)	0 (0)	1 (2.50)	7 (4.32)
	Perifollicular, collarette, and micaceous-combined scales	0 (0)	0 (0)	1 (1.92)	0 (0)	1 (0.62)
	Trailing scale	1 (5.26)	0 (0)	1 (1.92)	0 (0)	2 (1.23)
	Wickham striae-like (net-like) scale	1 (5.26)	1 (1.96)	0 (0)	0 (0)	2 (1.23)
	Fading micaceous scale	0 (0)	1 (1.96)	1 (1.92)	0 (0)	2 (1.23)
	Scattered scale	0 (0)	0 (0)	1 (1.92)	1 (2.50)	2 (1.23)
	Water splash on glass-like scale	0 (0)	0 (0)	1 (1.92)	0 (0)	1 (0.62)
Pigmentary changes	Arciform scale	0 (0)	1 (1.96)	0 (0)	0 (0)	1 (0.62)
	Present	6 (31.58)	19 (37.25)	24 (46.15)	17 (42.50)	66 (40.74)
Additional findings	Brown dots	6	19	24	17	66
	Cloudy structures	1 (5.26)	1 (1.96)	1 (1.92)	0 (0)	3 (1.85)
	Petechial spots	0 (0)	0 (0)	1 (1.92)	1 (2.50)	2 (1.23)
	Cloudy structures and petechial spots	1 (5.26)	0 (0)	2 (3.85)	0 (0)	3 (1.85)
	Petechial spots and erosions	1 (5.26)	1 (1.96)	0 (0)	0 (0)	2 (1.23)
	Punched out pits	0 (0)	0 (0)	0 (0)	1 (2.50)	1 (0.62)

Note: Bold values represent the most common specific dermoscopic features in each of the dermoscopic variable categories in the different locations of the lesions examined.

Conclusion

Most prevalent dermoscopic features of pityriasis rosea among patients attending the skin clinic included: a violaceous background, white scales, diffuse scale distribution, perifollicular scale type, and brown-dotted pigmentary changes with no visible blood vessels nor follicular changes.

Other unique less frequently seen findings were cloudy structures, petechial spots, erosions, and punched out pits.

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