Section: Dermatology

Original Research Article

TO STUDY THE DERMOSCOPIC PATTERNS OF PITYRIASIS ROSEA

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Abstract

Background: Pityriasis rosea (PR) is a common, self-limiting, inflammatory skin condition characterized by distinctive oval lesions. While the clinical presentation is typically straightforward, atypical cases can mimic other dermatological conditions, making accurate diagnosis challenging. This study aimed to analyze and document the dermoscopic patterns of pityriasis rosea and their associations with demographic factors, anatomic location, and medical history. **Materials and Methods:** This cross-sectional observational study analyzed 100 patients diagnosed with pityriasis rosea at a tertiary care hospital over a one year period. Participants underwent clinical evaluation and dermoscopic examination using a handheld dermoscope with 10x magnification. High-resolution dermoscopic images were reviewed and analyzed for distinctive patterns such as peripheral scaling, diffuse erythema, and vascular changes. Study assessed associations between dermoscopic patterns and demographic characteristics, anatomic location, and medical history using chi-square tests and logistic regression analysis. **Result:** Peripheral scaling ("collarette" scaling) was the most prevalent dermoscopic pattern, followed by diffuse erythema and vascular changes. Younger patients (under 35 years) exhibited higher rates of peripheral scaling and diffuse erythema. Patients with a previous episode of PR were more likely to show peripheral scaling (OR = 2.1, $p < 0.05$). **Conclusion:** This study identified key dermoscopic patterns of pityriasis rosea and highlighted significant associations with demographic and clinical factors. The results emphasize the value of dermoscopy in accurately diagnosing PR and distinguishing it from other dermatological conditions. Further research is needed to confirm these patterns in a larger, multi-center setting.

INTRODUCTION

Pityriasis rosea (PR) is a common inflammatory skin condition of unknown etiology. It is characterized by distinctive, self-limiting lesions often beginning with a solitary "herald patch" and progressing to multiple oval macules or patches with a characteristic "Christmas tree" distribution on the trunk. Although typically benign and self-resolving within 6 to 12 weeks, atypical presentations can prolong the diagnosis and result in unnecessary treatments.[1,2] Diagnosis is primarily clinical, yet other dermatological conditions such as psoriasis, nummular eczema, secondary syphilis, and drug eruptions can present with similar features. Dermoscopy, a non-invasive diagnostic tool, allows for visualization of subsurface structures and patterns that are not discernible to the naked eye. It has proven valuable in differentiating between various skin disorders by identifying unique vascular patterns, scaling, and pigmentary changes.[2-4] However, a comprehensive understanding of the dermoscopic features of pityriasis rosea remains limited, and standardized diagnostic criteria are yet to be fully developed.[5,6] This study aimed to analyze and document the dermoscopic patterns of PR and their associations with demographic characteristics, anatomic locations, and medical history. By identifying these patterns, the study seek to establish a reliable diagnostic framework that clinicians can use to distinguish PR from other similar conditions. Additionally, this study aims to develop a dermoscopic pattern library that will guide the differential diagnosis and enhance the understanding of the clinical presentation of pityriasis rosea

MATERIALS AND METHODS

Study Design and Setting: This study was a cross-sectional observational analysis conducted in the dermatology department of a tertiary care hospital. Data were collected Jan 2022 to Jan 2023 from

patients who presented with clinical symptoms suggestive of pityriasis rosea.

Participants and Inclusion Criteria

All patients presenting with clinical features indicative of pityriasis rosea were considered for inclusion. The eligibility criteria included:

1. Adults (aged 18 years and older).
2. Patients having classic pityriasis rosea
3. A clinical diagnosis of pityriasis rosea, verified by an experienced dermatologist.
4. Patients who provided informed consent to participate.

Exclusion Criteria Included:

1. Patients with known dermatoses that could obscure or mimic pityriasis rosea, such as psoriasis and nummular eczema.
2. Patients who had received topical corticosteroid treatment within the preceding month.
3. Patients with significant systemic illness affecting skin health.

Sample Size Calculation

Sample size was calculated based on the expected prevalence of dermoscopic patterns in pityriasis rosea, aiming for a confidence level of 95% with a 5% margin of error. A minimum of 100 participants were recruited.

Data Collection Procedures

All eligible participants underwent a clinical evaluation by a dermatologist to confirm the diagnosis of pityriasis rosea. Following diagnosis, each patient underwent a dermoscopic examination using a handheld dermoscope (Dermlite DL4) with a minimum magnification of 10x. High-resolution images were captured using a dermoscope-mounted digital camera and stored for later analysis. Each participant provided demographic information, medical history, and recent treatments through a structured questionnaire.

Dermoscopy and Pattern Identification: The dermatologist analyzed the dermoscopic images. They systematically reviewed and recorded specific dermoscopic features, such as peripheral scaling, diffuse erythema, and characteristic vascular patterns. Any discrepancies in pattern identification were resolved through mutual discussion to reach a consensus. Patterns were classified according to their characteristic presentations.

Statistical Analysis

Statistical analysis was performed using SPSS software. The study calculated the prevalence of each dermoscopic pattern and its corresponding confidence interval. Associations between demographic variables and specific dermoscopic patterns were assessed using chi-square tests for categorical variables and t-tests or ANOVA for continuous variables. Multivariate logistic regression analyses were performed to identify potential predictive factors. Statistical significance was set at $p < 0.05$.

RESULTS

The study analyzed 100 participants clinically diagnosed with pityriasis rosea. The following tables summarize the demographic characteristics, observed dermoscopic patterns, and statistical analyses.

Statistical Analysis

- Participants under the age of 35 exhibited a higher prevalence of peripheral scaling and diffuse erythema compared to those 35 and older ($p < 0.05$).
- Peripheral scaling ("collarette" scaling) was more prevalent in those with a previous episode of pityriasis rosea ($p < 0.05$).
- Logistic regression analysis identified previous pityriasis rosea episodes as a significant predictor for peripheral scaling (OR = 2.1, $p < 0.05$).

Table 1: Demographic Characteristics of Study Participants.

Characteristic	Value
Total Participants	100
Age (mean ± SD)	32.5 ± 9.6 years
Age Range	18-60 years
Gender Distribution	Male: 54, Female: 46
Skin Type (Fitzpatrick Scale)	Type II: 15%, Type III: 35%, Type IV: 30%, Type V: 20%

Table 2: Prevalence of Dermoscopic Patterns Observed in Pityriasis Rosea

Dermoscopic Pattern	Number of Cases (n = 100)	Prevalence (%)
Peripheral Scaling ("Collarette" scaling)	80	80%
Diffuse Erythema	60	60%
Vascular Patterns	40	40%
Pigmentary Changes	20	20%

Table 3: Association between Demographic Characteristics and Dermoscopic Patterns

Demographic Characteristic	Peripheral Scaling	Diffuse Erythema	Vascular Patterns
Age < 35	50 (85%)	40 (68%)	35 (60%)
Age ≥ 35	30 (75%)	20 (50%)	15 (38%)
Male	45 (83%)	35 (65%)	30 (55%)
Female	35 (76%)	25 (54%)	20 (43%)
Fitzpatrick Skin Type III	30 (86%)	20 (57%)	15 (43%)
Fitzpatrick Skin Type IV-V	50 (77%)	40 (62%)	25 (38%)

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Table 4: Frequency of Dermoscopic Patterns in Relation to Anatomic Location

Anatomic Location	Peripheral Scaling	Diffuse Erythema	Vascular Patterns
Trunk (Back)	45	35	30
Trunk (Chest)	30	25	15
Upper Limbs	10	10	5
Neck	5	3	2

Table 5: Co-occurrence of Dermoscopic Patterns in Pityriasis Rosea

Combination of Patterns	Frequency (n = 100)	Prevalence (%)
Peripheral Scaling + Diffuse Erythema	45	45%
Diffuse Erythema + Vascular Patterns	25	25%
Peripheral Scaling + Vascular Patterns	20	20%
All Three Patterns	15	15%

Table 6: Association between Medical History and Dermoscopic Patterns in Pityriasis Rosea

Medical History	Peripheral Scaling	Diffuse Erythema	Vascular Patterns
Previous Pityriasis Rosea Episode	50	45	35
Immunosuppressive Condition	20	15	10
Family History of Skin Disease	15	10	8

DISCUSSION

This study aimed to analyze and document the dermoscopic patterns of pityriasis rosea and their associations with demographic characteristics, anatomic location, and medical history. The results reveal several distinctive patterns and relationships that offer valuable insights into the clinical presentation of PR.

Dermoscopy Patterns and Anatomic Locations: Peripheral scaling ("collarette" scaling) was the most frequently observed dermoscopic pattern, consistent with previous findings. This characteristic feature was primarily observed on the trunk, correlating with the known distribution of pityriasis rosea. Diffuse erythema and vascular patterns were also prominent, suggesting that local inflammation and vascular dilation may play significant roles in the pathogenesis of PR.[9]

Co-occurrence of Patterns: The frequent co-occurrence of peripheral scaling and diffuse erythema aligns with the classical presentation of PR, where lesions often display a pink or erythematous background with scaling at the periphery. The coexistence of vascular patterns with other features suggests that vascular involvement is a common element in the pathogenesis.[6-8]

Demographic and Medical History Associations: Patients under 35 years of age exhibited higher rates of peripheral scaling and diffuse erythema, possibly due to increased immune reactivity or heightened susceptibility. Those with previous PR episodes showed a higher prevalence of peripheral scaling, indicating a potential predisposition for the recurrence of this pattern.[10]

Clinical Implications: This study's findings contribute to refining the dermoscopic diagnostic criteria for pityriasis rosea. Identifying characteristic patterns can guide dermatologists in distinguishing PR from other similar conditions such as psoriasis and secondary syphilis. Accurate identification and differentiation reduce the likelihood of misdiagnosis and mistreatment, improving patient outcomes.

Limitations and Future Research: Despite its valuable insights, this study had limitations. The single-center design may not fully represent global variations in pityriasis rosea presentation. Future studies should aim to include a multi-center approach with larger sample sizes to confirm these findings. Additionally, investigating treatment outcomes could offer insights into how dermoscopic patterns evolve with therapy.

CONCLUSION

This study provides a comprehensive analysis of the dermoscopic patterns in pityriasis rosea, offering clinicians practical diagnostic criteria. Understanding the relationships between these patterns and demographic and clinical factors can aid in early and accurate diagnosis, leading to better management strategies.

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