The Natural History of Pityriasis Rosea in Black American Children

How Correct Is the “Classic” Description?

Ahdi Amer, MD; Howard Fischer, MD; Xiaoming Li, PhD

Objectives: To delineate the natural history of pityriasis rosea in black children and to compare our findings with those of the American, European, and African literature on pityriasis rosea. Textbook and journal article descriptions of pityriasis rosea usually offer information about the presentation and clinical course of this condition in white patients.

Design: Prospective observational study.

Setting: The general pediatric clinic, adolescent clinic, and emergency department of Children’s Hospital of Michigan, Detroit, from June 2003 through May 2005.

Patients: We followed up 50 black children with pityriasis rosea from the time of diagnosis through follow-up visits at 1, 2, and 4 weeks. Detailed observations were made and digital photographs taken at each visit.

Main Outcome Measures: Duration of illness and pigmentation sequelae.

Results: Similarities with the medical literature were found regarding season of onset and prevalence of pruritus and of a herald patch. Our patients had more frequent facial involvement (30%) and more scalp lesions (8%) than usually described in white populations. One third had papular lesions. The disease resolved in nearly one half of patients within 2 weeks. Residual hyperpigmentation was seen in 48% of patients. Hypopigmentation developed in 29% of patients with purely papular or papulovesicular lesions.

Conclusions: Pityriasis rosea in black children differs in several ways from textbook descriptions. Physicians may use this information to better counsel patients about the course and potential sequelae of this condition.

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PITYRIASIS ROSEA (PR) IS A SELF-LIMITED INFLAMMATORY CONDITION OF THE SKIN THAT MOSTLY AFFECTS HEALTHY CHILDREN AND ADOLESCENTS. TYPICALLY, IT IS CHARACTERIZED BY THE APPEARANCE OF A HERALD PATCH, WHICH IS A SOLITARY, OVAL, SCALY LESION THAT SLOWLY EXPANDS, REACHING SEVERAL CENTIMETERS IN DIAMETER. WITHIN 2 TO 21 DAYS, SECONDARY LESIONS APPEAR AND CONTINUE TO ERUPT IN CROPS OVER THE NEXT 10 TO 21 DAYS AND MAY PERSIST FOR 4 TO 10 WEEKS. THEY ARE ROUND TO OVAL, 5- TO 10-MM MACULOPAPULES WITH AN ELEVATED SCALY BORDER FOUND ON THE TRUNK AND, LESS COMMONLY, THE EXTREMITIES.1

We searched the literature for descriptions of PR in black American children and could not find any specific work that addressed the disease characteristics in this group. However, we found several reports from Africa describing the clinical and epidemiological presentations of PR in African children and adults.2,3 This study describes the clinical characteristics of PR in 50 black American children. We highlight the similarities and differences PR has in this patient population as compared with the “usual” description given in the medical literature.

METHODS

Patients in the study participated in a double-blind, placebo-controlled, prospective study of the efficacy of azithromycin in the treatment of PR.4 Patients between 2 and 18 years of age with a diagnosis of PR were recruited from the general pediatric clinic, adolescent clinic, and emergency department of Children’s Hospital of Michigan. Patients had the diagnosis of PR made by 2 of us (A.A. and H.F., both physicians with a total of 45 years’ experience practicing pediatrics) in about 80% of cases and by

Author Affiliations: The Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Children’s Hospital of Michigan, Detroit.
1 of us (A.A., a physician) and another experienced pediatrician in the remainder. Diagnosis was based on characteristic PR features.1,5 If we did not agree on the diagnosis of PR, the patient was not eligible for study enrollment.

Patient data were collected at the time of the diagnosis on standardized forms. These data included age, sex, race, presence and location of the herald patch, duration of lesions, number of lesions, types and distribution of lesions, presence of pruritus, preceding upper respiratory tract infection, treatments used before the diagnosis, and history of PR exposure. Digital photographs were taken of all lesions when the patients were enrolled and at all follow-up visits.

Patients were seen for follow-up at 1, 2, and 4 weeks after enrolling in the study. Standardized data collection at each follow-up visit included change in lesion numbers and size, presence of pruritus, medication adverse effects, use of other treatments, and the presence of pigmentary changes. As in the diagnostic visit, the patient was evaluated at each follow-up visit by 2 of us (A.A. and H.F., both physicians) in most cases and by 2 physicians in all cases. Digital photographs were again taken.

Patients were monetarily compensated for attending follow-up visits. This study was approved by the Wayne State University Human Investigation Committee. Informed consent was obtained from the parent accompanying the child.

### RESULTS

Of the 50 patients with PR, there were 18 boys and 32 girls. The peak incidence of cases was in April and May (Figure 1). Pruritus was present in 90% of patients.
A herald patch was seen in 88% (Figure 2).

We did not observe erythema in the lesions of any patient. In the patients who had scaling of their lesions, this was not a subtle finding.

Nearly two thirds of patients had the usually described or “classic” papulosquamous lesions, one third had purely papular lesions (Figure 2), and 4% had papulovesicular lesions. Lesions involved the trunk in all patients, the neck in 44%, the face in 30% (Figure 3), arms and forearms in 60%, thighs and legs in 54%, the pelvis or groin in 12%, and the scalp in 8%. No oral lesions were seen.

Almost one third (30%) of patients had between 200 to 300 or more lesions. Twenty-two percent had fewer than 50 lesions. Of patients with more than 200 lesions, 80% had papular or papulovesicular lesions. The correlation between greater lesion numbers and the presence of papular (and papulovesicular) lesions was highly statistically significant ($\chi^2 = 17.68; P = .007$) (Table 2).

Postinflammatory pigmentary changes occurred in 31 patients (62%). Hyperpigmentation (Figure 4) developed in 48% of patients and hypopigmentation (Figure 5), in 14%. Some patients had both hyperpigmentation and hypopigmentation. The presence of residual pigmentation changes (and of pruritus) was not correlated with the number of lesions. Hyperpigmentation did not reflect lesion type, but hypopigmentation was significantly associated with the presence of papular or papulovesicular lesions (Table 3).

Nearly one half of patients had resolution of disease activity (no new lesions, resolution of existing lesions) within 2 weeks of onset. Only 20% of patients had active disease lasting more than 4 weeks. The presence of illness in close contact with a patient is referred to as disease concurrence. Two of our patients were household contacts of an individual with PR (concurrency rate of 4%). Another patient was reported by the parent to have had an episode of PR in the past (disease recurrence of 2%).

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### Table 2. Number of Lesions vs Type of Lesion*

<table>
<thead>
<tr>
<th>No. of Lesions</th>
<th>Classic†</th>
<th>Papular</th>
<th>Papulovesicular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (&lt;50) (n = 11)</td>
<td>9 (18)</td>
<td>2 (4)</td>
<td>0</td>
</tr>
<tr>
<td>Moderate (50 to &lt;100) (n = 12)</td>
<td>10 (20)</td>
<td>2 (4)</td>
<td>0</td>
</tr>
<tr>
<td>Significant (100 to &lt;200) (n = 12)</td>
<td>9 (18)</td>
<td>2 (4)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Extensive (200 to &gt;300) (n = 15)</td>
<td>3 (6)</td>
<td>11 (22)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Total</td>
<td>31 (62)</td>
<td>17 (34)</td>
<td>2 (4)</td>
</tr>
</tbody>
</table>

*Association between number of lesions and type of lesion is significant using the Fisher exact test ($P < .001$). †Classic = papulosquamous.

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### Table 3. Presence of Pruritus and Pigmentary Changes by Lesion Type

<table>
<thead>
<tr>
<th>Lesion Type</th>
<th>No. (%)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classic* (n = 31)</td>
<td>Pruritus</td>
<td>27 (8)</td>
</tr>
<tr>
<td></td>
<td>Pigment change</td>
<td>16 (94)</td>
</tr>
<tr>
<td>Hypopigmentation</td>
<td></td>
<td>2 (100)</td>
</tr>
<tr>
<td>Papular (n = 17)</td>
<td>Pruritus</td>
<td>14 (45)</td>
</tr>
<tr>
<td></td>
<td>Pigment change</td>
<td>8 (47)</td>
</tr>
<tr>
<td>Hypopigmentation</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Papulovesicular (n = 2)</td>
<td>Pruritus</td>
<td>3 (10)</td>
</tr>
<tr>
<td></td>
<td>Pigment change</td>
<td>5 (29)</td>
</tr>
<tr>
<td>Hypopigmentation</td>
<td></td>
<td>2 (100)</td>
</tr>
</tbody>
</table>

*Classic = papulosquamous.

Abbreviation: NS, not significant using the nonparametric $\chi^2$ test.

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Figure 4. Pityriasis rosea with widespread hyperpigmentation of trunk and arm.

Figure 5. Pityriasis rosea with widespread hypopigmentation of face and scalp.
This descriptive study of 50 black children with PR showed that there are some similarities between the epidemiological and clinical findings of PR in this group compared with the standard descriptions of PR in the medical literature, as well as some differences that are alluded to but were heretofore not quantified. We will first point out the similarities and then describe the differences. These differences have prognostic importance and may enable physicians to better counsel patients as to the course and outcome of PR.

The peak incidence that we saw in April and May has been described in the literature. Pruritus has been reported in 25% to 94% of patients. Our finding of pruritus in 90% of patients fits into this broad range. Similarly, the 88% prevalence of a herald patch in our patients is within the range of 12% to 94% reported in the literature.

Others have also described the lack of erythema or rosy color in black patients’ lesions, as well as the greater visibility of scaling in dark-skinned individuals. Our 15% of patients have facial lesions. In African patients the scalp is spared from PR lesions. In African patients with PR, the scalp is involved in 3% to 24% of individuals. Eight percent of our patients had scalp lesions. Facial lesions were seen in 30% of patients in our study and 47% of patients in 1 African study. In the United States, 15% of patients have facial lesions.

We did not find any literature describing the number of lesions in PR. As stated in the “Results” section, there is a strong correlation between having 200 or more lesions and having lesions with a papular or papulovesicular morphology. A Swedish study of PR found residual hyperpigmentation in 13% of patients and hypopigmentation in 17%. In Uganda, 20% of patients had hyperpigmentation and 8% had hypopigmentation after having had PR. Nearly one half of our patients had residual hyperpigmentation and 14% had hypopigmentation. The risk for hypopigmentation rose significantly if the patient had papular lesions. Hypopigmentation developed in 29% of patients with papular lesions and in both patients with papulovesicular lesions. This high rate of postinflammatory hypopigmentation as a function of lesion morphology has not been previously quantified. Hypopigmentation, especially on the face (30% of our patients had facial lesions), may represent a serious cosmetic problem for dark-skinned individuals. Physicians should be aware of this possible outcome.

Finally, active lesions resolved in half of our patients within 2 weeks and in 76% within 4 weeks. The studies on African patients did not discuss duration of disease. In Sweden, 43% of patients had resolution within 3 weeks and 84%, within 6 weeks.

Nearly all of our patients had pruritus. Scratching of lesions may lead to secondary infection and scarring. It would seem reasonable to offer patients relief from their pruritus and to prevent nonpigmentary sequelae by the use of systemic antibiotics, mild topical steroids, or both.

In summary, PR in black American children may involve the scalp and face, is often extensive and papular, may resolve rapidly, and leaves residual pigmentary changes in a majority. These findings may allow physicians to more accurately advise patients when they have PR. Effective treatment still eludes us.

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Correspondence: Ahdi Amer, MD, Division of Ambulatory Pediatrics and Adolescent Medicine, Children’s Hospital of Michigan, 3901 Beaubien Blvd, Detroit, MI 48201 (aamer@med.wayne.edu).

Author Contributions: Study concept and design: Amer and Fischer. Acquisition of data: Amer and Fischer. Analysis and interpretation of data: Amer, Fischer, and Li. Drafting of the manuscript: Amer and Fischer. Critical revision of the manuscript for important intellectual content: Amer, Fischer, and Li. Statistical analysis: Li. Study supervision: Amer and Fischer.

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REFERENCES