

An Original Clinical Study on Photo-Sparing Pityriasis Rosea – A Rare Variant of this Exanthem

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Abstract

Background

The usual distribution of lesions in pityriasis rosea (PR) is on the trunk and proximal aspects of the limbs. Only two patients with photo-sparing PR, denoting that the sun-exposed skin regions bear much less or no lesions as compared to the skin regions sheltered from sunlight, have been reported.

Objectives

To investigate the proportional incidence, risk factors, clinical features, co-morbid associations, and complications of photo-sparing PR.

Methods

Our settings were skin clinics. We searched our clinical database, and retrieved clinical data of patients with PR and photo-sparing PR over eight calendar years.

Results

In these eight years, 612 patients were seen and diagnosed as PR by us. Out of such, clinical records of three patients with photo-sparing PR were retrieved by us. We reported their clinical features. We noted no risk factor, no co-morbid association, and no complication for these three patients.

Conclusions

Patients with photo-sparing PR are rare, with the proportional incidence being in the order of 0.49%. Apart from rash distribution, the clinical features of photo-sparing PR are very similar to patients with classical PR. From our limited data, we found no risk factor, no co-morbidity, and no complication for patients with photo-sparing PR.

Keywords: Human herpesvirus-7; Human herpesvirus-6; Paraviral exanthema; Ultraviolet phototherapy; Viral exanthem

Introduction

The usual distribution of lesions in pityriasis rosea (PR) is on the trunk and proximal aspects of the limbs [1-3]. Only two patients with *photo-sparing PR*, denoted that *the sun-exposed skin regions bear much less or no lesions of PR as compared to the skin regions sheltered from sunlight*, have been reported [4,5].

A study on patients with photo-sparing would be clinically important so that the correct diagnosis can be made and managements based on the best available evidence can be delivered. Studies on this rare variant might also shed light on the immunopathogenesis of this exanthem. We report here a retrospective and qualitative study on patients with photo-sparing PR.

Aims

Our aims are to evaluate the (1) proportional incidence, (2) risk factors, (3) clinical features, (4) co-morbid associations, and (5) complications of photo-sparing PR.

Materials and Methods

Our settings were out-patient skin clinics. We searched with the entrez *photo-sparing, pityriasis rosea, pityriasis rosea of Vidal*, for patients who had consulted us and diagnosed as having PR or photo-sparing PR over an eight-year period (1 January 2007 - 31 December 2014).

We then hand-reviewed the risk factors, clinical manifestations, co-morbid associations, and complications of the patients with photo-sparing PR. If any risk factor, clinical feature, co-morbidity, or complication was found for these patients, we would search for such in clinical records of all patients with PR for a comparison.

Results

612 patients with PR were seen by us during these eight years. Out of these, clinical records of three (0.49%) patients with photo-sparing PR were retrieved (Table 1). One was a male aged 24, while two were females aged 24 and 45 years, at the time of diagnosis.

Table 1

Number	Age and sex	Pro-dromal symptoms	Drug history before rash onset	Sunlight exposure	Herald patch	Rash distribution	Sharp margins between tanned and untanned skin	Peripheral collarette scaling	Orientation of lesions	Outcome
1	45 years, female	+	-	Five days before rash onset	-	Trunk and proximal aspects of upper and lower limbs, nearly no lesion on sun-exposed areas	+	+	The larger lesions are oriented along lines of skin creases	No new lesions nine days after generalised eruption
2	24 years, female	+	-	Five days before rash onset	+	Trunk and proximal aspects of upper limbs, absolutely no lesion on sun-exposed areas	+	+	The larger lesions are oriented along lines of skin creases	No new lesions nine days after eruption of herald patch
3	24 years, male	+	Oral chlorpheniramine for coryzal symptoms	Six days before rash onset	+	Trunk and proximal aspects of upper and lower limbs, nearly no lesion on sun-exposed areas	+	+	The larger lesions are oriented along lines of skin creases	No new lesions 10 days after eruption of herald patch

Upon meticulous review of records of these three patients, we found no special at risk factor (demography, family history, congenital abnormalities, neonatal problems, immunisations, hospitalisations, history of PR and other exanthems, drugs, smoking, drinking), no co-morbid association (atopies, other skin diseases, chronic diseases, being immuno-compromised), and no complication. We thus did not search for these parameters in the clinical records of all patients with PR.

Clinical and histopathological photographs were available to us for the female aged 45, with written consent by the patient to publish the photographs. Photographs of the other two patients were not available.

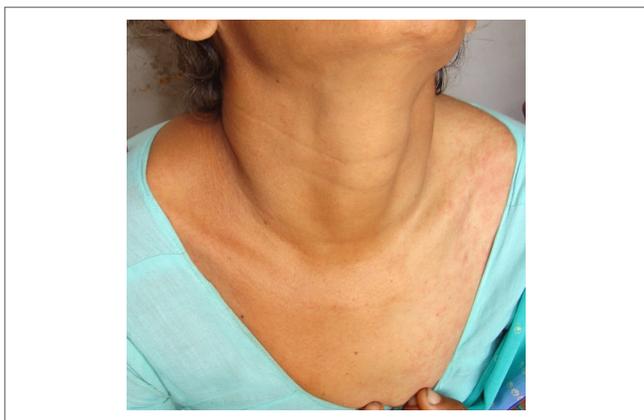
The female aged 45 years (Patient 1 in Table 1) suffered from coryza with low-grade fever. One week later, a generalised rash erupted on her neck, trunk, and limbs. She consulted us four days after rash onset. The patient

enjoyed good past health. She had three-day history of sun-exposure during her vacation five to seven days before onset of the eruption. She had applied sunscreens with high sun protection factors during her vacation. Drug history before rash onset was unremarkable.

Our examination revealed discrete cutaneous lesions with distinct borders on her neck and proximal aspects of limbs. Peripheral collarette scaling was noted on the larger lesions. Some oval-shaped lesions on the trunk and the neck were oriented along lines of skin creases (Figure 1a). History and physical examinations revealed no herald patch.

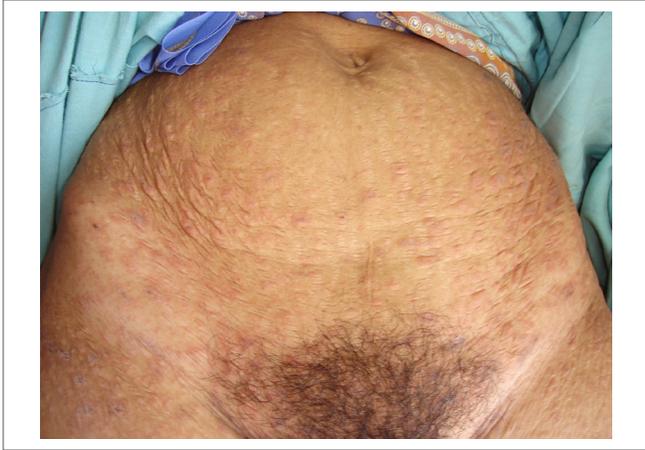


The distribution of the lesions was strictly photo-sparing. For the skin surfaces exposed to light, tanning was seen, and no PR lesions were seen. For the skin areas sheltered from sunlight, no tanning was seen, while PR lesions were seen. The patient was wearing a shirt with a V-shaped neckline most of the time. The V-shaped sun-exposed area over her anterior upper chest saw no lesion, and was tanned (Figures 1a and 1b). Areas beyond the V were not tanned and with PR lesions. The delineations of these two areas were clear, absolutely following (i) the margins of her garments, (ii) the margins of tanning, and (iii) the presence or absence of PR lesions (Figure 1a-1d).

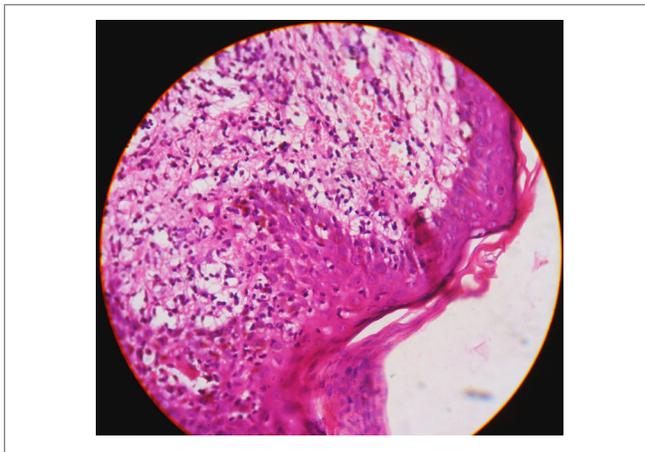


We nearly missed examining the nape of her neck, which was covered by a hair braid (Figure 1e). When the hair braid was lifted up, lesions of pityriasis rosea was seen in the part covered by the braid (Figure 1f). For regions entirely shielded from sunlight, such as the anterior abdominal wall, lesions of PR were seen (Figure 1g). These are solid substantiations for the sunlight-sparing effects on the eruption of PR lesions.





Examination under Wood's light revealed no fluorescence. Skin scrapings for potassium hydroxide smear and fungal culture revealed no evidence of dermatophytic infection. Her complete blood picture, random glucose, liver and renal function tests were normal. HIV antibodies, VDRL, and anti-streptolysin-O-titre were negative. Anti-nuclear autoantibodies and rheumatoid factor were negative. Lesional histopathology revealed orthohyperkeratosis, parakeratosis, epidermal spongiosis, and perivascular lymphocytic infiltrates (Figure 2).



We prescribed topical fluticasone cream and oral desloratidine 5 mg daily for ten days. Almost complete rash remission was seen ten days later, leaving residual post-inflammatory hypopigmentation in the untanned areas.

Discussion

Only two patients with photo-sparing PR [4,5] were reported previously. We thus reported the third to the fifth patients with photo-sparing PR.

It would be entirely speculative to propose mechanisms of photo-sparing PR based on three patients only. Theoretically, photophysical effects of light might ablate the inflammation. The suppression of the cell-mediated immune response and the modification of the number and function of Langerhans cells in the skin might prevent rash development.

Many studies were reported on the association of primary infection and endogenous reactivation of human herpesvirus (HHV)-7 and -6 and PR [6-9]. For reasons yet unknown, negative findings were reported by us [10] and by several other investigators [11,12]. We have previously excluded the roles of HHV-8 [13], cytomegalovirus [14], *Epstein-Barr virus* [14], parvovirus B19 [14], *Chlamydia pneumoniae*, *C. trachomatis* [15], *Legionella longbeachae*, *L. micdadei*, *L. pneumophila* [15], and *Mycoplasma pneumoniae* [15] infections in PR.

HHV-7 and -6 are therefore the most likely culprits at the present state of knowledge. Any model of immunopathogenesis of PR, including photo-sparing PR, should take these viral infections into account.

Phototherapies have been used to treat patients with PR [16-19]. We have reported in a Cochrane review that there is still inadequate evidence for the therapeutic efficacy of ultraviolet irradiation to treat PR [20], let alone the impacts to quality of life of the patients and the adverse effects of such treatment.

However, it must be noted that the time sequences in phototherapy and photo-sparing PR are different. For phototherapy, the lesions are already in existence during exposures to ultraviolet light. For our three patients, sun exposure occurred around the time of the prodromal symptoms, without any lesion of PR during sunlight exposure. The pertinence of this difference is yet to be explored.

The existence of photo-sparing PR exerts direct impacts on clinical managements. For many patients with PR, no active treatment is necessary. For patient necessitating treatments due to symptoms, cosmetic, or other reasons, topical corticosteroids or systemic histamine antagonists might be considered. The evidence on the clinical efficacies of antiviral agents, in comparison to oral macrolides, is gaining momentum [21,22], and acyclovir could be considered in patients with extensive rash or pruritus affecting activities of daily living.

If treatment is sought by patients with photo-sparing PR, they might be advised to expose to sunlight for short periods of time, while generously applying sunscreens of high sun protection factors. Whether therapeutic effects of antiviral agents can be extended to photo-sparing PR is unknown.

The most important limitation in our study is the small number of patients with photo-sparing PR. As we found no risk factor, no peculiar clinical manifestation, no co-morbidity, and no complication for the patients with photo-sparing PR, we did not search for such parameters in all patients with PR. However, even if we did find a significant parameter for the patients with sun-sparing PR, the paucity of these patients would forbid us from performing meaningful statistical analyses. In other words, the power of any finding would be low even if we did have positive independent or dependent variable found for patients with photo-sparing PR. A better setting for this study would be a coherent group of more skin clinics or in hospital settings with more dermatologists diagnosing more patients with PR.

Another significant limitation in our study is that owing to the retrospective nature of such, we have not been able to perform virological and immunohistochemical investigations on specimens from multiple body sites of these patients. We have also not been able to perform serological investigations against HHV-7, HHV-6, and other viruses in parallel on the acute and convalescent sera of patients with photo-sparing PR, patients with typical PR, and other control groups such as age-and-sex pair-matched patients with other dermatological diseases.

Conclusion

We conclude that photo-sparing PR is rare, with a proportional incidence being in the order of 0.49%, that the clinical features are similar to classical PR apart from the rash distribution, and that there is no association with risk factors, co-morbidities, and complications for this rare variant of PR.

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