Photodermatosis

10

Hiromel de Silva

10.1 Introduction

Mild sunburn is quite frequent in Sri Lanka, commonly among school children and young mothers. Schooling hours in Sri Lanka are 7.30 am to 1.30 pm. Young mothers who come to pick-up preschool children do not use any method of sun protection. Therefore school children, young mothers, and manual laborers are the most vulnerable.

Broad classification of photodermatoses is shown below. Out of all more than 90% we see are polymorphic light eruptions (PLE). Mostly PLE is mild or moderate being asymptomatic to mild itching. Commonest clinical presentation is hypopigmented patches on the face and the forearms.

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(photographed by Dr. Ranthilaka R. Ranawaka)

1. Mother of this 8 year-old boy is worried about this asymptomatic hypopigmented patches on the face for 3 months which were worsening.
   (a) What is your diagnosis?
   (b) How do you manage this condition?

(photographed by Dr. Ranthilaka R. Ranawaka).

2. A 32-year-old woman came with itchy hypopigmented patches on her both forearms which were worsening over 6 months. On direct inquiry, we found that she is a mother of two primary school children, and she rides a scooter for transportation.
   (a) What is your diagnosis?
   (b) Why information on direct inquiry is important in management?
   (c) In addition to treatments what advice would you give her?

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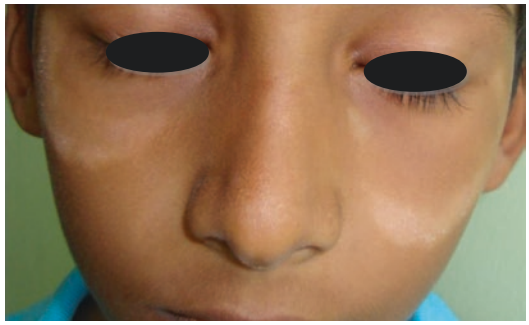

(photographed by Dr. Ranthilaka R. Ranawaka).

3. An 11-year-old boy came with this mildly itchy hypopigmented patches on the face. He is a member of school swimming team.
   (a) What is your diagnosis?
   (b) What advice would you give him?

(photographed by Dr. Ranthilaka R. Ranawaka).

4. A 48-year-old man's these skin patches become itchy and erythematous on sunlight exposure.
   (a) What is your clinical diagnosis?
   (b) How do you confirm the diagnosis?
   (c) What advice would you give regarding sunlight exposure?

Answers

1. Polymorphic light eruption
   Reassurance, mild topical steroid twice daily and sunscreen cream on day time
2. Polymorphic light eruption
   Pre-school children are picked-up at 12 noon (highest sunlight exposure), and mostly mothers ride scooters without over-coats/jerkins. We have to find the possible predisposing factors.
   Educate the woman on predisposing factors, proper sun protection using sunscreen and clothing.
3. Polymorphic light eruption
   He has to use water proof SPF >50 sunscreen during swimming
4. Discoid lupus erythematosus (DLE)
   Skin biopsy for histopathology
   DLE exacerbate on sunlight exposure. Therefore he has to use sunscreens SPF >50 during the day time.

10.2 Idiopathic Photodermatosis

10.2.1 Polymorphic Light Eruption (PLE)

PLE is a recurrent, delayed-onset, abnormal reaction to sunlight (or artificial UVR source) that resolves without scarring. It is common and has a wide range of severity but can markedly affect quality of life. PLE is much commoner in women (Roelandts 2000).

Clinical Features PLE presents as pruritic erythematous or hypopigmented papular rash on exposed sites, mainly neck forearms and legs. Several morphological types including papules, plaques, papulovesicular, vesicularbullous, haemorragic, and erythema mutiforme like lesions described (Ibbotson and Dawe 2016; Lehman et al. 2011; Srinivas et al. 2012).

Diagnosis Mostly clinical

Management Sun avoidance and protective measures, broad-spectrum high SPF sunscreens, and topical or systemic corticosteroid therapy are sufficient in mild to moderate PLE.

Prophylactic phototherapy/photochemotherapy is the main second-line therapy used.

Long-term immunosuppressive drugs, such as azathioprine and ciclosporin for refractory cases (Figs. 10.1–10.12).

10.2.2 Hydroa Vacciniformae

Characterized by vesicles and crust formation after sun exposure. Lesions typically occur on photoexposed sites and may persist several weeks and heal with varioliform scarring. Usually presents in childhood with spontaneous improvement during adolescence. This type is not seen in Sri Lanka.

10.2.3 Chronic Actinic Dermatitis (CAD)

CAD is a persistent or recurring dermatitis predominantly affecting photo-exposed sites. There is evidence of photosensitivity. Typically occurs in elderly men who worked in outdoor exposed to hot sunlight, e.g., farmers, manual laborers. All patients have abnormal photosensitivity, and most of them have multiple contact allergies.

Clinical presentation ranges from dermatitis, depigmentation, and erythroderma (Wolverton et al. 2014; Henry et al. 1994).

Differential Diagnosis Airborne contact dermatitis, photoaggravated atopic or seborrhoeic eczema, drug-induced photosensitivity, cutaneous T-cell lymphoma.

Management

Very potent/potent topical corticosteroids, topical tacrolimus or pimecrolimus, PUVA, UVB phototherapy can be effective.

In-patient nursing behind visible- and UV-absorbing window film may be required in extensive cases.

Fig. 10.1 *Polymorphic light eruption (PLE); hypopigmented macules*. Mostly asymptomatic, sometimes itchy when expose to sunlight. This is the commonest PLE type seen in children and as total clinical manifestations in Sri Lanka. Usually the skin patches are bilateral as seen in this child (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.2 *Polymorphic light eruption (PLE)* in an 8-year-old boy (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.4 *PLE* in a 13-year-old girl. These lesions were itchy and eczematous (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.3 *PLE* in a 6-year-old girl. Generalized non-itchy hypopigmented rash on the face and the trunk on sun-exposed areas in school children are common in Sri Lanka. Play outdoor on bare trunk is common in hot sunny days (photographed by Dr. Ranthilaka R. Ranawaka)

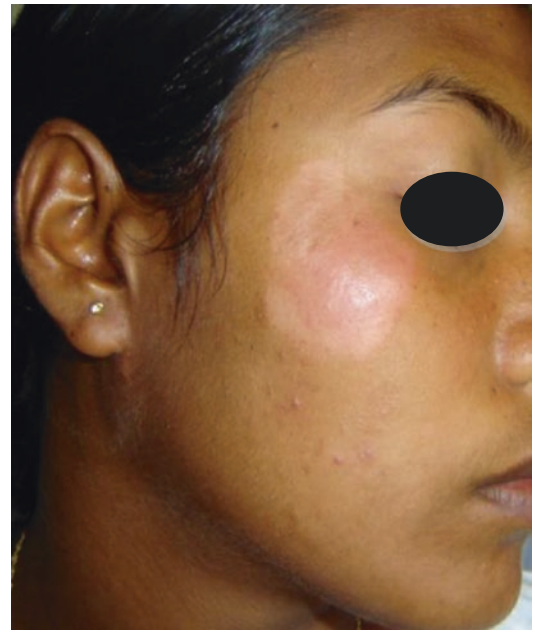

Fig. 10.5 *PLE* is sometimes erythematous on sun exposure (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.6 *Polymorphic light eruption*. Note hypopigmented macules are confined to extensor aspect of upper limbs. Flexure aspect is spared (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.7 *Polymorphic light eruption*. Itchy hypopigmented rash on the face in a 15-year-old girl. Secondary "eczematization" develops particularly in atopic persons if itching persists (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.8 *Polymorphic light eruption. Chronic eczematous type* (photographed by Dr. Ranthilaka R. Ranawaka)

Hydroxychloroquine, ciclosporin, mycophenolate mofetil, hydroxycarbamide, etretinate, danazol, thioguanine, topical nitrogen mustard, thalidomide, infliximab, and INF-α have been reported to be effective but only in small case series and case reports (Paek and Lim 2014; Ibbotson and Dawe 2016).

The avoidance of combined photo (chemo) therapy and systemic immunosuppressant, particularly ciclosporin, is advised due to photocarcinogenic risk (Figs. 10.13–10.18) (Lenane & Murphy 2001).

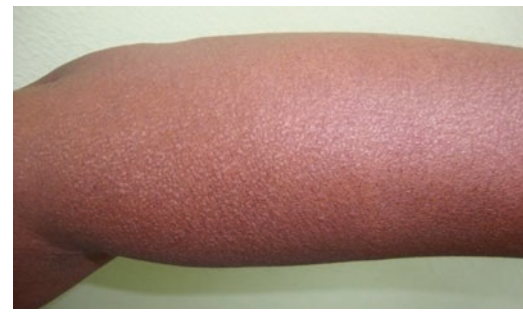

Fig. 10.9 *Polymorphic light eruption*. Erythematous maculo-papular type in a 44-year-old woman following acute sunburn (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.10 *Polymorphic light eruption*. Acute vesicular type, following acute severe sunburn (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.11 *Polymorphic light eruption*. Showing skin eruption clearly demarcated to sun exposed areas (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.12 *Polymorphic light eruption*. Hypopigmented papules and plaques. These lesions are permanent and accumulative over the time unless strict sun avoidance is practiced which is not practical in a tropical country. Fortunately this PLE type is not common in Sri Lanka (photographed by Dr. Ranthilaka R. Ranawaka).

10.2.4 Solar Urticaria

Immediate type of hypersensitivity reaction usually to UVA and visible light, less often to UVB. Characterized by itching, erythema, and whealing over exposed sites. Usually idiopathic but can be seen association with medication (Fig. 10.19) (Botto & Warshaw 2008; Perez-Ferriols et al. 2017).

Fig. 10.13 *Chronic actinic dermatitis* in a 56-year-old mason who worked in outdoor without sun protection (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.14 *Chronic actinic dermatitis* in a 76-year-old farmer who worked in out-door without sun protection (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.15 *Chronic actinic dermatitis* in a 76 year-old man. Note lesions are clearly demarcated to sun exposed areas of the body (photographed by Dr. Ranthilaka R. Ranawaka)

10.2.5 Actinic Prurigo

Uncommon acquired idiopathic photodermatosis. Usually manifest in childhood. Pruritis is a common feature. They develop patchy edematous erythema with papules, occasionally vesicles. Later transform into chronic excoriated prurigo lesions often with nodules and plaques. Maximum on exposed sites, heals leaving scarring (Fig. 10.20).

10.3 Photocontact Dermatitis

10.3.1 Drug-Induced Photosensitivity

There are number of groups of drugs which can cause photosensitivity. Range of reactions can vary widely and can give rise to various clinical

Fig. 10.16 *Chronic actinic dermatitis* in a 45 year-old manual laborer. A nodular prurigo-like morphology. Note the skin lesions are strictly limited to sunlight exposed areas (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.17 *Chronic sun damage in a 78 year-old woman* (photographed by Dr. Hiromel de Silva)

manifestations including urticaria, erythema, blisters, eczematization, and lupus-like and lichenoid reactions.

Some of common drugs responsible for photosensitivity are tetracyclines, griseofulvin, thiazides, isotretinoin/acitretin, phenothiazines, psoralens, and NSAIDS (Fig. 10.21).

Fig. 10.18 *Chronic sun damage* in a 31-year-old Sri Lankan woman with Albinism. Note sparing of flexural aspect of the forearm (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.19 *Solar urticaria* (photographed by Dr. Hiromel de Silva)

10.3.2 Photoaggravated Dermatosis

There are some diseases which can be aggregated by exposure to light.

Classical: Atopic dermatitis, psoriasis, lupus erythematosis, Jessner lymphocytic infiltrate, dermatomyositis, lymphocytoma cutis, actinic lichen planus, erythema multiformae, acne vulgaris, pemphigus, Darier disease, transient acantholytic dermatosis, disseminated superficial actinic porokeratosis, pellagra, and viral exanthems including herpes simplex.

Fig. 10.20 *Actinic prurigo* (photographed by Dr. Hiromel de Silva)

Other photoaggravated dermatosis are allergic contact dermatitis, seborrhoeic dermatitis, rosacea, melasma, mycosis fungoides, vitiligo, bullous pemphigoid, linear IGA disease, dermatitis herpitiformis, chronic ordinary urticaria, facial telangiectasia, pityriasis rubra, reticulate erythematosis musinosis, keratosis pillaris, actinic granuloma (Figs. 10.22–10.38) (Kerker & Morison 1990).

10.3.3 Phytophotodermatitis

Naturally occurring chemicals from plants when come in contact with skin and are subsequently irritated by sunlight producing characteristic clinical features. Lesions are mainly distributed on face, V area on the neck, arms, and sometimes trunk and legs depending on the types of clothing

Fig. 10.21 *Griseofulvin-induced photodermatitis* (photographed by Dr. Hiromel de Silva)

Fig. 10.22 Photoaggravated dermatitis lichen planus (photographed by Dr. Hiromel de Silva)

Fig. 10.23 Photoaggravated dermatitis lichen nitidus (photographed by Dr. Hiromel de Silva)

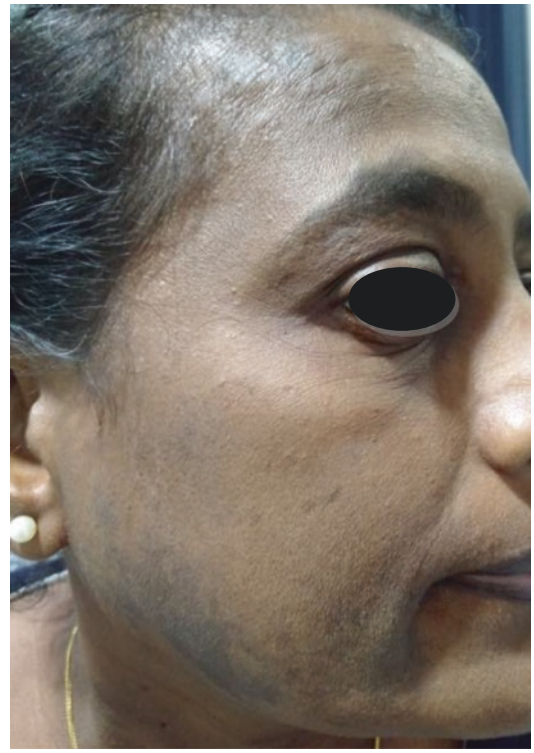

Fig. 10.24 Photoaggravated dermatitis lichen planus pigmentosus (photographed by Dr. Hiromel de Silva)

Fig. 10.25 Photoaggravated dermatitis pityriasis rosea (photographed by Dr. Hiromel de Silva)

Fig. 10.26 Photoaggravated dermatitis actinic keratosis in an albino man (photographed by Dr. Hiromel de Silva)

Fig. 10.27 Photoaggravated dermatitis rosacea (photographed by Dr. Hiromel de Silva)

Fig. 10.28 Photoaggravated dermatitis pellagra (photographed by Dr. Hiromel de Silva)

Fig. 10.29 Photoaggravated dermatitis porokeratosis (photographed by Dr. Hiromel de Silva)

Fig. 10.30 (**a** and **b**) Photoaggravated dermatitis atopic eczema (photographed by Dr. Hiromel de Silva)

Fig. 10.31 Photoaggravated dermatitis lichen planus actinic (photographed by Dr. Hiromel de Silva)

Fig. 10.32 Photoaggravated dermatitis psoriasis (photographed by Dr. Hiromel de Silva)

Fig. 10.33 Photoaggravated dermatitis vitiligo (photographed by Dr. Hiromel de Silva)

Fig. 10.34 Photoaggravated dermatitis discoid lupus erythematosus (DLE) (photographed by Dr. Hiromel de Silva)

Fig. 10.35 (**a** and **b**) Photoaggravated dermatitis discoid lupus erythematosus. Note DLE lesions are confined to sun-exposed areas including the scalp (photographed by Dr. Ranthilaka R. Ranawaka)

Fig. 10.36 Photoaggravated dermatitis granuloma multiforme (photographed by Dr. Hiromel de Silva)

Fig. 10.37 Photoaggravated dermatitis Darier's disease (photographed by Dr. Hiromel de Silva)

Fig. 10.38 Photoaggravated dermatitis Jessner lymphocytic infiltration (photographed by Dr. Hiromel de Silva)

they wear. Some plants will produce phototoxic reactions, while some will produce photoallergy.

Citrus family can produce characteristic pigmentation on exposure to sunlight. Sandalwood can be included in beauty regimes and can cause hyperpigmentation and eczematization. As a cure for some skin diseases people use to wash their bodies in herbs boiled water which can cause severe photodermatitis (Figs. 10.39–10.42) (Moreau et al. 2014; Pfurtscheller & Trop 2014).

Fig. 10.39 Phytophotodermatitis induced by washing with herbal remedies (photographed by Dr. Hiromel de Silva)

Fig. 10.40 Phytophotodermatitis induced by garlic applied on acne (photographed by Dr. Hiromel de Silva)

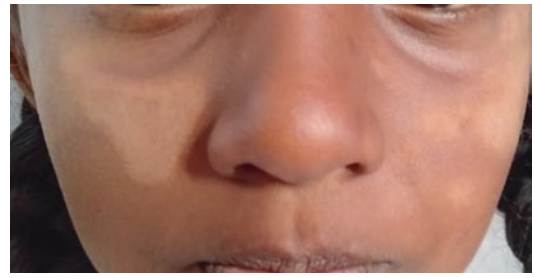

Fig. 10.41 Phytophotodermatitis induced by sandle wood (photographed by Dr. Hiromel de Silva)

Fig. 10.42 (**a** and **b**) Phytophotodermatitis induced by lemon (photographed by Dr. Hiromel de Silva)

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