Solar urticaria: A case report.

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ABSTRACT:

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Solar urticaria is a rare skin disease which erythema and wheal occur when expose to sunlight or an artificial light source. The onset is usually within 5 to 10 minutes of sunlight exposure and resolves in hours. The diagnosis of solar urticaria can be done by phototesting. Avoiding sunlight as well as applying high protection-factor broad-spectrum sunscreens and taking oral antihistamines can prevent solar urticaria. This report begins by describing a clinical presentation of solar urticaria. Then, phototesting was conducted to confirm the diagnosis and physical photoprotection, sunscreens and antihistamine were given as treatment.

Key words: Solar urticaria, Phototest, Sunscreen

บทคัดย่อ:

ปรเมศร์ คุณากรวงศ์, อัญชิสา ศรีวิพัฒน์, จักรพงษ์ ชุณหเสวี รายงานผู้ป่วยโรคลมพิษจากแสงแดด วารสารโรคผิวหนัง 2559; 32: 269-273.

สถาบันโรคผิวหนัง กรมการแพทย์ กระทรวงสาธารณสุข

โรคลมพิษจากแสงแดดเป็นโรคผิวหนังที่พบได้น้อย โดยจะเกิดผื่นลมพิษขึ้นบริเวณที่ได้รับแสงแดดภายใน 5-10 นาที และผื่นจางหายไปในเวลาไม่กี่ชั่วโมง โรคลมพิษจากแสงแดดสามารถวินิจฉัยจากการทดสอบด้วยแสง การหลีกเลี่ยงแสงแดดสามารถป้องกันโรคลมพิษจากแสงแดดได้ รามถึงการใช้ยาทากันแดดและรับประทานยาต้านฮิสตามีน ในรายงานเคสผู้ป่วยนี้ได้บรรยายลักษณะทางคลินิกของโรคลมพิษจากแสงแดด โดยทำการทดสอบด้วยแสงเพื่อยืนยันการวินิจฉัยและให้การรักษาด้วยการ ป้องกันแสงแดด ใช้ยาทากันแดดร่วมกับรับประทานยาต้านฮีสตามีน

คำสำคัญ: โรคลมพิษจากแสงแดด, การทดสอบด้วยแสง, ยากันแดด

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Case report

A 14-year-old Thai female presented with skin rash after having exposed to sunlight for one year. She developed urticarial rash on sun-exposed area after 20 minutes. She had itchy rash which spontaneously disappeared within 2 hours after avoiding sunlight. No underlying medical conditions have been documented. None of her family members were affected by the similar lesions. Physical examination revealed an erythematous wheal and flare on v-shaped area of the neck and both forearms. Phototesting was carried out on her back to determine the sensitivity to ultraviolet and visible light using the following light sources; polychromatic UVA (Daavlin UVA-1 SL3000, USA), 5-100 J/cm^2; polychromatic UVB (Ultraviolet irradiation apparatus "Dermaray" type M-DMR-1, Japan), 20-180 mJ/cm^2 and visible light (Kodak EKTALITE 1000 slide projector) for 20 minutes. For visible light testing, a glass of water was placed in front of the projector to absorb the infrared. A visible light phototesting reviewed a wheal as an immediate reaction (20 minutes) (Figure 1) but not with UVA and UVB. A skin biopsy was performed and histopathology examination displayed a superficial perivascular lymphocytic infiltration with some small numbers of eosinophils (Figure 2). She was treated with physical photoprotection such as wearing tight woven clothes, using sunscreens and taking oral antihistamines; cetirizine 10 mg/day with hydroxyzine 10 mg/day. The lesions gradually regressed and no new lesions have been developed until now.

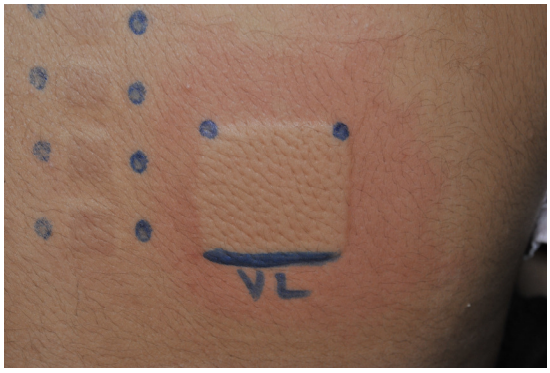

Figure 1 shows the reaction of the solar urticaria, after being tested for 20
minutes by visible light machine.

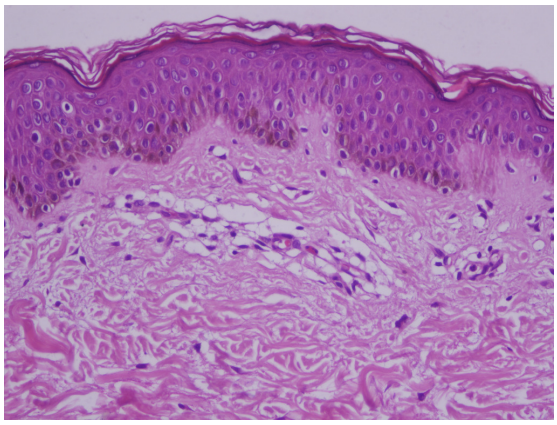

Figure 2 Histopathological image shows superficial perivascular infiltration with a small number of eosinophils (hematoxylin and eosin, original magnification x40).

Discussion

Solar urticaria is a rare skin disease caused by the exposure to sunlight or an artificial light

source. Most patients react to more than one wavelength spectrum, of which greater proportion being sensitive to UVA and short visible wavelengths. The clinical picture demonstrated erythema and wheal formation with itch related to light exposure. Commonly, the rash occurs after minutes of exposure to the pathogenic wavelengths, and disappears within a few hours.[1,2,3] The onset is commonly prevalent during the third decade of life.[4] The severity of the reaction depends on various factors such as intensity of solar radiation, duration of exposure and photosensitivity of the patient. Exact mechanism behind the disease remains unknown but it has been hypothesized about a photoallergen produced from a skin chromophore's absorption of the causative wavelengths. This photoallergen is subsequently recognized by specific IgE that binds to mast cells, causing degranulation of histamines and other mediators.[4,5] Histopathologic findings of solar urticaria in the epidermis appears unremarkable. There is an edema evidenced by mild collagen bundle separation. A minimal to moderate perivascular inflammatory cell infiltration with eosinophils and occasionally also lymphocytes and neutrophils. The diagnosis of solar urticaria was conducted by phototesting. The main purpose was to provoke lesions similar to those elicited by sun exposure. The wavelengths that activate solar urticaria could be found in the visible light, ultraviolet or infrared. Some solar urticaria patients developed urticarial lesions immediately or few minutes after returning to the shade. It was explained through the inhibition spectrum in the sun. The inhibition spectrum that destroyed the photoproducts or photoallergen from the action spectrum was usually longer than 550 nm. There was a suggestion of poorer prognosis in the subjects who were older than 40 years at diagnosis, those with concomitant PMLE, and those with longer period of suffering from the disease .[2] H_1 receptor antagonists (antihistamines) were often the first line of treatment combined with protection from triggering wavelengths of light (avoidance of sun exposure, wearing tight woven clothes, and using sunscreen with a high protection factor).[1,2] Phototherapy and photochemotherapy were also applied with beneficial effects. Others with recalcitrant disease have been reported to respond to ciclosporin, systemic glucocorticoids and other immunosuppressants.[6] Intravenous immunoglobulins and plasmapheresis may be effective in some patients and ineffective in others.[7,8]More recently the anti-IgE monoclonal antibody, omalizumab has been reported to be effective in treatment of solar urticaria.[9] The characteristic of solar urticaria from reported case series were summarized in Table 1.

Table 1 Characteristics of solar urticaria from reported case series[10]

Authors/ country	No. of patients	Age range (years)	Female: Male ratio	Atopy history	Action spectrum No. (%)	Treatment modalities	Clinical course/remission
Ravits et al./United States	12	10-50	5:1	NR	VIS 5 (41.6) VIS+UVA 3 (25) UVA 3 (25) UVA+UVB+VIS 1 (8.3)	H-1Antihistamines, sunscreen, beta carotene, UVB/PUVA hardening	NR
Rvckaert et al./Beleium	25	17-71	1:1	48%	VIS 5 (20) VIS+UVA 6 (24) UVA 6 (24) UVB 3 (12) UVA+UVB 3 (12) UVA+UVB+VIS 1 (4) Natural light 1 (4)	H-1Antihistamines. broad spectrum sunscreens, PUVA hardening	NR
Monfrecola et al./ Italy	57	9-65	1.3:1	47%	VIS 38 (67) UVA 16 (28) Natural light 3 (5.3)	H-1Antihistamines, PUVA hardening	Nearly half are free of disease within 5 years.
Uetsu et al./ Japan	40	13-76	1.5:1	NR	VIS 24 (60) VIS+UVA 1(2.5) UVA 4 (10) UVB 4 (10) UVA+UVB 3 (7.5) UVA+UVB+VIS 4(10)	H-1Antihistamines, broad spectrum sunscreen, PUVA hardening	No completely cured patient, most of the patients had gradual improvement.
Beattie et al./Scotland	87	3-89	2.3:1	40%	VIS 26/84 (31) VIS+UVA 35/84 (42) UVA 5/84 (6) UVB 1/84 (1.1) UVA+UVB+VIS 17/84 (20)	H-1Antihistamines. broad spectrum sunscreen	Probability of resolution at 5. 10, 15 years after diagnosis are 12%, 26%, 36%, respectively.
Stratigos et al./Greece	26	14-74	2.7:1	23%	VIS 10/23 (43.4) VIS+UVA 1/23 (4.3) UVA 3/23 (13) UVB 4/23 (17.3) Normal MED 6/23 (26)	H-1Antihistamines, broad spectrum sunscreen, PUVA/UVB hardening	NR
Eguino et al./Spain	20	19-63	1.5:1	NR	VIS 18 (90) UVA 12 (56) UVB 5 (26)	H-1Antihistamines, photoprotection, UVA/sunlight hardening	Complete remission in 40% of patients.
Chong and Khoo/Singapore	19	7-46	0.27:1	32%	VIS 12 (63) VIS+UVA 5 (27) UVA 1 (5) Natural light 1 (5)	H-1Antihistamines, broad spectrum sunscreen	All patients had partial improvement
Du-Thanh et al./ France	61	4-74	2.4:1	29%	VIS 9 (14.7) UVA 30 (49.2) UVA+UVB 15 (24.6)	H-1Antihistamines, photoprotection UVA/UVB hardening, antimalarial, carotenoids	Three patients had complete remission after 4-11 years.
Silpa-Archa N et al./Thailand	13	17-53	3.3:1	15%	VIS 8 (61) VIS+UVA 4 (31) UVA 1 (8)	H-1Antihistamines, broad spectrum sunscreen, PUVA/NB-UVB hardening, plasmapheresis	Probabilities of remission after 13 months and 55 months from onset were 23% and 49%, respectively.

VIS, visible light; *UVA,* ultraviolet A; *UVB,* ultraviolet B; *NR,* not reported; *PUVA,* psoralen plus UVA; *NB-UVB*, Narrowband ultraviolet B; MED, minimal erythema dose

In conclusions, this paper presented a clinical report of solar urticaria. Diagnosis was performed using phototesting followed by giving sunscreens and antihistamine as treatment. The lesions gradually regressed and no new lesions have been developed since.

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