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Brief communication

Lupus-like phototriggering in a young woman with benign summer light eruption

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We report the case of a young woman with a single history of benign summer light eruption (BSLE) who developed delayed onset annular lupus-like lesions triggered by a polychromatic phototest, 6 weeks after the irradiation. BSLE of French authors is an idiopathic photodermatosis that corresponds to the minor form of polymorphic light eruption (PLE) of Anglo-Saxon authors. This patient may develop a true lupus erythematosus in the future as indicated by this lupus-like phototriggering and in view of the high prevalence of PLE in lupus patients.

Key words: **benign summer light eruption; lupus erythematosus; phototriggering; polymorphic light eruption.**

Benign summer light eruption (BSLE) of French authors is an idiopathic photodermatosis that corresponds to the minor form of polymorphic light eruption (PLE) of Anglo-Saxon authors (1). A high prevalence of PLE in lupus erythematosus (LE) patients has been recently shown (2, 3). We report the case of a young woman with a history of BSLE who developed delayed onset annular lupus-like lesions triggered by a polychromatic phototest.

A 23-year-old woman with skin phototype III presented with erythematous, oedematous and pruritic eruption on the back and V area of the chest, first appearing following the first day of summer sun exposure at a sea side 4 years previously. The eruption persisted throughout the week-long stay and disappeared within 8–15 days without scarring when she returned home. The same photosensitive eruption recurred each time she sunbathed during the summer. There was no history of atopic dermatitis, topical medication use or oral drug intake. She was referred to our department in 1999. There was no lymphocytopenia. Anti-nuclear antibodies, native DNA and anti-Sm antibodies were negative. Anti-Ro/SSA antibodies were negative by standard double immunodiffusion and by immunoblotting. The diagnosis of BSLE was made (1).

Phototesting was performed with two types of equipment: (1) a solar simulator (Dermolum UM-W®, Müller Elektronik-Optik, Moosinning, Germany) equipped with two lamps (a 1000-W Xenon lamp and a 1000-W metal halide lamp), a water filter (absorbing the infrared beam) and a 1-mm Schott WG 305 (Schott, Mainz, Germany) filter (cutting the wavelengths shorter than 280 nm). The dosimetry was performed by a thermopile giving the total irradiance of this polychromatic spectrum including the UVB range, UVA range and almost all the visible range (polychromatic radiant energy: 55 mW/cm^2) and by the research radiometer IL 1700® (International Light, Newburyport, MA, USA) giving 3.23 mW/cm^2 and 15.30 mW/cm^2 for UVB and UVA radiant energy, respectively. (2) a high-pressure UVA lamp (UVA-700® Waldmann, Reichstett, France) emitting in the UVA1 range (340–400 nm) with an incorporated dosimeter (UVA1 radiant energy: 60 mW/cm^2). All photobiological tests were performed on the patient's back. For the repeated phototests, polychromatic irradiation was performed on a 49 cm^2 area and UVA1 irradiation on a 23 cm^2 area. The polychromatic minimal erythema dose (MED) was normal at 1244 mJ/cm^2 (normal value $\geq$ 400 mJ/cm^2). The simple UVA1 phototest (13 J/cm^2) was negative, at 24 h. The repeated UVA1 phototest (60 J/cm^2 $\times$ 3 days) was positive on the fourth day with a pruriginous erythema and some papules. The histological study of these photoinduced lesions showed a perivascular lymphohistiocytic infiltrate in the dermis (Fig. 1), exocytosis and spongiosis. The repeated polychromatic phototest (3 MEDs $\times$ 3 days) only induced a phototoxic erythema on the fourth day which is a normal reaction to a cumulative dose of nine MEDs. The same polychromatic phototest was strongly positive, 6 weeks after the irradiation with

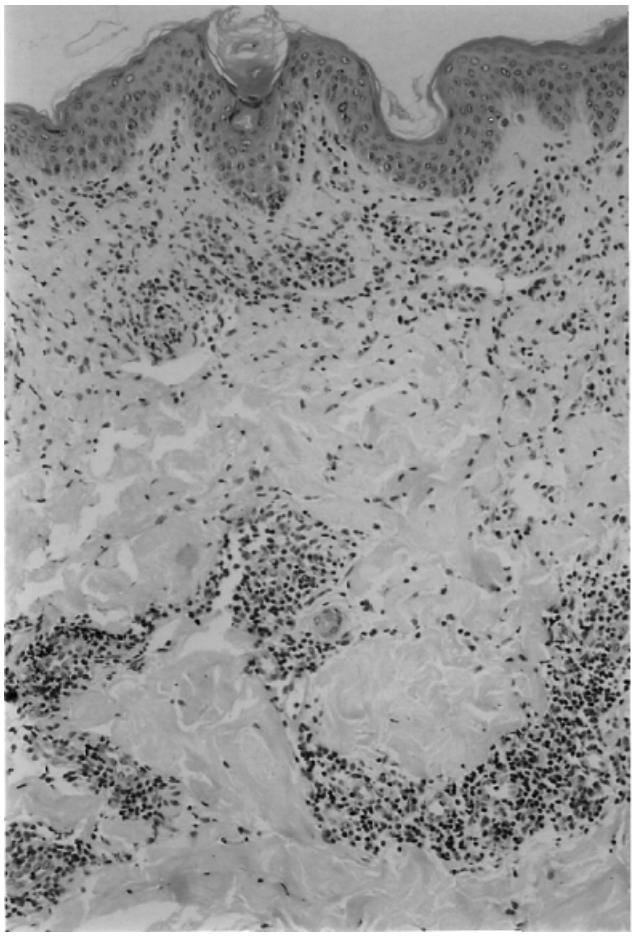

Fig. 1. Repeated UVA1 phototest (60 J/cm^2 × 3 days) on the fourth day: histological aspects (HE, × 25). HE, haematoxylin and eosin.

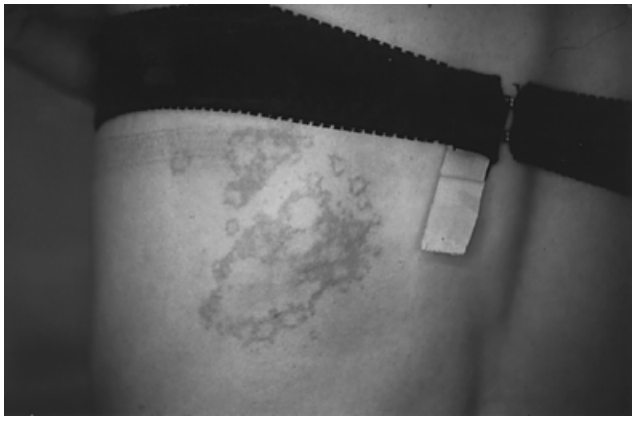

Fig. 2. Repeated polychromatic phototest (3 MEDs × 3 days) on 6 weeks: clinical aspects. MED, minimal erythema dose.

an annular lupus-like eruption (Fig. 2). The histological study of these photoinduced lesions showed a superficial and deep lymphocytic infiltrate without any change at the dermo-epidermal junction suggestive of a lupus process. The patient failed to return for follow up in 2003 and 2004.

Discussion

BSLE spectrum is in the UVA range. BSLE phototriggering can be obtained early with high and repeated UVA irradiation performed on previously affected areas (1). LE phototriggering can be obtained by both UVB and UVA irradiation, either early or several weeks after irradiation, UVB being more efficacious than UVA in triggering the lesions (4). In our case, we obtained two types of phototriggering, an early UVA phototriggering of BSLE and a delayed onset annular lupus-like UVB phototriggering in a young woman with a clinical history of BSLE. However, despite the typical clinical aspect of subacute cutaneous LE with annular lesions and the typical late appearance of the lesions, 6 weeks after the irradiation, never observed in PLE patients as opposed to lupus patients, the histological study of the photoinduced lesions only showed a dermal perivascular lymphohistiocytic infiltrate which is the histological appearance of PLE lesions. Hasan et al. (5) in their series of 67 clinically photosensitive LE patients performed serial biopsies in 10 photoinduced lesions and could observe that the histological picture changed from PLE to LE during follow up in some cases. The biopsy of the photoinduced lesions was performed in our patient very early as soon as they appeared. Sanders et al. (6) showed that the histological aspects of the photoinduced lesions depends on the subgenus of LE. Thus, a perifollicular lymphocytic infiltrate was only observed in discoïd LE whereas a predominant lymphocytic and superficial perivascular infiltrate was seen in subacute cutaneous LE. A high prevalence of PLE in LE has been reported by Nyberg et al. (2) where a history of PLE was more than twice as common in LE patients (49%) than in the normal Swedish population (21%). PLE had started more than 7 years before the onset of LE in 49% of patients with both diagnoses (2). Millard et al. (3) reported this association also with a PLE prevalence of 60% in subacute LE, 55% in discoid LE patients and a PLE prevalence of only 13.6% in the overall English population. Therefore, this patient with BSLE may develop a true LE in the future as indicated by this lupus-like phototriggering and in view of the high prevalence of PLE in lupus patients.

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