PHOTOSENSITIVITY

A REPORT OF CASES AND A CLINICAL REVIEW

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'And God said, Let there be light: and there was light . . . and it was good'. But out of good comes evil. It was not intended that we should become sun faddists and worshippers. Not so long ago only farmers, sailors, and other outdoor workers were exposed to large amounts of sunlight over a prolonged period. But now the present way of life allows us to spend more time in outdoor activities such as sports and lazing on the beaches.[1]

Most people do not realize the significance of the vascular effects of one moderately severe erythema-producing exposure to ultraviolet light, which may last for months; and, as Daniels[1] says of ultraviolet effects, 'We are playing for keeps'. After prolonged irradiation the skin tends to show premature ageing. A dramatic difference can often be demonstrated, especially in fair complexioned persons, between the skin above and below the collar line.[2,3] This degeneration of the skin above collar is sometimes called senile elastosis. 'The sun faddists, and fashionable women who consider a "beautiful sun tan" essential, would do well to consider the long-term results. For the onset of collagen degeneration of the skin is independent of age, being determined by the cumulative amounts of injury from ultraviolet light.[2,3]

Actinic degeneration, keratosis, and epithelioma are also seen following prolonged exposure. Senile hyperkeratosis is a clinically hyperkeratotic lesion with the histology of a squamous-cell carcinoma.[4] A photodermatosis is defined as any disease of the skin primarily caused by light.[5]

The following histories of cases seen over a period of no more than 6 months in the skin wards of the Groote Schuur Hospital will serve to illustrate the problems we are faced with today.

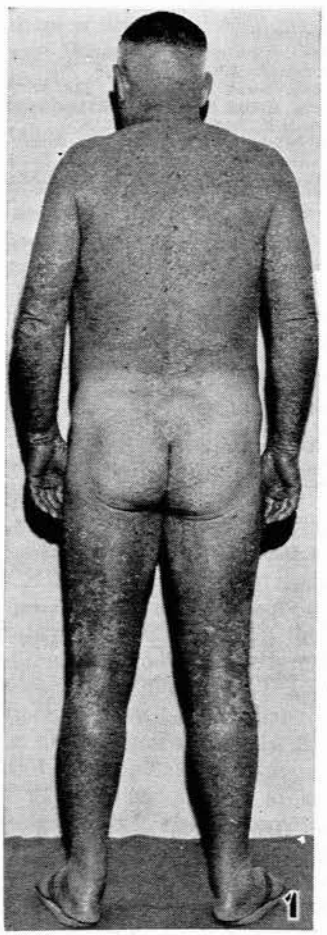

Fig. 1. Case 1. Showing diffuse erythroderma and exfoliation. The bathing-trunks area has been spared.

CASE HISTORIES

Case 1

European male, age 55. This patient was perfectly well until 2 months before admission, when he developed intense erythema after 9 hours' exposure to the sun while lying on the beach in his bathing trunks. Superimposed on this erythema were numerous papules. The rash, accompanied by intense itching, involved almost the entire body, except the area covered by the bathing trunks. Since then he has had continuous bouts of exfoliation with exacerbation of the papules. No history was obtained of psoriasis in the family.

Examination showed generalized erythroderma except for the bathing-trunks area (Fig. 1) with thickened white silvery scaling and typical hyperaemic papillae on scratching, so suggestive of psoriasis. The surface of the palms was thickened and cracked.

Comment: Probably this patient had mild psoriasis limited to a few patches on his chest, and the Koebner effect of sunlight caused a marked exfoliative psoriatic dermatitis.[5]

Case 2

European male, age 17. This patient fell asleep while sunbathing 4 weeks before admission. Two nights later, when his back started to peel and itch, he got a member of his family to scrub his back with a nylon brush. His back became acutely red, and this redness spread to the front over the chest wall and to the arms, thighs and scalp (areas where he had not been brushed). The patient denied ever having had skin trouble before and there was no family history of psoriasis or diabetes.

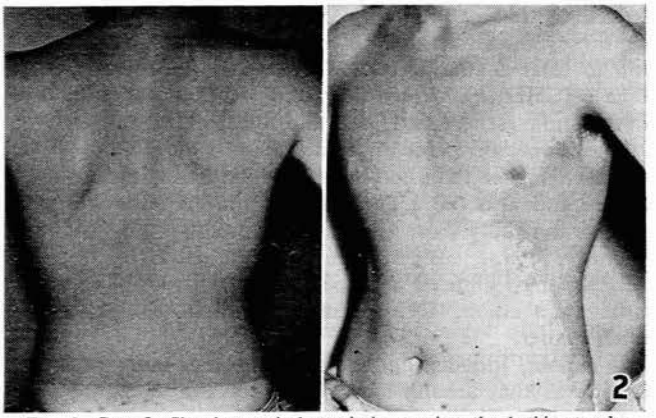

Fig. 2. Case 2. Showing typical psoriasis, sparing the bathing-trunks area. Front and back views.

Examination showed that the entire back, the sides of the chest, and the arms and thighs, except for the bathing-trunks area, were covered with a typical erythrosquamous psoriatic eruption (Fig. 2).

Comment: This patient, too, probably had minimal unrecognized psoriasis aggravated by the Koebner effect of sunlight.[5]

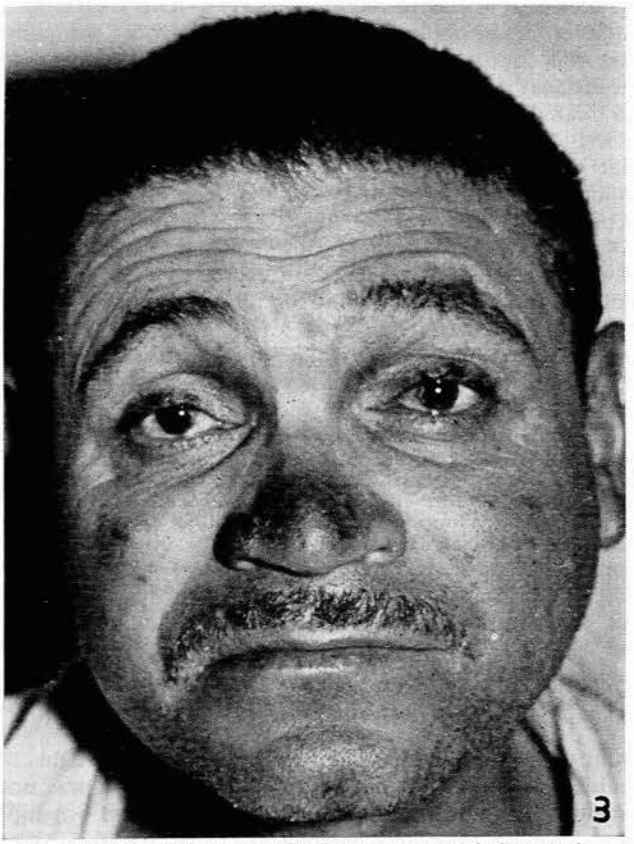

Fig. 3. Case 3. Showing the lesions on the nose and right cheek.

Case 3

Coloured male, aged 38. The patient said he was quite well until 2 months before admission, when he developed a small lesion on the left side of the scalp, followed successively by lesions on the left ear, the cheeks, and the nose. The lesions were dry and only slightly itchy and have persisted. He works out of doors all day (as a petrol-pump attendant) and plays golf regularly. He is a heavy week-end drinker. There was no history of any skin complaints or other past illnesses of note.

Examination showed him to be well nourished, with watery eyes and a coarse tremor of the hands (probably due to excessive alcohol). Wassermann reaction negative, stool and urine negative for porphyrins, and no L.E. cells found in the blood. The skin showed patches of erythematous scaly lesion on the cheeks, the bridge and tip of the nose, and the left temple; and also a few scattered lesions over the beard area (Fig. 3). The rash cleared up almost completely while he was confined to the wards for 8 days.

The histopathology of skin from the nose was reported as that of senile hyperkeratosis showing features suggestive of a premalignant state.

Comment: The ease with which this dermatitis cleared up when the patient was kept inside the ward and the pathologist's report are noteworthy.[4]

Case 4

European female, aged 53. The patient had a rash on the exposed parts for a month before admission. She thought she was sunburnt and was waiting to 'turn brown' and peel. The rash was itchy and burning. She had had a similar episode 1 year previously. She was taking 'steladex' capsules (descamphetamine plus trifluoperazine) as an appetite depressant.

There was a diffuse 'sunburn' type of dermatitis involving the face, the forehead, 'the V of the neck', and the back of the hands, forearms and feet. This cleared up rapidly when she was confined to the shaded side of the ward.

Sun-sensitivity tests: The minimal erythema dose at 18 inches was 10 seconds, compared with the 'normal' of 30 seconds. Exposure of 1 sq. inch of skin of the back to sunlight for 30 minutes resulted in a severe redness at the site of exposure and a very acute urticarial flare-up in the areas of the previous dermatitis. Patch tests to trifluoperazine were negative.

Comment: This case demonstrates an acute generalized flare-up of the dermatitis after exposure of an uninvolved area to the sun. This was a case of photosensitivity of the type that occurs with the taking of drugs – the feeling of sunburn, the distribution of the rash, the rapid subsidence in hospital, the severe aggravation when only a small area of uninvolved skin was exposed to the sun, and the rapid subsidence when confined to the wards once more. Furthermore we have the history of her taking a drug which is a known photo-sensitizer (phenothiazine group), and that this was the only drug she had taken.

Case 5

Coloured male, aged 25. This patient was quite well until 1 week before admission, when he developed a diffuse eruption involving the whole of his face, forehead, 'V of neck', and dorsae of both hands. On the face this broke down and exuded a moist crusty discharge. The lesions were itchy and the eyes watered. He had worked outdoors in sunlight with tar and cement for the past 6 months. This is the first time this year he has had an outbreak, but he gets it every year. In his previous employment he worked with oils and petrols and also developed the same eruptions in the same areas. He is not taking any drugs and does not suffer from any other allergies.

In the wards there was acute exudative dermatitis in the areas described (Fig. 4). There was no seborrhoeic dermatitis of the scalp. Wassermann reaction and LE-cell determinations were negative. There were no porphyrins in the urine. The skin cleared up within three days while he was confined to the wards, but at the time of his discharge his face was still markedly pigmented (Fig. 5). A photosensitivity skin test carried out according to the method of Curwen and Jillson[7] confirmed the diagnosis of tar photosensitivity.

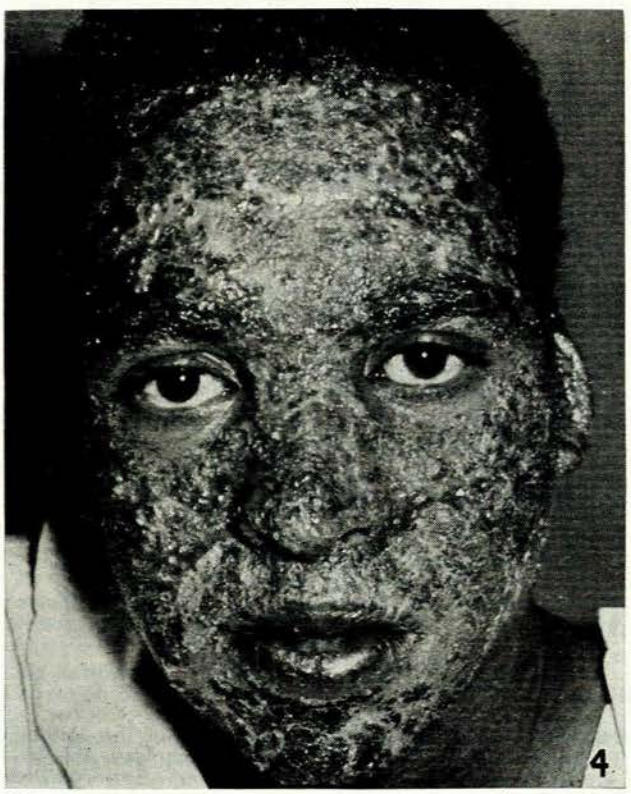

Fig. 4. Case 5. Showing acute exudative lesions on face and fine papular lesions on neck.

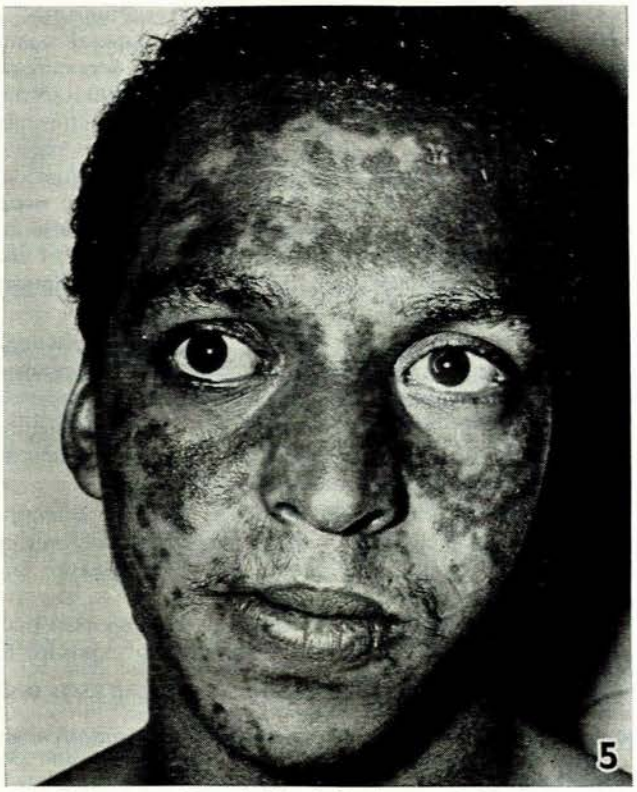

Fig. 5. Same case (5) as in Fig. 4. Showing remarkable improvement in 3 days, leaving residual pigmentation.

DISCUSSION

Growing attention to photosensitivity has in recent years resulted from the widespread occurrence of photosensitivity phenomena. Usually it is not difficult to recognize a photosensitivity reaction clinically because the lesions are generally erythematous and confined to areas exposed to light. Nevertheless, many different types of reactive patterns may occur and the eruption may imitate many other skin diseases, such as contact dermatitis, seborrhoeic dermatitis, erythema multiforme, lupus erythematosus, and eczema of various types. In any case in which skin lesions are limited to or are located predominantly on light-exposed areas, the clinician should consider the possibility of photosensitivity. With questioning, the patient will often state that sunlight aggravates the disease. However, not all patients will have recognized the sunlight factor. A careful drug history is always indicated.

Diseases that are associated with hypersensitivity to light are classified as follows:[8,9]

1. Chronic polymorphous light eruptions[1] (erythematomaculopapular type or contact-eczema type); e.g. case 3.

2. Solar urticaria.

3. Contact photodermatitis.[10] This is a condition in which a substance applied externally to the skin may render the treated area hypersensitive to light. The known photo-contactants include perfume oils (berloque and shalimar perfume dermatitis), the oils of citrus fruits (especially limes), the coal tars (as in case 5), other plant oils, and now even some of the light-screening preparations themselves.[2,6,8]

4. Drug photosensitization.[9] This is predominantly a toxic hypersensitivity to light, although occasional agents (e.g. sulphonamides) may reveal a delayed allergic reaction as well. Examples of these agents include the arsenicals, the sulphonamides (to which the antidiabetogenics are important recent additions), the drugs of the phenothiazine group (prozine, promazine, perpherazine, thioridazine, fluphenazine, promethazine, trifluoperazine, etc.), chlorothiazide, and griseofulvin. Of recent therapeutic interest to dermatologists has been the introduction of the oxypsoralens, antimalarials, and demethylchlortetracyline (DMCT).

5. Phytophotodermatitis (mostly contact dermatitis). Meadow grass, fig, parsnip, parsley, celery, buttercup—all these may become occupational hazards.

6. Diseases in which light sensitivity may be significant,[11] including porphyria, lupus erythematosus, pellagra, ageing of the skin, and carcinoma of the skin.

7. Diseases in which light sensitivity may be a contributory factor, including psoriasis, acne rosacea, herpes simplex, xeroderma pigmentosa, Darier's disease, and pityriasis rubra pilaris.

Working with guinea-pigs, Freeman[12] has reported that, after injection of 8-M psoralen followed by exposure to ultraviolet rays, liver damage was seen as well as reaction in the conjunctiva, cornea, iris, and subcapsular epithelium. There is evidence that comparable effects are produced in man by various photosensitizing agents, particularly drugs, some of which are widely used. Although primary alterations attributable to photosensitization are expected to occur in exposed areas such as the skin and eyes, changes may occur in the liver and other distant organs. Photosensitization accentuates the effects of a seemingly mild or normally harmless light exposure. Long-wave ultraviolet light (3200 -4200 A), which is biologically inactive, may become extremely harmful with photosensitization—both to the liver and the eyes. This problem has reached a point at which it will become necessary in the future for drug manufacturers to add tests for photosensitizing properties to the standard procedures to which all new drugs are now subjected before they can be made available to the public.[13] The antimalarial agents[14,15] which have been used in the treatment of light-sensitivity diseases have also been recorded as producing photosensitivity,[16,17] pigmentation of the nail beds,[18] corneal oedema[19] and other eye changes, and melanosis.[20,21] These paradoxical actions may be explained by the alteration of long ultraviolet light that is biologically inactive to become extremely harmful with photosensitization.

It is to be remembered that the so-called 'daylight' fluorescent lamps sometimes produce light sensitization.[22]

SUMMARY

Five cases of photosensitivity are described. The increasing incidence and dangers of photosensitivity, especially those caused by drugs, are stressed. Doctors should warn patients receiving these drugs of the dangers of overexposure to the sun.

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