

***Parthenium* dermatitis presenting as photosensitive lichenoid eruption**

A new clinical variant

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Parthenium hysterophorus is the commonest cause of airborne contact dermatitis (ABCD) in India. The disease usually manifests as itchy erythematous, papular, papulovesicular and plaque lesions on exposed areas of the body. Rarely, however, the disease may present as actinic reticuloid or photocontact dermatitis. We have observed a different clinical variant of this disease where certain patients with *Parthenium* dermatitis have presented with discrete, flat, violaceous papules and plaques on exposed areas of the body closely simulating photosensitive lichenoid eruption. We had 8 patients, 6 males and 2 females between 30 and 62 years of age, with itchy, violaceous, papules and plaques on the face, neck, ears, upper chest and dorsa of the hands for 6 months to 6.5 years. Four of these patients had a history of improvement of the lesions up to 30% in winter and aggravation of lesions on exposure to sunlight. There was no personal or family history of atopy. Cutaneous examination in all patients revealed multiple flat, violaceous, mildly erythematous papules and plaques on the forehead, sides and nape of neck, ears, 'V' area of the chest, and extensor aspects of the forearms and hands. Skin biopsies from these lesions showed features of chronic non-specific dermatitis. Patch testing with standardized plant antigens showed a positive patch test reaction to *Parthenium hysterophorus* in all patients, with a titre of contact hypersensitivity (TCH) varying from undiluted to 1:100. We conclude that *Parthenium* dermatitis may occasionally present with lesions very similar to the lesions of photosensitive lichenoid eruption in morphology and distribution. This clinical presentation of *Parthenium* dermatitis needs to be recognized to avoid misdiagnosis.

Key words: airborne contact dermatitis; *Parthenium hysterophorus*; lichenoid eruption; patch test; plants. © Blackwell Munksgaard, 2002.

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Parthenium hysterophorus is the most common cause of airborne contact dermatitis in India. The disease usually manifests as dermatitis on exposed parts of the body (1). The pattern of dermatitis may vary according to clothing style and the stage of dermatitis. Rarely, however, the disease may manifest as photocontact dermatitis or actinic reticuloid syndrome (2–4). We have observed 8 patients with *Parthenium* dermatitis presenting as itchy, discrete, flat, erythematous and violaceous papules and plaques on the exposed parts of the body. Patch testing done with the standardized plant antigens showed a positive patch test reaction to *Parthenium hysterophorus* in all these patients.

Case Reports

Case no. 1

A 51-year-old male, civil engineer, presented with itchy papules and plaques on the face, neck, and hands for 1½ years. The lesions used to improve by 20–30% in the months of December and January. He also noticed reduction in severity of dermatitis by 20–25% with change of place to an area distant from his hometown. The patient often had to go to the fields due to the nature of his occupation. He noticed an aggravation of the lesions on outdoor activities. There was also a history of photoaggravation of the lesions. He was not on any systemic or topical medication. He did not use



Fig.1. Violaceous, flat, mildly erythematous papules and plaques of *Parthenium* dermatitis resembling photosensitive lichenoid eruption on forehead, cheeks, neck and ears.

any cosmetics except occasionally mustard oil. There was no history of contact allergy. There were no constitutional or systemic symptoms. He had no personal or family history of atopy.

Cutaneous examination showed mildly erythematous and violaceous, flat, 3–5 mm, discrete, papules and 1.5–2 cm plaques on the forehead, cheeks, ears (Fig.1), nape and sides of the neck, upper chest, upper back, extensor aspects of the forearms and hands. Examination of other systems was unremarkable.

Routine haematogram, renal and liver function tests, chest X-ray, urine and stool examinations were within normal limits. Skin biopsy of a papule showed patchy parakeratosis and mild acanthosis of the epidermis. The dermis showed an upper dermal perivascular chronic inflammatory cell infiltrate with pigmentary incontinence. Patch testing with standardized plant antigens (5) gave a positive patch test reaction to *Parthenium hysterophorus*, while it was negative to the plants *Xanthium strumarium*, *Chrysanthemum*, *Lantana camara*,

Dahlia pinnata, *Helianthus annuus*, *Bougainvillea* and *Eucalyptus*. The titre of contact hypersensitivity (TCH) determined by doing patch testing with serial dilutions of the standardized extract (6) of *Parthenium* plant was 1:10. Photo-patch testing could not be done due to lack of facilities.

Case no. 2

A 45-year-old housewife had had itchy papules and plaques on exposed areas of the body for 2 years. There was a history of itching and scaling in the cubital and popliteal areas for 4 years. She did not notice any change in her lesions with change of season or removal from her hometown. She often had to go out of her house to the market and the fields for household work without any aggravation in her lesions. There was no history of photoaggravation of the lesions. She, too, was not on any systemic or topical medication though she occasionally used cold cream on her face and hands. There was no history of contact allergy. She did not have a personal or family history of atopy. There were no constitutional or systemic symptoms.

Cutaneous examination revealed mildly erythematous, 3–5 mm, discrete, violaceous papules, some of which were coalescing to form plaques of 2–3 cm on the forehead, nape of neck, malar areas, 'V' area of chest and extensor aspects of the forearms and hands. She also had erythema and scaling of the cubital and popliteal fossae. There were no other skin lesions. Systemic examination was unremarkable.

On investigation, her routine haematogram, renal and liver function tests, X-ray chest, urine and stool examinations were within normal limits. Skin biopsy from a papular lesion showed an unremarkable epidermis, and perivascular and periappendageal chronic inflammatory infiltrate consisting of mononuclear cells in the dermis. Patch testing with standardized plant antigens (5) showed a positive patch test reaction to *Parthenium hysterophorus* with a TCH (6) of 1:10, while it was negative to other plants as tested in case no. 1. Photo-patch testing in this patient could not be done due to nonavailability of facilities.

Other cases

The clinical profiles and investigations of the other 6 patients are summarized in Table 1.

Discussion

Airborne contact dermatitis (ABCD) in India is mostly caused by the plant *Parthenium hysterophorus*.

Table 1. Patient profile of Parthenium dermatitis presenting as photosensitive lichenoid eruption

Serial no.	Case no.	Age/ Sex	Occupation	Duration (in years)	Sites involved	Winter improvement	Patch test positivity	TCH	Histopathology
1.	3	40/M	Police inspector	2	Forehead, cheeks, nape and sides of neck, extensors of forearms and dorsa of hands.	25–30%	<i>Parthenium</i>	1:10	Spongiosis and chronic inflammatory infiltrate of dermis
2.	4	62/F	Housewife	2.5	Forehead, sides of neck, upper chest and upper back	25–30%	<i>Parthenium</i>	1:100	Spongiosis and chronic inflammatory infiltrate in the dermis
3.	5	41/M	Factory worker	3	Forehead, cheeks, upper chest, upper back, extensors of forearms and hands	10–20%	<i>Parthenium</i>	1:10	Diffuse mild lymphocytic infiltrate in the dermis
4.	6	30/M	Civil engineer	1/2	Forehead, neck and cheeks	Nil	<i>Parthenium</i>	1:10	Chronic inflammation of dermis
5.	7	45/M	Electrician	4	Forehead, sides of neck, upper chest and dorsa of hands	Nil	<i>Parthenium</i>	Undiluted	Spongiosis and lymphocytic infiltrate
6.	8	60/M	Farmer	4	Forehead, sides of neck, upper back, extensors of forearms, dorsa of hands and feet	Nil	<i>Parthenium</i>	1:10	Spongiosis and chronic inflammatory infiltrate

orus. The dermatitis usually presents as itchy, erythematous, papules and plaques on exposed areas of the body like the face, including upper eyelids, side of neck, 'V' of upper chest, flexures of forearms and cubital and popliteal fossae. Some patients may present with lichenified plaques confined to flexural sites of the body. Rarely, the disease may present as photocontact dermatitis or actinic reticuloid syndrome (2–4). A few patients developing prurigo-nodularis-like lesions have also been described (7). We have had patients with *Parthenium* dermatitis presenting with itchy, violaceous papules and plaques on the forehead, cheeks, ears, upper chest, upper back, extensor aspects of the forearms and dorsa of the hands simulating the lesions of photosensitive lichenoid eruption morphologically and in distribution. Areas like upper eyelids, retroauricular areas and under-surface of the chin were spared. All the patients had done outdoor activities for various reasons apart from their occupational work and all of them had aggravation of their lesions on such activities. Half of these patients (case nos. 1, 3, 4 and 5) had a history of up to 30% improvement in the lesions in the winter season and an increase in erythema and itching on exposure to sunlight. None of the patients were on any systemic or topical medication. There was no history of contact allergy in any patient. The biopsies taken from all

these patients showed histopathological changes of chronic non-specific dermatitis. There was no interface dermatitis and no histopathological changes suggestive of lichen planus. However, patch testing done with plant antigens showed a positive patch test reaction to *Parthenium hysterophorus* in all the patients. The titre of contact hypersensitivity (TCH) varied from undiluted to 1:100. Photo-patch testing could not be done in these patients due to lack of facilities.

Parthenium dermatitis may therefore sometimes present with lesions very similar to or closely mimicking photosensitive lichenoid eruption in morphology and distribution. Photosensitive lichenoid eruptions have mostly been reported to occur due to intake of certain drugs (8–10); however, *Parthenium* dermatitis presenting as photosensitive lichenoid eruption has so far not been documented in the literature. This clinical variant of *Parthenium* dermatitis needs to be recognized because it may be confused with and misdiagnosed clinically as photosensitive lichenoid eruption. We recommend that patch testing with plant antigens including *Parthenium* should be performed in all such patients to settle the diagnosis, especially in regions where *Parthenium* dermatitis is prevalent. Skin biopsy would help to rule out actinic lichen planus and photosensitive lichenoid eruption in such patients.

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