

CONTACT DERMATITIS DUE TO PLANTS

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Summary

Forty seven cases of suspected plant dermatitis were patch tested with extracts of various plants. Twenty six showed positive patch tests to one or more plant antigens. Parthenium sensitivity was observed in nine cases. *Trianthema monogyna*, *Carissa carandus*, *Amaranthus viridis*, *Amaranthus spinosus*, *Euphorbia hirta*, *Euphorbia thymiholia*, *Salvia plebia*, *Iantana camera* and *Pennisetum typhoides* were other important plants found to be responsible for contact sensitivity. Majority of the patients were from rural areas and most of them showed exacerbation of the dermatitis during rainy season. Males and females were equally affected.

KEY WORDS: Plant dermatitis, seasonal variation, *Parthenium hysterophorus*, *Trianthema monogyna*, *Carissa carandus*, *Euphorbia hirta*, *Amaranthus viridis*, *Amaranthus spinosus*.

Plants are often responsible for the occurrence of contact dermatitis. In our country plant dermatitis is quite often not diagnosed and if diagnosed no further attempt is made to incriminate the offending plants. This is chiefly because of lack of investigative facilities, lack of knowledge of the country's flora and paucity of standard reference manuals of injurious plants. Consequently there are only few reports on plant dermatitis in Indian literature. We report herewith a study of contact dermatitis in Allahabad and its surrounding areas produced by plants.

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Material and Methods

Forty seven patients suspected to be suffering from plant dermatitis were included in the study. The patients presenting with dermatitis of the exposed parts, especially those with a history of seasonal variation, were investigated. Patch tests were carried out with a large number of plants. The inclusion of various plants was based on a preliminary project prior to this study. The suspected plants were collected and sent to All India Institute of Medical Sciences, New Delhi, and the extracts obtained (Courtesy Dr. J. S. Pasricha) were used for patch testing in the standard manner. The patch test results were graded as follows :

No reaction	—
Erythema	+
Erythema, oedema and papules	++
Erythema, papules and vesicles	+++
Vesicles and exudation	++++

Results

Out of the forty-seven patients who were investigated during the period of study, twenty-six showed positive reactions to one or more plant antigens, while 21 patients did not show any positive reaction. The results are thus based on 26 patients with positive patch test results.

Among the 26 patients, there were 13 males and 13 females for either sex. Their ages ranged between 25 and 65 years, 4 patients were below 30 years of age, 16 patients were in the age group 31-50 years and six were over 50 years. Duration of the disease varied from 1 month to 15 years. Eighteen patients belonged to rural area while only eight were from urban or sub-urban areas. Hypersensitivity to two, three and more than three plant antigens was observed in 7 patients each and in the remaining 5 it was to one antigen only. The results of patch tests with various plant antigens are shown in Table 1.

Hypersensitivity to *Parthenium hysterophorus* was observed in nine patients; five males and four females. Six of them belonged to urban area and three were from rural areas. One patient had severe persistent dermatitis when he was posted at Pune seven years before and had got himself transferred to Allahabad on medical grounds. He had remained symptom-free during his stay in Allahabad till he developed two mild transient episodes of dermatitis eight months and two months before both of which subsided in one month. All the patients with *Parthenium* sensitivity had the disease for less than two years and majority of them had it for less than one year.

Another plant in this study which produced positive reactions in ten patients was *Trianthema monogyna*. This is an annual succulent herb which

TABLE 1

Name of the plant	Number of patients	
	Tested	Positive
1. <i>Trianthema monogyna</i>	45	10
2. <i>Parthenium hysterophorus</i>	45	9
3. <i>Euphorbia hirta</i>	47	8
4. <i>Carissa carandus</i>	45	8
5. <i>Amaranthus viridis</i>	45	6
6. <i>Amaranthus spinosus</i>	46	6
7. <i>Euphorbia thymibolia</i>	45	5
8. <i>Pennisetum typhoides</i>	22	4
9. <i>Lantana camera</i>	36	4
10. <i>Salvia plebeia</i>	44	4
11. <i>Cassia occidentalis</i>	23	3
12. <i>Rosa indica</i>	10	2
13. <i>Nicotiana tabacum</i>	18	2
14. <i>Gynandropsis gynandra</i>	22	2
15. <i>Cyprus rotundus</i>	22	2
16. <i>Hibiscus rosa</i>	44	2
17. <i>Tagetes erecta</i>	47	2
18. <i>Canna indica</i>	14	1
19. <i>Cynodon dactylon</i>	24	1
20. <i>Cestrum nocturnum</i>	45	Nil
21. <i>Helianthus annuus</i>	44	Nil
22. <i>Thuja Orientalis</i>	17	Nil

flowers and fruits during rainy seasons and infests mainly the maize and millet crops. Majority of the patients sensitive to this plant developed the disease during rainy season.

Amaranthus viridis and *Amaranthus spinosus* accounted for dermatitis in six patients each. Both these plants flower and fruit during rainy and cold seasons. Hypersensitivity to *Euphorbia hirta* and *Euphorbia thymibolia* was observed in eight and five cases respectively. Only in two patients sensitivity to both of these together was detected. *E. hirta* flowers throughout the year while *E. Thymibolia* flowers during the rainy season.

Carissa carandus, *Pennisetum typhoides* and *Salvia plebeia* were responsible for sensitisation in eight, four and four cases respectively. *C. corandus* is a perennial plant while others are rainy season plants.

Other plants also produced positive reactions (as shown in Table I) in one or two cases. *Cestrum nocturnum*, *Helianthus annuus* and *Thuja orientalis* did not however give any positive patch test result.

Comments

In our country plant dermatitis is almost synonymous with parthenium dermatitis. This is due to the pioneer work by Lonkar et al¹⁻³ and some other workers^{4,5}, who have established beyond doubt, the role of this plant in producing contact dermatitis. In the present study parthenium sensitivity was observed only in 9 out of 26 patients. Parthenium seems to have been introduced recently to this part of the country as evident from exacerbation of dermatitis eight months back in one known parthenium sensitive patient who remained free of the disease for more than six years. Other Parthenium sensitive patients also had developed dermatitis for less than two years.

Many of the patients in this study showed sensitisation to other plants which thrive during rainy season and occurring in the villages infesting various crops. Equal distribution of male and female patients can be explained on the basis of equal participation by both men and women in agricultural work.

In the present study fairly large number of patients showed negative reaction to all the antigens included in this series. This could be due to non-inclusion of all the offending plants among the battery of plant antigens and possibly mistaken diagnosis in some cases. Study over a longer period including more plants will help to understand plant dermatitis in its proper perspective in this part of the country.

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