

## AIR-BORNE CONTACT DERMATITIS CAUSED EXCLUSIVELY BY XANTHIUM STRUMARIUM

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Most cases having air-borne contact dermatitis (ABCD) in India are considered to be caused by *Parthenium hysterophorus*. In some cases however, other plants have also been noticed to give positive patch test reactions. We are reporting two cases presenting as ABCD who showed positive patch tests with *Xanthium strumarium* while the patch tests with *Parthenium hysterophorus* were negative. It is therefore necessary to realise that every case of ABCD is not caused by *Parthenium*, and patch testing with *Parthenium* alone can lead to serious mistakes.

**Key Words:** Contact dermatitis, Plants, *Parthenium hysterophorus*, *Xanthium strumarium*

### Introduction

*Parthenium hysterophorus* is at present the commonest cause of air-borne contact dermatitis (ABCD) due to plants in India.<sup>1</sup> There is however, a tendency to presume that every case of ABCD is caused by *Parthenium hysterophorus*. Cases where the patient showed positive patch tests with the plants other than *Parthenium hysterophorus* have been recorded by several workers.<sup>1,8</sup> In most of these cases the patients had shown positive patch tests with the other plant (s) in addition to *Parthenium hysterophorus*. Rarely however, a patient presenting as ABCD has shown a negative patch test with *Parthenium hysterophorus* while giving a positive patch test with the other plant.<sup>8</sup> Recently, we came across 2 patients with classical clinical features of ABCD who showed negative patch tests with *Parthenium hysterophorus* but strongly positive reactions with *Xanthium strumarium*. The dermatitis in both these patients showed regular recurrences or aggravations between July and September which correlated well with the season of growth of *Xanthium strumarium* in Delhi.

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### Case Reports

**Case 1 :** A 35-year-old housewife from Haryana who started having itchy papular lesions on the forehead, upper eyelids, face, retro-auricular areas and the neck 5 years ago. Within a few weeks, the lesions had spread to involve the forearms, antecubital fossae, and the dorsum of the hands and the fingers, and later appeared on the uncovered parts of the abdomen and the feet as well. Interestingly, the lesions would appear only in the month of July and continue till September every year, while from October to June next year she would remain completely symptomfree. Examination revealed lichenification in all these areas. She had no other abnormality.

Patch tests undertaken with the antigen-impregnated-discs standardised and prepared in our laboratory<sup>7,9</sup> showed a positive reaction with *Xanthium strumarium* and negative reactions with *Parthenium hysterophorus* and *Chrysanthemum*. The titre of contact hypersensitivity (TCH),<sup>7,8,10</sup> determined in this patient with *Xanthium strumarium* was 1:10.<sup>2</sup> Patch tests carried out with the fresh leaves of some other plants such as *Cynodon dactylon* (Bajra), *Sorghum vulgare* (Jawar) and *Sesamum indicum* (Till) were also negative.

**Case 2:** A 48-year-old male who had ABCD for the last 2 years. The lesions had

started as itchy papular lesions on the face, neck, cubital fossae and abdomen and in the course of 2 years had become more extensive and lichenified. The disease would be severe between July and September and there was approximately 25% improvement in the lesions from October to March. There was no other abnormality. Patch tests revealed positive reactions with *Xanthium strumarium* with a TCH of 1:10<sup>2</sup> while patch tests with *Parthenium hysterophorus*, *Lantana camara*, *Eucalyptus*, *Helianthus annuus*, *Bougainvillea*, *Dahlia pinnata* and *Chrysanthemum coronarium* showed negative reactions.

## Comments

The term air-borne contact dermatitis is to be applied to all cases where the dermatitis is produced by an agent suspended in the air. These agents include not only the pollen and other components of the plant, but also the industrial chemicals and other agents present in the air. In the case of industrial agents the antigen is present at the place of work and the patient tends to improve during long holidays or periods of illness and develops recurrences on rejoining the duty. In the case of plant antigens however, the agent can be present in the air even when the plant is not present in the near vicinity, and the patient improves only when the plant (components) disappear from the environment of the patient or if the patient goes to another place where the plant is not found.

In India a large majority of the cases presenting as ABCD are caused by the plant *Parthenium hysterophorus* and some workers tend to use the term Parthenium dermatitis synonymously with ABCD. We feel that the term *Parthenium* dermatitis can be used only when it is conclusively proved that the dermatitis is being caused by Parthenium alone and nothing else. If the patient shows positive

patch test reactions with some other plants as well, the cause of the clinical dermatitis can be any of the plants showing positive reactions; and sometimes, as in the two cases reported by us as also the previous cases, the dermatitis may be entirely caused by a totally different plant. This also corroborates our contention that testing with Parthenium antigen alone can sometimes lead to serious mistakes.

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