

complained of oculorhinitis. The mean PEF value was just below the theoretical value, and intraday variability was not significant (<20%); methacholine challenge revealed unchanged bronchial hyper-reactivity; $PD_{20}FEV_1 = 103 \mu g$.

Our patient's sensitization to grass pollen suggested the possibility that the positivity to black henna could have been due to a cross-reacting immunoglobulin directed at grass pollen. However, no such cross-reactivity has been reported in the literature; moreover, the absence of seasonal allergic symptoms suggested that grass pollen sensitization was not clinically significant in our patient.

To our knowledge, this is the first report of occupational asthma due to black henna in an herbal shop worker. This case is further distinguished from previous reports of sensitization to henna by the detection of IgE antibodies to the black variant of henna, *I. argentea*, and not the more common form of henna, *L. inermis*, used by hairdressers. The different botanic origin of the two plants is the most likely explanation of the unique sensitization to the species belonging to the genus *Indigofera*.

Key words: black henna; occupational asthma; red henna.

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Relevance of birth month in respiratory allergy

STUDIES carried out in Western countries (1-3) indicate that exposure to allergens in early infancy leads to increased sensitization to these

allergens later in life in atopic subjects. As no such study has been done in India, we investigated the sensitivity of respiratory allergy patients to pollen allergens present during their birth month.

■ A detailed questionnaire was prepared on age, occupation, family history, age of onset (disease), duration of illness, worst season, address, and birth month. All 318 patients referred to a clinician in 1994 were interviewed at the V.P. Chest Institute, Delhi, India. The data could be recorded for 303 patients. The diagnosis of rhinitis was assigned to patients having three

The first study in India of pollen allergy in relation to month of birth.

or more of the following symptoms: 1) postnasal drip; 2) watery nasal discharge; 3) sneezing; 4) itching of nose; and 5) nasal congestion. The recommendations of Broder et al. were followed to identify cases of bronchial asthma (4). For diagnosis, spirometric evidence of airway obstruction (<80% of the predicted FEV_1) and more than 15% reversibility in FEV_1 with salbutamol metered-dose inhalation (200 μg) were also considered. The patients were subjected to intradermal (ID) tests with extracts of 32 pollens, 13 fungi, six insects, and six dusts/danders used in routine allergy diagnosis. The extracts tested were relevant to patients' birthplace, and some of them (pollen) were incidentally airborne in the birth months of patients. ELISA was carried out with patient sera, showing marked positive skin response to pollen allergens prevalent during their birth month. As a negative control, sera from nonallergic subjects (NHS) were also tested. For grading, OD greater than mean plus 2 SD of NHS (OD 0.17) was taken as ELISA positive.

■ Of the 303 patients screened, 167 complained that their birth month was the worst period for asthma and rhinitis. Among them, 141 showed positive ID reactions to one or more pollen allergens prevalent in their birth month. Of 303 patients, 246 exhibited positive skin sensitivity to the various allergen extracts tested, whereas 57 patients showed negative ID tests. Of the 246 patients, 211 exhibited markedly positive skin reactions to one or more pollen allergens prevalent in their birth months. Many had been born in major pollen seasons; i.e., February-April (25.1%) and July-October (42.1%). The period from July to October is dominated by pollen of weeds (*Amaranthus spinosus* and *A. hybridus*) and grasses (*Cenchrus ciliaris*, *Cynodon dactylon*, *Pennisetum typhoides*, and *Sorghum vulgare*). The season from February to April is marked

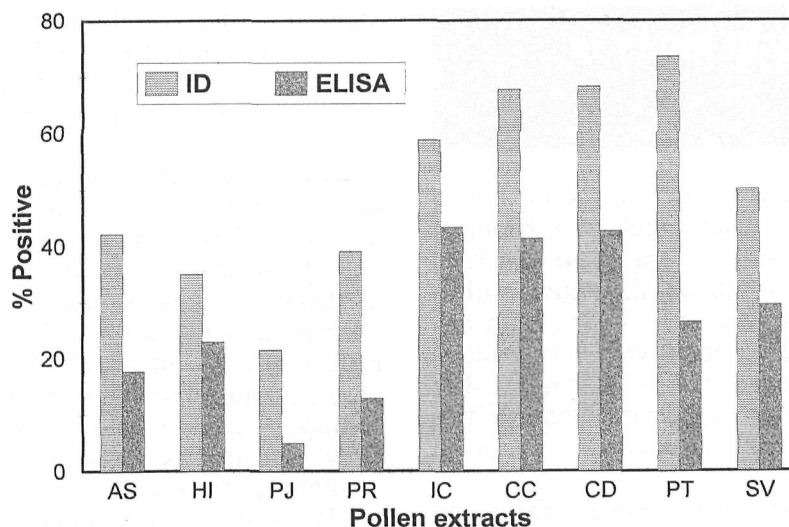


FIGURE 1 Analysis of sensitivity of patients by ID test and ELISA. Extracts used were *Amaranthus spinosus* (AS), *Holoptelea integrifolia* (HI), *Prosopis juliflora* (PJ), *Putranjiva roxburghii* (PR), *Imperata cylindrica* (IC), *Cenchrus ciliaris* (CC), *Cynodon dactylon* (CD), *Pennisetum typhoides* (PT), and *Sorghum vulgare* (SV).

by tree pollen such as *Holoptelea integrifolia*, *Prosopis juliflora*, and *Putranjiva roxburghii*. Some of the grass pollen types, e.g., *C. dactylon* and *Imperata cylindrica*, are also airborne during this season. Of the 167 patients who complained of worsening of symptoms in their birth month, sera could be collected from 75 tree/weed-pollen- and 66 grass-pollen-positive patients for the present study. Specific IgE levels were measured by ELISA in individual sera with pollen allergens prevalent in birth months. About 26–43% and 5–23% of patients, respectively, exhibited elevated IgE levels (positive ELISA) to grass and tree pollen allergens present in their birth months (Fig. 1).

■ Many patients were sensitive to one or more pollen allergens present in their birth month. The relationship between skin sensitivity to pollen prevalent in patients' birth months was found to be statistically significant (χ^2 value = 3.84, $P < 0.05$). However, about 10–20% of the patients showed positive skin response to pollen allergens not prevalent in their birth month. The relative risk of developing allergy in subjects born during pollen seasons (February–April; July–October) was higher (1.05) than in those born during the season with low pollen counts (0.85). Similar observations were reported earlier (3).

Castillo et al. reported the influence of seasonal changes on serum and receptor-bound IgE in pollinosis (5). In the present study, many patients complained of their birth month as the worst period and showed positive ID tests (84%) to the respective pollen allergens. Interestingly, some of these patients showed raised specific IgE levels (OD

0.2–0.7) to grass pollen allergens prevalent in their birth month. Specific IgE levels to tree pollen allergens were also high (OD 0.2–0.6) in some cases (Fig. 1). Specific IgE estimates in 20 ID-negative samples with the same pollen antigens revealed higher OD (0.087–0.18) than in negative controls (0.063–0.16). This can be explained as subclinical sensitization due to exposure to the respective pollen allergen. We conclude that birth month should be recorded in patient history, and the relevant pollen allergens must be included in allergy diagnostic kits. Atopic parents should plan conception to avoid childbirth during pollen seasons.

Key words: allergy; birth month; diagnosis; pollen.

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