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VEGETABLE AND FRUIT CONTACT DERMATITIS AMONG HOUSEWIVES-STUDY OF 25 CASES

G Kalla, RK Kothiwala, MK Singhi, D Kachhawa

Almost all women have to handle vegetables and fruits, so vegetable and fruit contact dermatitis in females has surfaced as a dermatological problem. This study was therefore undertaken to evaluate the contact sensitization pattern of various vegetables and fruits in housewives in north-west Rajasthan.

Thirty-eight commonly used vegetables and fruits extracted/crushed allergen's patch tests were applied as such over back of 25 women having eczema of thumbs, index and middle fingers, Ist and 2nd web spaces, palmar and dorsal aspect of hands. Patch tests were read after 48 and 72 hours and graded as ICDRG. Out of them we obtained positive results in 20(80%), with single allergen positivity in 6 (24%) and multiple allergen positivity in 14 (56%).

Key Words: Contact dermatitis hands, Vegetable and fruit allergens, Housewives

Introduction

Allergic contact dermatitis (ACD) is an exogenous eczema which is caused by repeated contacts of allergens in a susceptible person.

The incidence of ACD and the types of offending contactants vary from country to country and at different times in the same country.[1] These variations depend upon the differences in the life style, social habits, extent of industrialization and law enforced against use of certain known potent sensitizers. It is a group of cutaneous allergic disorders second to urticaria.[2] About 30-50 % patients show demonstrable contact sensitivity in any age group.[3] It constitutes 4-7% of all new dermatological out patients.[4]

A variety of substances are responsible for the ACD. These include articles commonly used in day-to-day life; like clothing, footwear, soap, cosmetics, hair dyes, vegetables or occupation related contactants, topical medicaments especially antibiotics and anaesthetics.

Among the different patterns of ACD, hand dermatitis is the commonest presentation with a varied incidence of 10.9-58 % in different reports.[5,6]

From the Department of Dermatology, Venereology and Leprosy Dr. S.N Medical College, Jodhpur.
Adress correspondence to:
Dr. G. Kalla
4F-12,"Sugyajan", New Power House Road, Jodhpur (Rajasthan)-342 003.

About 20% of females and more than 2% of general population are likely to develop eczema over hands at some stage of their life span[7] of whcih 24% cases could be diagnosed as ACD on the basis of standard patch test series in Europe. Similar incidences have also been reported from tropical countries like India[8,9] where ACD due to vegetable and fruits is frequent in housewives, cooks and others.[9] It is characterized by erythema, scaling and fissuring over thumbs,index and middle fingers (Fig 1).

Materials and Methods

Twenty-five housewives suspected of having allergic hand contact dermatitis attending skin OPD of M D M Hospital, Dr. Sampurnanand Medical College, Jodhpur from January 98 to May 99 were the material of our study.

A detailed clinical probe was made to exclude other hand dermatoses. Sites involved, seasonal variation, morphology and distribution of lesions over hands were the main criteria to select the case for study. A detailed history regarding presenting symptoms, duration, site of onset, progression, relation to occupation, aggravating factors, exact nature of work, hobbies, spare time activities, food habits, drug intake

and atopy were also recorded. Patients suffering from cumulative or other types of irritant dermatitis were excluded from the study.

Patch test units were prepared by sticking Finn (Aluminium) chambers of 7 mm diameter, 2 cm apart, on 15 x 5 cm, Johanson's micropore in two parallel rows; each containing 5 chambers. We procured readymade (CODFI approved) patch test units from R & D Laboratory, Systopic Pharmaceutical (P) Ltd., New Delhi.

All 38 commonly used vegetables and fruits allergens were prepared by extracting/crushing them. When the patient was off systemic steroids and/or anihistamines, patch test chambers were put after cleaning the sites thoroughly. Adequate amount of undiluted allergens were taken in chambers in first right then left down manner so that top most left chamber numbered 1 would be control. Patches were applied over upper back according to possible suspected allergens (Pasricha, 1981).[8]

Patch tests were read after 48 and 72 hours respectively and graded according to International Contact Dermatitis Research Group (ICDRG)

\+ Doubtful (Only erythema)

\+ Papular (Weak reaction)

++ Vesicular (Strong reaction)

+++ Extreme reaction

IR Irritant reaction

Results

Out of 25 housewives tested 20 showed positive patch tests with various vegetables and fruits.

We observed multiple sensitivity in most of the housewives with vegetables ranging from 2 to 6 allergens positivity in a single patient

Out of 38 vegetables/fruits allergens green leafy vegetables were predominantly showing multiple sensitivity.

Discussion

ACD is a common and multifactorial disease. Among, exogenous dermatoses, it has its own clinical importance. It is a recurrent or persistent dermatitis, which can be recognised by clinical features, circumstantial evidences, histopathology and patch testing.

ACD may be preceded or perpetuated by irritant effect of soaps and detergents and repeated washings. Its variable clinical pattern may develop due to effect of a variety of substances depending upon person's age, sex, occupation(s), hobbies, surroundings, treatment taken, skin integrity and inherent allergic conditions. The environmental fac-

Table I. Allergen's patch test positivity in 20 out of 25 cases tested

S. N.	Name of vegetables and Fruits	Positivity in patients +	++	+++	Total patients
1	Allium sativum (Garlic)	01	05	02	08
2	Coriandrum sativum (Coriander)	01	05	02	08
3	Allium cepa (Onion)	-	06	01	07
4	Amaranthus caudatus (Chaulai)	01	03	03	07
5	Spinacia oleracea (Spinach)	-	05	01	05
6	Brassica oleracea (Cabbage)	-	04	01	05
7	Hibiscus esculentus (Lady's Finger)	02	03	-	05
8	Daucus carota (Carrot)	02	02	-	04
9	Solanum lycopersicum (Tomato)	01	03	-	04
10	Trigonella faenum (Fenugreek)	01	03	-	04
11	Trichosathes diocia (Parmal)	02	02	-	04
12	Chenopodium album (Pigweed)	01	03	-	04
13	Raphanus sativus (Radish)	-	01	-	01
14	Capsicum annum (Chilli)	01	01	-	02
15	Solanum tuberosum (Potato)	01	-	-	01
16	Brassica caperstris (Mustard)	01	02	-	03
17	Zingiber officinale (Ginger)	01	02	-	03
18	Cucumis melo (Kakri)	02	03	-	05
19	Colocacia esculenta (Arum)	01	02	-	03
20	Ipomea batatas (Sweet Potato)	01	01	-	02
21	Pisum sativum (Pea)	01	01	-	02
22	Lagenaria siceraria (Bottle gourd)	01	-	-	01
23	Solanum melongena (Brinjal)	01	02	-	03
24	Mentha arvensis (Mint)	-	02	-	02
25	Luffa aegyptiaca (Riged gourd)	01	-	-	01
26	Achras zapota (Sapodilla)	-	01	-	01
27	Citrullus vulgaris (Round gourd)	-	01	-	01
28	Vitis vinifera (Grape)	-	-	-	-
29	Momordica charantia (Karela)	01	02	-	03
30	Musa paradisiaca (Banana)	01	-	-	01
31	Citrus reticulata (Orange)	-	01	-	01
32	Carica papaya (Papaya)	-	02	-	02
33	Malus sylvestris (Apple)	-	-	-	-
34	Cyamposis tetrago.(Clu.bean0	01	02	-	03
35	Cucumis sativas (Cucumber)	01	02	-	03
36	Psidinam guajava (Guava)	01	01	-	02
37	Mangifera indica (Mango)	01	-	-	01
38	Cucumis maxima (Sitaphal)	01	-	-	01

* Reactions are graded as ICDRG

tors like sunlight, chemical nature of the allergen, source of contact, degree and period of contact and seasonal variations are also important. It is by far the most frequently reported occupational disease, and patch testing with standard and vehicle series reveals a substantial number of relevant causes.[2]

In India majority of females are housewives and most of Indians are vegetarian, exposing a higher percentage of population to wide range of vegetables and fruits.

In our study vegetables and fruits sensitivity was detected in 20 (80 %) out of 25 housewives studied; appreciably a higher number; because most of females are housewives, majority of population is vegetarian and it is a temperate region. Bajaj,[1] Pasricha and Kanwar,[10] Vinod Kumar and Kaur[11] reported 75.8, 62.7 and 54.5% of housewives hand eczema respectively. It occurs as scaling and fissuring of palmar surface of index, middle fingers and thumb.[12] Like Sinha and Pasricha[12] we noted Allium sativum (Garlic) and Allium cepa (Onion) as commonest vegetable allergens. However, our study also revealed Coriandrum sativum (Coriander), Amaranthus caudatus (Chaulai), Spinacia oleracea (Spinach), Brassia oleracea (Cabbage), Cucumis melo (Kakri) and Hibiscus esculentus (Lady's finger), Chenopodium album (Pigweed) and Tricosathes dioica (Parmal) were detected as less common allergens.

We also found multiple sensitivity with Allium sativum (Garlic) and Allium cepa (Onion) as observed by Kumar and Kaur.[12] However, our study revealed multiple sensitivity predominantly with green vegetables like Coriandrum sativum (Coriander), Amaranthus caudatus (Chaulai), Spinacea melo (Kakri), Brassica oleracea (Cabbage), Trigonella faenum (Fenugreek), chenopodium album (Pigweed) and Trichosathes dioica (Parmal). We had less number of allergic reaction with fruits, only 3 cases with lemon, 2 each with Carica papaya and Psidinam guajava, one each with Cucumis maxima (Sitaphal), Musa paradisiaca (Banana), Citrus reticulata (Orange), Mangifera indica (Mango) and Achras zapota (Sapodilla), while we did not find sensitivity with Malus sylvestris/Pumila (Apple) and Vitis vinifera (Grape) in any patients. On the contrary Pasricha (1981) depicted more sensitivity with fruits, 7 cases each with Malus-pumila and Citrus senensis, 15 with Musa-paradisiaca, 2 with Citrus reticulata and Psidium guajava, 6 with citrum limon, one each with Mangifera indica, Punica granatum and they also need negative sensitivity with Vitis vinifera as in our patients. Though number of patients suspected of having ACD to vegetables/fruits is meager in our study but housewives showing positive reaction, 20 out 25 should drew attention to undertake such studies, so as to know actual magnitude of the condition. The lead taken by our centre in North-West Rajasthan would work as model for those intend to work on this line.

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References

1. Bajaj A K. Contact dermatitis hands. Indian J Dermatol Venereol Leprol 1983; 49: 195-199.

2. Pasricha J S. Contact Dermatitis in India. New Delhi. 2nd ed. 1988; 1-155.

3. Fregert S. Manual of Contact Dermatitis. 2nd ed. Copenhagen: Munksgaard, 1981.

4. Christophersen J. Skin Deisease in Denmark. Thesis Denmark institute for chemical epidemiology. Denmark 1984.

5. Agrup G. Hand eczema. Acta Dermatol Venereol (Stockd) 1969; 49 (Suppl 61): 44-47.

6. Calnan C D, Bandmann J H, Cronin E, et al. Hand dermatitis in house wives. Br J Dermatol 1970; 82: 543-548.

7. Champion R H, Burton J L, Ebling F J G. Textbook of Dermatology. 5th ed. Oxford Blackwell Scientific Pub. London 1992; 611-716.

8. Pasricha J S, Sethi N C. Contact Dermatitis in India. Lyka Labs., Bombay, 1981.

9. Singh G, Singh K K. Contact dermatitis of hands. Indian J Dermatol Venereol Leprol 1986; 52: 152-154.

10. Pasricha J S, Kanwar A J. Substances causing contact dermatitis. Indian J Dermatol Venereol Leprol 1978; 44: 264-268.

11. Sharma V K, Kaur S. Contact dermatitis of hands in Chandigarh. Indian J Dermatol Venereol Leprol 1987; 53: 103-107.

12. Sinha S M, Pasricha J S, Sharma R C, et al. Vegetables responsible for contact dermatitis of hands. Arch Dermatol 1977; 113: 776-779.