CONTACT DERMATITIS HANDS

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Summary

Seventy one patients suspected to be having contact dermatitis exclusively of the hands were patch tested with various antigens and 57 of them showed positive reaction to one or more substances. Females outnumbered males and housewives were the commonest victims. Vegetables were the most frequent contactants followed by soaps and detergents, medicaments, metals and others. Amongst the vegetables, garlic and onion were the most potent sensitizers. In majority of the patients occupational substances were the causative allergens leading to hand dermatitis.

KEY WORDS: Hand dermatitis, Vegetables, Medicaments, Metals, Soap and detergents.

Dermatitis of the hands is a problem for the physicians and patients alike. A high proportion of hand dermatitis can not be classified under the ordinary diagnostic labels and are labelled by many dermatologists as "dermatitis of the hand" or "hand eczema"[1]. Physical and chemical trauma as well as contact hypersensitivity to various substances are the most important factors in initiation and perpetuation of hand dermatitis. To establish the role of allergy and to find out the common allergens detailed history and routine patch testing are required. The present study is an attempt to detect the common allergens responsible for hand dermatitis at Allahabad.

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Material and Methods

The material for the present study was obtained from outpatient department of Dermatology, M.L.N. Medical College, Allahabad. Patients having dermatitis only of the hands were selected for patch testing. A detailed history was taken regarding occupation, hobbies and other activities to find out the likely contactants. Patch tests were performed with antigens supplied by Dr. J. S. Pasricha, AIIMS, New Delhi. In the case of vegetables a small piece of gauze was held in a forceps and stabbed into the vegetable to extract the juice. Leaves of the leafy vegetables were used as such. The injectable and topical drugs were used as such for patch testing. Patch tests were performed according to the standard procedure. The results were read after 48 hours and graded as follows :

No reaction	—
Erythema	+
Erythema and papules	++

Erythema, papules and vesicles +++

Erythema, vesicles and exudation ++++

Observations

Seventy one patients suspected to be having contact dermatitis exclusively of the hands were patch tested with various antigens and 57 of them showed positive reaction, while 14 were negative to all the antigens tested. The age and sex distribution of the cases is given in Table 1. The females outnumbered males in the proportion of 1.5 : 1. There was only one case below the age of 10 years and 3 over 60 years of age. Majority of the patients were in the age group 21 - 40 years.

The duration of dermatitis varied from 10 days to 7 years and the majority of the patients (60 percent) had the disease for less than 6 months.

TABLE 1
Showing age and sex distribution of the patients

Age in years	Male	Female	Total
1-10	-	1	1
11-20	3	6	9
21-30	6	7	13
31-40	4	10	14
41-50	3	5	8
51-60	5	4	9
Over 60	2	1	3
Total	23	34	57

Housewives accounted for almost half of the total cases (Table 2). Amongst the 29 housewives dermatitis was due to vegetables in 22 and soap and detergents accounted for the remaining seven. There were eight students whose dermatitis was due to medicaments (3), vegetables (2), metals (2) and soap and detergents (1). Five patients belonged to medical/paramedical profession and their dermatitis

TABLE 2

Profession	No. of cases	Substances showing positive reactions				Others
		Vegetables	Soap and detergents	Medicaments	Metals	
Housewives	29	22	7	-	-	-
Students	8	2	1	3	2	-
Clerical/administrative	6	-	1	-	3	Leather belt Foam leather wallet 1 Plant leaves 1
Medical/paramedical	5	-	-	5	-	
Barbers	2	-	-	1	-	Shaving creams 2
Telephone operators	2	-	-	-	1	Long nose plastic 1 Telephone scrapings 1
Shop Keeper	1	-	-	-	1	-
Turner	1	-	-	-	1	-
Cobbler	1	-	-	-	1	Adhesives and rubber chemicals 1
Farmer	1	-	-	-	-	Cow dung 1
Carpenter	1	-	-	-	-	Wood dust 1
Total	57	24	9	9	8	9

was due to topical/injectable medicaments. Six patients were doing clerical/administrative jobs. Their dermatitis was not due to their profession. Three of them had allergy to metals and one each had hypersensitivity to soaps and detergents, leaves of a plant, scrapings of leather belt and foam-leather wallet. There were two barbers and both of them showed positive reactions to shaving creams and one of them was positive to medicaments as well. One shop keeper who used to deal with tin trunks showed positive reaction to tin scrapings and ferric chloride. Other patients also had dermatitis due to the substances they came across durnig their professional activities (Table 2).

Vegetables dermatitis had characteristic clinical features. The sites commonly affected were palmar aspects of distal phalanges of thumbs, index and middle fingers of both the hands. In some cases other fingers were also involved. The lesions were in the form of fissuring and scaling associated with itching, burning and occasionally pain. The sensitivity pattern to various vegetables is given in Table 3. Multiple hypersensitivity was very common and 15 patients showed positive reaction to four or more vegetables.

Dermatitis due to soap and detergents mainly affected the dorsa of hands especially fingers though palmar aspects were also affected in some cases. The lesions consisted of erythema and scaling and sometimes papulo-vesicular lesions as well. Hypersensitivity

TABLE 3
Incidence of hypersensitivity to various vegetables

Name of the vegetables		No. of patients giving positive reaction
Common name	Botanical name	
Garlic	Allium sativum	16
Onion	Allium cepa	12
Cauliflower	Brassica oleracea	11
Spinach	Spinacia oleracea	9
Coriander	Coriandrum Sativum	8
Lady's finger	Hibiscus esculentus	7
Fenugreek	Trigonella foenum grace	6
Peas	Pisum arvense	4
Gourd	Cucurbita pepo	4
Radish	Raphnus sativus	4
Chenopodium	Chenopodium album	4
Ginger	Zinziber officinale	3
Green chillies	Capsicum annum	3
Beans	Vicia faba	3
Pumpkin	Lagenaria vulgaris	3
Dill	Anethum graveolens	3
Patol	Trichosanthes dioica	2
Smooth luffa	Luffa cylindrica	2
Amaranthus	Amaranthus viridis	1
Brinjal	Solanum malongena	1
Round gourd	Citrullus vulgaris	1
Potato	Solanum tuberosum	1
Carrot	Daucus carota	1
Turnip	Brassico rapo	1
Mint	Mentha spicata	1
Lemon		1

was observed to various popular brands of soaps and detergents.

Injectable drugs produced erythema, papules and vesicles, mainly affecting the dorsa of thumbs, index and middle fingers of both hands. Topical medicaments also produced similar lesion affecting any part of the hand depending upon the site of contact. The various medicaments which produced hypersensitivity are shown in Table 4.

TABLE 4

Incidence of sensitivity to various medicaments

Medicaments	No. of positive cases
Oxytetracycline	4
Neomycin sulphate	3
Nitrofurazone	2
Cetrimide	2
Framycetin	1
Quiniodochlor	1
Triflupromazine	1

Dermatitis due to metals usually presented with hyperkeratotic scaly lesions affecting the palmar aspects of hands. The sensitivity to various metals was as follows: cobalt chloride 2, ferric chloride 2, copper sulphate 2, nickel sulphate 1, potassium dichromate 1.

An interesting case was that of a clerk who had erythema and scaling affecting the tips of thumbs, index and middle fingers mainly of the right hand. He showed positive reaction to leaves and stem of a plant "Quisqulis indica" and no reaction to flowers of the plant. He used to pluck the leaves for religious purposes.

Discussion

Hand dermatitis has multifactorial aetiology and it is often difficult to exculde contact allergy as a cause or aggravating factor. The contact allergens vary from place to place and time to time depending upon socio-economic factors and extent of industrialization. Agrup[2] made an extensive epidemiological study of persons with hand eczema as part of a general health survey in an area of southern Sweden. Out of 827 patients with hand eczema 712 could be tested and 341 gave positive results. Patients with positive results comprised of 245 females and 96 males. The most frequent sensitizers in her series were metals, balsams, phenolformaldehyde resin, colophony, mercaptobenzothiazole, formaldehyde and wood tars. Medicaments and soap and detergents accounted for a small number of cases and only seven patients showed sensitivity to vegetables.

Calnan et al[1] in their multicentre study of 4000 patients had 58 percent of patients with hand eczema. They further evaluated 281 women doing only domestic work and suspected to be having contact dermatitis of the hands. Just over half of them (53 percent) had positive reaction to at least one substance. The responsible allergens in order of rank being balsams, nickel, medicaments, cobalt, rubber, chromate, benzocaine and paraphenylenediamine. The incidence of hand dermatitis was lower in housewives doing domestic work only as compared to women doing other work.

In the present series women outnumbered men. Similar results have been reported by Agrup[2]. Vegetables accounted for the highest number of cases of hand dermatitis in housewives and garlic and onion were the most common sensitisers. Pasricha and Kunwar[3] and Sinha et al[4] have reported similar findings from Delhi. The incidence of sensitivity to various other vegetables in the present study differs to some extent from those reported in the above mentioned series[3,4].

From the present series it becomes quite evident that allergens causing

contact dermatitis of hands in India are very different from those of developed, industrialized western countries. Studies from various parts of India and still larger series can be helpful in evolving a battery of standard antigens for hand dermatitis in India but such a battery will not be a substitute for a detailed history and high degree of suspicion on the part of the dermatologist to detect the elusive allergens initiating and aggravating hand dermatitis.

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