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ORIGINAL CONTRIBUTIONS

CONDIMENTS AND CONTACT DERMATITIS OF THE FINGER-TIPS

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Patch tests were undertaken with 16 condiments in 4 groups of patients which included exposed patients, exposed controls, unexposed patients and unexposed controls. As the interpretation of the positive patch test reaction was similar in both the unexposed patients and unexposed controls, these two were combined into one (unexposed groups). Positive reactions were obtained in a variable number of individuals in each of these groups, but the tests were generally more frequently positive and more severe in the exposed patients and exposed controls, compared to the unexposed groups. The number of patients showing positive patch tests out of the total number tested in the 3 groups respectively, with each of the agents were, cinnamon 1(9), 0(11), 1(7); coriander 3(8), 4(12), 1(5); clove 2(8), 3(16), 0(1); cumin seeds 3(8), 4(11), 1(6); fennel 3(9), 4(16), 0(1); small cardamom 1(8), 6(17), 0(0); large cardamom 3(8), 3(11), 0(7); asafoetida 1(5), 3(7), 5(13); Indian cassia 0(2), 3(16), 1(8); mustard seeds 5(8), 4(15), 0(2); red chillies 2(7), 6(21), 0(0); turmeric 3(6), 8(15), 1(5); tamarind 0(3), 0(6), 3(16); dried mango powder 0(2), 3(6), 1(17); Jaggery 0(1), 2(4), 2(20) and ginger 7(22), 0(4), 0(0). These were considered unlikely to be irritant reactions, because in the case of irritant reactions, the frequency of positive reactions is expected to be much more. However, this could not be excluded completely without further studies with standardized antigens and their dilutions.

Key words : Condiments, Contact dermatitis, Patch tests.

Contact dermatitis on the hands may be caused by several agents which include vegetables, fruits, salads, plant leaves, metals, industrial agents, topical medications etc.[1] Dermatitis produced by the vegetables occurs chiefly over the tips of the thumb, index and middle fingers of one or both hands[2] and is commonly seen in the housewives, cooks and workers in the canning industry. A similar clinical picture can also be produced due to contact hypersensitivity to fruits or salads even if the individual does not cook food, and peel or slice the vegetables, because eating the fruits and salads with hands exposes the fingers to the juices of the fruits and salads.[1] Condiments are still another group, which may produce a similar clinical picture as the Indian people generally pick up a pinchful of condiments with their fingers while adding these for cooking. Besides this, condiments are extensively used in every household throughout India. Hence, we studied how far these condiments could be incriminated as the cause of dermatitis in such cases. A detailed review of the previous information on contact hypersensitivity due to some of the commonly used condiments has already been published recently.[3]

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Materials and Methods

Sixteen condiments commonly used in India (Table I) were obtained from the market. Some of them namely cinnamon, clove, asafoetida, coriander, fennel, mustard seeds, cardamom,

Table I. Patch test results with condiments.

Condiment	Group	Number of patients						
		Tested	Positive	Degree of positivity				
				±	1+	2+	3+	4+
1. *Cinnamomum zeylanicum* (Cinnamon)	Exposed patients	9	1	—	—	1	—	—
	Exposed controls	11	—	—	—	—	—	—
	Unexposed groups	7	1	—	1	—	—	—
2. *Coriandrum sativum* (Coriander)	Exposed patients	8	3	—	2	1	—	—
	Exposed controls	12	4	1	1	2	—	—
	Unexposed groups	5	1	—	1	—	—	—
3. *Eugenia caryophyllata* (Clove)	Exposed patients	8	2	—	—	1	1	—
	Exposed controls	16	3	1	2	—	—	—
	Unexposed groups	1	—	—	—	—	—	—
4. *Cuminum cyminum* (Cumin seeds)	Exposed patients	8	3	—	—	3	—	—
	Exposed controls	11	4	1	2	1	—	—
	Unexposed groups	6	1	1	—	—	—	—
5. *Foeniculum vulgare* (Fennel)	Exposed patients	9	3	—	1	1	1	—
	Exposed controls	16	4	1	2	1	—	—
	Unexposed groups	1	—	—	—	—	—	—
6. *Elettaria cardamomum* (Small cardamom)	Exposed patients	8	1	—	—	—	1	—
	Exposed controls	17	6	—	3	2	1	—
	Unexposed groups	—	—	—	—	—	—	—
7. *Amomum zeylanicum* (Large cardamom)	Exposed patients	8	3	—	1	1	1	—
	Exposed controls	11	3	—	2	1	—	—
	Unexposed groups	7	—	—	—	—	—	—
8. *Ferula asafoetida* (Asafoetida)	Exposed patients	5	1	—	—	—	1	—
	Exposed controls	7	3	—	1	1	—	1
	Unexposed groups	13	5	1	1	1	2	—
9. *Cinnamomum tamala* (Indian cassia)	Exposed patients	2	—	—	—	—	—	—
	Exposed controls	16	3	1	2	—	—	—
	Unexposed groups	8	1	1	—	—	—	—
10. *Brassica juncea* (Mustard seeds)	Exposed patients	8	5	—	3	1	1	—
	Exposed controls	15	4	2	2	—	—	—
	Unexposed groups	2	—	—	—	—	—	—
11. *Capsicum annum* (Red chillies)	Exposed patients	7	2	—	—	2	—	—
	Exposed controls	21	6	2	3	—	1	—
	Unexposed groups	—	—	—	—	—	—	—
12. *Curcuma longa* (Turmeric)	Exposed patients	6	3	—	1	2	—	—
	Exposed controls	15	8	2	4	1	1	—
	Unexposed groups	5	1	—	1	—	—	—
13. *Tamarindus indicus* (Tamarind)	Exposed patients	3	—	—	—	—	—	—
	Exposed controls	6	—	—	—	—	—	—
	Unexposed groups	16	3	—	2	1	—	—
14. *Mangifera indica* (Dried mango powder)	Exposed patients	2	—	—	—	—	—	—
	Exposed controls	6	3	—	1	2	—	—
	Unexposed groups	17	1	—	1	—	—	—
15. *Saccharum officinarum* (Jaggery)	Exposed patients	1	—	—	—	—	—	—
	Exposed controls	4	2	—	1	1	—	—
	Unexposed groups	20	2	1	1	—	—	—
16. *Zingiber officinale* (Ginger)	Exposed patients	22	7	1	3	3	—	—
	Exposed controls	4	—	—	—	—	—	—
	Unexposed groups	—	—	—	—	—	—	—

cumin seeds, Indian cassia, red chillies and turmeric were dried in the air at room temperature and powdered. A small quantity of the powder was used as such for patch testing. In the case of jaggery and tamarind, a small piece of the agent was crushed and used as such for patch testing, while in the case of mango powder, the powder as such and in the case of ginger, the juice as such were used for patch testing. Patch testing was done according to standard methods.[4] Each antigen was tested on atleast 25 patients who were divided into the following 4 groups depending upon whether or not, they had been exposed to the corresponding respective antigen in the past : (i) Patients having dermatitis on their finger-tips who had been routinely exposed to the substance (exposed patients), (ii) Patients who had dermatitis on their finger-tips, but had never been exposed to the substance in the past (unexposed patients), (iii) Individuals who did not have dermatitis on their finger-tips, but had been exposed to the substance (exposed controls), and (iv) Individuals who had neither been exposed to the substance nor had dermatitis on their hands (unexposed controls). The results of patch tests were compared among these 4 groups.

Results

Positive patch tests were obtained with each of the condiments in a variable number of individuals in these groups (Table I), but the reactions were generally more frequently positive and more severe in the exposed patients and exposed controls compared to the unexposed groups. The maximum number of positive patch test reactions were seen with turmeric (12 cases out of 26). The next in the order of frequency were asafoetida and mustard seeds (9 cases each out of 25), coriander and cumin seeds (8 cases each out of 25) and red chillies (8 cases out of 28).

Comments

If a patient has dermatitis on his/her fingertips, it is often difficult to decide the cause unless patch tests are undertaken, and this is followed by the withdrawal and the exposure test to confirm the causal relationship. A positive patch test suggests that the patient has contact hypersensitivity to the agent, but does not provide any proof that the dermatitis is being caused by that particular agent. Thus, a positive patch test reaction in an exposed patient would suggest that the particular antigen could be considered as the cause of contact dermatitis, while a negative patch test in such a patient would mean that the patient is not allergic to the agent tested, and the dermatitis could be due to some other antigen. A positive patch test in the exposed controls would indicate that the individual is having latent contact hypersensitivity to the particular antigen, but is not having clinical dermatitis because the individual may not be adequately exposed to the respective agent. Such a patient is likely to develop clinical dermatitis if he is adequately exposed to the antigen. A negative patch test in this group would indicate that the individual is not allergic to the agent.

In the case of unexposed patients, a positive patch test would suggest that the positive reaction is either a primary irritant reaction or the patient might have been unknowingly exposed to the antigen or to a chemically related substance (cross sensitivity). Irritant reactions are expected to be positive in a large proportion of the unexposed controls, compared to the true hypersensitivity reactions. A negative reaction rules out any possibility of the patient being allergic to the antigen. Interpretation of the patch tests reactions in the unexposed controls would also be the same.

In our study, even though positive reactions were seen in all the groups with most of the condiments, the frequency and the severity of

positive reactions were more in the exposed patients and exposed controls, compared to the unexposed groups. These were not considered to be irritant reactions because in the case of irritant reactions, the frequency of positive reactions is expected to be much more and such reactions are almost equally frequently positive irrespective of whether the patients are exposed or unexposed. However, this could not be excluded completely without further studies with standardised antigens and their dilutions. The antigens used by us were crude and unstandardised.

Contact dermatitis due to cinnamon,[5-9] cloves,[10,11] chillies,[11,12] small cardamom,[13,11] mustard[10,15] and ginger[14,16] has been recorded earlier, but not to the remaining condiments. In India, however, contact dermatitis has been recorded only with mustard and ginger and not with any other condiment.[3] Positivity in the unexposed groups could also be due to an unknown exposure because the history obtained from a patient may not be reliable. Cross sensitivity to a chemically related substance can be another reason for a positive patch test in our unexposed controls/patients. Cross sensitivity between cinnamon and cloves,[17] and mango powder with other agents[18] is well known, but nothing is known about other agents. Our findings indicate that condiments should also be considered among the causes of contact dermatitis of the finger-tips. Further studies with standardised antigens are indicated, especially in the case of asafoetida, where the frequency of positive reactions was slightly more in the unexposed groups (5 out of 13), compared to the exposed groups (4 out of 12).

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