

ORIGINAL CONTRIBUTIONS

NUTS AS A CAUSE OF CONTACT DERMATITIS OF THE HANDS

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To evaluate contact hypersensitivity to some of the commonly used Indian nuts, patch tests were undertaken with cashew-nuts, ground-nuts, almonds and pistachio in 3 groups of individuals : (1) patients exposed to the corresponding nut and having dermatitis on their finger-tips, (2) controls having no dermatitis, but exposed to the nut, and (3) unexposed group. A paste prepared by crushing the nut and used as such gave positive patch test reactions in all the 6 patients tested with cashew-nut, ground-nut and almonds, and these looked to be irritant reactions. Further patch tests with these three nuts were therefore done with 1:1 dilution of the paste with distilled water. The number of patients showing positive patch tests out of the total number tested in the 3 groups respectively, with each of the antigens were, cashew-nut 3(9), 2(12), 0(2); ground-nut 3 (8), 3(14), 0(0) and almonds 1(4), 1(4), 3(14). In the case of pistachio, all the 27 patients were tested with the paste used as such and the positive reactions in the 3 groups were 2(4), 1(2) and 6(21) respectively. The patch test reactions were more frequent and more severe in the exposed groups suggesting that these reactions probably indicate contact hypersensitivity.

Key words : Nuts, Contact dermatitis, Patch tests.

Contact dermatitis on the hands may be caused by a variety of agents which come in contact with the fingers/hands during one's daily activities. These agents include vegetables,¹ salads, fruits,² metals,³ topical medications⁴⁻⁶ and condiments.^{7,8} The edible nuts could be another group, which may cause contact dermatitis on the finger-tips. These nuts are frequently eaten as such and are also used in confectionery and other food preparations. We have investigated the possibility of contact hypersensitivity to 4 nuts commonly used in India, namely, ground-nut, cashew-nut, almond and pistachio. There are only a few reports of contact hypersensitivity to these agents.^{9,10}

Materials and Methods

Patch tests were undertaken with the nuts obtained from the market using the standard

occluded patch test technique.¹¹ In 6 patients, nuts crushed into a paste were used as such, for patch tests but all the patients gave 1+ to 3+ reactions with the cashew-nut, ground-nut and almond which looked to be irritant reactions. Hence, the method of preparing the antigens from these 3 nuts was modified. The nuts were thoroughly crushed in a pestle and mortar and mixed with an equal amount of distilled water. The pastes thus obtained were used as the antigens for patch testing. Each antigen was tested on at least 25 patients. In the case of pistachio, the crushed material was used as such for patch testing in 27 patients.

The patients were divided into the following 3 groups, (1) patients having dermatitis on their finger-tips who had been routinely exposed to the nut (exposed patients), (2) individuals who did not have dermatitis on their finger-tips but had been exposed to the nut (exposed controls), and (3) individuals who had never been exposed to the substance in the past (unexposed group).

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Results

The results of patch tests are given in table I. Positive patch tests were seen in all the groups with almonds and pistachio, while in the case of cashew-nuts, positive reactions were seen only in the exposed groups. In the case of ground-nut, all the 22 individuals tested had been exposed to the antigen in the past and positive reactions were seen in both the exposed patients (3 out of 8) and the exposed controls (3 out of 14).

Comments

Dermatitis due to cashew-nuts has been recorded in, (1) children playing with toys made from cashew-nut shells,¹² (2) in workers exposed to the sap exuding from the stems of cashew-nut trees,¹³ and (3) individuals who bite the cashew apple.¹³ Bedi et al¹⁴ and Pasricha et al¹⁵ have recorded a variety of skin lesions caused by the cashew-nut shell oil in the workers employed in the cashew-nut industry. All these instances seem to be irritant reactions as confirmed by the open patch tests with the cashew-nut shell oil. This oil contains 90% anacardic acid and 10% cardol, which have

a strong cauterizing action on skin. There is perhaps only one report which describes a true contact hypersensitivity reaction to the cashew-nut, the patient showing a papulo-vesicular patch test reaction to 0.1% concentration of cashew-nut shell oil while the same concentration did not produce any reaction in 36 other individuals.⁹ The exact concentration of the antigen for patch tests to differentiate true allergic reactions from irritant reactions has not yet been defined. The cashew-nut shell oil not being available with us, we used extracts of the cashew-nuts in our study. The paste of cashew-nuts used as such seemed to be irritant. Thus, an extract was made in the same way as for garlic.¹⁰ Patch tests with this extract were positive in 3 of the 9 patients having dermatitis and 2 of the 12 exposed controls, but none of the 2 unexposed controls. This suggests that the positive patch tests most likely indicated true contact hypersensitivity. In the case of ground-nuts also, the paste of the nuts used as such seemed to produce irritant reactions on patch tests, while the extract gave positive patch tests in 3 of the 8 patients and 3 of the 14 exposed controls. The patch tests

Table I. Results of patch tests with the nuts.

Nuts	Group	Number of patients						
		Tested	Positive	Degree of positivity				
				±	1+	2+	3+	4+
1. <i>Anacardium occidentale</i> (Cashew-nut)	Exposed patients	9	3	—	1	2	—	—
	Exposed controls	12	2	—	1	1	—	—
	1:1 extract Unexposed group	2	—	—	—	—	—	—
2. <i>Arachis hypogea</i> (Ground-nut)	Exposed patients	8	3	—	1	2	—	—
	Exposed controls	14	3	2	1	—	—	—
	1:1 extract Unexposed group	—	—	—	—	—	—	—
3. <i>Prunus amygdalus</i> (Almond)	Exposed patients	4	1	—	—	1	—	—
	Exposed controls	4	1	—	1	—	—	—
	1:1 extract Unexposed group	14	3	2	1	—	—	—
4. <i>Pistacio vera</i> (Pistachio) as such	Exposed patients	4	2	—	1	1	—	—
	Exposed controls	2	1	—	—	1	—	—
	Unexposed group	21	6	3	3	—	—	—

in the patients were more frequent as also more severe indicating a higher degree of contact hypersensitivity. We could not get an individual who had not been exposed to the ground-nuts and thus there were no unexposed controls. There is one earlier report recording contact dermatitis due to ground-nuts.¹⁰

With almonds too, the paste used as such for patch tests seemed to give rise to irritant reactions, while the extract showed a 2+ reaction in one of the 4 patients having dermatitis on the finger-tips, 1+ reaction in one of the 4 exposed controls, and still milder reactions (1+ in 1, and \pm in 2) in 3 of the 14 unexposed controls. These reactions also suggest contact hypersensitivity. We could not trace any previous report of contact hypersensitivity to almonds.

Patch tests with pistachio paste showed 2+ reactions in 1 case each of the 4 patients and 2 exposed controls, and a 1+ reaction in another patient, compared to 1+ reaction in 3 and \pm reactions in another 3 out of 21 unexposed controls. There is no previous report of contact hypersensitivity to pistachio.

Thus, although patch test antigens for these nuts still need to be standardised, the more frequent and/or more severe patch test reactions obtained in the patients having finger-tip dermatitis, and in the exposed controls compared to the unexposed groups, do suggest that these reactions indicate contact hypersensitivity and nuts should also be considered responsible for contact dermatitis on the finger-tips.

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