

CONTACT SENSITIVITY IN PALMAR HYPERKERATOTIC DERMATITIS

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230 patients presenting with palmar hyperkeratotic dermatitis were investigated by patch tests against various antigens depending upon occupation of the patients. Contact sensitivity was detected in 130 patients comprising of housewives (55), businessmen (20), farmers (15), teachers / clerks / students (13), doctors and nurses (9), factory workers and labourers (8), massons (7) and motor mechanics (3). Vegetables were found to be the most common agents followed by detergents and metals predominantly affecting housewives. Among the vegetables, garlic and onion were the most potent sensitizers whereas nickel was a common sensitizer among metals.

Occupational factors were seen to have some influence in relation to the causative agents as indicated by higher positivity of vegetables in housewives; detergents, metals, rubber, leather, plastics in businessmen, teachers, clerks and students; fertilizers or animal foods in farmers; drugs in doctors and nurses and chromium and cobalt in massons.

Key Words : Contact sensitivity, Palmar hyperkeratotic dermatitis, Occupational dermatoses

Introduction

Prolonged and repeated contact with certain agents can induce a reaction pattern on palmar skin manifesting as thickening, scaling and fissuring particularly involving tips, palmar surface of fingers and palms of one or both the hands associated with itching and pain. Such lesions termed as hyperkeratotic palmar eczema can occur either due to physical factors like dryness and friction, irritant reaction or allergic reaction.¹

Patterns of distribution of the lesions as a result of allergic contact dermatitis depend largely upon the causative agents pertaining to the habits, activities and occupation of an individual providing valuable clues for establishing the cause by patch testing.²

Although, contact dermatitis of hand has been studied extensively by various workers³⁻⁶ this study was conducted to assess the role of contact sensitivity in patients presenting mainly with palmar hyperkeratotic lesions.

Material and Methods

230 patients presenting with hyperkeratosis and fissuring over palms were selected from out patient department of Dermatology at Dayanand Medical College, Ludhiana. After recording detailed history and clinical examination with particular reference to occupation types of agents handled during daily routines of working and habits, distribution patterns and types of lesions; KOH examination of scrapings from the lesions was carried out in all the patients to rule out dermatomycosis.

Patch tests were done with vegetables, detergents, metals and other agents depending upon the occupation, a

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per procedures and recommendations made by Pasricha.²

Results

Out of 230 patients presenting with hyperkeratotic lesions over palmar aspects of hands, 130 patients showed positive patch tests as depicted in Table I.

In the remaining 100 patients the lesions were ascribed to occur due to physical factors of friction and dryness or irritant reaction: vegetables (50), detergents (48) and metals (34) were detected to be causative agents in a large majority of patients. All the 50 patients showing positive patch test with various vegetables were housewives. Majority of them (75%) being in the age group of 21-40 years. Among the vegetables, sensitivity to garlic was found in 36 patients followed by onion (10), potato (9), lady's finger (9), green chilli (8), Tinda (7), ginger (5), brinjal (4), peas (4), Arbi (3),

gourd (3), beans (3), radish (3), carrot (2), Shalgam (1), Simla mirch (1), cauliflower (1). Multiple sensitivity was commonly seen within the group as well as with other groups like detergents and metals etc.

Detergent sensitivity was also seen commonly in housewives (30) followed by businessmen (7), farmers (4), teachers, clerks, students (4). Among the metals, nickel sensitivity was seen in 16 out of 34 patients, being more common in housewives (13) followed by businessmen (2) and motor mechanic (1). Other metals (cobalt, ferric chloride and aluminium) were detected to be positive in 2 businessmen each, respectively. Three factory workers and 1 farmer showed sensitivity to ferric chloride, whereas chromate sensitivity was detected in all the 7 massons, 2 of them also being sensitive to cobalt.

Table I. Occupation and positivity of patch tests to various agents

| Occupation | No. of cases | Vegetables | Detergents | Metals | Hair oils, shampoo | Rubber, leather, plastics | Fertilizers, animals Foods | Drugs | Petro chemicals | Others |
|-------------------------------|--------------|------------|------------|-----------|--------------------|---------------------------|----------------------------|----------|-----------------|----------------------------|
| Housewives | 55 | 50 | 30 | 13 | 7 | 4 | 4 | - | - | - |
| Businessmen | 20 | - | 7 | 8 | 1 | 4 | - | - | - | Wood 1 Gum 1 Paper 1 |
| Teachers / Clerks / Students | 13 | - | 4 | 1 | - | 7 | - | - | 1 | Gum 1 |
| Farmers | 15 | - | 4 | 1 | 1 | - | 8 | - | 2 | Sand 1 |
| Medical profession | 9 | - | 1 | - | - | 1 | - | 9 | - | - |
| Factory workers and labourers | 8 | - | 2 | 3 | 2 | - | - | - | - | Wood 1 |
| Massons | 7 | - | - | 7 | - | - | - | - | - | Wood 1 |
| Motor mechanics | 3 | - | - | 1 | - | 1 | - | - | 2 | - |
| Total | 130 | 50 | 48 | 34 | 11 | 17 | 12 | 9 | 5 | 7 |

Hair oils and shampoos also showed higher positivity in housewives caused by mustard oil (4), coconut oil (2), Amla oil (2) and shampoos (3).

Rubber, leather and plastic materials showed more positivity in clerks, teachers, students and businessmen whereas fertilizers and animal foods were common agents in farmers and housewives belonging to rural areas. All the 9 cases sensitive to various drugs belonged to medical profession (pharmacists, nurses and doctors) showing positive patch tests with savlon (7), dettol (2), glove powder (2), nitrofurazone ointment (3) and neomycin ointment (1).

Comments

Palmar hyperkeratotic dermatitis is characterized by thickening of palmar skin associated with scaling and fissuring occurring commonly over tips and palmar aspects of fingers of one or both the hands and sometimes over palms in patchy distribution as a result of occupational factors of multifactorial nature.¹

Contact sensitivity plays an important role in the causation of such lesions as elaborated in the present study by elicitation of positive patch tests against agents of varied nature in 56.5% cases, whereas in the remaining patients physical factors of dryness and friction and irritant reaction could have contributed towards causation of hyperkeratotic lesions by repeated exposures of palmar skin in the occupation of an individual.

In accordance with the earlier reports of higher incidence of hand eczemas in females,³⁻⁷ housewives accounted for

42.3% of total cases, which can be explained on the basis of their coming in contact with agents of wide variety during day-to-day routines of household work of cooking, washing, cleansing and milking and feeding of animals particularly by housewives of rural background in India.

As earlier reported by various workers,⁵⁻⁷ vegetables accounted for the highest number of cases of hand dermatitis in housewives, garlic and onion being the most common sensitizers. The finding of detergents being the second major group of allergens particularly in housewives agrees with reports of Pasricha & Kanwar and Singh & Singh.⁸

Among metals, nickel has been reported to be the most common sensitizer,⁵⁻⁹ as also indicated by this study being more common in housewives due to utensils, door handles and knobs etc. Detection of chromate sensitivity in all the masses and 2 of them also showing positive patch test with cobalt can be explained on the basis of their coming in contact with cement which contains both chromate and cobalt.¹⁰

Certain other agents showing positive patch tests corresponded well with the occupation of patients e.g., animal foods and fertilizers in farmers and housewives of rural origin; drugs and antiseptics in personnel of medical profession; rubber, leather, plastics in teachers, clerks, students and businessman; hair oils and shampoos in housewives; petrochemicals in farmers and motor mechanics. Occurrence of sensitivity to wood, gum, paper and sand may not have much significance in view of occurrence in isolated instances.

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