

Contact dermatitis in housewives- A clinico-etiological study in a tertiary care hospital of northern India

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ABSTRACT

Background: Contact dermatitis is an ever increasing global problem, accounting for 4-7% of all dermatological consultations.

Objective: To find out the etiological agents and clinical patterns of contact dermatitis in housewives using patch test.

Methods: This cross sectional study was conducted in the skin OPD of one of a tertiary care hospital in Hapur during the month of Aug' 2009- Dec' 2009. The respondents were housewives who were involved in household work and willing to undergo patch testing during that period.

Results: Vegetables (garlic and onion) were the commonest suspected contactants (50%) followed by soap and detergents (40%) and condiments (10%). The commonest complaint was itching (85%); while erythema was the commonest lesion observed in two third of the patients (65%). Patch test was found positive in 42 cases out of 80 patients. Maximum patch test positivity was found among vegetables (67.5%).

Conclusion: Education and guidance remains the only hope to minimize the morbidity of contact dermatitis and enhance the quality of life of the affected individual in Indian setup.

Keywords: contact dermatitis, patch test, contactant

INTRODUCTION

Contact dermatitis is an increasing problem all over the world. It is a fairly common condition which accounts for 4-7% of all dermatological consultations.^{1,2} Contact dermatitis of hand in housewives is the most common type encountered in clinical practice. Over 20% of the females suffer from hand eczema at one stage or the other.³ It is most often seen around the hands or areas that touches or are exposed to the irritant/allergen.⁴ The excess hydration increases the pathogenicity of hand dermatitis. They affect mainly the volar aspect of the digital phalanges of the thumb, index and middle finger usually sparing the ring and little finger. Soap and detergents usually affect the dorsa of hands, web and sides of fingers.^{5,6}

A complete history of the patient is an integral part in establishing the etiology of the contact dermatitis. The clinical picture and its distribution help to arrive at the cause in many cases. A single non invasive diagnostic procedure for diagnosis of contact dermatitis is the Patch test.⁷ Although a number of studies have been carried out on contact dermatitis but the coverage of etiological

factors and clinical patterns of dermatitis in housewives has been negligible. In view of these considerations the present study was conducted with an objective to study the clinical patterns of contact dermatitis in housewives and to identify the etiological agents responsible for it with patch test.

MATERIAL AND METHODS

Study design: This cross sectional study was conducted in the skin OPD of a tertiary care hospital of Hapur, Uttar Pradesh, India during

Study period: Aug 2009- Dec 2009.

Study participants: Housewives involved in household work attending skin OPD during that period, were included in this study.

Exclusion criteria

Patient with frank pyoderma of hand, palmo-plantar keratoderma, collagen skin diseases; and also, those who were severely ill or receiving systemic corticosteroids or immunosuppressive therapy and in whom dermatitis was the result of systemically administered agent were excluded from the study.

Data collection

Participants were interviewed using a semi-structured schedule. Pilot testing on ten respondents was conducted and the schedule was accordingly modified. Informed consent was sought prior to interview. A detailed history from each patient was recorded which included presenting complaints, duration of illness, previous episodes and treatment taken. Specific history like washing cloths, handling vegetables and other household work done were also noted. Family history, history of atopy and patch test done earlier, if any, was recorded. Details about the sites of involvement, morphology of the clinical lesion and their relevance to the complete history were assessed. The participants were later subjected to the patch testing with suspected contactant.

Patch Testing:

Preparation of antigen – Fresh juice was used for vegetables; condiments were used as such after crushing them into powder; for soap and detergents a 1% aqueous suspension of different brands were used; and solids were minced or powdered and used as such.⁵

Method of Patch testing: The suspected contactants were put in the aluminum patch test chamber up to three fourth of its capacity. These chambers have an internal diameter of 9mm and depth of 0.7mm. Ten such aluminum patch test chambers were placed facing up with 2cm distance from the center of each other in two columns of five rows on the micropore tape of 15cm x 5cm. The test unit thus prepared was stuck vertically in the upper paravertebral region. Care was taken to avoid folds on the strips. Marking was done in numerical on the sides of the aluminum patch test chamber.^{1,8}

Instructions: Participants were instructed not to remove the patch for 48 hours, not to take bath or wet the back, avoid direct sunlight, exercise or any other activity causing sweating. They were also told not to wear tight underclothes, and keep away from any activity that may result in friction or scratching of the test site.

An occlusion time of 48hrs was kept and the

chambers were removed. The first reading was taken after 45 minutes of removing the patches (to avoid missing weak test reaction and avoiding the skin depressions). A second reading was then taken at 72/96hrs after the application of the patches.

Recording of the results: The patch test occluded site was examined carefully and the changes were graded according to the criteria laid down by International Contact Dermatitis Research Group.^{9,10,11}

Data Analysis: The data collected were analyzed with SPSS statistical software and the results were transferred to predesigned classified tables.

RESULTS

After history and clinical examination, total 80 housewives of contact dermatitis were studied during this period. Maximum number (80%) of cases belonged to 20-39 years of age group with peak incidence in age group 20-29 years. The pediatric and geriatric population was less affected.

Table 1. Profile of suspected contactants and the respective patch positivity

Suspected contactants	Number of patients (%) (n=80)	Patch positivity (%) (n=42)
Vegetables	40 (50)	27 (64.28)
Soap and detergents	32 (40)	13 (30.96)
Condiments	8(10)	2 (4.7)

Table 1 depicts that vegetables (garlic and onion) were the commonest suspected contactants (50%) followed by soap and detergents (40%) and condiments (10%). It also shows that out of 80 patients, patch test was found positive in 42 cases. Maximum patch test positivity was found among vegetables (67.5%) followed by soap-detergents (34.4%) and condiments (25.0%). Among the individual ingredients (Table- 2) highest patch test positivity was found with garlic (60%), Brand 1 powder (25%) and red chillies (25%).The commonest complaint (Table 3) was itching (85%) followed by blister and oozing (56.25%). Erythema was the commonest morphological lesion (Table 3) observed in two third of the patients (65%).

Table 2. Patch test positivity with vegetables, soap and detergents, and condiments

Allergens	Positive patch test (%)
Vegetables (n=40)	
Garlic	24 (60.0)
Onion	20 (50)
Ginger	8 (20)
Tomato	7 (17.5)
Patato	5 (12.5)
Lady finger	2 (5)
Soap and detergents (n=32)	
Brand 1	8 (25)
Brand 2	5 (15.62)
Brand 3	4 (12.5)
Brand 4	2 (6.25)
Brand 5	1 (3.12)
Brand 6	1 (3.12)
Condiments (n=8)	
Red chillies	2 (25)
Tamarind	1 (12.5)
Clove	0
Turmeric	0
Mustard seeds	0
Coriander	0

DISCUSSION

Dermatitis in housewives is common in clinical practice because of their frequent exposure to physical and chemical injury through water and various antigenic substances like vegetables, soaps and detergents. Majority were in the age group of 20-39 years which is consistent with other studies.^{5,12,13} Higher prevalence in this age group can be attributed to more activity in household work and hence maximum exposure to contactants. Half of the patients (50%) suspected contactant was vegetables as also was observed by Sinha SM et al.⁶

Similar to our study, Suman¹² and Nava¹⁴ also found itching as a main complaint of women presenting with contact dermatitis. Erythema was the main morphological pattern observed in two third of the patients (65%).

Majority of the patients (61.25%) showed positive patch test result to various suspected antigens. Earlier study by Agrup¹⁵ have also shown a remarkably high positive patch test reactions

Table 3. Distribution of cases according to presenting complaints and morphology of lesion

Complaints (n=80)	Number of patients(%)
Itching	68 (85.0)
Blister and oozing	45 (56.25)
Cracking and fissuring	36 (45.0)
Scaling and crusting	22 (27.5)
Hyperpigmentation	14 (17.5)
Thickening of skin	12 (15.0)
Swelling and oedema	4 (5.0)
Ulceration	2 (2.5)
Hypopigmentation	2 (2.5)
Morphology of lesions	
Erythema	52 (65.0)
Papulovesicles and oozing	36 (45.0)
Cracking and fissuring	32 (40.0)
Scaling and crusting	26 (32.5)
Lichenification	15 (18.75)
Hyperpigmentation	12 (15.0)
Ulceration	3 (3.75)
Hypopigmentation	1 (1.25)

ranging from 50% to 71.4%, whereas study conducted by Gurmohan et al¹⁶ showed lower percentage (41.0%) as compared to our study. In present study patch test positivity was found maximum among vegetables (64.28%) followed by soap and detergents (30.96%). These observations are in conformity with previous studies.^{6,12,16} Among vegetable patch test positivity was maximum with garlic (60.0%) followed by onion (50.0%). Similar finding were also reported by various other studies.^{1,6,17} In our study positive patch test was more frequently observed with various popular brands of soaps and detergents in contrast to a study conducted by Agrup where soap and detergents accounted for a small number of cases.¹⁵ This difference may be because, in western countries, women uses washing machines and dish washer whereas most of the Indian women do all domestic work with hands and do not adopt protective measures. Among condiments sensitivity was found more with red chillies. William SR et al., also reported sensitivity to chili in one of their study and named as *Hunan hand* to contact dermatitis resulting from the direct handling of chili containing capsaicin.¹⁸

This article appraises different reaction patterns which can occur upon contact with vegetables, soap-detergents and condiments and discusses some clinically important allergens responsible for these adverse effects. It is felt that education and guidance can minimize the morbidity of contact dermatitis and enhance the quality of life of the affected individual.

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