

Hand Eczema: An Evaluation of the Frequency of Atopic Background and the Difference in Clinical Pattern between Patients with and without Atopic Dermatitis

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In a prospective study of 63 patients with long-lasting hand eczema, a diagnosis of atopic dermatitis could be established in 49%. Comparison between patients with atopic dermatitis and those without atopic dermatitis showed that the hand eczema pattern differed very little between the groups. Hyperlinearity was significantly more common in the palms of the patients with atopic dermatitis. *Key word: Hyperlinear palms.*

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Hand eczema is a common disease. Several studies have shown a prevalence of between 2 and 11% (1-3). The etiology of hand eczema is complex, involving both endogenous and exogenous factors. Atopic constitution is a frequent background in patients with hand eczema. The most common site of atopic dermatitis (AD) in adults seems to be the hands (4, 5) and it has been clearly demonstrated that hand eczema is significantly more common in people with a history of AD (6-8).

The aim of the present study was to examine the frequency of AD in patients with long-lasting hand eczema and to try to define the difference in the clinical picture of the hand eczema between patients with and without AD.

MATERIAL AND METHODS

In this prospective study, 63 consecutive patients (45 females and 18 males) on their first attendance at the Dermatological Department were investigated. Mean age was 33.8 years (range 19-79). Like all our patients they were referred to us from non-dermatologists, usually general practitioners. Only patients referred because of their chronic or chronically recurring hand eczema for at least 6 months were included in the study. A minimum age of 18 years was chosen; otherwise there was no selection of patients at the Department.

An anamnesis was taken and clinical examination performed in the same way in all cases. The investigations were performed by the author between November and June. All patients were examined with regard to the presence of AD. For this purpose a previously constructed score system was used (9). In the original study, chronic, itchy flexural dermatitis was used to define AD; consequently this sign was not included in the system. In the present study, however, previous or present flexural dermatitis was recorded, even though this sign did not imply any score points. Patients with more than 15 points were considered to have AD.

The distribution of eczematous lesions (erythema, papules, vesicles, scaling) on the hands and fingers was recorded as follows:

Hands: back, thenar, hypothenar, central palm and distal palm;

Fingers: sides, volar and dorsal aspects.

Eczema localized to the dorsal parts of the fingers was separated into eczema on knuckles and eczema between knuckles. The metacarpophalangeal joints were classified as knuckles—and not as the back of the hand. Eczema localized on the fingertips was noted separately. Eczematous lesions on each finger were registered in detail.

Localization of eczema in the patient group with ≤ 8 points and with ≥ 20 points has been compared.

In all patients the occurrence of hyperlinearity in the palms was specifically notified. Hyperlinearity was defined as a bilateral exaggeration of the pattern of ridges and creases in the palms.

All patients were patch-tested with ICDRG standard test series and other sensitizers and compounds when indicated by the history. Finn chambers® on Scanpor® were applied for 48 h and read after a further 24 h.

For statistical analyses, the Fisher exact test and χ^2 -test were used.

RESULTS

Of 63 patients, 29 had AD. Among these, 10 patients had current flexural dermatitis and 9 a history of previous such localization of their eczema. Thus 10 patients with AD neither had nor had had flexural dermatitis.

Among the 34 patients without AD there were 6 with current or previous atopic disease. These 6 patients were very close to fulfilling the diagnostic criteria; 5 of them had 13–15 points. Two had had flexural dermatitis several years ago, 3 had allergic rhinitis and one asthma. None of these 6 patients had elevated serum IgE and the patient with asthma had a negative prick test.

In the total material of 63 patients there were 20 with serum IgE >80 kU/l. 15 of these patients had AD. This means that 14 patients with AD had normal serum IgE.

A positive patch test was found in 20 patients. Ten (34%) of the patients with AD and 10 (29%) of the others had positive test reactions. There was no difference in the pattern of contact allergy between the two groups.

There was no significant difference in the localization of eczema, either between males and females, or between patients with positive and negative patch tests. The distribution of hand eczema is presented in Table I. Involvement of only one or several fingers has not been

Table I. Localization of hand eczema in 63 patients

As seen from the table the fingers were affected more often than the hands

Site		Number	%	
Dorsal hand	Total	30	48	
	Only right hand	8	13	
	Only left hand	1	2	
Palmar hand	Total	35	56	
	Thenar	24	38	
	Only right hand	2	3	
	Only left hand	5	8	
	Hypothenar	18	29	
	Only right hand	5	8	
	Only left hand	2	3	
	Central palm	28	44	
	Only right hand	9	14	
	Only left hand	4	6	
Distal palm	Total	23	37	
	Only right hand	9	14	
	Only left hand	4	6	
	Finger(s)	Total	62	98
		Dorsal	48	76
		Between knuckles	47	74
		On knuckles	44	70
Sides		48	76	
Fingertip		18	29	
Palmar		44	70	

separated in this table. As seen from the table, one patient had eczema on the knuckles and 4 had eczema between the knuckles only. In 4 patients there was lichenified eczema on the knuckles. Three of these patients had AD and the fourth, scoring 14 points, had had flexural dermatitis as a child.

There was only one significant difference in eczema localization between patients with AD and the others. Eczema of the hypothenar region was more frequent in patients with AD ($p < 0.05$).

There were 16 patients in the group with ≤ 8 points and 16 with ≥ 20 points. Only one significant difference between these two groups was noticed; the patients with the higher scores more often had eczema on the back of the hands ($p < 0.05$).

The localization of eczema on each finger has been analysed in detail. It was found that dig V ($p < 0.05$) was more often affected on the right hand. In dig III, palmar ($p < 0.05$) as well as dorsal ($p < 0.05$) parts were affected more often on the right hand. Otherwise there was no significant difference in localization concerning right or left hand.

Three patients, all females, had the 'apron pattern' of palmar eczema (10). All these patients were considered to be atopic according to the score system. None had a positive patch test reaction.

13 of the patients showed hyperlinearity in their palms. None of them had ichthyotic lesions on other parts of the body. Eleven of these 13 patients had AD. The other 2 patients scored 11 and 0 points. None of them had or had had AD, allergic rhinitis or asthma. The occurrence of hyperlinearity was thus significantly greater in patients with AD ($p < 0.01$).

DISCUSSION

The presence of atopy in a population depends on the character of the population studied as well as on the definition of atopy. In this study, patients had had hand eczema for at least 6 months. The fact that all patients had been referred from (usually) general practitioners suggests that the patients had a rather severe hand eczema. Thus it is likely that the proportion of patients with AD should be high, since subjects with AD develop a more severe hand eczema than do non-atopics (11).

Six patients with atopic disease were not classified as having AD. At least 2 of them had obviously had AD. The hand eczema in these 2, and perhaps in all 6, might in fact be due to AD. According to our previous studies the score system does not exclude false-negatives, i.e. patients with AD not fulfilling the criteria (9). In this as well as in earlier studies, most of these patients scored 12–15 points. To avoid false-negatives as well as false-positives the comparison of hand eczema pattern was made between patients scoring ≤ 8 and ≥ 20 points, i.e. between patients with AD and without AD in a very strict sense. In this connection it has to be stressed that the score system was constructed to detect patients with AD; it is not a general test to identify atopic individuals. It may be questioned whether it is relevant to demonstrate atopy instead of atopic dermatitis in patients with hand eczema. Rystedt (5) has shown that patients with respiratory allergy (bronchial asthma \pm allergic rhinitis) in childhood and without AD in childhood subsequently showed the same tendency to develop hand eczema as did non-atopics. Lammintausta (6) found that the risk of developing hand dermatitis in wet work was comparable to that in non-atopics among hospital workers with atopic mucosal symptoms only, i.e. allergic rhinitis/conjunctivitis or asthma.

Among the patients with hand eczema in this study there were 29 who were classified as having AD according to the score system. Another 2 patients had had flexural dermatitis and were probable false-negatives. Thus there were 31 patients (49%) with a present or previous AD. If on the other hand only previous or present flexural dermatitis had been used as definition, only 21 patients (33%) had AD.

As a comparison, Agrup (1), found previous or present AD in 20% among patients with hand eczema in an epidemiologic survey. This figure is similar to that given by Lammintausta & Kalimo (12) among hospital workers with hand eczema. Rystedt (13) found that 28% of 368 patients referred to a department of occupational dermatology had or had had AD. Shmunis & Keil (14) found 47% with AD in a postal survey of work-related skin disease of the hands. In 58% of a selected group of 142 hospital wet workers with hand eczema (15), in about 2/3 of female patients referred to a contact dermatitis clinic (10) and in 82% among irritant hand dermatitis patients (16) past or present personal or family history of atopic disease was found. The wide range (20–82%) can be attributed to differences in the populations studied, or to different criteria for atopy, or if only AD or other forms of atopy is included. In most articles, however, information as to the definition of atopy/atopic disease was vague.

The only significant ($p < 0.05$) difference between patients with and without AD was that those with AD more often had eczema of the hypothenar region. However, patients with this localization were few and there was no significant difference between patients with ≤ 8 and ≥ 20 points. When comparing eczema sites between patients with the highest and lowest points, only one significant difference was found; patients with AD had eczema more often on the dorsal part of the hands. Despite a very careful division of patients with and without AD in this investigation, it was found that hand eczema differs very little in localization between the two groups. This is in agreement with previous studies (5, 10, 17, 18). This also accords with the study of Lammintausta & Kalimo (12) who could not find any difference between atopic and non-atopic patients regarding starting sites of hand dermatitis.

It has been assumed that increased palmar markings are a phenotypic marker of AD (19, 20). 38% of the patients with AD according to the score system had hyperlinearity of the palms. This is in agreement with Leutgeb et al. (21) who reported that palmar markings were increased in 34% of their 130 patients with AD and with Uehara & Hayashi (22) who found hyperlinear palms in 28% among 178 patients with AD. In these two previous investigations (21, 22) it was suggested that hyperlinear palms were a manifestation of concomitant ichthyosis vulgaris. In the present study, only 3 patients had ichthyosis vulgaris and none of them had hyperlinear palms. On the basis of the present investigation and that of Høyer et al. (23) and Smith (24) it seems more reasonable to assume that palmar hyperlinearity is a trait of AD itself.

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