Palmoplantar Lesions in Psoriatic Patients and Their Relation to Inverse Psoriasis, Tinea Infection and Contact Allergy

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One hundred and seven psoriatics with palmoplantar involvement were clinically examined. They were selected from 921 patients filed in 1976 with the diagnosis psoriasis. Fifty per cent of the patients with palmoplantar psoriasis had flexural changes. The frequency of palmar involvement in patients with inverse psoriasis compared to patients with psoriasis vulgaris was increased 5.3 times. Pustulosis palmoplantaris (PPP) in addition to psoriasis was diagnosed in 18 patients (17%). A dermatophyte infection was observed in 1 of 48 patients examined for tinea infection. Positive patch tests were obtained in 8 of 47 patients, 7 of whom had more than one test reaction. The result gives no evidence of tinea infection and contact allergy as important factors in maintaining palmoplantar psoriasis. *Key words: Flexural psoriasis; Dermatophyte infection; Patch test.* (Received April 18, 1984.)

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The prevalence of psoriasis in Scandinavia is about 2%. The frequency of palmoplantar involvement in psoriatic patients varies in different investigations between 2 and 10% (1–3). Little attention has been paid to this often recalcitrant and handicapping form of the disease. The aim of this investigation was to characterize the clinical picture in these patients and to study the occurrence of tinea infection and contact allergy in this group.

MATERIALS AND METHODS

In 1976 psoriasis was diagnosed in 921 patients in the Department of Dermatology, Karolinska sjukhuset. Lesions in the palms and/or the soles were noted in the records in 180 of the cases. These patients were selected for the study which was carried out on two occasions (1977 and 1982). In 1977 the mean age was 53 years (range 19–85) in 102 men and 54 years (range 26–83) in 78 women. A total of 107 cases were examined. Seventy-one patients were studied in 1977 and 73 in 1982. Thirty-seven patients were seen on both occasions. This group constituted the follow-up group. A sum-up of individual lesions was made in those cases seen twice. Thirty-four cases were not reexamined in 1982; nine patients were excluded of whom 5 declared themselves healed and 4 had developed erythroderma. Thirteen patients had deceased or emigrated, and 12 were either not retrieved or unable to participate. Seventy-three out of the original 180 patients were not examined. No information was accessible in 12 of these cases. In the remaining 61 patients 19 were filed as dead or emigrated and 22 had moved without notified address. Twenty patients refused examination. Nine of these declared themselves healed in the palms and soles.

Examination. Presence and location of vesicles, pustules and keratosis on hands and soles were investigated. Involvement of the nails and the digital joints was noted. The type of psoriasis was characterized as vulgar, flexural (involvement of at least one of the following locations: the axilla, the groin, the navel, the perianal region, the genitalia or the inframammary fold) and/or pustular (pustules on other locations than the palms or soles). Patients with psoriatic erythroderma were excluded. The patients were questioned about earlier palmoplantar lesions and about pain or dysfunction of finger and toe joints. Recalcitrant pustular eruptions restricted to the palms and/or the soles were diagnosed as pustulosis palmoplantaris (4).

Investigative studies. Standard patch tests (ICDRG;5) were performed on the upper part of the back in 47 patients (22 males), who had sparse or no involvement of the trunk (Table I). 60 patients were not patch-tested for reasons as described in Table I. Among cases not tested there was a history of

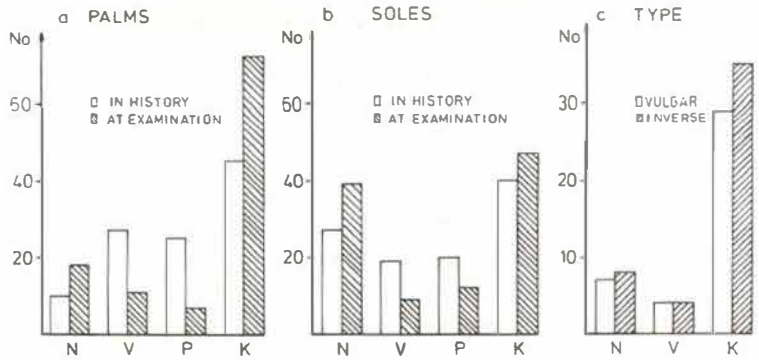

Fig. 1. Lesions in the palms and the soles in 107 psoriatic patients. (*a*) lesions in the palms, (*b*) lesions in the soles, (*c*) palmar lesions in patients with vulgar (39) and inverse (47) psoriasis excluding cases with known palmoplantar pustulosis (18), contact allergic dermatitis (2) and tinea infection (1 case). *N*, no lesions; *V*, vesicles without pustules; *P*, pustules with or without vesicles; *K*, keratosis without vesicles or pustules.

contact allergy against metal (nickel) in one patient. Mycological studies were performed in 48 cases in whom the lesions in palms and soles were diffuse and widespread or otherwise suggestive of a tinea infection. Material was obtained from the palms in 24, from the soles in 30 and from the nails in 4 cases. Six of the patients had PPP.

Statistical tests were performed by χ^2-tests adjusted for continuity in R×C tables (6).

Homogeneity of the material. In the material 73 of 180 patients were not examined. In the not-examined group 61 files were accessible. The examined and the data from files in the not-examined group was compared with regard to sex, notified presence or absence of palmar lesions and flexural involvement. Patients with palmar lesions were further subdivided according to the presence either of vesicles and/or pustules or keratosis. The examined and not-examined group was not different in any of these comparisons ($p>0.1$). This suggests that the patients examined are representative for the entire group.

RESULTS

The clinical presentation is summarized in Fig. 1. The majority of the patients had lesions both in the midpalm and the instep as well as at the periphery of the palms and soles.

Pustular lesions. 15 patients had pustules at examination. In 4 cases they were present both in the palms and the soles. Three cases had pustules in the palms and 8 in the soles only. In addition, the history suggested presence of pustules at one time in 22 cases. In summary, on the basis of clinical presentation at examination(s), history of the patients and data from the files, a diagnosis of PPP was made in 18 cases and it was suggested in 10 further cases. The reason for occasional pustules in the history of the remaining 9 cases was not ascertained.

Vesicular lesions in the hands were present in 19 cases. A concomitant PPP was found in 4 of the patients and in 8 further subjects PPP was suggested from history as summarized above. Two patients had a contact dermatitis with a corroborative history and patch test reaction (Table I). In the remaining 5 patients 3 cases had palmoplantar vesicles. In none of these cases a diagnosis of pompholyx or traumiterative toxic dermatitis could be made. Dermatophyte cultures were done in 4 and patch testing in 3 of the 5 cases with negative results.

Keratotic lesions in the palms and soles were the most frequent findings, 81% and 64%, respectively. Lesions on the side of the fingers occurred in 62% and on the back of the hands in 88%.

Type of psoriasis. Inverse psoriasis was present in 50% of the patients studied (54 cases). In the records on all psoriatic patients seen at the hospital in 1976 (921 cases) information about inverse psoriasis was found in 16% (150 cases). The difference between these frequences is statistically significant ($p<0.001$). Among the 180 cases selected for this study palmar lesions were present in 45% of the patients with inverse psoriasis (67/150) compared with 8% in the patients with psoriasis vulgaris (65/771). This means an increased frequency of 5.3 times the palmar involvement in the former group.

Nails and joints. Finger nails were affected in 67% and toe nails in 68%. In patients with nail lesions onychia on fingers (76%) and subungual keratosis on toes (78%) were the most common findings. Dystrophic changes on fingers and toes were less common, 21% and 45%, respectively. Joint involvement of the digits occurred in 24%. A history of joint disease was given by 45%.

The follow-up cases consisted of 37 psoriatic patients of whom 7 had PPP, one had contact dermatitis, and 22 had flexural involvement. Seventeen of the 37 cases had similar palmar lesions in 1977 and in 1982. Thirteen patients were improved and 7 worsened. In this respect vesicles or pustules were considered worse than keratosis. Five of the 6 patients with palmar vesicles were improved as well as 2 with pustules. Five of the 7 patients with PPP were improved. The frequency of nail involvement (ca. 60%) was similar, but subungual keratosis on finger nails increased from 3% to 24% during the period.

Investigative studies. A summary of the patch tests is given in Tables I and II. In one patient with PPP positive reactions and a confirming history suggested perfume allergy as a cause of contact dermatitis. Three patients with vesicular lesions had positive patch tests of whom 2 had a concomitant history supporting contact allergy. In 6 patients with vesicular eruptions both on the hands and in the soles patch tests were not done due to extensive psoriasis. Two of the cases had palmar lesions, 2 had lesions only on the back of the hands and the remaining 2 had lesions on both the dorsal and palmar aspects of the hands. In 3 of 8 patients the history and a positive patch test supported a true contact allergy. In the other cases this could not be established with any certainty.

The dermatophyte studies were done in all cases in whom a clinical suspicion of infection was present. In only one case with keratotic lesions T. mentagrophytes was obtained from the sole.

Table I. *Clinical presentation (107 cases) and patch tests (47 cases) in psoriatic patients selected for palmar and/or plantar lesions*

The figure in the exponent indicates the number of patients with vesicles but without pustules in the soles (19 cases)

Lesions on the hands	No.	Patch tests		Not patch tested		
		Positive	Negative	Extensive psoriasis	Healed	Others[a]
Vesicles without pustules	19	3	8^4	6^6	1	1
Pustules with and without vesicles	7	1	4^4	2^1	–	–
Keratosis	65	3	23	14	5	20^4
No lesions	16	1	4	2	–	9
Sum	107	8	39	24	6	30

[a] Others: dead 7, old age 3, PUVA treated 2, excuse for work, travelling distance or unwillingness 18.

DISCUSSION

In our patients with psoriasis and palmoplantar involvement keratosis was the principle finding. Two groups, one with vesicles and one with pustules, diverged from the common clinical picture. We found PPP in 17%, and if suspected cases were included the frequency increased to 26%. Ingram (8) reported on persistent pustular eruptions of the extremities in 2% of 1625 psoriatic patients seen in his private practice. This frequency is similar to that of the present study, in which 18 out of 921 patients had PPP. After adjustment for non-retrieved patients this amounts to 3%. In Ingram's material the incidence of pustular eruptions of the extremities was four times more frequent than in other dermatological patients.

Variation in the incidence of inverse psoriasis (3–30%) is reported (3, 9). Flexural involvement occurred in 50% of the patients. This figure might be explained by an expected overrepresentation of severe cases attending the hospital. A finding of inverse psoriasis could, according to different authors (10, 11) be of aid in separating palmar psoriasis from other chronic hand dermatitides. The existence of a connection between palmoplantar and inverse psoriasis is supported by this study.

The persistence of palmar lesions in psoriatics is illustrated in the follow-up group. However, in the sub-group consisting of 7 patients with PPP 5 were improved. A follow-up study on patients with PPP (12) showed that 30% of the patients were healed 5 and 10 years after the onset of the disease, and that 50% of the remaining cases were free of pustules. There was no difference in patients with and without associated psoriasis in this respect.

Table II. *Psoriatic patients with positive patch tests*

A total of 47 patients with palmar lesions indicated in Table I were examined

Cases (sex, age)	Substance	Reaction[a]	Confirming history	Flexural psoriasis	PPP
m, 71	Mercapto-mix	++	Nil	Yes	–
	Detergents	+	Nil		
m, 41	Potassium dichromate	+++	Nil	Yes	–
	Cobalt chloride	+++	Nil		
	Thiuram-mix	+++	Nil		
m, 59	Colophony	++	Nil	No	–
f, 58	Cobalt chloride	+++	Nil	No	Yes
	Balsam of Peru	+++	Perfume		
	Fragrance-mix	+++	Perfume		
f, 44	Thiuram-mix	++	Rubber gloves	Yes	–
	Neomycin sulphate	++	Nil		
f, 45	Wool alcohols	++	Nil	Yes	–
	Phenylenediamines	++	Nil		
	Detergents	+	Nil		
f, 76	Cobolt chloride	++	Metals	Yes	–
	Potassium dichromate	++	Metals		
	Thiuram-mix	+++	Nil		
f, 46	Formaldehyde	++	Nil	Yes	–
	Detergents	+	Nil		

[a] +++ Vesicles, ++ papules, + erythema together with oedema.

The importance of trauma, tinea infection and contact allergy as provoking and/or maintaining factors in psoriasis have been discussed (13–15). Studies which show this are, however, scanty. Dermatophytes are rarely present in a psoriatic lesion of the glabrous skin (16, 17). We found a dermatophyte infection in only 1 out of 48 patients. Eight patients had positive patch tests, of whom 7 had multiple reactions. Many of these were probably false positive (10, 18). The combination of multiple reactions without a confirming history for a certain allergen (Table II) supports this assumption (10, 18). We did not perform a second patch test with serial dilutions of the allergen to strengthen this point (19). The majority of the patients tested had lesions both in their palms and soles, which may be an argument against contact allergy as a factor maintaining psoriasis in these sites.

Psoriatics do react to contact allergens but the incidence may differ in comparison to patients with eczema (14, 20–22). In patients with hand eczema positive standard patch tests have been found in about 40% of 993 cases reported in two studies (23, 24). On statistical analysis we found this frequency significantly higher than the frequency (17%) in this report ($p<0.001$).

Multiple positive patch test reactions occurred in several patients with inverse psoriasis. The question may be asked whether the skin in patients with flexural involvement is more sensitive to triggering factors than the skin in other psoriatics. It infers an occupational hazard for this group of patients and should be the object of a further investigation.

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