The histopathological differentiation between palmar psoriasis and hand eczema: A retrospective review of 96 cases

Jun Yeong Park, MD,[a] Eun Byul Cho, MD,[a] Eun Joo Park, MD, PhD,[a] Hye Rim Park, MD, PhD,[b] Kwang Ho Kim, MD, PhD,[a] and Kwang Joong Kim, MD, PhD[a]
Anyang, Korea

Background: The histopathologic differences among palmar psoriasis (PP), hand eczema (HE), and hyperkeratotic hand dermatitis (HHD) have been poorly described.

Objectives: We sought to distinguish among PP, HE, and HHD on a histopathologic basis.

Methods: We retrospectively analyzed the histology of hematoxylin-eosin–stained sections obtained from 96 patients diagnosed with PP, HE, or HHD.

Results: The patients were divided into 4 subgroups: PP (n = 16, group A), HE without atopic or nummular dermatitis (n = 41, group B), HE with atopic or nummular dermatitis (n = 14, group C), and HHD (n = 25, group D). Loss of the granular layer (group A 62.5%, group B 24.4%, group C 0%) was more consistent with a diagnosis of PP (P = .047) than HE (P = .002). Psoriasiform epidermal hyperplasia (group B 36.6%, group C 35.7%, group D 72.0%) favored a diagnosis of HHD (P = .01) over HE (P = .043).

Limitations: Limitations of this study include its retrospective nature and small sample size.

Conclusion: Our study demonstrated that a significant difference exists in the thickness of the granular layer between PP and HE, which might be helpful in differentiating between these 2 conditions. There was no difference between PP and HHD. (J Am Acad Dermatol http://dx.doi.org/10.1016/j.jaad.2017.01.005.)

Palmar skin lesions are one of the most common chief complaints among patients who visit dermatology clinics. Palmar psoriasis (PP) and hand eczema (HE) negatively affect a patients quality of life and result in significant functional and social disability.[1,2] HE is associated with a history of exposure to irritants and allergens at home or in the workplace, certain occupations, and comorbidities such as atopic dermatitis or nummular dermatitis. Patients with HE also often have a history of contact allergic reactions identified through patch testing. HE differs from PP in that the latter usually presents with sharply demarcated lesions without pruritus or vesicles.[3,4] However, distinguishing

Abbreviations used:

AD:	atopic dermatitis
HE:	hand eczema
HHD:	hyperkeratotic hand dermatitis
ND:	nummular dermatitis
PP:	palmar psoriasis

From the Department of Dermatology, Hallym University Sacred Heart Hospital, Anyang[a]; and the Department of Pathology, Hallym University Sacred Heart Hospital, Anyang.[b]
Funding sources: None.
Conflicts of interest: None declared.
Accepted for publication January 4, 2017.
Reprints not available from the authors.

Correspondence to: Kwang Ho Kim, MD, PhD, Department of Dermatology, Hallym University Sacred Heart Hospital, 22, Gwanpyeong-ro 170beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, Republic of Korea. E-mail: dermakkh@naver.com.
Published online February 9, 2017.
0190-9622/$36.00

http://dx.doi.org/10.1016/j.jaad.2017.01.005

between the diagnoses stated above remains difficult because of their overlapping clinical findings. Hyperkeratotic hand dermatitis (HHD) clinically presents with sharply demarcated areas of thick scaling or hyperkeratosis on the proximal or middle aspect of the palms[5] and is now considered as an entity distinct from HE. It is difficult to distinguish HHD from PP without the clinical presence of a painful fissure, which is the characteristic of HHD.

Clinicians have difficulty in accurately diagnosing PP and HE due to the similar histopathologic features of these conditions[6] and because of their similar clinical responses to the systemic treatment of psoriasis with agents such as methotrexate, oral retinoids, and cyclosporine.[7]

Because many comorbid diseases including cardiovascular disease, metabolic syndrome, nonalchoholic fatty liver disease, and cancer are more prevalent in psoriasis patients than in the general population,[8] better distinguishment of PP from HE is needed. The aim of our study was to distinguish PP, HE, and HHD histologically.

CAPSULE SUMMARY

- Histopathological differences among palmar psoriasis, hand eczema, and hyperkeratotic hand dermatitis have been poorly described.
- Loss of the granular layer is a characteristic more consistent with palmar psoriasis than hand eczema. No histologic characteristics could distinguish between palmar psoriasis and hyperkeratotic hand dermatitis.
- Clinicians may consider hyperkeratotic hand dermatitis as a variant of palmar psoriasis.

METHODS

Patients

We obtained skin biopsies from 96 patients who presented to our out-patient clinic with clinical evidence of PP or HE on their palms. All involved patients had a treatment history of >3 months with a waxing and waning clinical course. Clinically, a case of PP was defined as well-demarcated, erythematous, hyperkeratotic thick scaly patches and plaques on the palms and ≥1 typical psoriatic plaques on another body site (Fig 1, *A*). Patients who had a history of deep-seated, brownish crusted macules or pustular lesions indicative of palmoplantar pustulosis were excluded.

The diagnosis of HE was reached when patients displayed chronic, localized eczematous dermatitis with 1) a history of relevant allergic or irritant exposures, 2) positive patch test results, or 3) typical skin lesions of atopic dermatitis or nummular dermatitis on another part of the body excluding the palms (Fig 1, *B*). The diagnosis of HHD was reached if patients displayed sharply marginated hyperkeratotic, fissure-prone, infiltrated lesions on the proximal or middle palm and volar surface of fingers without a history of clinical features of PP and HE (Fig 1, *C*).

Tissue collection and staining

A total of 96 patients were categorized into 4 groups: group A (PP; n = 16), group B (HE without atopic dermatitis [AD] or nummular dermatitis [ND]; n = 41), group C (HE with AD or ND; n = 14), and group D (HHD; n = 25). Punch biopsies measuring 3 mm or 4 mm were taken from the most prominent lesions. Tissue samples were fixed in 10% formaldehyde, embedded in paraffin, and stained with hematoxylin-eosin.[5] The possibility of a dermatophyte infection was eliminated by performing potassium hydroxide preparations from direct skin scrapings or periodic acid-Schiff staining on paraffin-embedded tissue specimens.

Two dermatopathologists (K.H.K. and H.R.P.) who were blinded to the clinical diagnosis of the patients reviewed the hematoxylin-eosin–stained sections using a checklist of histologic features (Table I).

Statistical analysis

A chi-square independent test was used to evaluate the differences in the histologic features among the 4 groups. A Fisher's exact test was used to evaluate the difference in the histologic features between 2 groups. Statistical analysis were performed using statistical package for social science (SPSS) software version 20.0 (SPSS Inc, Chicago, IL, USA), and statistical significance was defined by a P value <.05.

RESULTS

Clinical characteristics of the patients

Of the 16 patients with PP (group A) included in the study, 7 were men and 9 were women, with a mean age of 46.66 years (range 22-62 years). Among the 41 patients with HE without AD or ND (group B), there were 21 men and 20 women, with a mean group age of 42.41 years (range 19-72 years). Among the 14 patients with HE accompanied by AD or ND (group C), there were 6 men and 8 women, with a mean group age of 40.42 years (range 14-59 years). Of the 25 patients with HHD (group D) included in