PsEma—A Hitherto Unnamed Dermatologic Entity With Clinical Features of Both Psoriasis and Eczema

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Introduction. *Recent advances in molecular biology have helped establish differences between psoriasis and a group of inflammatory skin disorders commonly referred to as eczema. The authors have observed significant overlap between these two conditions such that a distinction between them may not always be made, even with histologic examination of skin biopsy specimens.*

Objective. *To determine how frequently psoriasis patients present features of both psoriasis and eczema.*

Methods. *The authors conducted a prospective analysis of 100 consecutive psoriasis patients in their clinic.*

Results. *The authors found that 20% could be diagnosed as "intermediate," having lesions with characteristics of both psoriasis and eczema, or a personal history of both. The authors suggest naming this category of inflammatory dermatosis "PsEma"—an overlap condition in which the clinical, histologic, molecular, biologic, and therapeutic responses show characteristics of both psoriasis and eczema. (SKINmed. 2005;4:275–281)*

Over the past 24 years, we have seen approximately 7500 psoriasis patients in our clinic. Currently, over 750 patients receive systemic antipsoriatic therapy and about 450 are receiving the new biologic medications. Approximately 150 patients receive psoralen–UV-A photochemotherapy (PUVA), narrow-band or broad-band UV-B for psoriasis, as well as for other inflammatory skin diseases referred to generically as eczema, suggesting that we see a selected psoriasis population with a significant proportion of severe cases, many referred from other dermatologists who are uncomfortable with the use of systemics that require monitoring for toxicity.

We have observed a number of patients in whom the distinction between the two was not clinically possible, either at the initial or on subsequent visits, or in whom the diagnosis vacillated clinically and histologically between the two conditions over the course of observation or treatment. Some patients have been diagnosed with either eczema or psoriasis at different visits to either the same or a different dermatologist within our practice. This vacillation is particularly evident when lesions are predominantly palmar or plantar (Figure 1). Significantly pruritic psoriasis, particularly of the legs or scalp, may also be clinically confused with eczema (Figure 2). Conversely, while frequently flexural in distribution, atopic dermatitis (AD) may involve extensor surfaces such as the elbows and knees, manifesting as lichenified papules and discrete plaques that may resemble psoriasis. Traditionally, psoriasis has been mistakenly perceived as being minimally or non-pruritic, hence the impression developed that eczema ("the itch that rashes") may be differentiated

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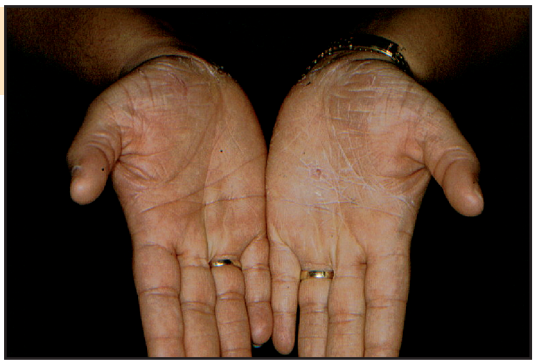

Figure 1. *Palmar skin lesions of PsEma*

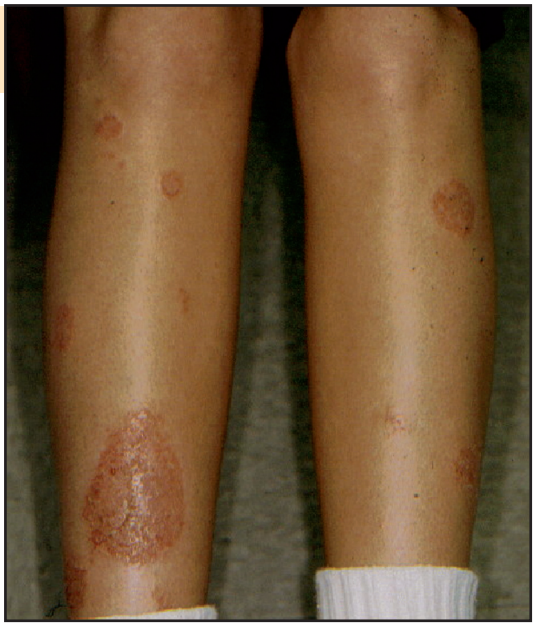

Figure 2. *Discoid eczema of the shins of a psoriatic patient*

from psoriasis by the absence or presence of pruritus. A recent study observed pruritus in 84% of patients with psoriasis.[1]

After apparently successful psoriasis therapy, lesions morphologically suggestive of lichen simplex chronicus or prurigo nodularis may remain, being dismissed as Koebnerized psoriasis. Furthermore, iatrogenically thinned, plaque-type psoriasis may be difficult to distinguish clinically from discoid (nummular) or patchetoid eczema. Finally, at any given visit, some patients may present with lesions clinically typical of both psoriasis and eczema.

> ***There are patients in whom the distinction between psoriasis and eczema is not clinically possible.***

Although psoriasis (a T_H1-mediated autoimmune disease) and eczema (a T_H2-mediated disease in its early stages) are considered two distinct dermatoses based on their lymphocytic mediation and cytokine involvement, these conditions may coexist despite the cross-regulation between T_H1 and T_H2. One Finnish study has found that T_H2-mediated atopic asthma has a higher prevalence in children with T_H1-mediated autoimmune diseases such as rheumatoid arthritis and celiac disease.[2] Another study proposes that there may be a common etiology based on data showing an increased prevalence of eczema and allergic rhinitis—both T_H2-mediated atopic diseases—among patients with T_H1-mediated diseases, including psoriasis.[3] That study even emphasizes a statistically strong association between psoriasis and eczema.

Given the prevalence, we suggest naming the entity in which the clinical presentation, histologic analysis, molecular and biologic qualities, and therapeutic responses show characteristics of both psoriasis and eczema. We propose the term "PsEma" (pronounced "SEE-ma" to refer to this inflammatory dermatosis, in which the distinction between the two is not clear.

Materials and Methods

We conducted a prospective analysis of 100 consecutive psoriasis patients attending our clinic with regard to personal and family histories of atopic-related conditions including eczema, AD, hay fever, asthma, urticaria, allergic conjunctivitis, contact dermatitis, drug allergies, and food allergies. The clinical diagnosis of eczema was based on the presence of itchy or burning lesions characterized by erythematous or violaceous hue, infiltration, population, elevation, vesiculation, scaling/peeling, erosions, oozing/weeping, crusting, fissuring, lichenification, and/or excoriations. Psoriasis was diagnosed on clinical grounds by lesional morphology with erythematous, scaling, and indurated plaques in a characteristic pattern of distribution. All patients were evaluated by a dermatologist who diagnosed them as having psoriasis, eczema, or an overlap of the clinical characteristics mentioned above.

Borrowing from the schema utilized to characterize the clinical variants of leprosy,[4] we developed a schema that allowed us to categorize the different ways in which psoriasis and eczema overlap (Figure 3). A diagnosis of "intermediate" was made when a patient had lesions with characteristics of both psoriasis and eczema or

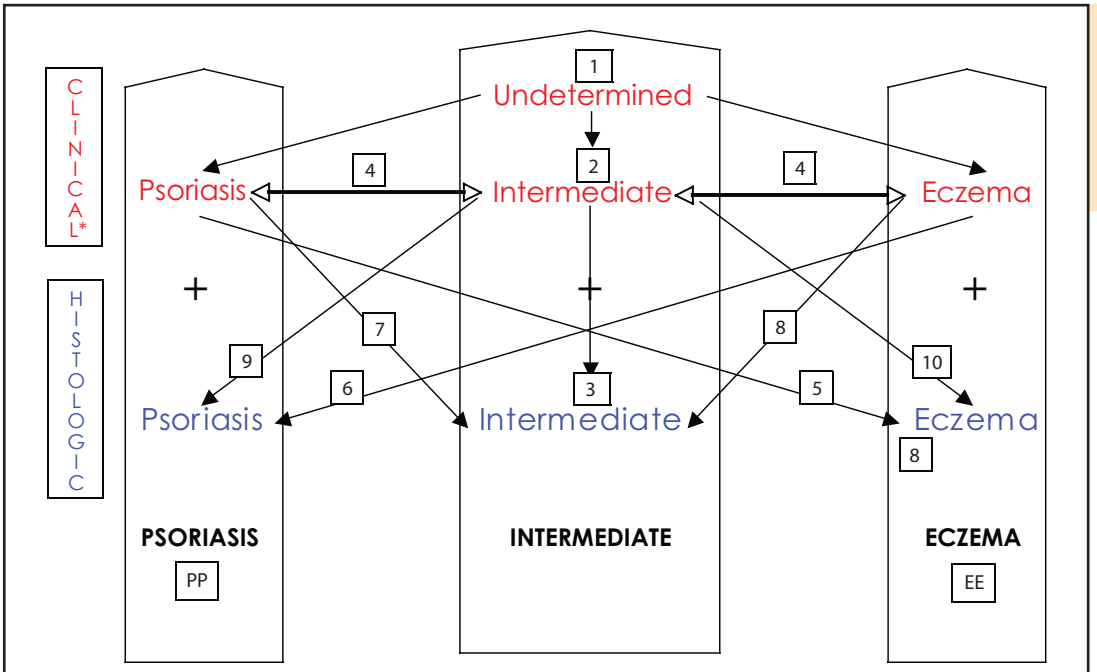

Figure 3. *The spectrum of inflammatory skin conditions between psoriasis and eczema. *Clinical features include morphologic characteristics plus personal and family history.*

PP	Clinical features characteristic of PSORIASIS
	Histologic features characteristic of PSORIASIS
1	Clinical features do not allow diagnosis of either PSORIASIS or ECZEMA
	In time, it is expected that progression of characteristics will permit differentiation into PSORIASIS, ECZEMA, or UNDETERMINED disease
2	Clinical features characteristic of both PSORIASIS and ECZEMA
3	Clinical features characteristic of both PSORIASIS and ECZEMA
	Histologic features characteristic of both PSORIASIS and ECZEMA
4	Clinical features vacillate in time between ECZEMA and PSORIASIS
5	Clinical features characteristic of PSORIASIS
	Histologic features characteristic of ECZEMA
6	Clinical features characteristic of ECZEMA
	Histologic features characteristic of PSORIASIS
7	Clinical features characteristic of PSORIASIS
	Histologic features characteristic of INTERMEDIATE type
8	Clinical features characteristic of ECZEMA
	Histologic features characteristic of INTERMEDIATE type
9	Clinical features characteristic of both PSORIASIS and ECZEMA
	Histologic features characteristic of PSORIASIS
10	Clinical features characteristic of both PSORIASIS and ECZEMA
	Histologic features characteristic of ECZEMA
EE	Clinical features characteristic of ECZEMA
	Histologic features characteristic of ECZEMA

had a personal history of both. A diagnosis of "undetermined" was made when a definitive distinction between psoriasis and eczema was not possible on the basis of both clinical and histopathologic examinations.

Results

Our findings are summarized in the Table. Of 100 patients with an established diagnosis of psoriasis, 42 (42%) had either concurrent eczematous lesions and/or a prior history of eczema. This is over 20% higher than the rate of eczema within the general population.[5] Twenty (20%) patients were classified as intermediate and five (5%) were classified as undetermined. Fourteen patients had a biopsy performed at some stage in order to confirm a diagnosis of psoriasis: 10 of these were confirmed as

Table. Data Summary: Histories of Psoriatic Arthritis, Atopy, and Biopsy in 100 Psoriatics

	Psoriasis		Intermediate		Undetermined		
	Men	Women	Men	Women	Men	Women	Total No.
Personal history							
No. of patients	41	34	10	10	2	3	100
Psoriasis/arthritis	7	10	2	3	0	1	23
Eczema	12	12	10	8	0	0	42
Atopic dermatitis	4	2	1	2	1	1	11
Hay fever/rhinitis/sinusitis	23	19	8	4	1	3	58
Asthma	6	7	3	0	0	0	16
Urticaria	6	10	4	4	1	1	26
Allergic conjunctivitis	16	14	4	4	1	2	41
Contact dermatitis	9	14	7	3	1	2	36
Drug allergies	9	9	2	6	0	0	26
Food allergies	4	5	0	2	0	0	11
Family history							
No. of patients	41	34	10	10	2	3	100
Psoriasis	11	16	2	3	0	1	33
Eczema	4	8	1	3	0	0	16
Undetermined	3	3	1	0	0	0	7
Intermediate	0	0	0	1	0	1	2
Atopic dermatitis	2	3	0	0	0	1	6
Hay fever	14	26	5	1	1	2	49
Asthma	9	7	2	2	0	1	21
Urticaria	5	5	1	4	0	1	16
Allergic conjunctivitis	7	12	2	5	0	1	27
Contact dermatitis	9	10	2	3	0	0	24
Drug allergies	3	4	3	3	0	0	13
Food allergies	4	4	0	0	0	0	8

psoriasis; one was diagnosed with psoriasiform dermatitis with spongiosis (or intermediate); two diagnoses were inconclusive (or undetermined); and one patient with hand lesions was diagnosed with dermatitis. This last patient had been diagnosed previously with scalp psoriasis, but reported that she had also been diagnosed with AD and chronic irritant and allergic contact dermatitis. Hay fever/allergic rhinitis/sinusitis was the most common association to atopy in our study. It was reported in 58% of patients, which is much higher than that expected for the general population, in which only 9.3% experience hay fever and 16.3% chronic sinusitis.[6] The next most prevalent signs of atopy were allergic conjunctivitis (41%) and contact dermatitis (36%). There were no statistically significant differences between the prevalence of particular allergies in those diagnosed with definitive psoriasis and those diagnosed with the intermediate form of PsEma.

To identify possible sample-related errors, we compared our cohort's personal histories of arthritis and family histories of psoriasis vs. what would be expected in an average population of psoriatics. The prevalence of arthritis in our cohort was 23%, which fits within the expected value range provided by the National Psoriasis Foundation, which found that 10%–30% of all psoriatics had comorbid arthritis.[7] In addition, 33% of our patients had family histories of psoriasis, again mirroring the National Psoriasis Foundation data, which state that one in three psoriatics will have a family member with psoriasis.[8]

Discussion

Psoriasis is a condition of T-cell activation and epidermal hyperplasia characterized clinically by erythematous, well-demarcated plaques with silvery scales and histologically by acanthosis, parakeratosis, and a neutrophilic infiltrate in the suprapapillary dermis. Eczema refers to a group of acute and chronic, superficial, pruritic, inflammatory skin disorders characterized histologically by inflammation, intercellular edema (spongiosis), vesiculation,

and parakeratosis. Although some reports suggest the two conditions are mutually exclusive,[9,10] larger studies show that they can occur concomitantly.[11–14]

Recent advances in the understanding of the immunologic events responsible for the development of psoriasis and eczema lesions appear to clarify some differences between the two. In general, psoriasis is characterized as a disease in which the T_H1 lymphocyte response plays a role in development and maintenance of skin lesions,[15,16] while eczema is initiated by T_H2 lymphocyte responses.[17,18] The new topical immunomodulating drugs tacrolimus and pimecrolimus specifically target T_H2 cell over-expression and as such, the response to this new class of drugs was initially expected to separate the two entities; psoriasis would theoretically be unresponsive to tacrolimus ointment, while eczema should uniformly respond. This appears to be only partially true, however, as psoriasis in areas such as the face and flexural areas often responds well to tacrolimus.[19] This may be a consequence of better penetration through thinner flexural skin, although one alternative explanation is that, at least in some cases, inverse psoriasis is an eczematoid process occurring in the flexural skin of psoriatics (Figure 4). Another explanation is that immune mechanisms common to both entities can be inhibited by this class of drugs. Furthermore, cyclosporin is efficacious in treating both psoriasis and eczema and is approved for treatment of both psoriasis and AD in Europe. Orally administered pimecrolimus is currently being tested for both indications, and data have shown promising results for both psoriasis[20] and AD.[21] Systemic steroids, too, are beneficial in the temporary treatment of both disorders; however, a rebound of psoriasis from systemic steroids may be severe.

The improbability of finding both psoriasis and eczema in the same person has been suggested.[10,22] It has also been observed that asthma and hay fever occur less frequently in psoriatics than in the general population,[23,24] whereas they are increased in frequency in patients with AD.[25–27] Prior to the initiation of this study, we had already identified a cohort of psoriatics with atopic relatives. In our current study, we found that 58% of the psoriatics interviewed reported histories of hay fever/allergic rhinitis/sinusitis. Our observations are arguably validated by recent reports of genetic linkages between psoriasis and AD genes at closely located loci on chromosomes 1q21 and 3q21,[28–30] 6p21.3,[31,32] and

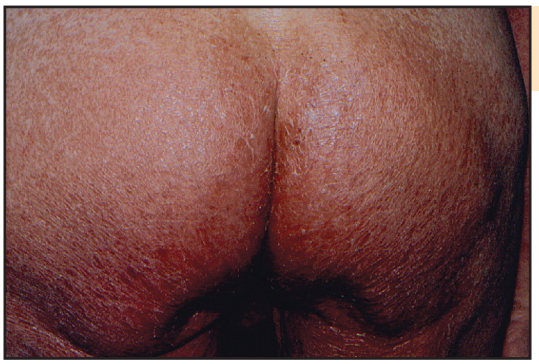

Figure 4. *Flexural psoriasis on the buttocks*

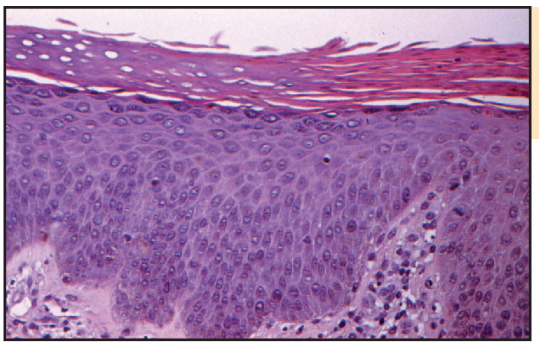

Figure 5. *Psoriasiform dermatitis (hematoxylin and eosin stain, original magnification 400×)*

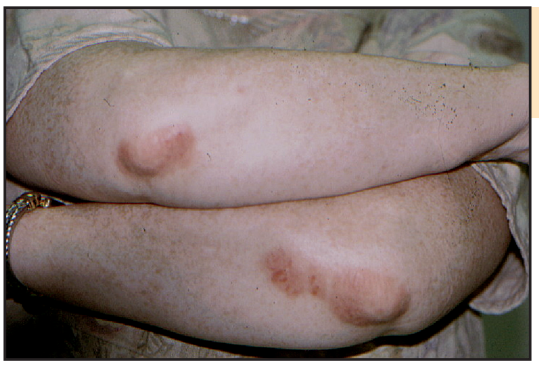

Figure 6. *PsEma. Note the lesions with the psoriatic appearance on the elbow.*

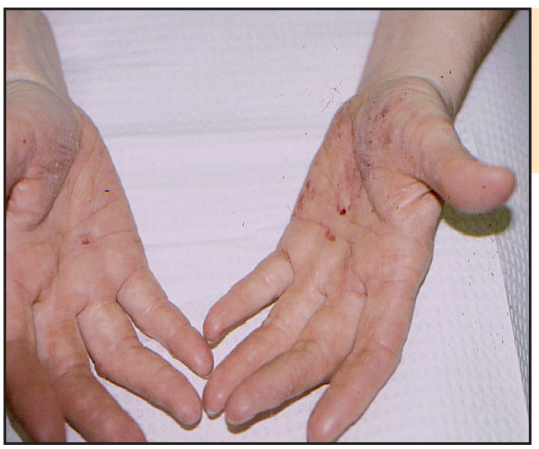

Figure 7. *PsEma. Note the lesions with the eczematous appearance on the hand of the same patient as in Figure 6.*

17q24-25.[33–35] We also reviewed unpublished data obtained for a published study[36] that revealed a higher prevalence rate of psoriasis in the AD/eczema population vs. the general population. Of patients who had either AD (International Classification of Diseases, Ninth Revision, Clinical Modification code 691.8) or eczema (692.9), 1.7% of them also had a claim with a diagnosis of psoriasis (696.x), which is 5.3 times higher than the prevalence rate among the non-AD/eczema population (95% confidence interval, 4.9–5.6).[37]

Classic psoriasis and classic eczema may be readily diagnosed histologically but, in some cases, the histologic findings do not permit a definitive distinction between psoriasis and eczema. Findings characteristic of a spongiotic process may occasionally be seen in psoriasis, especially in inflamed or traumatized lesions. Psoriatic lesions on volar skin characteristically demonstrate spongiosis, and conversely, spongiotic processes in the same location often demonstrate neutrophils in the cornified layer as well as suprapapillary thinning, dilated vessels, and at least focal loss of the granular cell layer. Psoriasis under treatment may also demonstrate unusual histologic findings that may be nonspecific. In this study, we confirm that difficulty may be encountered in attempting to establish a definitive diagnosis histologically. In the five undetermined cases found in our study where the clinical distinction between psoriasis and eczema was not possible, dermatopathologists were unable to make the distinction with certainty in the two patients whose lesions had been biopsied; one was described as fairly indicative of psoriasis and the other patient reported an inconclusive (undetermined) biopsy. In fact, we have patients in whom repeat biopsies over the years have been interpreted as either psoriasis, psoriasiform dermatitis, and/or nonspecific dermatitis (Figure 5). One possible explanation for this is the switch from a T_H2 to a T_H1 immune response that occurs as an eczematous lesion ages. Histologically, the eczema lesion becomes more psoriasiform as it becomes clinically lichenified. The data hereby discussed support a concept explanation of the term eczematous psoriasis.[38]

Conclusions

We herein propose the name "PsEma" (Psoriasis and Eczema) for cases in which clinical and histologic characteristics of both conditions overlap or coincide. We do not wish to imply that psoriasis and eczema are the polar ends of a spectrum in which PsEma falls somewhere in between; psoriasis and eczema are two distinct and different entities. What we propose is that the name PsEma be given to a condition that is neither clearly psoriasis nor eczema, but one in which features of both conditions seem to affect a given patient (Figures 6 and 7). We find PsEma to be a useful term in our practice to indicate such a clinical condition that cannot be further delineated at a single visit, given the personal and family history and histology. Until advances in immunology, genetics, and molecular biology lead to markers for the specific pathognomonic identification of either disease, or until further clarification for a condition with features of both psoriasis and eczema emerges, the term PsEma can serve as a working diagnosis, which would lead to more specific therapeutic options.

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