Psoriasiform Keratosis

Sarah N. Walsh, MD, Mark A. Hurt, MD, and Daniel J. Santa Cruz, MD

Abstract: Presented herein are 18 cases of erythematous, scaly papules or plaques with microscopic features of both seborrheic keratosis and psoriasis. There was, however, no known clinical diagnosis of psoriasis in any patient, neither at initial presentation nor on follow-up examination. Most lesions were solitary, present for 6–7 months, and identified on the upper or lower extremities. Other sites included the scalp, neck, shoulders, and back. Men were affected slightly more often than women. The mean age at diagnosis was 66.8 years. The most common diagnoses, clinically, were seborrheic keratosis, followed by basal cell carcinoma, Bowen's disease, actinic (solar) keratosis, and squamous cell carcinoma, among others. The lesions averaged less than a centimeter in diameter and were dome shaped, scaly, and yellow to gray-tan. Histologic examination revealed irregular verrucous epidermal acanthosis, with hyperkeratosis, parakeratosis, hypergranulosis, and intracorneal collections of neutrophils, often in alternating tiers. Vascular dilatation and lymphocytic chronic inflammation were present in the superficial dermis. Periodic acid-Schiff (PAS) stain for yeasts or dermatophytes was negative in all cases. There was no clinical evidence of disseminated psoriasis in any patient; the mean follow-up duration was 22.6 months. We have coined the term *psoriasiform keratosis* as a provisional appellation until the nature of these lesions is determined more definitively. It is unclear whether a psoriasiform keratosis is a rudimentary manifestation of psoriasis or a lesion *sui generis*.

Key Words: psoriasiform keratosis, seborrheic keratosis, keratosis, psoriasis, solitary lesion usually, lichenoid keratosis, acanthosis, case series

(*Am J Dermatopathol* 2007;29:137–140)

INTRODUCTION

The recognition of lichenoid keratosis as a solitary lesion with a tumor-like clinical presentation is now widely accepted as a distinct clinicopathologic condition. The diagnosis implies that no disseminated dermatosis with lichenoid histologic features is present.[1–16] The concept of unilesional presentations of conditions that, classically, are widespread is also used, for example, in unilesional expressions of mycosis fungoides.[17–26]

We present herein 18 cases of a keratosis that mimic lesions of psoriasis occurring usually as a solitary lesion in patients without clinical psoriasis.

Cutaneous Pathology, WCP Laboratories, Inc, St. Louis, MO, USA.
Correspondence: Daniel J. Santa Cruz, MD, Cutaneous Pathology, WCP Laboratories, Inc, 2326 Millpark Dr, St. Louis, MO 63043-3530, USA (e-mail: dsantacruz@aol.com).

MATERIALS AND METHODS

The cases were collected prospectively from our daily dermatopathology practice between August 2001 and September 2004. PAS stains were performed in all cases to evaluate for the presence of dermatophytes or *Candida* sp. Patient demographics, lesional characteristics, and differential diagnoses were gathered from the submitted specimens. The treating physicians were contacted for further clinical information, including lesion duration and the possibility of disseminated psoriasis (Table 1).

RESULTS

The patients ranged in age from 30 to 80 years, with a mean age of 66.8 years. Of the 18 total cases, there were 10 men and 8 women. The lesions were distributed on the upper extremities [arms (8), forearms (3), hand (1)], lower extremities [legs (8), pretibial surfaces (4), thigh (1), knee (1), popliteal fossa (1)], head [scalp (1), forehead (1)], neck (1), shoulder (1), and back (1). The known duration of lesions ranged from 1 week to 2 years, with a mean of 6.75 months. In 9 patients, the duration was not available. Follow-up information ranged from 3 months to 40 months, with a mean time of 22.6 months. According to the clinical information provided, the lesions were described as erythematous, scaly to crusted papules and plaques.

There were a variety of clinical diagnoses offered. In order of frequency, these included seborrheic keratosis (9, with 3 being the irritated variant and 2 the inflamed variant), basal cell carcinoma (7), Bowen's disease (7), actinic (solar) keratosis (6), squamous cell carcinoma (6), psoriasis (3), lichenoid keratosis (2), eczema (2), large cell acanthoma (1), verruca vulgaris (1), infection (1), excoriation (1), irritated keratosis (1), and factitious (1).

All specimens were shave biopsies. On gross pathological examination, the specimens ranged in size from $1.2 \times 0.9 \times 0.1$ cm to $0.3 \times 0.3 \times 0.2$ cm, with average dimensions of $0.8 \times 0.6 \times 0.2$ cm.

Microscopically, these were sharply defined exophytic lesions composed of basophilic and eosinophilic squamous cells. Irregular, verrucous acanthosis and hyperkeratosis were pronounced (Fig. 1A). Focal to confluent mounds of parakeratosis intercalated with collections of neutrophils were present in tiers throughout the cornified layer (Fig. 1B). Areas of hypergranulosis were identified also, as well as diminution of the granular cell layer overlying areas with neutrophil embedded parakeratosis. Some lesions showed pallor of the epidermis (Fig. 2A), and sparse numbers of mitotic figures were present above the basal layer. The papillary dermis contained vascular prominence and dilatation (Fig. 2B). A chronic inflammatory infiltrate of predominantly

TABLE 1. Clinical Findings in Patients With Psoriasiform Keratosis

Case	Age	Sex	Location	Duration	Clinical Differential Diagnosis	Hx of Psoriasis (f/u, mo)
1	73	M	Arm	Not stated	AK, SK, SCC	No (40)
2	57	F	Leg	Not stated	SK	No (32)
3	78	M	Scalp	2–3 mo	BCC, Bowen, SK	No (32)
4	60	F	Thigh	3 wk	SCC, BCC	No (31)
5	65	M	Arm	1 wk	Factitious, infection	No (31)
6	56	M	Shin	>1 mo	Bowen, SK-inflamed	No (24)
7	74	F	Shin-superior and inferior	7–8 mo	AK, Bowen, eczema	No (3)
8	70, 71	M	Popliteal fossa; arm, forearm	Not stated; 4 mo	SCC, SK-inflamed; AK, SCC, psoriasis,	No (8)
9	66	M	Back	Not stated	SK-irritated, BCC	No (26)
10	60	M	Arm	2 mo	BCC	No (11)
11	30	M	Forehead, forearm	Not stated; 2 y	SK-irritated, Bowen, AK; irritated keratosis, VV	No (22)
12	80	M	Scalp	Not stated	SK, AK, BCC, excoriation	No (19)
13	47	F	Shoulder	>1 y	Bowen, LK	No (4)
14	80	F	Neck	1 y	SCC, psoriasis	No (17)
15	75	F	Hand	2–3 wk	BCC	No (29)
16	80	M	Forearm	Not stated	LK, SK-irritated	No (15)
17	80	F	Lower leg	Not stated	LCA, BCC	No (32)
18	68	F	Knee	Not stated	Bowen	No (32)

AK indicates actinic keratosis; BCC, basal cell carcinoma; Bowen, Bowen's disease; LCA, large cell acanthoma; LK, lichenoid keratosis; SCC, squamous cell carcinoma; SK, seborrheic keratosis; and VV, verruca vulgaris.

lymphocytes, ranging from scant to confluent, was identified consistently within the superficial dermis. In some of the biopsies, mild dermal edema and fibrosis were noted also (Fig. 3).

In light of the fact that superficial fungal infections are associated with collections of neutrophils in the stratum corneum, a PAS stain was performed on all cases, and the result was negative for organisms in each case. Clinical correlation by the treating physicians resulted in the exclusion of disseminated psoriasis in all patients.

DISCUSSION

Psoriasis is a diffuse disease of the skin mediated by various populations of lymphocytes and their respective lymphokines, as well as chemokines, dendritic cells, and type 1 T cells or natural killer T cells.[27] The diagnosis is determined, usually, on clinical grounds because of the presence of multiple well-circumscribed erythematous patches with a silvery white, micaceous scale mainly on extensor surfaces.[28]

The diagnosis is confirmed histologically by identifying classic epidermal and dermal changes. Within the epidermis, there is uniform acanthosis and papillomatosis with hypogranulosis and occasional spongiform pustules. The cornified layer contains tiers of parakeratosis with trapping of neutrophils (Munro microabscesses). The dermal papillae are elongated and contain prominent tortuous, dilated venules. There is thinning of the suprapapillary epidermis. As a rule, a sparse superficial perivascular lymphocytic infiltrate is present.[29]

The cases presented herein had the microscopic features of psoriasis, but the patients did not exhibit clinical evidence of disseminated disease. We believe these lesions, which appear to be seborrheic keratoses with overlapping features of psoriasis, have repeatable and reproducible morphological features. Because of this, we propose the term *psoriasiform keratosis*.

The concept of a single lesion in a condition that is multiple and disseminated was advanced with the condition known as pagetoid reticulosis (Woringer and Kolopp disease), now regarded widely as a unilesional variant of mycosis fungoides.[17] This variant of mycosis fungoides is characterized by a solitary lesion clinically and has features indistinguishable from multilesional mycosis fungoides histopathologically and immunophenotypically.[24]

The description of lichenoid keratosis as a distinct condition was based on the fact that the lesion was tumor-like clinically but lichenoid dermatitis histologically. The accurate diagnosis of lichenoid keratosis rests on the exclusion of a disseminated lichenoid dermatosis clinically.[2]

Lichenoid keratosis is also known as lichen planus-like keratosis and benign lichenoid keratosis.[18] The latter name is used to differentiate it from the lichenoid actinic keratoses.[11] Most lichenoid keratoses are present in conjunction with solar lentigines, large-cell acanthomas, or epidermal actinic damage. Some acanthotic and verrucous proliferations with pronounced lichenoid patterns are seen often in daily practice; these lesions are best understood as seborrheic keratoses or verrucae with lichenoid inflammation.

The fact that most of the cases we present were solitary favors a distinct keratosis. Three of the 18 patients, however, presented with 2 or 3 lesions; one of these patients developed 2 additional lesions 10 months after the findings of the initial biopsy. Thus, these patients could have psoriasis either in

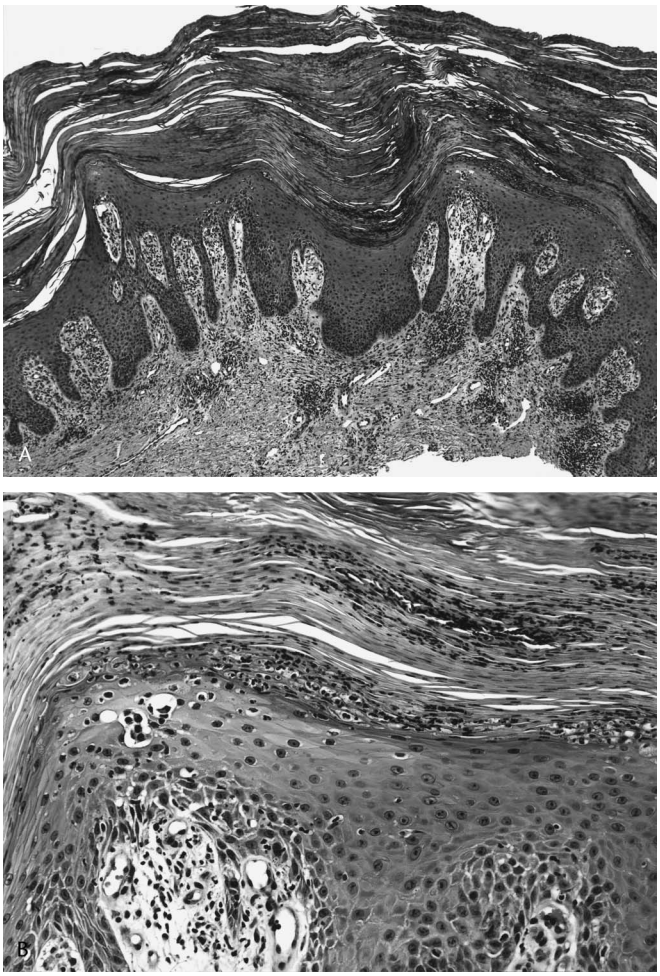

FIGURE 1. A, The low-power architecture of the lesion in case 1 is suggestive of a seborrheic keratosis with irregular verrucous acanthosis and hyperkeratosis. B, At higher magnification, the classic features of psoriasis are evident, with Munro microabscesses in the stratum corneum, hypogranulosis, a prominent intraepidermal spongiform pustule, and ectatic small vessels in the papillary dermis.

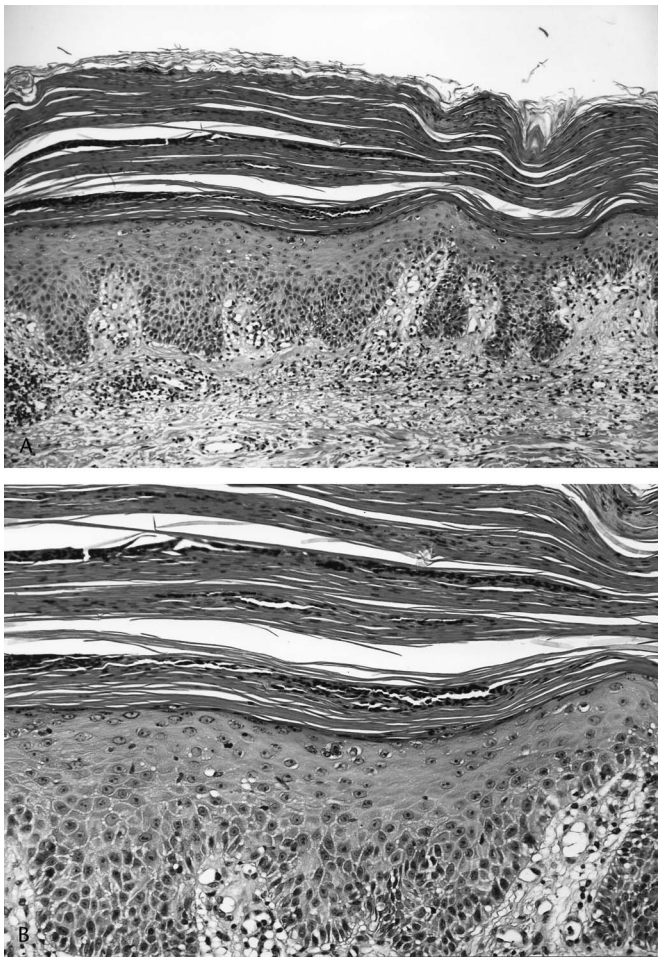

FIGURE 2. A, B, There is pallor of the epidermis and a prominent multilayered parakeratotic scale, with tiers of entrapped neutrophils in a lesion with irregular acanthosis and focal atrophy. Dilated vessels and an underlying band of chronic inflammatory cells are seen within the superficial dermis (Case 14).

evolution or as a rudimentary expression. None of the patients, however, has psoriasis clinically despite several years of follow-up. Therefore, authentic psoriasis appears to be unlikely because of the long latency.

The differential diagnosis of psoriasiform keratosis includes such conditions as verrucous psoriasis, clear-cell acanthoma, and various forms of actinic keratosis.

Verrucous psoriasis is a term that has been coined recently for patients with known psoriasis who developed verrucous lesions.[30] We have seen several such cases in patients with known disseminated psoriasis who develop lesions that, histologically, have the classic features of either seborrheic keratosis or verruca vulgaris but additionally show overlapping features of psoriasis. These cases were not included in this study. Although this pattern can be seen in lesions of disseminated psoriasis, none of the patients in this study has psoriasis, either at presentation or in follow-up. Our cases, therefore, are not included in this variant.

Clear-cell acanthoma can have some features overlapping with those seen in psoriasis, including neutrophils within the stratum corneum and thinning of the suprapapillary plates. However, these lesions, as a rule, do not show the prominent multilayered tiers of parakeratotic scale in which neutrophils often aggregate within the epidermis and dermal papilla. In addition, clear-cell acanthomas have the classic distinct junction between normal keratocytes and the pale glycogenated keratocytes, which aids in distinguishing them from lesions of psoriasiform keratosis.

Actinic (solar) keratoses can have a variety of overlying histologic features and should be considered in the differential diagnosis. We have frequently seen cases of conventional actinic keratosis with overlying inflammatory changes mimicking changes of psoriasis, particularly on the scalp. Impetiginized actinic keratosis should also be considered because it shows entrapped neutrophils within the cornified layer. The constellation of features usually seen in psoriasis, including the characteristic papillary dermal changes, is lacking in these actinic keratoses. Clinical history also aids

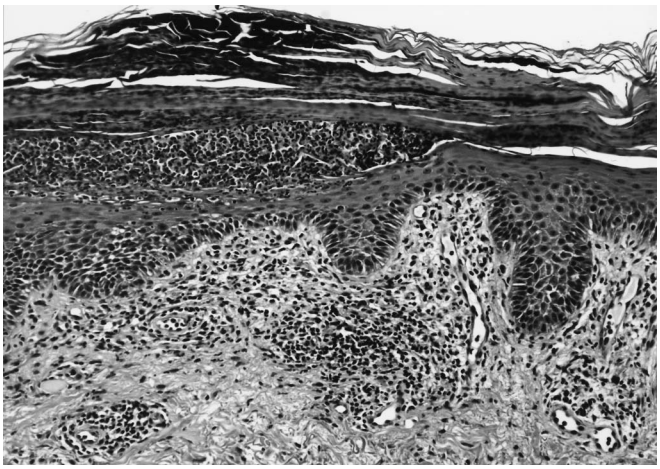

FIGURE 3. Medium-power view of case 5 highlights the spongiform pustule in the epidermis, with multilayering of the parakeratotic scale associated with accumulation of neutrophils. Changes within the upper dermis include fibrosis with vascular prominence and dilatation, as well as a lymphocytic chronic inflammatory infiltrate.

in differentiating such lesions. In addition, actinic keratoses characteristically show sparing of the adnexal epithelium.

In conclusion, we believe that because lichenoid keratosis is widely accepted as a clinicopathological diagnosis, it is logical, by extension, that the same reasoning should apply to the lesion we have named *psoriasiform keratosis*.

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