The differential diagnosis of psoriasis

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SUMMARY

In general the diagnosis psoriasis can be made on clinical grounds. The differentiation from eczema and other erythematosquamous eruptions is of importance.
If a biopsy is indicated, it is important to take it from the margin of the lesion. Characteristic phenomena such as micropustules of Kogoj, microabscesses of Munro and the characteristic topography are usually seen in the material taken from the margin of the lesion and not from the central areas.

1. Clinical features and histopathological aspects of psoriasis

Definition

Psoriasis is a common and chronic skin disease, characterized by cutaneous inflammation and epidermal hyperproliferation. The prevalence of psoriasis in Caucasians is between 1.5 and 3% (1). The age of onset is variable, with two peaks between 16 and 22 years and between 57 and 60 years (2). The incidence of psoriasis is equally distributed between both sexes (3). The clinical course is unpredictable with remissions and exacerbations.

Clinical features

For a detailed description of the many clinical variants of psoriasis various reviews are available (1,4). Despite the fact that psoriasis has many different clinical presentations, it is regarded as a single entity. Different forms of psoriasis can coexist in one patient, or may appear at different moments in the same patient. In the same family the members may show different forms. In brief, the most important clinical manifestations are described:

1. Erythematosquamous variants

Chronic plaque psoriasis is the most common presentation, characterized by coin-sized to palm-sized erythematosquamous plaques with a sharply delineated edge. Annular lesions may occur as a result from central healing. Predilection sites are the scalp, the trunk, the sacral region and the extensor surfaces of knees and elbows. Guttate psoriasis (Figure 1) is a variant with erythematosquamous papules. Systemic triggering factors often are relevant to this form.

KEY WORDS

psoriasis, differential diagnosis

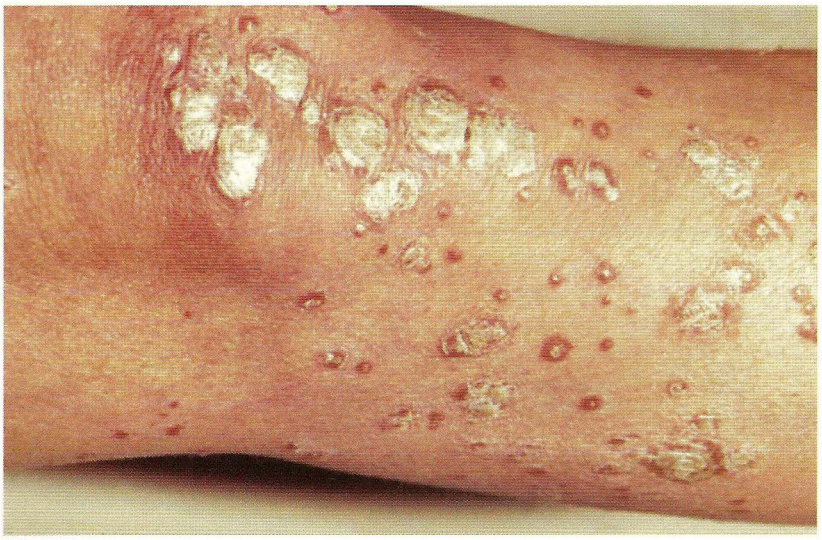


Figure1. Guttate psoriasis.

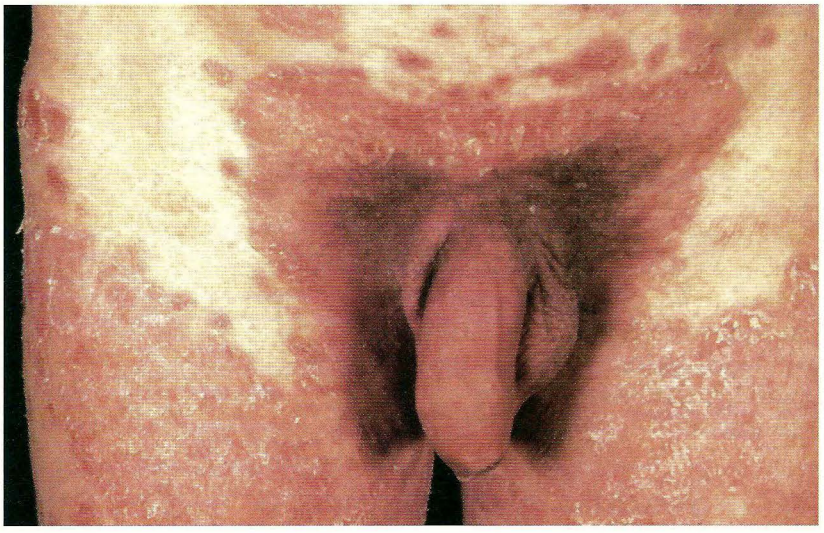
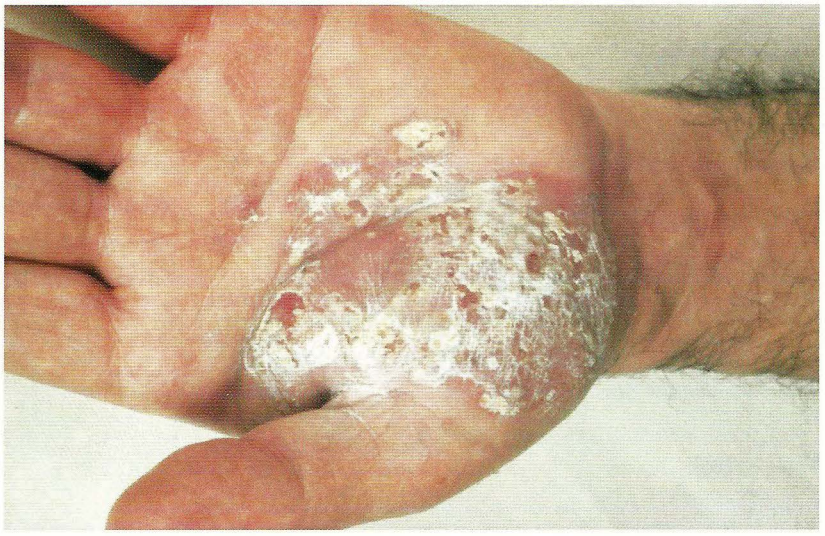


Figure 2. Flexural psoriasis.

Figure 3. Pustulosis of the palms.



Palmoplantar psoriasis is rather common and may occur with or without psoriatic lesions on other parts of the skin. Characteristic features are sharply delineated erythematosquamous plaques with adherent scales and fissures.

Flexural psoriasis or psoriasis inversa occurs in 2-6% of the patients as an isolated symptom, much more frequently it occurs in association with non-flexural symptoms of psoriasis. Scaling is mostly absent or minimal (Figure 2).

Erythrodermic psoriasis is the most severe form characterized by generalized erythema and scaling. Systemic disregulation with hypo- and hyperthermia, loss of proteins, dehydration and even renal and cardiac failure may occur and hospitalization is indicated.

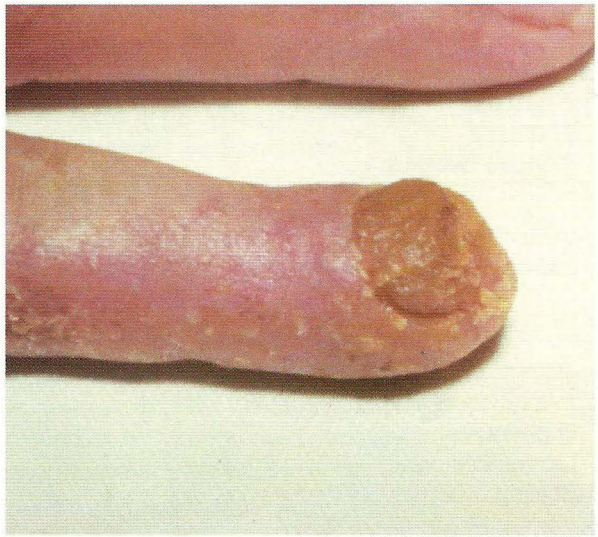
2. Pustular variants

Persistent palmoplantar pustulosis occurs in up to 5% of all psoriatic patients. It is still a debate whether this is a manifestation of psoriasis or a separate entity. 2 to 19% of the patients have further signs of psoriasis (5,6). Erythematosquamous plaques may accompany the sterile postulation (Figure 3). The disorder is very resistant to therapy.

Acrodermatitis continua of Hallopeau is a rare disorder with erythema, scaling and pustules on the distal phalanges of fingers or toes, sometimes with nail deformation and bone changes. Treatment failures are common (Figure 4).

Generalized pustular psoriasis (Zumbusch) is a relatively rare and severe form of psoriasis with erythema, scaling and the development of sterile pustules (7) (Figure 5). Most patients have a history of chronic plaque psoriasis. There are systemic symptoms like malaise,

Figure 4. Acrodermatitis continua Hallopeau.



fever and leukocytosis. Generalized pustular psoriasis is a serious disease with a considerable mortality.

3. Extracutaneous symptoms

The nails are involved in 10-55% of the psoriatic patients (8). Pitting of the nails, subungual hyperkeratosis, distal onycholysis and brownish red discolorations due to accumulation of parakeratotic material in the nailbed are the most common features (Figure 6).

Psoriatic arthritis is present in approximately 7% of patients (9). Arthritis of the distal phalanges is the most characteristic manifestation. Although the incidence of peripheral oligoarthropathy is much higher, axial changes or severe deformities (arthritis mutilans) may occur in some patients (1).

Histopathology

The most important epidermal changes in a fully developed psoriatic lesion are elongation of the epidermal rete ridges and the dermal papillae with thinning of the suprapapillary plate (Figure 7). In the epidermis polymorphonuclear leucocytes (PMNs) accumulate into micropustules of Kogoj with their characteristic spongiform appearance. Absence of a granular layer, parakeratosis, and intracorneal "Munro microabscesses" filled with PMNs constitute the changes of the suprabasal compartment (10). In pustular psoriasis macropustules, filled with PMNs, are present in the upper stratum spinosum. Figure 7 illustrates the histological appearance of the psoriatic plaque.

2. Eczema

Eczema is a morphological diagnosis. It designates a morphological entity which might represent different etiological entities. Eczema can be defined as a polymorphic dermatosis which itches and is characterized by an acute and chronic phase. The acute phase is characterized by ill-defined erythema, vesiculation, papules and excoriations. The chronic phase is characterized by ill-defined lichenification, some scaling and excoriations. The acute and chronic phase usually are seen simultaneously in an individual patient and even in one single lesion.

The histopathological picture reveals vasodilatation, dermal oedema and characteristic spongiosis. A predominant T-lymphocytic infiltrate is seen at perivascular location, diffuse in the dermis and in the epidermis. Table I highlights the differential diagnosis eczema versus psoriasis.

Atopic dermatitis

Atopic dermatitis (AD) is a disease entity, which is expressed as eczema. AD is part of the atopic syndrome. The face is involved predominantly in infants. In children and adults, the symmetrical involvement of the flexures is highly characteristic. The typical distribution of the eczema yields into a certain diagnosis in most cases. Other clinical manifestations of the atopic syndrome, positive intracutaneous tests and increased serum IgE may provide further evidence for an atopic constitution.

Table I. Eczema versus psoriasis

Clinical differentiation			Histopathological differentiation		
	Eczema	Psoriasis		Eczema	Psoriasis
Itch	+	-			
Sharp demarcation	±	+			
Erythema	+	+	Vasodilatation	+	+
Pinpoint bleeding	-	+	Tortuosity of capillaries	-	+
			Suprapapillar thinning	-	+
Vesiculation	+	-	Spongiosis	+	-
Sterile pustules	-	+	Micropustules of Kogoj	-	+
			Microabcesses of Munro	-	+
			T-cell infiltrate	+	+
			Neutrophil infiltrate	-	+
Excoriations	+	±			
Lichenification	+	-	Acanthosis	+	+
Scaling	±	+	Parakeratosis	-	+

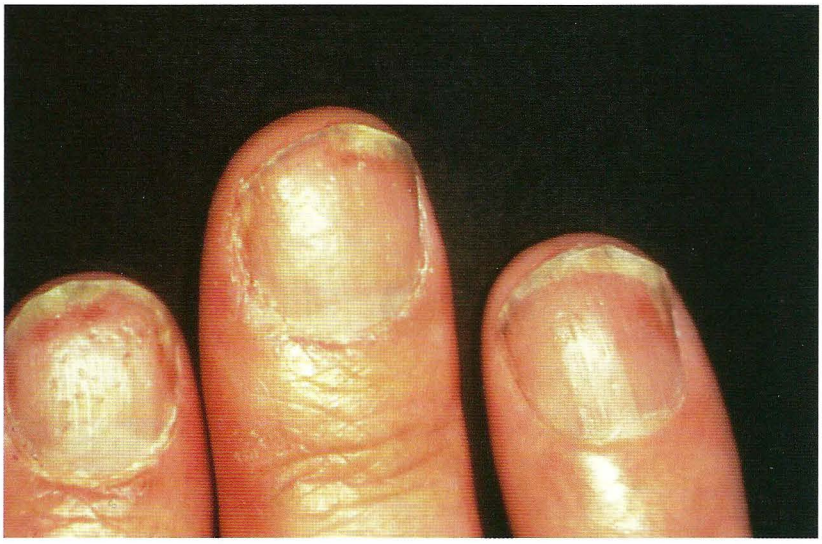
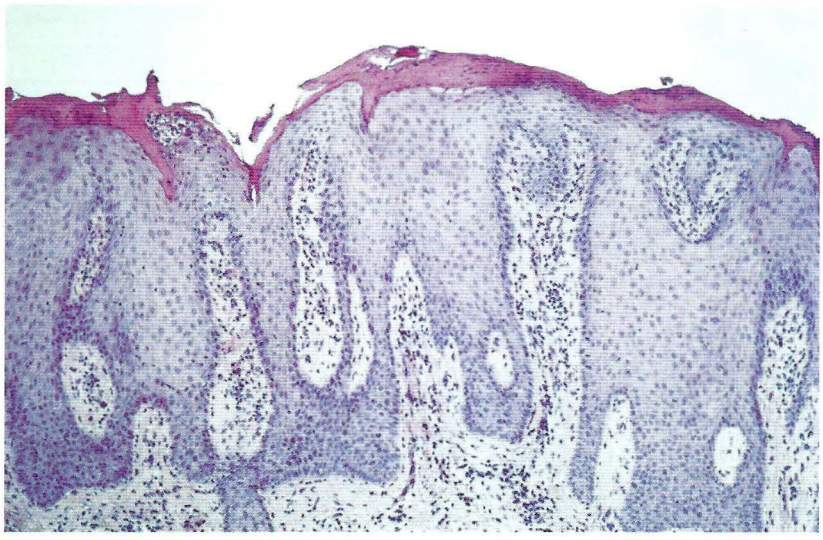


Figure 6. Psoriasis of the nails: pitting.

Occasionally the lesions may not be preferentially localized in the flexures, a sharp demarcation may occur and sometimes scaling may be more prominent. In such cases the differential diagnosis with psoriasis may be difficult. The occurrence of vesicles and lichenification as well as the previous history of vesiculation may provide further information. A biopsy should be taken form the *margin of the lesion* to differentiate between eczema and psoriasis if differentiation is impossible by clinical hallmarks.

Figure 7. Elongation of rete ridges and dermal papillae with thinning of the suprapapillary plate.



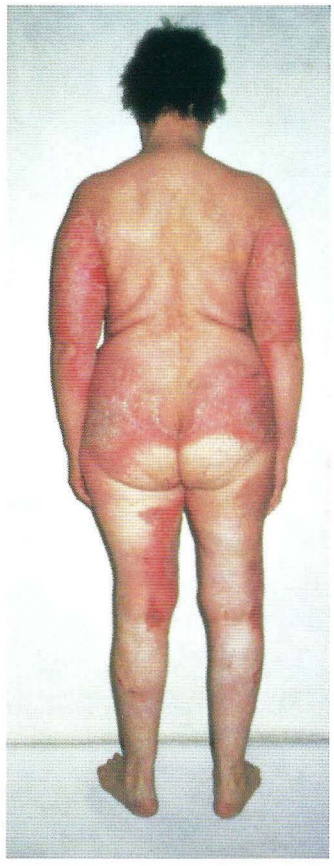
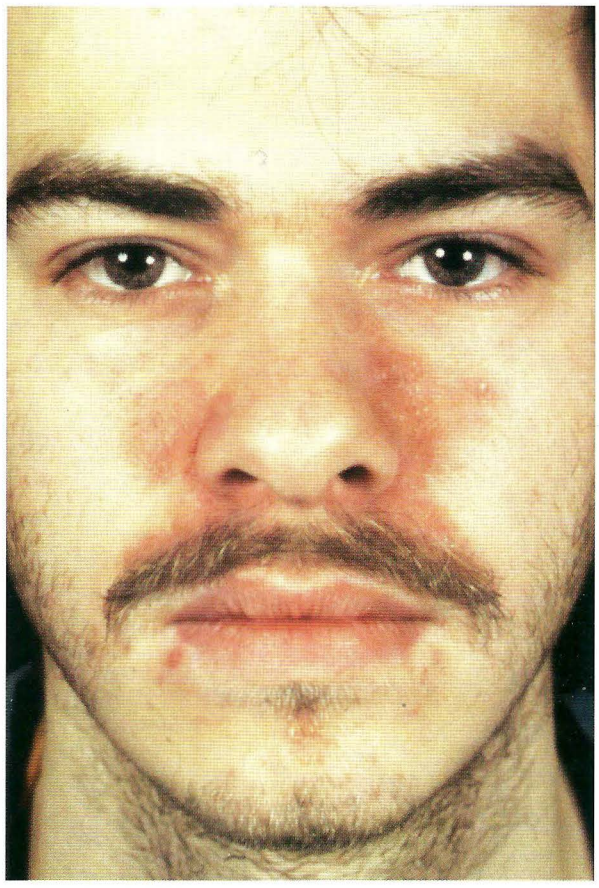


Figure 5. Generalized pustular psoriasis.

Figure 8. Seborrhoeic dermatitis of the face.



Allergic contact dermatitis

Allergic contact dermatitis is a delayed hypersensitivity, which is expressed as an eczema. The location is at sites which have been exposed to the allergen and or at sites which have a relatively thin skin barrier such as the eyelids and the back of the hands. History and allergic patch testing will reveal the diagnosis.

In the chronic phase of eczema, differentiation from psoriasis can be difficult. However, the development of the lesions, starting with vesiculation subsequently yielding into lichenification and scaling will permit a certain diagnosis in most cases. Sometimes a biopsy from the margin zone is needed.

Occasionally, psoriasis may be provoked by an underlying allergic contact dermatitis without vesiculation macroscopically. If psoriasis occurs predominantly at the predilection sites for allergic contact dermatitis, such as hand and faces, patch testing is indicated, even if vesicles are absent.

Table II. Lupus erythematosus discoides (LED) versus psoriasis

	LED	Psoriasis
Localization: scalp	+	+
face	+	-
Atrophy	+	-
Follicular hyperkeratoses	+	-

Table III. Parapsoriasis versus psoriasis

	Parapsoriasis	Psoriasis
Unsharp demarcation	+	-
Atrophy	+	-
Reticular pigmentations	+	-

Table IV. Syphilis versus psoriasis

	Syphilis	Psoriasis
Sudden appearance	+	±
Palms/soles	+	±
Plasma cells	+	-
Syphilis serology	+	-

Orthoergic dermatitis

Orthoergic dermatitis due to exposition to factors which damage the skin barrier are localized predominantly on the hand. In general, the lesions are characterized by non-sharply demarcated lichenifications and erosions. Occasionally, vesicles may complicate the picture.

Nummular eczema

The clinical picture is characterized by relatively sharply demarcated plaques with papules and vesicles. The etiology of nummular eczema is not known.

In the chronic phase, scaling may complicate the picture and differentiation from psoriasis may be difficult. In case of doubt a biopsy from the margin zone is needed.

Dyshidrotic eczema

Vesicles, bullae and scaling, localized on the hands, are characteristic features of dyshidrotic eczema. In general, the condition is complicated by erosions, erythema, scaling and fissuring. Allergic contact dermatitis has to be excluded in these conditions. It is the common belief that vesiculation excludes the diagnosis psoriasis. However, a contact dermatitis may provoke psoriasis.

3. Erythematosquamous dermatoses

Psoriasis belongs to the morphological directory of erythematosquamous dermatoses. These dermatoses have in common inflammation in conjunction with abnormal differentiation of the epidermis, resulting in erythema and scaling. Of course erythema and scaling may occur in a large variety of dermatoses as a secondary, not obligatory, hallmark. For example, eczema in the chronic phase may show scaling. By definition eczema is not an erythematosquamous dermatosis as scaling is not obligatory and often absent or inconspicuous.

Seborrhoeic dermatitis

Seborrhoeic dermatitis in infants is localized on the scalp and predominantly in the large flexures. In adults, sebarrhoeic dermatitis is localized on the scalp and on the face, predominantly between the eyebrows, in the nasolabial fold (Figure 8), occasionally in the interscapular area and in the presternal region. The scaling has a yellow color. The histopathological picture closely

resembles psoriasis. However, a major difference is the prominent exudation, which is characterized by spongiosis. This exudation results in the yellowish color of the scales.

The etiology of seborrhoeic dermatitis is not clear. However, an overgrowth of *Pityrosporon ovale* plays a significant role. Indeed, treatments with antimycotic drugs result in a major improvement in the majority of patients. In children the occurrence of flexural and scalp psoriasis is extremely seldom. In adults, however, psoriasis inversa may afflict the areas, which are affected by seborrhoeic dermatitis. The yellowish scaling, instead of the silvery scaling in psoriasis, is the most useful hallmark for differentiation. The histological equivalent of this is spongiosis. The occurrence of psoriatic lesions elsewhere and seborrhoeic dermatitis-specific features on the trunk may be helpful as well.

Sometimes it is impossible to differentiate psoriasis from seborrhoeic dermatitis. In this situation the condition might be designated as sebo-psoriasis.

Pityriasis rosea

Pityriasis rosea (Gilbert) is an erythematosquamous dermatosis characterized by nummular sharply demarcated erythematosquamous plaques. The lesions are localized on the trunk and the proximal parts of the limbs. The lesions usually start with one single lesion, which may enlarge to palm-sized plaques. The lesions are round-oval and are arranged along the split lines of the skin (Figure 9). The scaling is a collarette within the erythematous plaque.

Histopathology is different from psoriasis. In the acute phase the epidermis shows vacuolation and in the chronic phase an aspecific dermatitis with mild mononuclear infiltrate and slight acanthosis is seen. The etiology is not known. But the course is restricted to about 6 weeks.

Nummular psoriasis may closely look like Pityriasis rosea. The course of the disease (6 weeks only), the scaling collarette and the arrangement according to splitlines is highly characteristic. Seldom a biopsy from the margin of the plaque is needed.

Lupus erythematosus

Lupus erythematosus (LE) is an autoimmune disease of the skin, characterized by erythematous changes. In case of lupus erythematosus discoides (LED) follicular hyperkeratoses and atrophy of the skin are characteristic features (Figure 10). Histologically, atrophy of the epidermis with hydropic degeneration of the basal layer and follicular keratoses is the well-established picture of LED. Immunohistochemically, a deposition of immunoglobulins at the dermoepidermal junction is diagnostic. In systemic LE, the follicular changes and the atrophy are less conspicuous and involvement of the internal organs occurs, in particular involvement of the joints.

Sometimes it is difficult to differentiateLED of the scalp from psoriasis. However, follicular scaling and the histopathological picture helps to differentiate LED from psoriasis. Atrophy is not restricted to LED of the scalp. Scalp psoriasis may also show extensive atrophy. Table II summarizes the differential diagnosis of LED versus psoriasis.

Fungal infections

Epidermomycoses are frequent skin disorders. These are characterized by sharply demarcated erythematous plaques with an elevated border. If localized on palms and soles, scaling is especially prominent in the skin folds of the palms and soles. Fungal infections of the scalp (trichomycoses) are characterized by sharply demarcated erythematosquamous lesions; in addition the hair is often broken and follicular pustules can be observed.

Fungal infections can be misdiagnosed as psoriasis; direct examination of the scales and cultures will show the fungus.

Parapsoriasis

Parapsoriasis is a skin disorder, which looks like psoriasis but still is very different from psoriasis.

Parapsoriasis is characterized by ill-defined erythematosquamous plaques with a characteristic cigarette paper-like atrophy. Parapsoriasis can be manifest as "small plaque parapsoriasis". This condition is also designated as "chronic superficial dermatitis". Histopathology reveals an aspecific chronic dermatitis. The course of the condition is chronic over years and usually no progression to mycosis fungoides occurs.

Parapsoriasis can be manifest as "large plaque parapsoriasis". This condition is also designated as "poikiloderma atrophicans vasculare" and is complicated by a more severe atrophy of the skin with reticular hyperpigmentations. Parapsoriasis of the large plaque type progresses to mycosis fungoides in about 20% of the patients. The histopathological picture is characterized by a dense lymphocytic infiltrate with epidermotropism.

The differentiation from psoriasis is not difficult: the unsharp demarcation, the atrophy of the skin and the

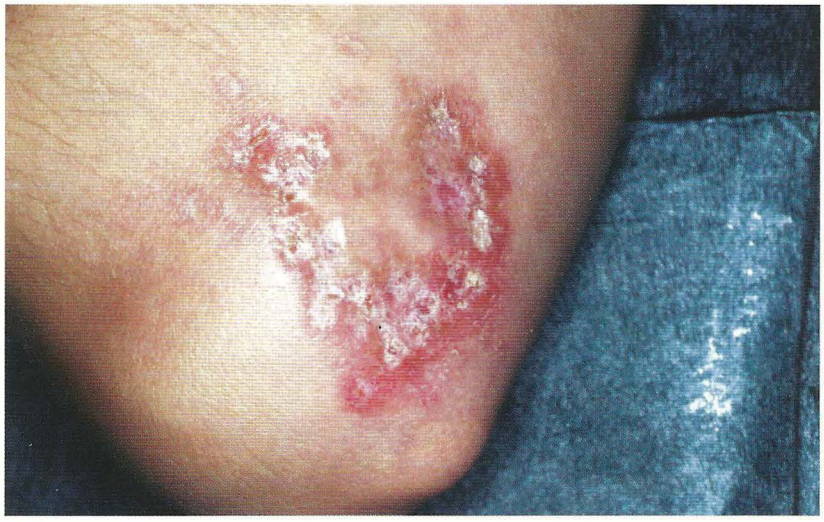


Figure 10. Lupus erythematosus discoides (elbow).

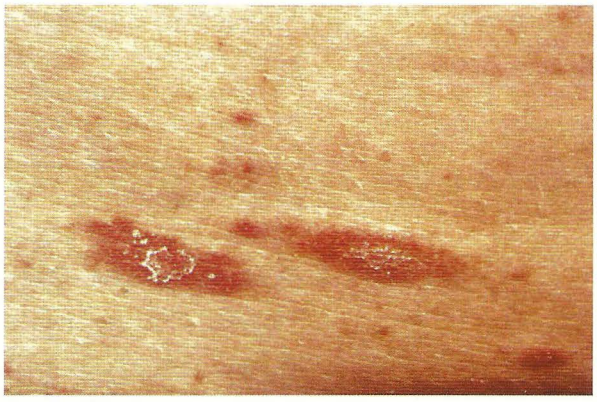


Figure 9. Pityriasis rosea. Note the erythematous lesions aranged according to the split lines of the skin.

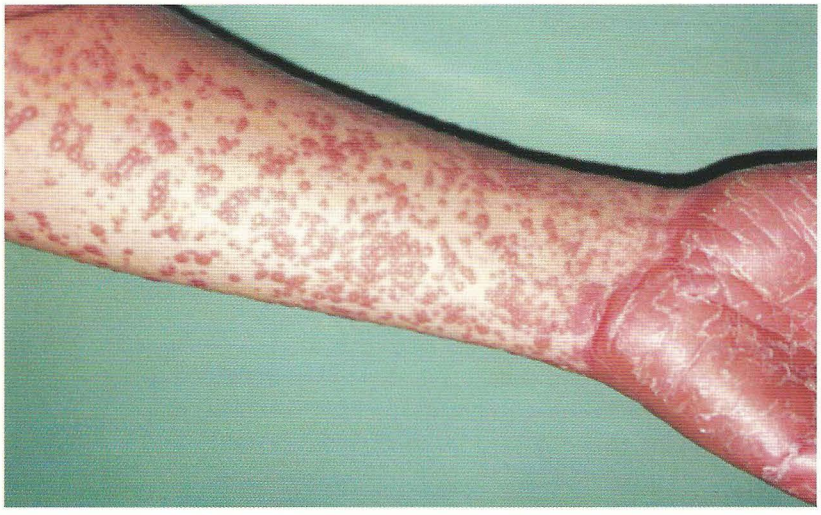


Figure 11. Pityriasis rubra pilaris. Follicular hyperkeratosis, islands of normal epidermis within erythematous lesions

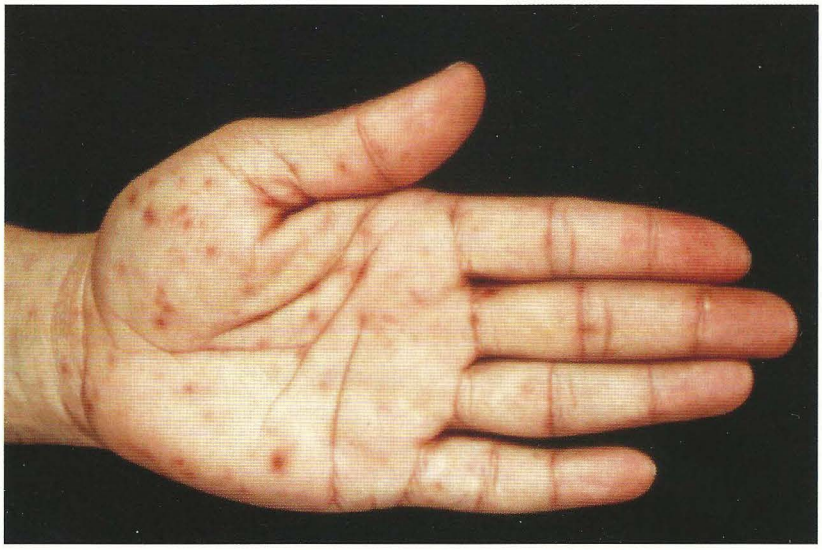


Figure 12. Syphilis II of the palms.

histopathological picture permit to make the right diagnosis (Table III).

Pityriasis rubra pilaris

The classical manifestations of pityriasis rubra pilaris (PRP) are characterized by follicular hyperkeratoses (Figure 11) and erythematous lesions, which may extend to erythroderma. The nail may show linear streaks with splinter haemorrhages. Within erythematous lesions sharply demarcated islands of normal skin can be seen. Palmaplantar keratoderma may occur.

Histologically, follicular hyperkeratosis with a surrounding parakeratotic area is diagnostic for PRP.

Syphilis

Secondary syphilis often has important skin manifestations. These may be localized in the genital area such as condylomata lata. Often these lesions are more disseminated such as roseola. Secondary syphilis also may adopt a picture, which is close to nummular psoriasis. A characteristic feature is the pronounced involvement of the palms and soles (Figure 12).

In case of a "sudden appearance" of nummular psoriasis 'de novo' with involvement of palms and soles. Syphilis serology will reveal the diagnosis. The histopathological picture of lesional skin will show numerous plasma cells.

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