Psoriasis differential diagnosis

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Summary

The characteristic lesion of psoriasis vulgaris is a plaque having three peculiar morphological elements: erythema, infiltration and desquamation. Therefore, the differential diagnosis should be done with all inflammatory, neoplastic (Bowen's disease, skin lymphomas) and infectious (fungal, viral or bacterial) skin diseases having the same semiotic characteristics in different severity combinations. Distribution and number of lesions, symptoms, response to previous therapies, medical history and Brocq methodic scaling can support the diagnostic process. In a selected number of cases, also optical microscopy and confocal microscopy can be very helpful. In other cases, the diagnosis seems to be more complex: i.e. inverse psoriasis (where one of the semiotic characteristics is lacking, desquamation), pustular psoriasis (where sterile pustules appear and infiltration may be reduced) and erythrodermic psoriasis (where well-defined plaques are lacking). Lack of pruritus is not considered a diagnostic feature any longer.

KEY WORDS: psoriasis; differential diagnosis; symptoms; inverse psoriasis; pustular psoriasis.

This report on psoriasis differential diagnosis is mainly addressed to rheumatologists who see seronegative arthritis cases and increasingly suspect psoriatic cutaneous presentations in their daily clinical practice. The role of rheumatologists is undoubtedly crucial in referring patients to dermatologists in order to confirm the diagnosis in case of doubtful presentations and it will be useful to know what are the main dermatological diseases that are more commonly considered in a differential diagnosis.

The classical form of psoriasis is defined as a chronic and recurrent dermatosis characterized by the onset of erythematous and infiltrated patches covered by white or silvery flaky scales. Therefore the peculiar morphological elements are three: erythema, desquamation and infiltration (Figure 1).

In the classical form, lesions generally have three clinical characteristics: they tend to be multiple, bilateral and symmetric. This is why it is important to perform an accurate dermatologic examination which should include the whole skin, even if the patient does not report any lesions. Obviously, medical history collection is crucial and will be addressed to know the disease evolution that is usually chronic and relapsing with phases of worsening and possible spontaneous remission, to assess the response to sun exposure or to any specific treatment previously delivered, as well as to identify a family history of skin disorders. Also from the histopathological point of view, psoriasis is characterized by three main features: parakeratotic hyperkeratosis (due to an alteration of keratinocyte differentiation), infiltration (due to an excessive proliferation of keratinocytes and inflammatory infiltrate) and erythema (due to vasodilation, neovascularization and inflammation) (Figure 2).

The dermatologic semiotic for psoriasis includes three simple methodological steps that can be done when visiting a patient. Brocq methodic removal of scales with a tongue depressor demonstrates the presence of a great amount of scales at the top of a psoriatic lesion and leads to small bleeding points because of the papillary plexus dilatation (called Auspitz’s sign). Another phenomenon which can be observed in psoriasis is the so-called Köbner’s reactive isomorphic response (which is common to a number of immune-mediated dermatological diseases): it typically occurs during the acute eruption and is characterized

3 MORPHOLOGICAL FEATURES

1. Desquamation
2. Infiltration
3. Erythema

Figure 1 - Psoriasis main morphological features.
Psoriasis differential diagnosis

by the appearance of typical skin lesions in the site of physical or inflammatory injuries.
Cutaneous biopsy deserves a separate discussion; this diagnostic tool is rarely required in case of psoriatic classical forms and sometimes, when the clinical diagnosis is doubtful, histology is not diagnostic either (especially in case of palmoplantar localization, erythrodermic psoriasis, nail involvement or sebopsoriasis).

Figure 3 reports a list of psoriasis main clinical presentations.

Psoriasis vulgaris (the most common) is well known. It is characterized by the presence of well-delineated circular thick plaques which sometimes are confluent, erythematous and hyperkeratosic (Figure 4). The classic sites of localization include the extensor surfaces (elbows, knees), scalp, sacral region; the umbilical area is among the often neglected preferred sites.

In the differential diagnosis of psoriasis vulgaris, five dermatological diseases are generally considered. The first one is nummular eczema which is a dermatosis showing rounded, circular (coin-shaped), desquamative erythematous lesions, covered with vesicles, crusts and scales that are almost always very itchy.

From the medical history perspective, an atopic or more generally allergic diathesis is present and epicutaneous allergy testing is frequently positive (Figure 5).

It should also be reminded that pruritus is an extremely common symptom also in psoriasis.

Other dermatological presentations which are less known to rheumatologists will now be examined.

One is mycosis fungoides, a form of T-cell lymphoma having a mainly cutaneous expression, which at the clinical observation usually shows erythematous patches, that are little infiltrated and finely desquamating: the medical history and the assessment of the response to treatment should suggest to carry out a biopsy in these cases, which is crucial for the diagnosis (Figure 6).

Figure 2 - Psoriasis main histological features.

Figure 3 - Psoriasis main clinical variants.

Figure 4 - Psoriasis vulgaris: clinical manifestations.

Figure 5 - Main differential diagnoses in case of psoriasis vulgaris. Nummular eczema: clinical manifestations.

Figure 6 - Main differential diagnoses in case of psoriasis vulgaris. Mycosis fungoides: clinical manifestations.

Clinical manifestations

- Psoriasis vulgaris or plaque psoriasis
- Erythrodermic psoriasis
- Inverse psoriasis
- Psoriasis affecting seborrheic areas (Sebopsoriasis)
- Guttate psoriasis
- Palmoplantar psoriasis
- Palmoplantar pustular psoriasis
- Happle hyperkeratotic
- Generalized pustular psoriasis
- Impetigo herpetiformis
- Psoriatic arthritis
- Psoriatic onychopathy
- Other clinic patterns

Psoriasis Vulgaris

- Main differential diagnoses
  1. Nummular eczema
  2. Mycosis fungoides
  3. Pytiria rubra pilaris
  4. Duhring’s disease
  5. Bowen’s disease

Psoriasis Vulgaris

- Main differential diagnoses
  1. Nummular eczema
  2. Mycosis fungoides
  3. Pytiria rubra pilaris
  4. Duhring’s disease
  5. Bowen’s disease

Figure 4 - Psoriasis vulgaris: clinical manifestations.

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The diagnosis of Pytiriasis rubra pilaris can be sometimes a therapeutical challenge. In typical cases, follicular papules and infiltrated scales are observed as well as typical palmoplantar hyperkeratosis (Figure 7). Duhring’s disease (also called “dermatitis herpetiformis”) can be considered in the differential diagnosis due to its bilateral and symmetric localization, on extensor surfaces of the limbs, but a careful observation will show papules or vesicles on erythematous skin, in the evolutive and eruptive phases, with crusts full of serum and blood and lichenification due to scratching (Figure 8) in the chronic phases. This condition is constantly very itchy.

Bowen’s disease is a squamous-cell carcinoma in situ of the skin and is clinically characterized by erythematous, little infiltrated, finely desquamating, mainly single patches, showing no improvement after photo- or local therapy; in this case, the differential diagnosis should be made, especially if mild to very mild psoriasis is clinically suspected (Figure 9).

Psoriasis vulgaris can be the initial presentation of psoriasis, but it is usually a complication of a chronic form and is characterized by the appearance of generalized erythema associated with systemic signs and symptoms including fever, chills, fatigue, general malaise, generalized superficial limphadenopathy and metabolic disorders that may be even serious (hypoalbuminemia, hyposideremia, hyponatremia) related to transcutaneous proteins and fluids loss. Erythrodermic psoriasis can be caused by the abrupt discontinuation of a systemic cortico-steroidal therapy (Figure 10).

Among the main dermatological diseases that can be considered in the differential diagnosis in case of erythrodermic psoriasis there is mycosis fungoides, in particular its leukemic variant, the Sezary syndrome, in which the skin usually appears mildly erythematous, typically brownish red, with palmoplantar hyperkeratosis and intense itching.

Once again, pityriasis rubra pilaris is a disease to be considered in the differential diagnosis, although it has peculiar features: very little desquamation, healthy skin patches in the erythrodermic area and compact palmoplantar hyperkeratosis of typical yellowish discoloration.

Ichthyosis is another disease to be taken into consideration: in this case – with the exception of the acquired form – desquamation is very little; also in this dermatosis, pruritus is the key symptom. Clinical presentations of chronic skin drug reactions can be confounded with psoriasis, but in some cases they can also be concomitant in the same patient: a careful phar-
macological history will be crucial for differential diagnosis purposes; in this case, a biopsy can show an infiltrate rich in eosinophils, which can suggest the iatrogenic nature of the dermatosis.

Inverse psoriasis can be very difficult to diagnose also for dermatologists; it typically affects folds (usually axilla, groin, intergluteal crease, retroauricular areas) and desquamation is not evident since maceration leads to scale detachment. Lesions are usually beefy red, symmetric, bilateral, multiple and well-defined; there is a high relative risk of association with arthropatic psoriasis; this is why it can be very important for rheumatologists (Figure 11).

In these cases, the main differential diagnosis should consider candidal intertrigo: clinically it usually presents with typical perilesional pustules, but in order to confirm the diagnosis, a mycological exam is necessary. This is a quick, low-cost, non-invasive procedure that in the dermatology setting is considered as a diagnostic routine examination. Also the medical history is crucial in case of suspected fungal disease: it usually affects the elderly, obese and diabetic patients or subjects with comorbidities, and the affected areas are rarely multiple or symmetric. The correct diagnosis in these cases is fundamental also for therapeutic purposes, since the use of topical steroids – key drugs in the treatment of psoriasis – is contraindicated in fungal infections. Also dermatophyte infections, the so called *tinea*, are frequent diseases and should be taken into account if inverse psoriasis is suspected. In these cases, careful clinical observation can provide relevant diagnostic elements: centrifugal spread, presence of an erythematous-desquamative peripheral ring with micro-pustules, the appearance of a tree trunk's section due to the concentric rings, intense pruritus. Also with regard to these forms, direct and cultural mycological examination, appropriately performed, is crucial for the diagnosis, especially in patients who have been treated with long-term topical steroid therapy and presents with clinical features of the so-called *tinea incognita*.

Genital psoriasis can be included in these presentations although it is not exactly an inverse form: it presents with well-defined, erythematous, desquamating plaques (Figure 12). The main differential diagnoses, which may be very difficult at times, are lichen (especially in the erosive and Sclera-atrophic variants), Zoon balanitis and erythroplasia of Queyrat, an *in situ* squamous-cell carcinoma characterized by asymptomatic lesions with a varnished surface and a slow peripheral evolution that is refractory to local treatments. In all these cases, it is recommended to perform a biopsy since a delay in diagnosis may compromise prognosis. Psoriasis affecting seborrheic areas is sometimes very difficult to diagnose especially in case of severe forms of widespread seborrheic dermatitis. Unlike in psoriasis, in seborrheic dermatitis scales have a yellowish and greasy appearance and the scalp involvement is usually uniform on the whole scalp. However, the differential diagnosis is sometimes difficult also for experienced dermatologists because seborrheic dermatitis has a very high incidence in the general population, and, like psoriasis, it has a chronic and recurrent course and can improve following sun exposure. With regard to this, some authors have proposed the definition of *sebopsoriasis* – a sort of bridge between the two dermatoses – where the presence of severe seborrheic dermatitis could induce the onset of psoriasis with a sort of Köbner’s reactive isomorphic response (Figure 13). However, in many cases, a care-
ful and prolonged clinical follow up (onset of typical lesions over time in skin areas usually unaffected by seborrheic dermatitis, response to treatments) can clarify the diagnosis.

Guttate psoriasis is another relatively common form, particularly in children (Figure 14); it is characterized by the eruptive onset of papules and small infiltrated plaques, covered with desquamated skin, and frequently spreads over the skin – with specific involvement of the trunk – and it is often triggered by streptococcal angina.

In the pediatric age range, among the most common dermatoses considered in differential diagnosis, there is the pityriasis rosea of Gibert, in which the so-called "herald patch" preceding the secondary eruption is crucially important. Moreover, in this dermatosis, the erythema usually looks less intense and the course is always towards a spontaneous resolution within 4-8 weeks.

Another possibility in the differential diagnosis is chronic pityriasis lichenoides, a disease that can be eruptive at onset, while desquamation is really very limited.

Finally, there is secondary syphilis. This is probably the most difficult differential diagnosis, although there is one key feature that characterizes patients with syphilis: the involvement of hand palms which is a crucially important differential criterium vs psoriasis (Figure 15). In case of doubt, serum diagnostic tests are recommended.

Another extremely interesting form is palmoplantar psoriasis (Figure 16) which, especially when not associated with any other skin localizations, can be very difficult to diagnose.

It is usually characterized by erythematous-squamous, well-defined patches clearly evident on the skin. Dermatological diseases that can be considered in the differential diagnosis include pityriasis rubra pilaris, in which, as previously mentioned, the palmoplantar coloring is yellowish; the chronic contact eczema is another frequent disorder of the hands (in this case not only the palm, but frequently also the back) and usually without plantar involvement. Also atopic eczema should be mentioned. In this case, a careful medical history can show concomitant involvement of upper airways, irregular involvement of hands and feet, itchy eczematous patches in other body areas and onset during childhood. The differential diagnosis with lichen planus should be done through clinical search for typical polygonal, violet papules that can often be observed on the rim of the wrist. Once again fungal infections should be mentioned, which can obviously affect palmoplantar sites, including the incognita form that follows a prolonged topical treatment with corticosteroids.

Palmoplantar pustular psoriasis (Figure 17) is clinically characterized by sterile pustules that develop on erythematous plaques and erode forming scales and crusts. It is mostly frequent in postmenopausal smoking women and often associated with arthropathy. The main differential diagnoses are vs fungal infections...
and contact eczema (especially during the chronic phase when pustules due to superinfections can be observed). Hallopeau acrodermatitis is a mutilating disease with a specific presentation that usually is not difficult to distinguish (Figure 18). Pustules are limited to fingertips and they may reach the perionychium with consequent nail loss and bone reabsorption. It does not affect all fingers and it shows a characteristic “radial” distribution of lesions.

Generalized pustular psoriasis is a severe form characterized by the eruption of erythrodermia with pustules, high fever, arthralgia and myalgia; it requires medical care in a dermatological ward (Figure 19).

In differential diagnosis, all forms of generalized drug reaction should be considered; they are characterized by the presence of non-follicular pustules on erythematous and edematous skin, with an initial onset on the face and major body folds, with resolution on average after 4-10 days from the administration of the drug which has probably triggered the reaction.

Also the Sneddon-Wilkinson pustulosis should be considered in this case, but lesions tend to be localized on the trunk and major folds (groin, axilla and mammary); lesions on the limbs are not always present and are localized especially on flexor surfaces, without involvement of the face and mucosa; no fever or other symptoms are usually present.

Psoriatic onychopathy is a very important clinical chapter. Figures 20, 21 and 22 report a summary of the main lesions that can be observed by their localization on the nail matrix or bed.

In differential clinical diagnosis, the presence of concomitant skin psoriatic patches or suspected patches in the patient history should be considered, as well as the number of nails involved. It should be said that nail lesions involving nail matrix or bed...
could coexist in the same patient, thus presenting clinical polymorphism. It can be very difficult to distinguish fungal diseases in differential diagnosis; moreover, the fungal superinfection of a damaged psoriatic nail is not uncommon at all; this is why a direct and cultural mycological examination of the involved nails is very often recommended. *Candida spp.* infections usually cause an inflammatory paronychia. Also lichen can lead to nail involvement with onycholysis and destruction of the nail plate; it is possible to observe lichen presentations which affect all twenty nails with no involvement of any other skin sites.