Parapsoriasis: Sorting Through a Century of Confusion

Far from simply a distorted reflection of psoriasis, parapsoriasis occasionally is a precursor of mycosis fungoides. Here's what we know.

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The modern medical understanding of the phenomenon that is presently known as parapsoriasis first began to develop when, in 1890, Unna, Santi, and Pollitzer described parakeratosis variegate, a condition which is apparently equivalent to one form of what today's physicians refer to as large plaque parapsoriasis (LPP).[1] In 1897, Brocq published a description of "erythrodermies pityriasiques en plaques desseminees" which effectively described both large and small plaque parasporiasis as being a single clinical phenomenon.[2] Later, in 1902, Brocq was the first to use the term "parapsoriasis" to refer to a group of diseases that included what is now recognized as large and small plaque parapsoriasis as well as pityriasis lichenoides.[3,6] Over the next 60 years, the medical community gradually acknowledged that all forms of pityriasis lichenoides are histologically and clinically distinct from what many in medicine now refer to as large and small plaque parapsoriasis.[4,5,6]

Confusion, lack of consensus, and controversy, however, continue to surround the issues of terminology and nosology as they relate to our clinical phenomenon of interest.[7,8,4, 11,12] In the United Kingdom for example the term "chronic superficial dermatitis" is used to refer to the entity that physicians in the United States describe as "parapsoriasis en plaque."[9] Depending on where in the literature a person looks, the term "parapsoriasis en plaque" can refer to either a group that includes both large and small plaque parapsoriasis, specifically small plaque parapsoriasis (SPP), or even specifically large plaque psoriasis.[8, 10,4] Moreover, some sources even assert that the term "parapsoriasis" should altogether be retired for the phrase "premycosis fungoides."[7]

Aware of the controversy and being informed about the diseases, many present day dermatologists choose to adopt the position that parapsoriasis may appropriately be described as being one of two types. One type is considered benign and is known as small plaque parapsoriasis, digitate dermatosis, or chronic superficial dermatitis. The other type is considered premalignant and is most often called large plaque parapsoriasis (having in the past been called prereticulotic poikiloderma).[10,13,14] Each of these two types presents with a distinct constellation of clinical findings as well as histologic characteristics that enable the appropriate diagnosis to be made.

Clinical Diagnosis

The clinical diagnosis of small plaque parapsoriasis is made based upon skin findings including round, ovoid, scaly, asymptomatic, erythematous or yellowish/brownish, slightly elevated macules and/or patches, less than 5cm in diameter. The patient's face and anterior surfaces usually bear no findings. Oftentimes, one will also note the presence of slight scale and a cigarette paper appearance in the digitate (or finger like)

shapes on the flanks, proximal extremities, and buttocks following the lines of cleavage. The diagnosis can be supported based on histopathology showing spongiform dermatitis with focal areas of parakeratosis, scaly crusts, and exocytosis of normal lymphocytes. The dermis will also often have an edematous appearance with a slight but uniform lymphohistiocytic infiltrate, and dilation of the papillary vessels.[10,13,8] The spongiosis of SPP is often very mild and in chronic lesions is often absent. In such a setting, then, the acanthosis may demonstrate a psoriasiform pattern. SPP also is without a thin suprapapillary plate and exhibits very few mitoses among the keratinocytes. The diagnosis of SPP can often be made with the scanning magnification of a standard light microscope upon visualizing lymphocytes with normal mature morphology within the papillary dermis accompanied by regular acanthosis with focal parakeratosis.[8]

A history of waxing and waning mildly pruritic to asymptomatic patches in sun protected areas should suggest a diagnosis of large plaque parapsoriasis or mycosis fungoides (MF), the most common variant of the cutaneous T-cell lymphomas. In LPP, the patches usually wax in the winter and wane in the summer in contrast to MF in which the patches are more likely to be fixed. The diagnosis of large plaque parapsoriasis should be considered when skin findings include broad (greater than 5cm by convention), irregularly shaped, slightly scaly, and slightly elevated erythematous, dusky red or yellowish patches which occur most often on the proximal extremities, flexures, and buttocks.

The clinically suspected diagnosis can be supported by biopsy, which reveals a nonspecific or band-like mononuclear infiltrate with epidermal hyperplasia (or atrophy in poikilodermatous regions), vacuolization in the basal cell layer, capillary dilatation and an absence of atypical lymphocytes.[10] In the dermis there is a superficial perivascular infiltrate that is somewhat lichenoid and composed of mononuclear cells, which may infrequently exhibit convoluted nuclei. Eosinophils, neutrophils, and plasma cells are usually absent.[13]

In an attempt to develop standardized and widely accepted diagnostic criteria for defining the earlier stages of MF and to assist clinicians distinguish MF from large plaque parapsoriasis, Pimpinelli and colleagues proposed an algorithmic numerical scoring system that takes into consideration the clinical, histopathologic, immunopathologic, and molecular biological characteristics of the disease[23] (See Table 1). The future may see a shift towards the use of such a scoring system as the algorithm becomes more refined and is found to be clinically valid.

Table 1: Algorithm for diagnosis of early MF [23]

Criteria	Scoring System
Clinical	
Basic	
1) Persistent and/or progressive 2) Patches/thin plaques	• 2 points for basic criteria and 2 additional criteria
Additional	
1) Non-sun exposed Location 2) Size/shape variation 3) Poikiloderma	• 1 point for basic criteria and 1 additional criteria
Histopathologic	
Basic	
Superficial Lymphoid Infiltrate	
Additional	• 2 points for basic criteria and 2 additional criteria
1) Epidermotropism Without spongiosis	• 1 point for basic criteria and 1 additional criteria
2) Lymphoid atypia**	
Molecular biological	
1) Clonal TCR gene rearrangement	• 1 point for clonality
Immunopathologic	
1) <50% CD2+, CD3+, and/or CD5+ T cells	• 1 point for one or more criteria
2) <10% CD7+ T cells	
3) Epidermal/dermal discordance Of CD2, CD3, CD5, or CD7***	

A total of 4 points is required for the diagnosis of MF based on any combination of points from the clinical, histopathologic, molecular biological, and immunopathologic criteria.

**Lymphoid atypia is defined as cells with enlarged hyperchromatic nuclei and irregular or cerebriform nuclear contours.

***T-cell antigen deficiency confined to the epidermis.

Prognostic Implications

As previously mentioned, these different diagnoses are associated with different prognostic implications. Small plaque parapsoriasis is considered a benign entity, because it does not affect the level of functioning of the patient, and at worst, usually poses nothing more than a cosmetic nuisance if untreated. Many experts believe that patients with SPP are not at risk for developing MF. LPP, on the other hand, bears a less encouraging prognosis, as this entity is clinically and often histologically indistinguishable from early patch stage mycosis fungoides (MF).[24] Consequently, some physicians have been compelled to describe LPP as a "latent form" of MF,[15] while others have describe LPP as an "early stage" of MF.[16] Different studies have demonstrated different rates of progression of LPP to MF and a wide range of 10 to 35 percent of this progres-

sion has been reported in the literature to date.[15,7,17] Interestingly, the view of LPP as being an early form of MF has been supported by the demonstration of clonal T-cell receptor (TCR) gene rearrangements in 50 percent of LPP biopsies.[18] However, the finding of clonality does not confirm malignancy. The demonstration of clonal TCR gene rearrangements in LPP suggests that LPP is perhaps an abortive form of MF.[11,12]

Differing histology of LPP and MF may distinguish the two diagnoses. For example, the lymphoid infiltrate of LPP is perivascular and less dense with less epidermotropism than in MF. Epidermal aggregates of atypical mononuclear cells known as Pautrier's microabscesses are seen in MF and not LPP. Finally, the cytologically atypical cerebriform T cells, which have highly convoluted nuclei that are seen in the blood of patients with Sézary syndrome and in the skin of patients with MF are rarely present in LPP. Immunophenotypic analysis of affected tissue is usually not useful in distinguishing LPP from patch stage MF, because both diseases demonstrate a predominance of CD4+ helper cells with absent CD7 and CD62L expression.[19] One recent study suggested, however, that the presence of HECA-452 immunostaining is higher in MF than in LPP, which may be helpful in distinguishing the two diseases and in predicting which cases of LPP are likely to develop into MF.[20]

Management

The management of parasporiasis should be guided by the severity of disease. Since SPP is often asymptomatic, treatment is often unnecessary. The most common symptoms of SPP are related to the scaliness associated with the disease, and these can frequently be sufficiently alleviated with emollients or topical steroids. In the event that the patient is not satisfied with this more conservative therapy, phototherapy with narrow band (311nm) UV-B could be offered as a treatment option.[21,22] Regardless of the mode of treatment instituted for SPP (if any), annual skin checks of these patients to evaluate for increase in size of the lesions or development of changes, such as induration or atrophy, should be performed. If either finding is present, a skin biopsy should be repeated and tissue should be analyzed for progression of disease.

In all cases of LPP, some form of therapy should be considered to prevent progression of disease to MF. If the patient has less than 10 percent skin involvement, initiate treatment with mid- to high-potency topical steroids and assess the patient's response to therapy at regular visits. Should the response to topical therapy be deemed insufficient, begin phototherapy with either broad- or narrow-band UV-B or PUVA. Both have been shown to achieve good response. If the patient reports persistent or intolerable symptoms, progression despite therapy, or the development of thicker primary lesions (plaques), multiple skin biopsies are indicated to rule out progression to MF.

Psychological Relevance

In conclusion, SPP is considered by most experts to be a benign chronic dermatosis with little, if any, potential to evolve into MF. However, despite advances in immunohistochemistry and molecular genetics, distinguishing LPP from early MF still requires careful analysis of clinical and histologic findings. In some cases the diseases and therapy may be indistinguishable and clinically irrelevant to the clinician. One must not, however, forget the psychological relevance of the distinction between "benign" LPP and "malignant" MF in the minds of patients. ■ ☑

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