Recalcitrant Hyperkeratotic Plaques

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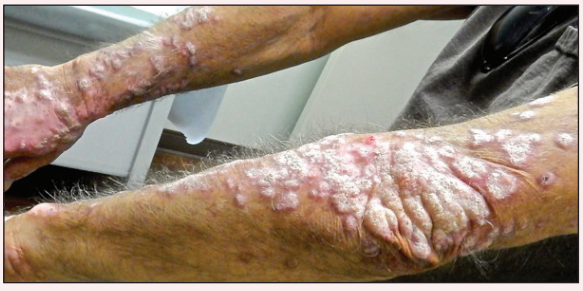

A 53-year-old man presented with a persistent, hyperkeratotic, pruritic rash on the arms, chest, and abdomen. The patient was treated for presumed psoriasis for 9 months by a primary care physician. However, despite an extensive treatment history, which included topical steroids, adalimumab, methotrexate, and narrowband UVB phototherapy, his condition worsened, and new erythematous and edematous lesions with no scale appeared on the back and chest. The patient's history also was notable for splenic rupture and mitral valve defects for which he was maintained on warfarin. In addition, he was evaluated by an allergist for new-onset dyspnea and treated with prednisone, which subsequently resulted in partial resolution of the skin lesions.

What's the diagnosis?

a. hypertrophic lichen planus
b. hypertrophic lupus erythematosus
c. lichenoid drug eruption
d. psoriasis
e. squamous cell carcinoma

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The Diagnosis: Hypertrophic Lupus Erythematosus

Physical examination at initial presentation revealed well-demarcated, 2- to 3-cm plaques with scale distributed most extensively on the elbows and shins with lesser involvement of the chest and abdomen. After treatment with topical steroids, adalimumab, methotrexate, and narrowband UVB phototherapy, new annular, erythematous, and edematous lesions began to appear on the chest and abdomen (Figure 1). These new lesions appeared less hyperkeratotic than the older ones.

Biopsy of a hyperkeratotic lesion from the patient's arm revealed marked hyperkeratosis, parakeratosis, epidermal hyperplasia, focal vacuolar change, solar elastosis, and transepidermal elastotic elimination (Figure 2A). A second biopsy performed on a newer chest lesion revealed interface changes, degeneration of the basal layer, follicular plugging, and dermal mucin (Figure 2B). Serology revealed an antinuclear antibody (ANA) titer of 1:1280 (reference range, <1:40 dilution) and hemoglobin of 11.5 g/dL (reference range, 14.0–17.5 g/dL). On the basis of clinical, histologic, and serologic findings, hypertrophic lupus erythematosus (LE) was diagnosed. The patient was treated with oral prednisone, which resulted in rapid improvement.

Hypertrophic LE is a rare subset of chronic cutaneous lupus first described by Behcet[1] in 1942. Lesions are identified as verrucous keratotic plaques with a characteristic erythematous indurated border.[2] Patients predominantly are middle-aged women with lesions distributed on sun-exposed areas. Most often, hypertrophic LE is seen in association with the classic lesions of discoid LE; however, patients may present exclusively with the cutaneous manifestations of hypertrophic LE. More rarely, as seen in this case, hypertrophic LE may present in conjunction with systemic features.[3] The diagnosis of systemic LE requires 4 of the following criteria be fulfilled: malar rash; discoid rash; photosensitivity; oral ulcers; arthritis; cardiopulmonary serositis; renal involvement; positive ANA titer; and neurologic, hematologic, or immunologic disorders.[4] Our patient qualified for discoid rash, photosensitivity, cardiopulmonary involvement with mitral valve defects and pulmonary pleuritis, hematologic disorder (anemia), and a positive ANA titer. Furthermore, in patients with only cutaneous discoid LE, serology generally reveals negative or low-titer ANA and negative anti-Ro antibodies.[5]

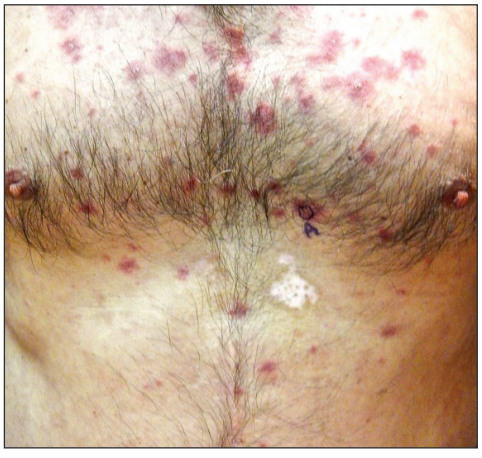

Figure 1. Round erythematous and edematous plaques with minimal overlying scale on the chest and upper abdomen.

Hypertrophic LE is characterized histologically by irregular epidermal hyperplasia in association with features of classic cutaneous LE. Distinctive features of cutaneous LE include interface changes, follicular plugging, dermal mucin, and angiocentric lymphocytic inflammation.[6] Notably, additional biopsies of the less hyperkeratotic lesions on our patient's chest and abdomen were performed, which revealed classic cutaneous LE features (Figure 2B).

Hypertrophic LE has 2 histological variants: lichen planus–like and keratoacanthoma (KA)–like patterns. Most cases are described as lichen planus–like, with a dense bandlike infiltrate in association with irregular epidermal hyperplasia, vacuolar interface changes, and reactive squamous atypia.[5] In contrast, the less common KA-like lesions consist of a keratinous center with vigorous squamous epithelial proliferation.[6]

Clinically, hypertrophic LE may resemble hypertrophic psoriasis, lichen planus, KA, or squamous cell carcinoma (SCC). Due to the presence of pseudocarcinomatous hyperplasia, the histopathologic differential includes hypertrophic lichen planus, SCC, KA, and deep fungal infections. However, these other diseases lack the classic features of cutaneous LE, which include interface changes, follicular plugging, dermal mucin, and perivascular lymphocytic inflammation. Additionally, transepidermal elastotic elimination (Figure 2A) helps distinguish hypertrophic LE from other diagnoses.[7] One of the most important tasks is distinguishing hypertrophic LE from SCC. Hypertrophic LE does not typically display eosinophil infiltrates, which differentiates it from SCC and KA. Additionally, studies report that CD123 positivity

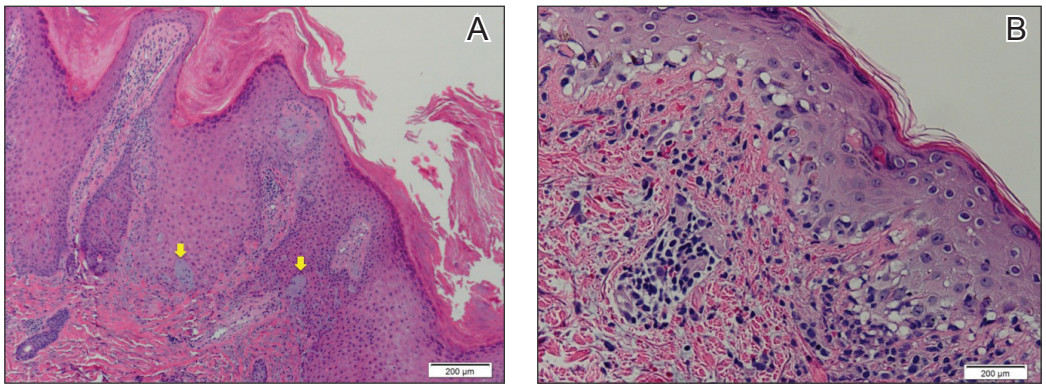

Figure 2. A biopsy of a lesion on the arm revealed marked hyperkeratosis, parakeratosis, epidermal hyperplasia, focal vacuolar change, elastin trapping (yellow arrows), and solar elastosis (A)(H&E, original magnification ×20). A biopsy of a newer lesion on the chest displayed focal vacuolar change and degeneration of the basal layer; due to the acute nature of this lesion, follicular plugging and basement membrane thickening were not yet apparent (B) (H&E, original magnification ×40).

can be useful.[6] Positive plasmacytoid dendritic cells are abundant at the dermoepidermal junction in hypertrophic LE, while only single or rare clusters of $CD123^+$ cells are seen in SCC.[8] Also, SCC has been found to arise in long-standing cutaneous LE lesions including both discoid and hypertrophic LE. Therefore, clinical and sometimes histological follow-up is required.

Hypertrophic LE often is challenging to treat and frequently is resistant to antimalarial drugs. The primary goals of treatment involve reducing inflammatory infiltrate and minimizing hyperkeratinization. Topical corticosteroids and calcineurin inhibitors often are inadequate as monotherapy due to reduced penetrance through the thick lesions; however, intralesional corticosteroids may be beneficial in patients with localized disease.[9] Unfortunately, topical or intralesional treatments are impractical in patients with extensive lesions, as seen in our patient, in which case systemic corticosteroids can be beneficial.

Topical retinoids also have been found to be highly effective.[10] Specifically, retinoids such as acitretin and isotretinoin, in some cases combined with antimalarial drugs, are effective in reducing the keratinization of these lesions. Successful treatment also has been reported with ustekinumab, thalidomide, mycophenolate mofetil, and pulsed dye laser.[11] As in other types of cutaneous LE, hyperkeratotic LE is photosensitive; avoidance of prolonged sun exposure should be advised.[8]

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