Tender White Lesions on the Groin

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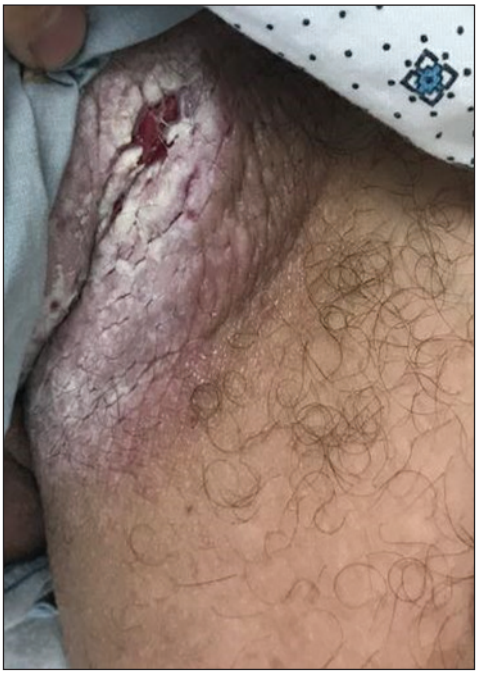

A 28-year-old man with a history of hyperimmunoglobulinemia E syndrome (previously known as Job syndrome), coarse facial features, and multiple skin and soft tissue infections presented to the university dermatology clinic with persistent white, macerated, fissured groin plaques that were present for months. The lesions were tender and pruritic with a burning sensation. Treatment with topical terbinafine and oral fluconazole was attempted without resolution of the eruption. A biopsy of the groin lesion was performed.

WHAT'S YOUR **DIAGNOSIS?**

a. candidal intertrigo
b. Hailey-Hailey disease
c. inverse psoriasis
d. pemphigus vegetans, Hallopeau type
e. tinea cruris

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The authors report no conflict of interest.
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THE **DIAGNOSIS:** Candidal Intertrigo

The biopsy confirmed a diagnosis of severe hyperkeratotic candidal intertrigo with no evidence of Hailey-Hailey disease. Hematoxylin and eosin–stained sections demonstrated irregular acanthosis and variable spongiosis. The stratum corneum was predominantly orthokeratotic with overlying psuedohyphae and yeast fungal elements (Figure 1).

Hyperimmunoglobulinemia E syndrome (HIES), also known as hyper-IgE syndrome or Job syndrome, is a rare immunodeficiency disorder characterized by an eczematous dermatitis–like rash, recurrent skin and lung abscesses, eosinophilia, and elevated serum IgE. Facial asymmetry, prominent forehead, deep-set eyes, broad nose, and roughened facial skin with large pores are characteristic of the sporadic and autosomal-recessive forms. Other common findings include retained primary teeth, hyperextensible joints, and recurrent mucocutaneous candidiasis.[1]

Although autosomal-dominant and autosomal-recessive inheritance patterns exist, sporadic mutations are the most common cause of HIES.[2] Several genes have been implicated depending on the inheritance pattern. The majority of autosomal-dominant cases are associated with inactivating *STAT3* (signal transducer and activator of transcription 3) mutations, whereas the majority of autosomal-recessive cases are associated with inactivating *DOCK8* (dedicator of cytokinesis 8) mutations.[1] Ultimately, all of these mutations lead to an impaired helper T cell (T_H17) response, which is crucial for clearing fungal and extracellular bacterial infections.[3]

Skin eruptions typically are the first manifestation of HIES; they appear within the first week to month of life as papulopustular eruptions on the face and scalp and rapidly generalize to the rest of the body, favoring the shoulders, arms, chest, and buttocks. The pustules then coalesce into crusted plaques that resemble atopic dermatitis, frequently with superimposed *Staphylococcus aureus* infection. On microscopy, the pustules are folliculocentric and often contain eosinophils, whereas the plaques may contain intraepidermal collections of eosinophils.[1]

Mucocutaneous candidiasis is seen in approximately 60% of HIES cases and is closely linked to *STAT3* inactivating mutations.[3] Histologically, there is marked acanthosis with neutrophil exocytosis and abundant yeast

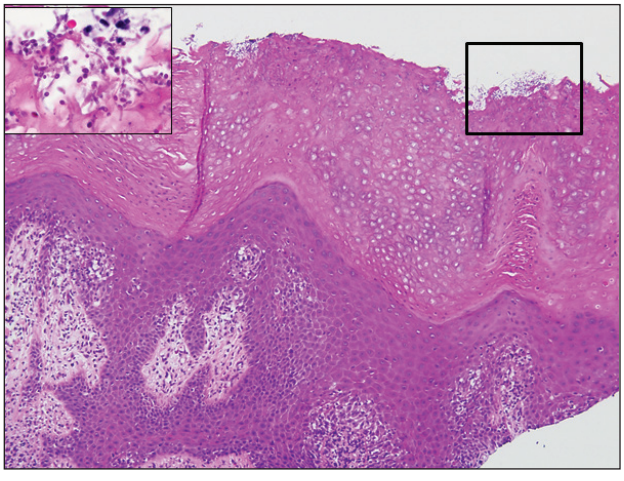

FIGURE 1. Irregular acanthosis and variable spongiosis. The stratum corneum was predominantly orthokeratotic. On higher magnification, yeast forms and pseudohyphae diagnostic of *Candida albicans* were appreciated (H&E, original magnification ×100; inset: H&E oil immersion, original magnification ×1000).

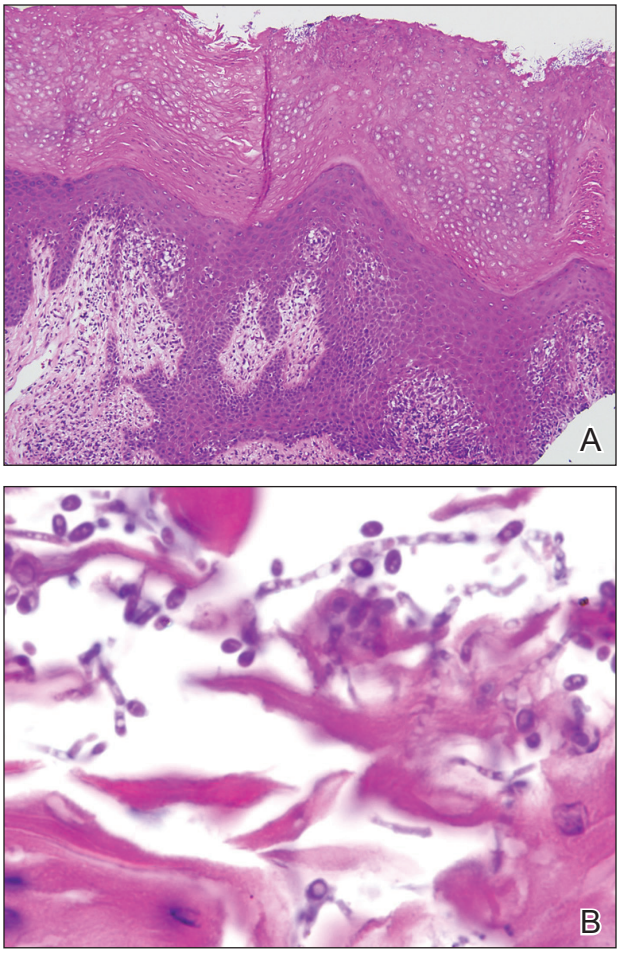

FIGURE 2. A, The epidermis displayed irregular acanthosis and variable spongiosis. The stratum corneum was predominantly orthokeratotic with overlying fungal elements (H&E, original magnification ×100). B, Closer view of the cornified layer showed pseudohyphae and budding yeast (H&E oil immersion, original magnification ×1000).

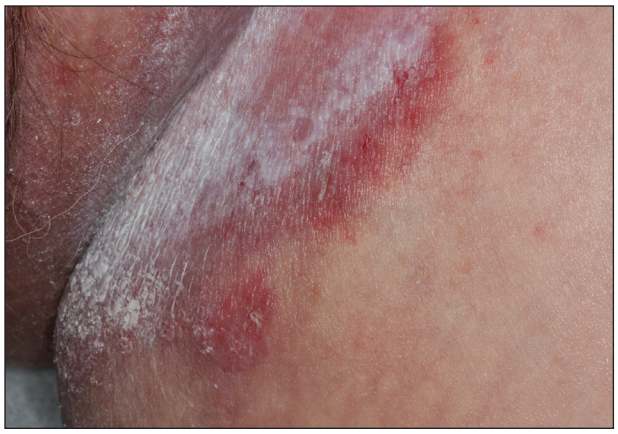

FIGURE 3. Hailey-Hailey disease with superimposed candidal infection. White macerated scale was seen overlying a large pink plaque and a smaller satellite pink scaly plaque in the groin.

and pseudohyphal forms within the stratum corneum (Figure 2).[4] Cutaneous candidal infections typically require both oral and topical antifungal agents to clear the infection.[3] Most cases of mucocutaneous candidiasis are caused by *Candida albicans*; however, other known culprits include *Candida glabrata*, *Candida tropicalis*, *Candida parapsilosis*, and *Candida krusei*.[5,6] Of note, species identification and antifungal susceptibility studies may be useful in refractory cases, especially with *C glabrata*, which is known to acquire resistance to azoles, such as fluconazole, with emerging resistance to echinocandins.[6]

The differential diagnosis of this groin eruption included Hailey-Hailey disease; pemphigus vegetans, Hallopeau type; tinea cruris; and inverse psoriasis. Hailey-Hailey disease can be complicated by a superimposed candidal infection with similar clinical features, and biopsy may be required for definitive diagnosis. Hailey-Hailey disease typically presents with macerated fissured plaques that resemble macerated tissue paper with red fissures (Figure 3). Biopsy confirms full-thickness acantholysis resembling a dilapidated brick wall with minimal dyskeratosis.[1] Pemphigus vegetans is a localized variant of pemphigus vulgaris with a predilection for flexural surfaces. The lesions progress to vegetating erosive plaques.[4] The Hallopeau type often is studded with pustules and typically remains more localized than the Neumann type. Direct immunofluorescence demonstrates intercellular deposition of IgG and C3, and routine sections characteristically show pseudoepitheliomatous hyperplasia with intraepidermal eosinophilic microabscesses.[1,4] Tinea cruris is characterized by erythematous annular lesions with raised scaly borders spreading down the inner thighs.[7] The epidermis is variably spongiotic with parakeratosis, and neutrophils often present in a layered stratum corneum with basketweave keratin above a layer of more compact and eosinophilic keratin. Fungal stains, such as periodic acid–Schiff, will highlight the fungal hyphae within the stratum corneum. The inguinal folds are a typical location for inverse psoriasis, which generally appears as thin, sharply demarcated, shiny red plaques with less scale than plaque psoriasis.[1] Psoriasiform hyperplasia with a diminished granular layer and tortuous papillary dermal vessels would be expected histologically.[1]

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