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Scaly Red Plaques in a 22-Year-Old Man

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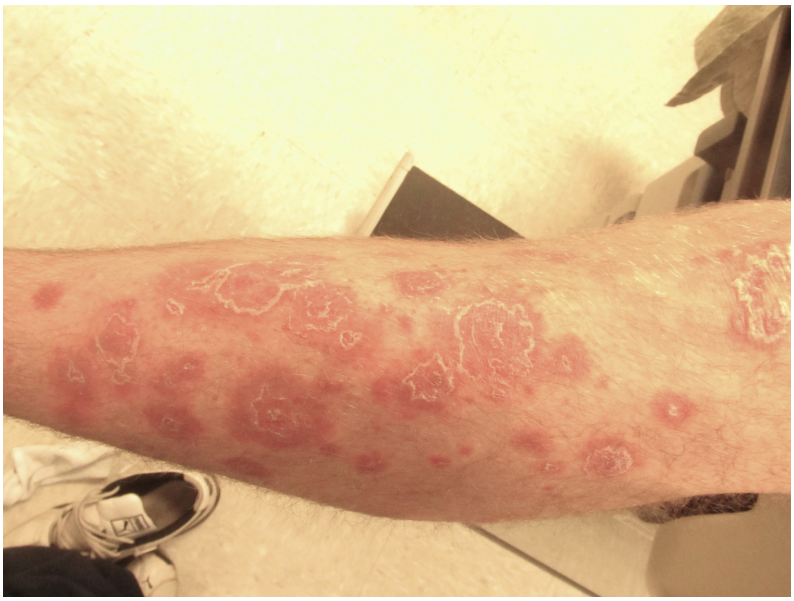
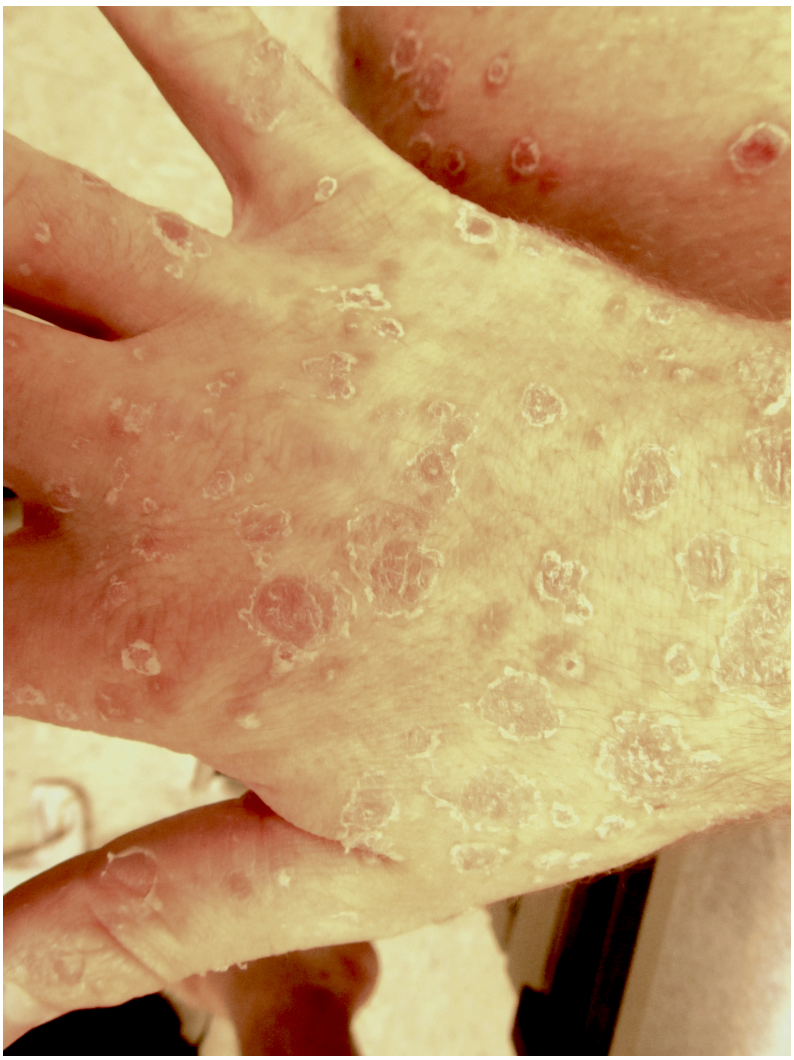
A 22-year-old male student naval aviator presented with a 1-week history of an eruptive nonpruritic rash that had started on the upper and lower extremities. He had been evaluated at an urgent care facility at the time and had been given permethrin for presumed scabies, without noted improvement, as well as a short course of oral corticosteroids. Of note, he had had an episode of pharyngitis within the previous 2 months that had since resolved.

A few weeks later, he presented for evaluation to his primary care provider, at which time the lesions had worsened and had spread to his torso. He was started on topical and oral antifungals without noted improvement. On subsequent follow-up, physical examination showed 3-mm to 5-cm, round, palpable, erythematous papules and plaques with overlying white scale on the extremities, trunk, hands and feet (including palms and soles) but without lesions on the genitals, head and neck, or mucosae (**Figures 1 and 2**).





What's Your Diagnosis?

A. Pityriasis rosea

B. Secondary syphilis

C. Psoriasis

D. Small plaque parapsoriasis

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Answer: Psoriasis

This patient has psoriasis—more specifically, guttate psoriasis. Biopsy of an early lesion showed nonspecific findings with features resembling pityriasis lichenoides et varioliformis acuta. A repeated biopsy 1 week later helped in confirming the diagnosis of guttate psoriasis. The pathology report noted that the specimen showed acanthosis with patchy parakeratosis and very focal neutrophils within the stratum corneum. The report also noted that the superficial dermis showed mild perivascular chronic inflammation and rare neutrophils. A Grocott-Gomori methenamine-silver stain was negative for fungal organisms.

DISCUSSION

Psoriasis is a chronic, inflammatory, immune-mediated skin disorder that affects 2% of the world's population and is more common in the white population than other ethnicities.[1-4] Multiple variants of psoriasis exist, including chronic plaque, erythrodermic, guttate, pustular, inverse, and nail forms, with chronic plaque psoriasis being the most common.[1-3,5] In the United States, the prevalence of psoriasis is as high as 4.6%, affecting individuals from the 1st to 8th decades of life, with bimodal peak distributions between 20 and 30 and between 50 to 60 years.[1-4]

Guttate psoriasis an uncommon clinical presentation of psoriasis that affects approximately 2% of all persons with psoriasis.[6] It is more common in children and young adults and often is preceded by an episode of streptococcal pharyngitis, with drugs being a rare trigger.[1-4] The lesions are widely disseminated but commonly occur on the limbs and trunk as small (often 2-5 mm), droplike, erythematous plaques and papules with overlying scale that are often pruritic.[1,5,6]

The diagnosis is typically made clinically based on the presentation of lesions and a clinical history of pharyngitis. Laboratory tests are usually not necessary, but an elevated antistreptolysin O titer may be a helpful indicator of previous streptococcal infection.[1] Histopathology can be helpful in difficult cases.

On histopathology, guttate psoriasis has overlapping features with evolving lesions of plaque psoriasis.[1,2,7] Initial psoriasis lesions are typically nondiagnostic and present with superficial perivascular infiltrate of lymphocytes and macrophages in the dermis, along with papillary edema and dilation of the capillaries and mast cell degranulation, with parakeratosis (flattened nuclei) often seen in guttate psoriasis instead of acanthosis.[1,2]

Histologic findings of active lesions are often diagnostic for psoriasis. The plaque form shows confluent parakeratosis with thinning or loss of the granular cell layer, tortuous and dilated capillaries in the dermal papillae, and the pathognomonic features of Munro microabscesses (neutrophil aggregates in the parakeratotic stratum corneum) and spongiform pustules of Kogoj (accumulation of neutrophils intermixed with epidermal cells in the foci of spongiosis, found beneath the keratin layer).[1-3] Guttate psoriasis lesions, in contrast, have parakeratotic features of plaque psoriasis but in smaller areas of foci, neutrophils that surmount the parakeratotic layers, markedly less acanthosis, mild spongiosis, and superficial papillary dermis that commonly contains neutrophils and lymphocytes.[1,2]

DIFFERENTIAL DIAGNOSIS

Pityriasis rosea is a common, acute, and self-limited skin eruption that typically occurs in adolescents and young adults aged 10 to 35 years.[8] The pathogenesis of the disease is unknown but points toward a viral etiology.[8] The classic presentation is a solitary lesion (“herald patch”) on the trunk (and less often on the neck or proximal extremities) that enlarges over several days and predates the remaining eruption by hours to days.[8] The herald patch is a round to oval, pink to salmon-colored patch or plaque that is slightly raised with advancing margins and has central scaling that ranges from 1 to 10 cm in diameter.[8] The subsequent smaller eruption features papules and plaques with the same clinical features as the herald patch, distributed on the trunk in a Christmas tree pattern, and often sparing the face, palms, and soles.[8] Lesions are typically asymptomatic but can present with pruritus, and they persist for 6 to 8 weeks (up to 5 months’ duration has been reported).[8] Histopathology findings are often nonspecific and show small mounds of parakeratosis, spongiosis, and mild lymphohistiocytic perivascular and interstitial papillary dermal infiltrate.[8]

Syphilis is a sexually acquired, chronic, and progressive infection caused by *Treponema pallidum* that is divided into primary, secondary, and tertiary stages if left untreated.[9,10] The distribution is worldwide, with higher incidence in underdeveloped and lower-income counties.[9] In the United States, newly reported cases of syphilis have steadily increased since 2007 across all age groups above 15 years, and higher numbers of cases have been reported in men who have sex with men.[9,10] The secondary stage is a result of untreated or improperly treated primary syphilis and is characterized by mucocutaneous manifestations and systemic symptoms such as generalized adenopathy, fever, and malaise.[9] The most common skin manifestation is a generalized, nonpruritic, papulosquamous eruption, 1 to 20 mm in size, and pink to violaceous to red-brown in color.[9] Other

papulosquamous eruption, 1 to 20 mm in size, and pink to violaceous to red-brown in color.[9] Other areas of involvement include annular face plaques and symmetric papules and plaques with a collarette of scale on the palms and soles.[9] Histopathology findings of secondary lesions are highly variable. The epidermis can be normal, psoriasiform, necrotic, or ulcerated, while dermal infiltrates of plasma cells, lymphocytes, and histiocytes can be perivascular, lichenoid, nodular, or diffuse.[9] Older lesions may be granulomatous, resembling sarcoidosis or other granulomatous dermatoses but with the presence of plasma cells.[9] Immunohistochemistry results will show spirochetes.[9]

Small plaque parapsoriasis is an idiopathic, chronic, asymptomatic dermatosis that occurs in the middle-aged to elderly populations, peaking in the 5th decade.[8] Lesions present as round to oval erythematous patches, smaller than 5 mm in diameter, that are covered in fine scale and distributed widely on the trunk and extremities or with limited distribution in sun-protected areas.[8] The condition waxes and wanes early in the presentation and slowly becomes more extensive. Histopathology findings are often nonspecific and may show mild, nonspecific spongiotic dermatitis with focal parakeratosis, often with variable exocytosis of lymphocytes.[8]

TREATMENT

The patient was initially treated with topical triamcinolone and calcipotriene after an initial biopsy, and minimal improvement was noted. Upon confirmation of psoriasis on a subsequent biopsy, narrow-band UV-B therapy (34 sessions) was initiated, leading to significant improvement of symptoms. Guttate psoriasis rapidly responds to UV-B therapy.[5] However, possibly due to increasing stressors in his life, flare-ups occurred following this treatment, and the patient was started on adalimumab for a total of 6 months, which led to complete and sustained resolution of symptoms.

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