

Diffuse Pruritic Eruption in an Immunocompromised Patient

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A 54-year-old man presented to our dermatology clinic for evaluation of a widespread intensely pruritic rash of 4 weeks' duration. Calamine lotion and oral hydroxyzine provided minimal relief. He was being treated for a myeloproliferative disorder with immunosuppressive therapy consisting of a combination of cladribine, low-dose cytarabine, and fedratinib. Physical examination revealed multiple excoriated papules and indurated nodules on the extensor and flexor surfaces of the arms and legs (top), chest, midline of the back (bottom), and groin. No lesions were noted on the volar aspect of the patient's wrists or interdigital spaces, and no central puncta or scales were present. He denied any preceding arthropod bites, trauma, new environmental exposures, or changes to his medications. Scrapings from several representative lesions were obtained for mineral oil preparation and microscopic evaluation.



WHAT'S YOUR DIAGNOSIS?

- lichenoid drug eruption
- papular urticaria
- prurigo nodularis
- scabies infestation
- tinea corporis

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THE DIAGNOSIS: Scabies Infestation

Direct microscopy revealed the presence of a live scabies mite and numerous eggs (Figure), confirming the diagnosis of a scabies infestation. Scabies, caused by the *Sarcoptes scabiei* var *hominis* mite, characteristically presents in adults as pruritic hyperkeratotic plaques of the interdigital web spaces of the hands, flexor surfaces of the wrists and elbows, axillae, male genitalia, and breasts; however, an atypical presentation is common in immunocompromised or immunosuppressed individuals, such as our patient. In children, the palms, soles, and head (ie, face, scalp, neck) are common sites of involvement. Although dermatologists generally are familiar with severe atypical presentations such as Norwegian crusted scabies or bullous scabies, it is important that they are aware of other atypical presentations, such as the diffuse papulonodular variant observed in our patient.¹ As such, a low threshold of suspicion for scabies infestations should be employed in immunocompromised patients with new-onset pruritic eruptions.

Direct microscopy is widely accepted as the gold standard for the diagnosis of scabies infestations; it is a fast and low-cost diagnostic tool. However, this technique displays variable sensitivity in clinical practice, requiring experience and a skilled hand.^{1,2} Other more sensitive diagnostic options for suspected scabies infestations include histopathology, serology, and molecular-based techniques such as DNA isolation and polymerase chain reaction. Although these tests do demonstrate greater sensitivity, they also are more invasive, time intensive, and costly.² Therefore, they typically are not the first choice for a suspected scabies infestation. Dermoscopy has emerged as another tool to aid in the diagnosis of a suspected scabies infestation, enabling visualization of



A live scabies mite (*Sarcoptes scabiei* var *hominis*) obtained from a skin scraping of a lesion on the right flank prepared with mineral oil and viewed under direct microscopy (original magnification $\times 20$).

scaly burrows, eggs, and live mites. Classically, findings resembling a delta wing with contrail are seen on dermoscopic examination. The delta wing represents the brown triangular structure of the pigmented scabies mite head and anterior legs; the contrail is the lighter linear structures streaming behind the scabies mite (similar to visible vapor streams occurring behind flying jets), representing the burrow of the mite.

Although treatment of scabies infestations typically can be accomplished with permethrin cream 5%, the diffuse nature of our patient's lesions in combination with his immunocompromised state made oral therapy a more appropriate choice. Based on Centers for Disease Control and Prevention recommendations, the patient received 2 doses of oral weight-based ivermectin (200 $\mu\text{g}/\text{kg}$ per dose) administered 1 week apart.^{1,3} The initial dose at day 1 serves to eliminate any scabies mites that are present, while the second dose 1 week later eliminates any residual eggs. Our patient experienced complete resolution of the symptoms following this treatment regimen.

It was important to differentiate our patient's scabies infestation from other intensely pruritic conditions and morphologic mimics including papular urticaria, lichenoid drug eruptions, tinea corporis, and prurigo nodularis. Papular urticaria is an intensely pruritic hypersensitivity reaction to insect bites that commonly affects the extremities or other exposed areas. Visible puncta may be present.⁴ Our patient's lesion distribution involved areas covered by clothing, no puncta were present, and he had no history of a recent arthropod assault, making the diagnosis of papular urticaria less likely.

Lichenoid drug eruptions classically present with symmetric, diffuse, pruritic, violaceous, scaling papules and plaques that present 2 to 3 months after exposure to an offending agent.⁵ Our patient's eruption was papulonodular with no violaceous plaques, and he did not report changes to his medications, making a lichenoid drug eruption less likely.

Tinea corporis is another intensely pruritic condition that should be considered, especially in immunocompromised patients. It is caused by dermatophytes and classically presents as erythematous pruritic plaques with an annular, advancing, scaling border.⁶ Although immunocompromised patients may display extensive involvement, our patient's lesions were papulonodular with no annular morphology or scale, rendering tinea corporis less likely.

Prurigo nodularis is a chronic condition characterized by pruritic, violaceous, dome-shaped, smooth or crusted nodules secondary to repeated scratching or pressure. Although prurigo nodules can develop as a secondary

change due to chronic excoriations in scabies infestations, prurigo nodules usually do not develop in areas such as the midline of the back that are not easily reached by the fingernails,⁷ which made prurigo nodularis less likely in our patient.

This case describes a unique papulonodular variant of scabies presenting in an immunocompromised cancer patient. Timely recognition and diagnosis of atypical scabies infestations can decrease morbidity and improve the quality of life of these patients.

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