

Bullous Scabies: A Diagnostic Challenge

Anna Wozniacka, MD; Tomasz Hawro, MD; Robert A. Schwartz, MD, MPH

*Scabies, a contagious infestation associated with the human mite *Sarcoptes scabiei* var *hominis*, occasionally displays a spectrum of atypical cutaneous manifestations and associated symptoms. We describe an unusual case of scabies with bullae formation that mimicked bullous pemphigoid in clinical and histopathologic examination but not direct and indirect immunofluorescence examination.*

Cutis. 2008;82:350-352.

Bullous variants of nonbullous disorders can be perplexing.¹⁻⁶ For infections such as chickenpox and scabies, missing the diagnosis creates a risk for an outbreak among healthcare workers.^{3,4} Scabies is a contagious infestation associated with the human mite *Sarcoptes scabiei* var *hominis*. Approximately 300 million cases of scabies are reported worldwide each year,⁷ but fewer than 30 cases of scabies with bullae have been described, to our knowledge.² We report an unusual example of scabies in an atypical location and bullous lesions that mimicked bullous pemphigoid in clinical and histopathologic examination.

Case Report

A 65-year-old man presented for examination and bullous pemphigoid was the initial diagnosis. The patient had multiple blisters on the trunk and arms and an eczematous eruption on the limbs of 3 weeks' duration, preceded by generalized pruritus with nocturnal exacerbations of 6 months' duration. He was living alone, but his friend who visited often also reported intense pruritus of several months' duration. The patient was in good general condition.

Clinical examination revealed the presence of a polymorphic cutaneous eruption. Tense blisters ranging in diameter from 3 to 10 mm were confined to the abdomen and arms. They equally arose on nonerythematous and erythematous bases. Crusted lesions and erosions were located nearby, mainly on the anterior trunk (Figure 1). The most prominent cutaneous findings were multiple, erythematous, often excoriated papules on his trunk and upper and lower extremities. The scrotum also was involved, while the penile shaft was clear. Multiple burrows were observed on the trunk and were slightly raised, brownish, wavy ridged, mostly s-shaped, and 10- to 15-mm long, predominantly with small erythematous papules along their course with a vesicle at one end. These burrows were mainly located on the lateral aspects of the trunk and iliosacral area but also on the abdomen, back, arms, and forearms (Figure 2). His face and scalp were spared. There was no mucosal involvement.

Laboratory test results included a complete blood cell count with differential, urinalysis, erythrocyte sedimentation rate, serum creatinine, blood urea nitrogen, serum protein electrophoresis, liver function, total serum bilirubin, serum electrolytes, glucose, and triglyceride and cholesterol fractions. There was marked peripheral eosinophilia; all other tests were within reference range.

Scabies mites were not demonstrated from the burrows; blister fluid culture did not show microorganisms. The skin biopsy specimen revealed epidermal spongiosis and inflammatory infiltrate composed of lymphocytes, histiocytes, and numerous eosinophils, consistent with pemphigoid. Results of direct and indirect immunofluorescence examination did not reveal any abnormalities.

After 4 days of treatment with sulfur 20% in yellow soft paraffin, the pruritus resolved and inflammatory papules and burrows flattened. However, 2 days following reexposure to the mites via contact with the untreated friend, the patient relapsed with pruritic papules, this time without blister formation. He was treated with a repeat 4-day application of the same ointment, and the oral antihistamine cetirizine hydrochloride (10 mg daily) was provided

Accepted for publication February 28, 2008.

Drs. Wozniacka and Hawro are from Dermatology, Medical University of Łódź, Poland. Dr. Schwartz is from Dermatology and Pediatrics, New Jersey Medical School, Newark.

This study was supported by a grant for scientific purposes (No. 503-1019-1) from the Medical University of Łódź, Poland.

The authors report no conflict of interest.

Correspondence: Robert A. Schwartz, MD, MPH, Dermatology, New Jersey Medical School, 185 South Orange Ave, Newark, NJ 07103 (roschwar@cal.berkeley.edu).



Figure 1. Scabies on trunk, with blisters, erosions, and crusts on the abdominal skin (A and B).

for pruritus. At 6-month follow-up, his skin did not show any evidence of recurrence or blister formation.

Comment

Clinical cutaneous findings of scabies are divided into primary findings consisting of small papules and burrows and secondary findings resulting from rubbing and scratching, with the only clinical manifestations sometimes being the latter.⁷ In typical cases, the distribution is highly specific. Burrows, the pathognomonic sign, usually occur on the flexor surfaces of the wrists, webs of the fingers, lateral aspects of the fingers, belt line, elbows, anterior axillary folds, scrotum in males, and areolae in females. In our patient, these locations were not dominant, as his burrows were mainly located on the trunk, which is rather uncommon in adults.

Bullous cutaneous changes in patients with scabies are unusual.⁸⁻¹⁰ Bullous scabies is regarded by some researchers as a distinct subtype of scabies that is clinically, histopathologically, and immunologically similar to pemphigoid.¹⁰ Not only can bullous scabies imitate pemphigoid, sometimes mite infestation can induce true bullous pemphigoid.¹¹ The mechanism of bullae formation has not been elucidated. One report claims that bullae are formed

because lytic secretions from the mite alter the bullous pemphigoid antigen, inducing production of anti-basement membrane zone antibodies. The antibodies lead to complement activation and an inflammatory infiltration, producing a subepidermal split.¹⁰ It also has been suggested that the mite's antigens may cross-react with the bullous pemphigoid antigen, inducing production of antibodies.¹² Other theories explain the mechanism as an id reaction to the mite¹³ or the presence of superinfection with *Staphylococcus aureus*.¹⁴

Histopathologic features of scabies infection are helpful to suggest the diagnosis, though they are common to a variety of arthropod reactions or sometimes to bullous pemphigoid itself. Results of direct immunofluorescence examination either do not reveal any abnormalities or show linear or granular deposits of IgG, IgM, and C3 in various combinations at the dermoepidermal junction.¹⁵ In most of the reported cases of bullous scabies, results of direct immunofluorescence examinations revealed abnormalities, while results of indirect immunofluorescence examinations did not reveal any abnormalities.^{2,15,16} Thus, it has been suggested that indirect immunofluorescence could serve as a differentiating test for bullous pemphigoid and bullous scabies.¹⁶ Circulating serum



Figure 2. Scabies on the trunk. Curved burrows are present with vesicles at one end.

antibodies directed against basement membrane zone, present in a minority of reports, might be interpreted as proof of an ability of the scabies mite to induce true bullous pemphigoid in predisposed individuals or as an example of the coexistence of scabies and pemphigoid.

Treatment of bullous scabies is the same as the classical form of the disease. Recurrence is especially common, mandating repeat therapy. Unusual manifestations of this infestation are noteworthy^{7,17} and are of considerable importance, both from a diagnostic and epidemiologic point of view.

REFERENCES

1. Jena DK, Dash ML, Chhetia R. Bullous scabies in a patient on anticancer therapy. *Indian J Dermatol Venereol Leprol.* 2005;71:53-54.
2. Shahab RKA, Loo DS. Bullous scabies. *J Am Acad Dermatol.* 2003;49:346-350.
3. Bhawan J, Milstone E, Malhotra R, et al. Scabies presenting as bullous pemphigoid-like eruption. *J Am Acad Dermatol.* 1991;24:179-181.
4. Schwartz RA, Jordan MC, Rubenstein DJ. Bullous chickenpox. *J Am Acad Dermatol.* 1983;9:209-212.
5. Janniger CK, Kowalewski C, Mahmood T, et al. Detection of antibasement zone antibodies in bullous systemic lupus erythematosus. *J Am Acad Dermatol.* 1991;24:643-647.
6. Janniger CK. Childhood mastocytosis. *Cutis.* 1992;50:187-189.
7. Hengge UR, Currie BJ, Jager G, et al. Scabies: a ubiquitous neglected skin disease. *Lancet Infect Dis.* 2006;6:769-779.
8. Ansarin H, Jalali MH, Mazloomi S, et al. Scabies presenting with bullous pemphigoid-like lesions. *Dermatol Online J.* 2006;12:19.
9. Brar BK, Pall A, Gupta RR. Bullous scabies mimicking bullous pemphigoid. *J Dermatol.* 2003;30:694-696.
10. Dhawan SS, Weitzner JM, Phillips MG, et al. Vesicular scabies in an adult. *Cutis.* 1989;43:267-268.
11. Balighi K, Robati RM, Hejazi N. A dilemma: bullous-pemphigoid-like eruption in scabies or scabies-induced bullous pemphigoid. *Dermatol Online J.* 2006;30:13.
12. Veraldi S, Scarabelli G, Zerboni R, et al. Bullous scabies. *Acta Derm Venereol.* 1996;76:167-168.
13. Brenner S, Wolf R, Landau M. Scabid: an unusual id reaction to scabies. *Int J Dermatol.* 1993;32:128-129.
14. Herman PS. Scabies and bullae [letter]. *JAMA.* 1975;231:1134.
15. Konishi N, Suzuki K, Tokura Y, et al. Bullous eruption associated with scabies: evidence for scabetic induction of true bullous pemphigoid. *Acta Derm Venereol.* 2000;80:281-283.
16. Nakamura E, Taniguchi H, Ohtaki N. A case of crusted scabies with a bullous pemphigoid-like eruption and nail involvement. *J Dermatol.* 2006;33:196-201.
17. Arya V, Molinaro MJ, Majewski SS, et al. Pediatric scabies. *Cutis.* 2003;71:193-196.