Scabies presenting with bullous pemphigoid-like lesions

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Dermatology Online Journal 12 (1): 19

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Abstract

A wide range of clinical manifestations may be seen in scabies, from classic pruritic papules and burrows to secondary features such as impetigo. Bullus lesions are a less frequent. Twenty cases of scabies presenting with bullae have been reported so far in the medical literature. Differentiating this subtype of scabies from the immunobullous disease bullus pemphigoid is a diagnostic challenge. A 42-year-old man was referred to our dermatology outpatient clinic with 3-month history of severe pruritus and tense blisters affecting mainly the lower trunk, arms and legs. An initial biopsy was suggestive for bullous pemphigoid. Close physical examination revealed small excoriated papules and a few burrows on borders of the hands and wrists. Skin scraping of the lesions on wrists was positive for *Sarcoptes scabiei*. Another biopsy specimen from a recent blister revealed subepidermal bullae with fibrin and inflammatory cells, particularly eosinophils. Direct immunofluorescence exam was negative. The patient was treated with lindane lotion followed by crotamiton cream with near complete resolution of the lesions. Scabies must be considered in patients presenting with recent onset of unexplained pruritic bullous lesions. Biopsy and immunofluorescence studies together with skin scrapings for *Sarcoptes scabiei* could help to differentiate these cases from bullous pemphigoid. Antiscabietic treatment results in resolution of bullous lesions in the affected patients.

Background

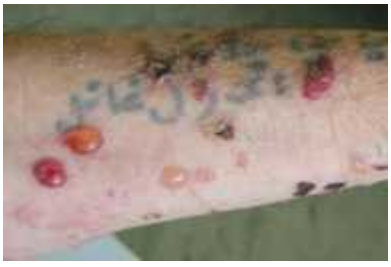
Scabies is a contagious infestation associated with the human mite, *Sarcoptes scabiei*, which affects all races and social classes worldwide. The most obvious symptom of scabies is itching, especially at night. The characteristic presentations of the disease are classic burrows, pruritic papules, and inflammatory nodules; although, in the crusted variant thick

hyperkeratotoses teeming with mites predominate. Patients may present with secondary lesions including impetigo or folliculitis, eczematous changes, or pseudolymphoma [1]. Moreover, atypical manifestations have been reported such as urticaria [2], Darier's disease [3], dermatitis herpetiformis [4], and bullous pemphigoid [5-19]. We report a 42-year-old man with scabies presenting with bullous pemphigoid-like lesions.

Clinical synopsis

A 42-year-old man presented to our dermatology clinic with pruritic blisters on trunk and limbs for 3 months. The eruption evolved over the course of a few weeks without any apparent predisposing event. Some of the blisters were blood filled. Pruritus was worse at night. He tried different antipruritic medications without success. An initial biopsy had revealed subepidermal bullae compatible with bullous pemphigoid, and the patient was referred to our dermatology outpatient clinic for further investigation. Past medical history was remarkable only for spinal injury leading to permanent neurologic dysfunction in the lower extremities. Drug history was negative. The patient lived with his family who were all apparently healthy.

General physical examination was normal except for spastic paraparesis. There were multiple intact tense bullae and crusted lesions involving the lower trunk, arms, and legs, with predilection for distal extremities (Fig. 1). These lesions clinically resembled those of bullous pemphigoid. Close inspection of the integument, revealed multiple minute papules and vesicles as well as a few burrows on the lateral borders of the hands and thenar and hypothenar area (Fig. 2). His face and scalp were spared. There were also similar lesions affecting the buttocks and genitalia. The lesions on the palms alerted us to a probable diagnosis of scabies. Scraping of the crusted lesions on wrists revealed scabetic mites. In further inquiry, one other family member disclosed itching at nights.



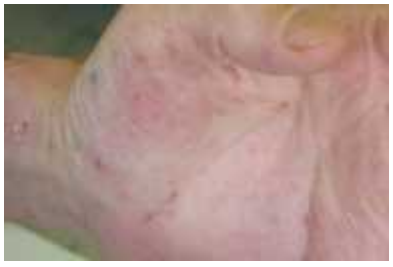
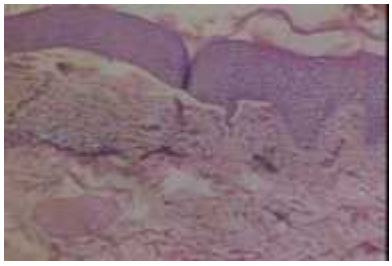


Figure 1 **Figure 2**

Figure 1. Multiple vesicles and tense bullae, together with scattered crusted lesions are seen on the flexor aspect of forearm. Some of the blisters are blood filled.

Figure 2. Small erythematous papules and vesicles are shown on the lateral border of hand, thenar and hypothenar area, and volar aspect of wrist. Note that because of severe pruritus, most of the vesicles are scratched. A few scabetic burrows are also shown in the picture.

Blood profile was normal except for moderate eosinophilia. Culture of a blister grew *Staphylococcus epidermidis*. Skin biopsy from one of the intact bullae showed a subepidermal blister containing neutrophils, numerous eosinophils and fibrin. The superficial dermis revealed mild perivascular chronic inflammation mostly composed of eosinophils and small lymphocytes (Figs. 3 and 4). The histologic findings were compatible with bullous pemphigoid. Direct immunofluorescence showed no significant fluorescent activity. Basement membrane zone (BMZ) was particularly inactive. Treatment by two applications of lindane lotion for 8 hours 10 days apart followed by 7 days of crotamiton cream showed a very good response with near complete resolution of bullous lesions. At 6-months followup, the patient had no evidence of the lesions.



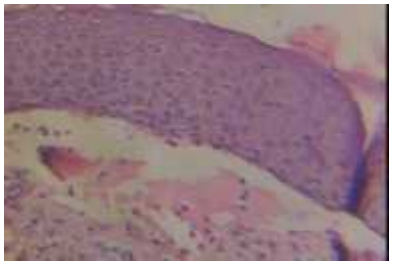


Figure 3 **Figure 4**

Figure 3. Biopsy from an intact bulla on forearm shows normal epidermis, a subepidermal cleavage and mild perivascular chronic inflammation in the superficial dermis (medium power, hematoxylin and eosin)

Figure 4. The blister contains neutrophils, eosinophils and fibrin. The histological picture is compatible with bullous pemphigoid. (high power, hematoxylin and eosin)

Discussion

Bullous lesions are rare in scabies, yet several cases are reported in the medical literature. In our literature review there were twenty cases of scabies (14 males, 6 females) presenting with blister formation with or without classic burrows and itchy papules and nodules of scabies [5-19].

Different theories have been suggested to explain the mechanism of bulla formation in these patients. In some cases bullous lesions might result from superinfection with *Staphylococcus aureus*, with a mechanism similar to the development of blisters in bullous impetigo [20]. However, only a small number of bullous scabies cases which have positive cultures for *Staphylococcus aureus* may be explained in this way. Cases with negative culture for *S. aureus* could be divided into two categories based on the results of direct immunofluorescence (available for 16 of the reported patients). Nine cases (56 %) showed deposition of C3 or IgG in the basement membrane zone (5 cases had linear and 4 had granular pattern). In this group, bullae might be attributed to the induction of BMZ reactive autoantibodies by scabies mites. Mites could injure the BMZ directly or through their lytic enzymes, resulting in the alteration of BMZ antigens and subsequent autoantibody production [9]. Alternatively, as suggested by Veraldi et al., some antigen in the mite may cross-react with BMZ antigens. This antigenic similarity might lead to the production of autoantibodies. Subsequently, antibodies activate complement with recruitment of inflammatory cells, including eosinophils, and release of enzymes that would produce a subepidermal cleavage [13].

The other group consists of 7 patients (including our case) in whom the results of direct immunofluorescence were negative. In these patients, bullae may occur as an id reaction to scabetic mite, a process that has been termed *scabid*. According to this allergic hypothesis, scabies induced hypersensitivity mediated by eosinophils and histamine manifests as bullous eruption [21]. This theory also explains blood eosinophilia which has been reported in association with bullous scabies [11].

Clinically, regardless of the pathogenesis, lesions consist of pruritic tense or flaccid large bullae, sometimes hemorrhagic or crusted, in a disseminated

distribution all over the body with a trend towards lower abdomen and extremities. Because of this clinical similarity of the lesions to those of bullous pemphigoid, from 21 patients with bullous scabies (including our case), 12 cases (57 %) were initially misdiagnosed and treated with prednisone. Differentiating bullous scabies from bullous pemphigoid is further complicated by the similarity of the histopathologic features of the two conditions. In fact, in 17 patients with documented histopathology report, the most frequent histologic finding was eosinophilic spongiosis, or subepidermal bullae containing variable amounts of inflammatory cells, particularly eosinophils and neutrophils, which are similar to the pathologic features of bullous pemphigoid.

It is noteworthy that less than half of the reported cases of bullous scabies had positive skin scrapings for scabies mite. Others had a history of treated scabetic infection that was later complicated by bullous eruption without any evidence of scabies at the time of blister formation. Because one of the requirements of an id reaction is the presence of an active infectious focus (e.g., dermatophytosis, candida, or scabies) at the time of the development of secondary (id) lesions [1], blister formation after the removal of the mite from human body is unlikely to be solely an id reaction. Such cases are probably better explained by the autoimmune theory that considers scabetic mites as a trigger factor for production of BMZ reactive autoantibodies that remain in the blood after the removal of the initial triggering antigen.

Scabies is treated by permethrin (5 % lotion) or lindane in adults. Children and pregnant women are treated by sulfur (6-10 %) in petrolatum for 3 consecutive nights [1]. Ivermectin (200mg/kg orally) is effective for crusted scabies or when application of topical treatment is difficult for the patient [22]. In the above mentioned cases of bullous scabies, after establishment of the diagnosis, 20 patients were successfully treated with single or combination topical antiscabietic preparations. Only one patient required the addition of ivermectin.

Conclusion

In conclusion we emphasize the importance of considering scabies in any patient who presents with recent onset of unexplained pruritic bullous lesions. Biopsy and immunofluorescence studies can help to differentiate these cases from bullous pemphigoid. However, the results might overlap, with some scabetic patients showing positive immunofluorescent staining in the BMZ.

Such cases might be mistakenly treated with oral steroids that could theoretically compromise the immune system and worsen scabies infestation. So we suggest having a high level of suspicion and performing skin scrapings for *Sarcoptes scabiei* in doubtful cases.

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