

# A Rare Skin Manifestation in a Patient With Human Immunodeficiency Virus: A Case Report and Review of the Literature

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## Abstract

Human immunodeficiency virus (HIV) in association with autoimmune bullous disease is a very rare entity, and the pathophysiology remains uncertain. We present a case of a 65-year-old African-American female with HIV who developed a single skin lesion on her face. Subsequently, she developed multiple blistering skin lesions throughout her body. Skin biopsy of the blistering lesions revealed bullous pemphigoid.

**Keywords:** Bullous pemphigoid; Human immunodeficiency virus; Acquired immunodeficiency syndrome

## Introduction

Cutaneous disorders related to human immunodeficiency virus (HIV) infection are vast, and often the skin is the first and only organ affected during most of the course of HIV disease [1]. Autoimmune blistering diseases are rare in patients with HIV [2]. Bullous pemphigoid is the most common autoimmune blistering disease of the skin and mucous membranes and is associated with significant morbidity and mortality [3, 4].

## Case Report

A 65-year-old African-American female with a past medical

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history of intravenous drug use and HIV was evaluated in the emergency department for diffuse, erythematous, and hemorrhagic skin lesions throughout her body. She denied any fever, chills, sweats, malaise, nausea, vomiting, or loss of appetite. Two months prior to her emergency department presentation, she noted a single 1.0 × 0.5 cm eczematous and papular lesion located over the left infra-orbital triangle of the face. The following day, she was evaluated by her primary care physician and was treated with a 2-week course of topical silver sulfadiazine cream. The facial lesion did not respond to the treatment, and the patient subsequently developed new lesions on the contralateral side of her face as well as her chest, upper and lower extremities, trunk, and back.

Her past medical history was significant for hypothyroidism, depression, and tonic-clonic seizures secondary to posterior reversible encephalopathy syndrome (PRES). She consumes alcohol and resides in a nursing home. Her home medications include atazanavir 300 mg once daily, emtricitabine 200 mg once daily, ritonavir 100 mg once daily, tenofovir 300 mg once daily, levothyroxine 25 µg once daily, paroxetine 20 mg once daily, and levetiracetam 1,000 mg twice daily. She was compliant with her antiepileptic medication.

In the emergency department, her physical examination was unremarkable except for 1.0 × 3.0 cm tense bullae on an erythematous and urticarial base and blisters that are numerous and widespread throughout her face, torso, back, and upper and lower extremities (Figs. 1 and 2). Laboratory workup revealed a white blood cell count of 5,200/mm<sup>3</sup>, hemoglobin of 8.2 g/dL, and platelets of 108,000/mm<sup>3</sup>. Chemistry panel revealed sodium of 139 mmol/L, potassium of 3.9 mmol/L, BUN of 24 mg/dL, and creatinine of 1.3 mg/dL. Liver function tests were within normal limits. The epidermal antibodies titer was positive with a ratio of 1:80. A skin biopsy was performed and was consistent with bullous pemphigoid (Fig. 3). This was confirmed by direct immunofluorescence testing.

The patient was admitted and treated with intravenous (IV) vancomycin 1.0 g every 12 h, IV doxycycline 100 mg every 12 h, and oral prednisone 50 mg daily. After 1 week, her symptoms began to slowly improve (Fig. 4).

## Discussion

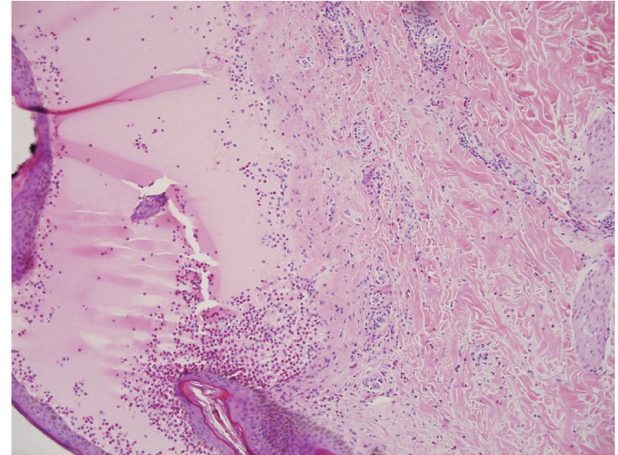
Bullous pemphigoid (BP) belongs to the group of autoimmune



**Figure 1.** Tense, clear fluid-filled vesicles and blisters over normal and erythematous skin of the right upper extremity.

subepidermal blistering diseases, which are characterized by an autoantibody response directed against distinct components of the dermoepidermal junction of skin and adjacent mucous membranes [5].

BP may present with different clinical presentations, and the onset may be either subacute or acute. The characteristic skin lesion is usually a large, tense blister arising on an erythematous base. The bullae are usually filled with clear fluid



**Figure 3.** Hematoxylin-eosin stain (× 10). Subepidermal bullae containing eosinophils and polymorphs. The dermis shows perivascular infiltrates containing neutrophils and eosinophils.

but may be hemorrhagic. Pruritus is frequently present [6]. BP in the HIV population is rare. In the review of literature, there were three cases reported; however, only two were confirmed (Table 1 [7-9]).

The pathophysiology of autoimmune bullous diseases in the HIV population remains uncertain. The reported cases in Table 1 reveal that patients with HIV are able to mount organ-specific autoantibody mediated disease. One possible explana-



**Figure 2.** Tense, clear fluid-filled vesicles and blisters over normal and erythematous skin of the trunk along with dried areas of healing skin.



**Figure 4.** Healing skin lesions that were fluid-filled vesicles and blisters over the trunk and upper extremity 1 week after treatment.

**Table 1.** Bullous Pemphigoid Cases in Association With HIV Infection

| No. | Author             | Diagnosis        | Age, years/sex | Clinical findings  | CD4 count    | Treatment    | Outcome  | Interval between HIV diagnosis and bullous eruption |
|-----|--------------------|------------------|----------------|--|--------------|--------------|--|---|
| 1   | Levy et al [9]     | BP               | 58/M           | Generalized pruritis, excoriated erythematous papules, scars | NA           | Ritodrine    | Relapses and remissions                                | 1 year  |
| 2   | Bull et al [8]     | BP               | 58/M           | Tense blisters limited to legs                               | NA           | Prednisolone | Relapses and remission. Died of PCP                    | 2 years   |
| 3   | Dipankar et al [7] | BP-like eruption | 30/M           | Tense, clear fluid filled bullae, well-defined, oozy erosion | 116/ $\mu$ L | Prednisolone | Under remission with treatment, no long-term follow-up | 10 years  |
| 4   | Present case       | BP               | 65/F           | Tense clear fluid filled blisters diffuse all over the body  | 517/ $\mu$ L | Prednisolone | Remission with 3-month follow-up                       | 28 years  |

BP: bullous pemphigoid; HIV: human immunodeficiency virus; M: male; F: female; PCP: pneumocystis carinii pneumonia.

tion is that immune dysregulation in the HIV population may lead to higher risk of developing an autoimmune disease [7, 10, 11].

Bullous pemphigoid antibodies (Bpab) were detected in the HIV population with chronic pruritis or prurigo diseases. One interesting study conducted by Kinloch-de Loes and colleagues revealed that there is an increased incidence of Bpab as HIV progressed from stage 2 to stage 4 in patients with chronic pruritis or prurigo diseases [12, 13].

Our patient had a positive epidermal antibody titer with no chronic skin diseases reported. Further studies are necessary to determine if the presence of circulating Bpab is a risk factor for the development of BP in HIV-infected patients with no chronic skin diseases.

Adverse cutaneous reactions to medications occur more commonly in the later stages of HIV disease [14]. Karadag and colleagues reported a case of a 70-year-old female who developed BP 1 month after starting to use levetiracetam [15]. Our patient was treated with levetiracetam for the past 6 months before presenting with skin blisters. Her skin manifestations resolved slowly despite the continuation of levetiracetam.

Treatment of BP in HIV is challenging. The main treatments are corticosteroids and immunosuppressive agents (e.g., azathioprine, mycophenolate mofetil, and methotrexate) [16, 17]. These agents may cause a rapid progression of HIV; however, a short course of corticosteroids appears to be safe [7, 17]. Once BP has improved clinically with no new blisters as well as a reduction in inflammation and pruritus, a careful tapering of the prednisone over approximately 4 months can be initiated according to the clinical response of the patient [18].

## Conclusion

HIV in association with autoimmune bullous disease is a very rare entity. The pathophysiology of bullous disease in HIV-infected patients remains uncertain. It is important for clinicians to keep BP in the differential diagnosis in HIV patients

presenting with blistering skin diseases.

## Conflict of Interest

The authors have no conflict of interest to disclose.

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