Blastomycosis-like pyoderma: Treatment with serial excisions

Morgan Brazel, BA, Maheera Farsi, DO, Kiran Motaparthi, MD, and Sailesh Konda, MD
Gainesville, Florida

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INTRODUCTION

Blastomycosis-like pyoderma (BLP) is a rare, chronic pyoderma that presents as vegetating skin lesions, often in an immunocompromised patient, and is presumed to be caused by an underlying bacterial infection.[1] Although *Staphylococcus aureus* is the most common pathogen, other bacteria, such as *Pseudomonas aeruginosa*, have been reported as well.[2] BLP is a diagnosis of exclusion that can be made when the following criteria are met: clinical presentation showing verrucous plaques with multiple pustules and elevated borders, histopathology showing pseudoepitheliomatous hyperplasia with abscess formation, tissue culture showing the involvement of at least 1 bacterium, negative deep fungal and mycobacterial cultures, negative fungal serology, and normal bromide and iodide blood levels.[3] The following case meets all of the diagnostic criteria for BLP proposed by Su et al[3] and demonstrates the effectiveness of serial excisions as monotherapy.

Abbreviations used:

BLP: blastomycosis-like pyoderma
SCC: squamous cell carcinoma

CASE REPORT

A 91-year-old man presented for a Mohs micrographic surgery consultation for 2 enlarging lesions on the dorsal aspect of the forearm and wrist that had been present for many years. His past medical history included nonmelanoma skin cancer and years of working on a farm. Of note, he denied any traumatic injury in the affected area, including inoculation of plant material. He was originally seen by a community dermatologist who performed a biopsy of the lesion on the dorsal aspect of the right wrist, which demonstrated a suppurative granulomatous dermatitis and scar. The differential diagnosis included deep infection, ruptured follicular cyst, halogenoderma, and keratoacanthoma. Periodic acid—Schiff, Grocott methenamine silver, Fite, and Ziehl-Neelsen stains were negative for microorganisms. The patient was

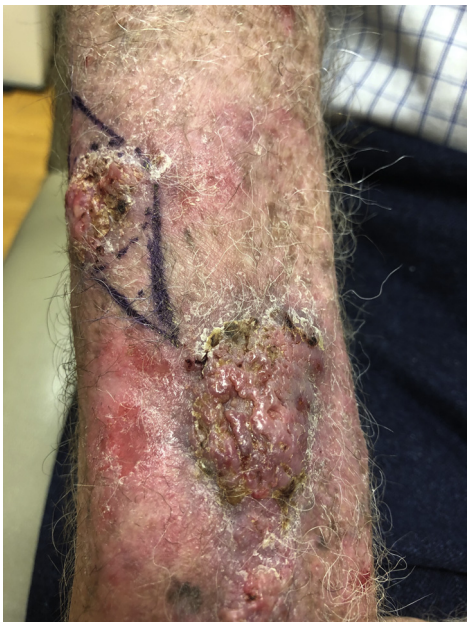

Fig 1. Photographic evidence of blastomycosis-like pyoderma showing erythematous, cribriform, verrucous plaques with crust, pustules, and scant purulent discharge measuring 2.8 × 2.6 cm and 6.3 × 3.0 cm on the lateral aspect of the right forearm and dorsal aspect of the right wrist, respectively.

From the Department of Dermatology, University of Florida College of Medicine, Gainesville.
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Correspondence to: Sailesh Konda, MD, Department of Dermatology, University of Florida College of Medicine, 4037 NW 86th Terrace, 4th Floor, Gainesville, FL 32606. E-mail: sailesh.konda@dermatology.med.ufl.edu.

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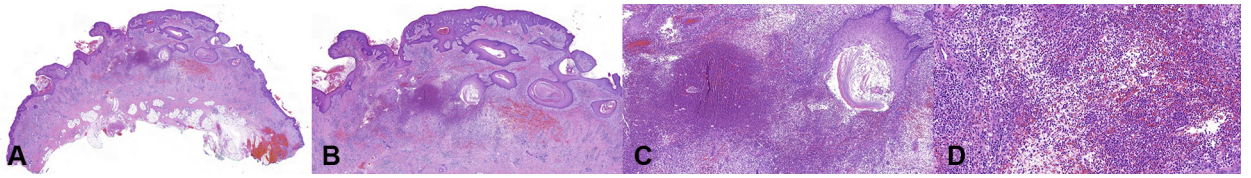

Fig 2. Histologic evidence of blastomycosis-like pyoderma showing marked pseudoepitheliomatous hyperplasia with dermal scarring, abscess with plant-like material, and foreign body granuloma with no evidence of malignancy. There were prominent papillomatosis and cup-shaped epidermal proliferations filled with keratin, some forming sinuses that have ruptured with foreign body reaction and prominent suppuration. (Hematoxylin-eosin stain; original magnifications: **A**, ×0.8; **B**, ×1.5; **C**, ×4.9; **D**, ×13.5.)

referred to an academic institution for evaluation for Mohs micrographic surgery, given that squamous cell carcinoma (SCC), keratoacanthoma type, was in the differential diagnosis.

Physical examination revealed 2 erythematous, cribriform, verrucous plaques with crust, pustules, and scant purulent drainage upon palpation. They were located on the right lateral forearm and the dorsal aspect of the right wrist and measured 2.8 × 2.6 cm and 6.3 × 3.0 cm, respectively (Fig 1). The physical examination findings were more consistent with an infectious than a neoplastic etiology, prompting additional workup and investigation. An excisional biopsy of the lesion on the lateral aspect of the right forearm was performed. Additionally, 3 punch biopsies were performed for tissue culture, and a wound culture was obtained from the purulent drainage.

The lateral aspect of the right forearm biopsy revealed pseudoepitheliomatous hyperplasia with scar, abscess, and foreign body granuloma with plant-like material within the abscess and no evidence of malignancy. The tissue cultures were positive for 2+ *S. aureus* but negative for fungus and acid-fast bacilli, and the wound culture was positive for 4+ *S. aureus* and 4+ *Enterobacter cloacae complex*.

Subsequently, an excisional biopsy of the lesion on the dorsal aspect of the right wrist was performed, and clinicopathologic correlation revealed similar findings consistent with BLP (Fig 2, *A-D*). Of note, BLP, SCC, and keratoacanthoma are all characterized by a squamous proliferation with an exoendophytic or crateriform architecture. However, SCC will have an infiltrative growth pattern and cytologic atypia. Keratoacanthoma can have focal abscesses but lacks the exuberant suppuration and granulation tissue (blood vessel hyperplasia, mixed inflammation with neutrophils and edema) observed in BLP. Because BLP is a diagnosis of exclusion, serum bromide and iodine were ordered to rule out halogenoderma. Both were within normal limits.

Once the diagnosis of BLP was established, treatment options were discussed with the patient,

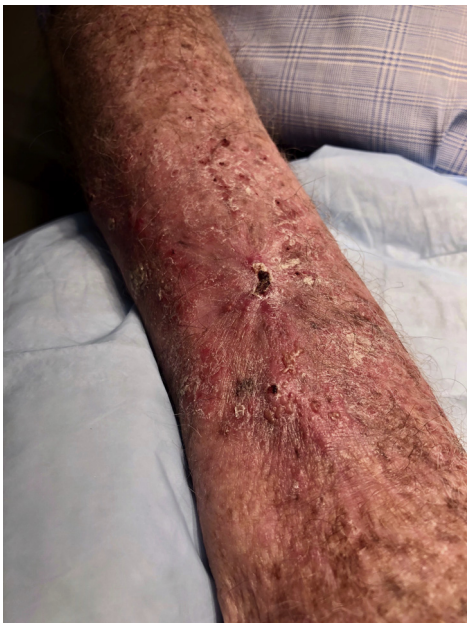

Fig 3. Persistence of small pink, cribriform plaque with scale on the dorsal aspect of the right wrist following initial surgical excision.

including oral antibiotics, acitretin, and surgical management. Because of the patient's extensive list of medications, most notably warfarin, he declined any antibiotics or other oral treatment options. Instead, he elected to proceed with serial excisions to avoid regular laboratory work and interactions with his other medications. Two distinct lesions were removed with 2 excisions without complications. On the subsequent visit, the patient endorsed an additional plaque distal to the dorsal aspect of the right wrist (Fig 3), which was treated with a third excision. At follow-up, the surgical sites were well healed (Fig 4), and one year later, the patient had no evidence of recurrence (Fig 4).

DISCUSSION

BLP is a rare condition that presents with vegetating skin lesions due to an underlying bacterial infection.[1] It is typically found in association with

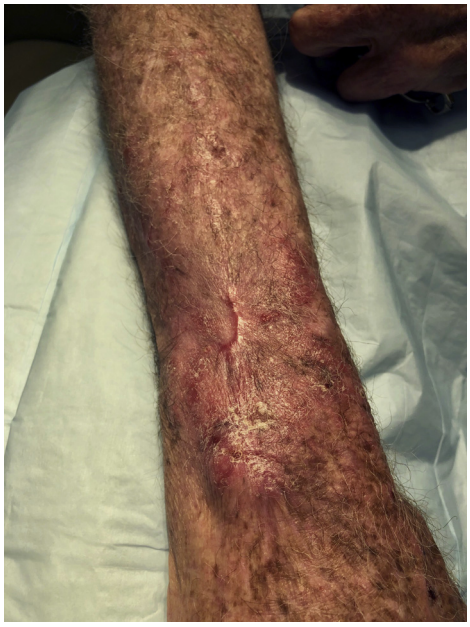

Fig 4. Well-healed surgical excision sites following 3 serial excisions.

systemic immunosuppression or malnutrition.[4-7] However, other cases have been reported in systemically immunocompetent elderly patients who have diminished local immune responses caused by sun-damaged skin.[8,9] The latter was the likely etiology in our 91-year-old patient with a history of working on a farm for most of his life and no known immunologic dysfunction. Although the patient denied traumatic inoculation of plant material in the region, plant-like material within an abscess was visualized on histopathology, which may be an additional risk factor for inoculation of bacteria. *S. aureus* is the most frequent causative agent; *E. cloacae complex* was likely a contaminant, as there are no reported cases of BLP resulting from this agent.

The treatment of BLP can be difficult. There is no standard treatment modality, and the response to treatment is variable depending on the patient. Available treatment regimens include oral and topical antibiotic therapy, acitretin, intralesional and systemic corticosteroids, disodium cromoglycate, curettage, cryotherapy, permanganate soaks, potassium iodide, carbon dioxide laser, and surgical excision. Even if antibiotics are selected on the basis of culture and sensitivities, many patients with BLP nonetheless have a poor response to antibiotics. Acitretin can be an effective treatment for patients who do not initially respond to antibiotics. Additionally, ablative procedures can be performed for patients who do not have any comorbidities that would impair wound healing and whose disease is focal and localized. To our knowledge, there have been no randomized, controlled trials of treatment of BLP because of the rarity of the diagnosis, and surgical excision has not been reported as a first-line or monotherapy treatment.[8-10]

BLP is a diagnostic challenge, requires exclusion of other entities, and depends on clinicopathologic correlation and microbiologic confirmation. In this case, presentation of several clinically distinct cribriform plaques with positive bacterial tissue culture results, normal serum and bromide levels, and histopathologic findings favoring an infectious process led to the exclusion of other diagnoses. This case, originally presenting as a Mohs micrographic surgery consultation for a possible neoplastic process, illustrates a diagnostic pitfall, given that both clinical and histopathologic features of BLP may simulate SCC or keratoacanthoma.

Conflicts of interest

None disclosed.

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