

Botryomycosis Presenting as Pruritic Papules in a Human Immunodeficiency Virus–Positive Patient

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GOAL

To understand botryomycosis to better manage patients with the condition

OBJECTIVES

Upon completion of this activity, dermatologists and general practitioners should be able to:

1. Identify causative agents of botryomycosis.
2. Describe the clinical presentation of botryomycosis.
3. Discuss the treatment options for botryomycosis.

CME Test on page 52.

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Patients with human immunodeficiency virus (HIV) may present with a variety of dermatologic complaints, including reactions to medications, physiologic manifestations of their disease, numerous infectious conditions, and unusual or severe presentations of common dermatologic diseases.

Botryomycosis is an uncommon infectious disorder with rare visceral involvement. The cutaneous manifestations of botryomycosis are variable and have not been well-described. We report a case of botryomycosis in an HIV-positive woman who presented with pruritic papules on her neck, trunk, and extremities.

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Case Report

A 38-year-old Puerto Rican human immunodeficiency virus (HIV)–positive woman presented with a 3-month history of a pruritic rash that began periorally



Figure 1. Perioral crusted papules.



Figure 2. Antecubital papules.

and then spread to involve her neck, upper trunk, and proximal extremities bilaterally. The eruption initially was treated by her primary care physician with topical steroids without improvement. She also reported a persistent cough that produced beige sputum, but she denied all other systemic complaints.

The patient's past medical history included HIV/AIDS, which was diagnosed in 1990, with concomitant central nervous system toxoplasmosis infection. The patient reported that her CD4 cell count was near zero, with a history of hepatitis B and D infections. She was not taking any medications and had been in the United States for 20 years, with no recent travel history.

On physical examination, there were multiple pink granulomatous papules and pustules on the patient's posterior neck, oral commissures, upper trunk, and antecubital fossae bilaterally. Some papules had umbilicated centers and others were excoriated and crusted (Figures 1 and 2).

Histopathologic analysis of a biopsy specimen of the antecubital fossa showed numerous neutrophils and grains with suppuration and granulomatous inflammation (Figures 3 and 4). The basophilic grains stained negatively with Gomori methenamine-silver solution but were Gram positive and surrounded by a halo of eosinophilic material. A culture of the perioral lesions grew *Staphylococcus aureus*, and sensitivities were determined.

The patient was treated for 14 days with oral cephalexin as indicated by the bacterial resistance profile of the obtained culture. The patient also resumed antiretroviral therapy, but she did not comply with the suggested x-ray. At follow-up 2 months after the end of treatment, the patient's lesions had resolved with postinflammatory hyperpigmentation.

Comment

Botryomycosis is a chronic, suppurative, granulomatous infection that primarily involves the skin; however, visceral involvement has been reported. The term *botryomycosis*, although a misnomer, remains in use and is derived from *botrys*, the Greek word meaning *bunch of grapes*—because of the microscopic appearance of granules—and *mycosis*—because the presumed origin of the disease was fungal.¹ Although the major causative agent is now known to be *S aureus* (accounting for 40% of infections), infections with *Pseudomonas aeruginosa*, *Micrococcus pyogenes*, *Escherichia coli*, *Streptococcus* species, *Proteus vulgaris*, *Moraxella* species, *Serratia* species, and *Corynebacterium* species also have been reported.^{2,3}

This rare condition has fewer than 200 cases reported and is regarded as an opportunistic infection.³ The clinical presentation is variable and may include cutaneous and subcutaneous nodules, abscesses, ulcers, and verrucous plaques. Multiple sinuses and fistulas with purulent discharge or bacteria-filled granules also may be present. In immunocompetent patients (mostly agricultural workers who do not wear footwear and are subject to repeated trauma), the disease is found primarily on the extremities.⁴ Lesions may be pruritic or painful and may involve underlying muscle or bone. Disseminated cutaneous lesions occur in immunocompromised patients and rarely are accompanied by visceral involvement.⁵ The lung is the most common site of extracutaneous involvement, but any organ may be affected in immunocompromised patients.

The pathogenesis of botryomycosis remains uncertain but is proposed to involve a symbiosis of low virulence of inoculated microorganisms and impaired host immunity.^{2,3} Patients with deficiencies in T lymphocytes, as seen in HIV, are

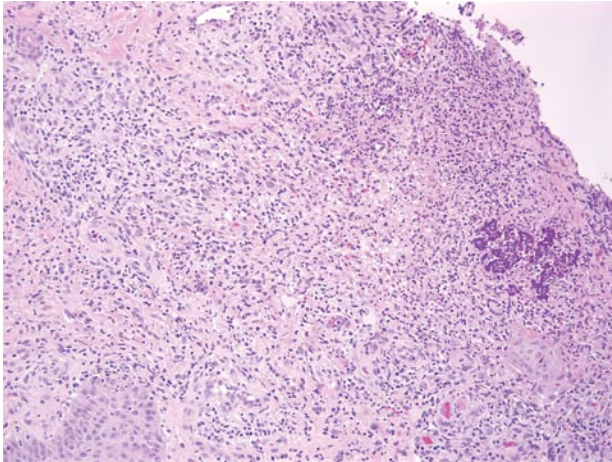


Figure 3. Granulomatous inflammation with neutrophils and grains (H&E, original magnification $\times 20$).

particularly predisposed to botryomycosis. Other predisposing conditions include diabetes, liver disorders, alcoholism, malnutrition, cystic fibrosis, and renal disease.^{2,3}

Botryomycosis is diagnosed by bacterial culture of granules obtained from cutaneous lesions and Gram stain. The results of histologic examination of tissue are helpful in confirming the diagnosis of botryomycosis and often show bacteria-filled granules surrounded by eosinophilic hyalinized material characteristic of the Splendore-Hoeppli phenomenon. This phenomenon represents antigen-antibody interaction.

The treatment of botryomycosis is antimicrobial therapy guided by bacterial resistance patterns. A single antibiotic agent may be administered for several weeks, with surgical measures reserved for recalcitrant cases. However, if the patient is unresponsive to antibiotics and surgery is not feasible, laser vaporization with carbon dioxide is a treatment alternative.²

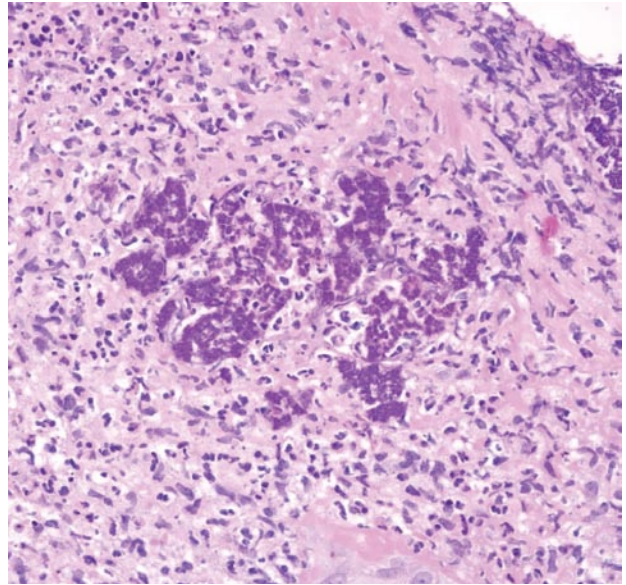


Figure 4. Basophilic grains (H&E, original magnification $\times 40$).

REFERENCES

1. Rivolta S. Del micelio e delle varietà e specie di discomi-ceti patogeni. *Giornale Di Anat Fisiol e Patol d'Animali*. 1884;16:181-198.
2. Bonifaz A, Carrasco E. Botryomycosis. *Int J Dermatol*. 1996;35:381-388.
3. de Vries HJ, van Noesel CJ, Hoekzema R, et al. Botryomycosis in an HIV-positive subject. *J Eur Acad Dermatol Venereol*. 2003;17:87-90.
4. Karthikeyan K, Thappa DM, Jeevankumar B. Cutaneous botryomycosis in an agricultural worker. *Clin Exp Dermatol*. 2001;26:456-457.
5. Ahdoot D, Rickman LS, Haghghi P, et al. Botryomycosis in the acquired immunodeficiency syndrome. *Cutis*. 1995;55:142-152.

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