



Progressive Verrucous Lesions

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A 45-year-old woman with no past medical history except two pregnancies without any problems, developed over three to four months progressive verrucous lesions near right wing of the nose and around the right eyelid. There is no pain associated with these lesions and no other systemic symptoms. She stays in an urban area, doesn't work and has no risk factors for immunosuppression. She has had no infectious contacts or recent trip. No contact with animals or fish. She hasn't gone out because of the lesions for about a month now.



Figure 1. Progressive verrucous lesions.

Medical history

She is a smoker of 1 pack a day for 20 years. She has no allergies and doesn't take drugs. She has an unremarkable family history.

- Abdomen: no hepatosplenomegaly, no pain, normal sounds
- Rest of the skin: lack of hygiene
- No bone pain on palpation, no synovitis

Physical examination

- Obese
- Non toxic and oriented
- Vitals:
 - BP: 132/70 mmHg
 - Heart rate: 73 bpm
 - Temperature: 37.0°C buccal
 - Oxygen Saturation: 96% room air
 - Respiratory rate: 13/min
- ENT: no other lesion in the mouth or on the scalp, she has bad teeth
- Lungs: clear
- Heart: no murmur

Clinical investigations

- Chest x-ray normal
- Urine analysis normal
- Bone scan normal
- Complete blood count normal
- Liver and kidney function normal

What is your diagnosis?

- Pyoderma gangrenosum
- Mycobacterium marinum* infection
- Skin blastomycosis
- Squamous cell carcinoma

Answer: Skin blastomycosis

About skin blastomycosis

Blastomyces dermatitidis is the dimorphic fungus that causes the systemic pyogranulomatous disease blastomycosis. Initial infection is through the lungs and is often subclinical. Hematogenous dissemination may occur, culminating in a disease with protean manifestations. Clinical disease most often involves the:

- lungs,
- skin,
- bones and
- genitourinary system.

The endemic area in North America includes the southeastern and south central states, especially those bordering the Mississippi and Ohio River basins; the midwestern states and Canadian provinces that border the Great Lakes; a small area in New York and in Canada along the St. Lawrence River. Areas of highest occurrence are in proximity to waterways especially, with ecologic conditions suitable for *B. dermatitidis* present in both urban and rural environments.

Review of a 16-case cluster indicates that there is no sex, age, race, occupational, or seasonal predilection for blastomycosis. In eight of the outbreaks, recreational activities in wooded areas along waterways were the major risk identified. Exposure to dust clouds associated with

construction projects or crop harvesting was the only potential risk for infection identified in four of the outbreaks. Thus, exposure to soil, whether at work or at play, appears to be the common link in reports of sporadic disease and outbreaks. One report, however, concludes that many cases of blastomycosis result from exposure in the home, especially in the attic or basement.

The usual portal of entry for blastomycosis in humans is through the lungs. Thus, disease at other body sites is the result of dissemination from a primary pulmonary infection, even if the infection is clinically undetected. Pulmonary infection occurs by inhalation of the conidia, which convert to the yeast phase in the lung.

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Blastomycosis is a systemic disease with a wide variety of pulmonary and extrapulmonary manifestations. Pulmonary disease may be acute or chronic and mimics infection with pyogenic bacteria, tuberculosis, infection with other fungi, and malignancy. Cutaneous disease, is the most common extrapulmonary manifestation.

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B. dermatitidis infection may involve almost every organ of the body, resulting in the diversity of clinical manifestations. Skin, bone, and genitourinary sites of infection are the most common and are most likely to be clinically manifest.


No clinical syndrome is characteristic of blastomycosis. Definitive diagnosis requires the growth of the organism from clinical specimens. A presumptive diagnosis may be made by visualization of the characteristic yeast in pus, sputum, other secretions, or histopathologic sections.

Treatment

Amphotericin B was previously considered the treatment of choice for all clinical forms of blastomycosis. However, ketoconazole, itraconazole, and fluconazole are now considered effective alternatives for immunocompetent patients with mild to moderate disease.

Itraconazole has excellent in vitro and in vivo activity against *B. dermatitidis* and has replaced ketoconazole as the first-line agent for

the treatment of non-life-threatening, non-central nervous system (CNS) blastomycosis. In a prospective phase II clinical trial, itraconazole at doses ranging from 200 mg to 400 mg/day was effective in 90% of patients. For compliant patients with at least 2 months of therapy, a successful outcome was noted in 95%.

The recommended initial dose of itraconazole is 200 mg/day, which should effect a cure in most patients with blastomycosis. For patients whose disease persists or progresses, the dose should be increased in increments of 100 mg daily to a maximal daily dose of 400 mg. The optimal duration of therapy has not been determined, but it is recommended that treatment be continued for 6 months. 

Resource

1. Mandell: Principles and Practice of Infectious Diseases, 7th Edition

