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## Verrucous plaques on the nose and palate



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An 87-year-old immunocompetent woman presented with verrucous plaques on the nose and palate. About 4 months prior, she had a papule in the left naris. A biopsy found a benign squamous papilloma. The area gradually expanded to involve the exterior nose and palate (Fig 1). She lived in Iowa and traveled to Minnesota every summer but denied any recent respiratory or flulike illnesses. She had discomfort with eating but otherwise felt well. She denied fever, fatigue, weight loss, cough, and dysuria. A skin scraping (Fig 2) and punch biopsy (Fig 3) were obtained. A tissue culture was negative.

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**Question 1. What is your diagnosis?**

- A. North American blastomycosis
- B. Leishmaniasis
- C. Rhinoscleroma
- D. Sarcoidosis
- E. Tuberculosis

**A.** North American Blastomycosis – Correct. The clinical and histologic features are compatible with North American blastomycosis, which is endemic to the Great Lakes basin in addition to the Mississippi, Ohio, and St. Lawrence river valleys.<sup>1,2</sup> Other deep fungal infections, such as histoplasmosis, paracoccidioidomycosis, coccidiomycosis, sporotrichosis, and histoplasmosis can also present with cutaneous plaques on the nose; however, they would not demonstrate round, broad-based budding yeast, 8 to 15  $\mu\text{m}$  in diameter, with double-refractile walls, on the skin scraping and biopsy.<sup>3</sup>

**B.** Leishmaniasis – Incorrect. Leishmaniasis can also present as verrucous and ulcerative lesions on the nose. A skin biopsy and scraping would reveal histiocytes containing 1.5- to 4- $\mu\text{m}$  amastigotes with rod-shaped kinetoplasts perpendicular to the nucleus.

**C.** Rhinoscleroma – Incorrect. Rhinoscleroma is caused by *Klebsiella rhinoscleromatis*, which is a gram-negative, encapsulated, nonmotile, rod-shaped bacillus.

**D.** Sarcoidosis – Incorrect. Cutaneous sarcoidosis can cause granulomatous inflammation and destruction of the nose. A bedside scraping may show multinucleated histiocytes corresponding to granuloma formation. It would not show yeast forms.

**E.** Tuberculosis – Incorrect. Cutaneous tuberculosis can cause granulomatous inflammation and destruction of the nose. A biopsy would show granuloma formation. A tissue culture would likely be positive for acid-fast bacilli.

**Question 2. In addition to the lungs and skin, which other organs (or organ systems) are most commonly involved in blastomycosis?**

- A. Bone, central nervous system, genitourinary tract
- B. Bone, endocrine system, heart

- C. Central nervous system, digestive system, heart
- D. Central nervous system, genitourinary tract, heart

- E. Digestive system, heart, genitourinary tract

**A.** Bone, central nervous system, genitourinary tract – Correct. Blastomycosis most often results from inhalation of *Blastomyces dermatitidis* conidia resulting in a pneumonialike illness. It can spread via hematogenous or lymphatic systems to the skin (most common), bone, central nervous system, and genitourinary tract.<sup>1,2</sup>

**B.** Bone, endocrine system, heart – Incorrect. Blastomycosis does not commonly affect the endocrine system or heart.

**C.** Central nervous system, digestive system, heart – Incorrect. Blastomycosis does not commonly affect the digestive system or heart.

**D.** Central nervous system, genitourinary tract, heart – Incorrect. Blastomycosis does not commonly affect the heart.

**E.** Digestive system, heart, genitourinary tract – Incorrect. Blastomycosis does not commonly affect the digestive system or heart.

**Question 3. What is the best treatment option?**

- A. Amphotericin B
- B. Echinocandins
- C. Fluconazole
- D. Itraconazole
- E. Voriconazole

**A.** Amphotericin B – Incorrect. Amphotericin B can be used to treat blastomycosis; however, it is generally reserved for cases of central nervous system involvement, immunocompromise, or pregnancy.<sup>4</sup>

**B.** Echinocandins – Incorrect. Echinocandins have poor activity against blastomycosis and should not be used.<sup>4</sup>

**C.** Fluconazole – Incorrect. Fluconazole can be used to treat blastomycosis, but it is less efficacious than itraconazole. Fluconazole can be considered in cases of drug interactions with itraconazole.<sup>4</sup>

**D.** Itraconazole – Correct. Itraconazole is the preferred agent for immunocompetent patients with mild to moderate disease.<sup>4</sup>

**E.** Voriconazole — Incorrect. Voriconazole can be used; however, Itraconazole has been proven to be more effective. Voriconazole can be considered if the patient will have drug interactions with itraconazole.<sup>4</sup>

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