Images in Clinical Tropical Medicine

Disseminated Paracoccidioidomycosis

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A 30-year-old man with no significant medical history, who had been working his entire life as a gold miner in rural Colombia, came to the infectious disease outpatient clinic at our institution with a two-month history of high spiking fevers, generalized lymphadenopathy (Figure 1), right lower quadrant pain, and vertigo. He did not report any weight loss or night sweats. He also reported headache, diplopia, and somnolence that developed over the past two weeks.

At physical examination, he had a Glasgow coma scale of 13/15, a positive Romberg test result, ataxia, somnolence, a right third-nerve palsy, diffuse lymphadenopathy, and mild abdominal tenderness in the right lower quadrant. He was hospitalized, and computed tomography of the neck, thorax, and abdomen showed diffuse lymphadenopathy in cervical

FIGURE 1. Generalized lymphadenopathy in the patient.

FIGURE 2. Computed tomography of the patient, showing diffuse lymphadenopathy in cervical chains.

(Figure 2), axillary, mediastinal, periaortic, pulmonary hilar, mesenteric (Figure 3), and inguinal chains; and thickening of the cecum and appendix (Figure 3). Magnetic resonance imaging of the brain showed a mesencephal ring-enhancing mass with associated edema (Figure 4).

Laboratory data showed a leukocyte count of 12,600 cells/mL (65% neutrophils), a hemoglobin level 8.7 mg/dL, a platelet count of 220,000/mL, and a creatinine level of 0.9 mg/dL. A test result for human immunodeficiency virus was negative, and meningitis was ruled out by cerebrospinal fluid studies (protein level = 35 mg/dL, glucose level = 78 mg/dL, leukocyte count = 2 cells/mL, and 0 erythrocytes/mL), including fungal and mycobacterial cultures.

A biopsy of neck lymphadenopathy and the cecum by colonoscopy showed multiple, narrow-based budding yeast cells with steering wheels the shape of *Paracoccidioides brasiliensis* by staining with Grocott's methenamine silver (Figure 5).

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FIGURE 3. Computed tomography of the patient, showing diffuse lymphadenopathy in mesenteric chains (**red arrow**) and thickening of the cecum and appendix (**white arrows**).

FIGURE 4. Magnetic resonance imaging of the brain of the patient, showing a mesencephal ring-enhancing mass with associated edema.

FIGURE 5. *Paracoccidioides brasiliensis* (**arrows**) in a biopsy specimen of the patient (Grocott's methenamine silver stain, original magnification 40 $\times$).

This result was confirmed by culture. Results of Ziehl-Neelsen staining and mycobacterial cultures were negative for both sites.

The patient was treated with amphotericin B deoxycholate for one month (total = 1.5 grams), and he showed significant clinical improvement, including resolution of all neurologic symptoms and a decrease in the size of the lymphadenopathy. He was then released and treated with voriconazole and trimethoprim/sulfamethoxazole, but did not return for follow-up visits.

Paracoccidioidomycosis, formerly known as South American blastomycosis, is an endemic mycosis caused by the fungus *P. brasiliensis*, which is a thermally dimorphic fungus distributed in South America. This fungus causes a chronic granulomatous disease with symptoms similar to tuberculosis and other mycosis seen in the tropics, such as histoplasmosis.

Unlike other systemic mycoses, paracoccidioidomycosis can cause disease in immunocompetent hosts, although immunosuppression increases the aggressiveness of the fungus. Primary infection is believed to be autolimited and asymptomatic, but in young persons, there is a progressive form of the disease with high fever, generalized lymphadenopathy, and pulmonary involvement with millary lesions. This fungus can also cause disease in fertile women because of a protective effect of estradiol. Most of the cases can be treated with triazoles. Itraconazole is considered the treatment of choice, but in severe cases, amphotericin B is recommended.

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