A Patient with HIV Infection, Cough, Asthenia, and Fever
(See pages 599–600 for the Photo Quiz)

Figure 1. Macrophage filled with yeast-like cells in bronchoalveolar lavage fluid (Giemsa stain; original magnification, ×200).

Diagnosis: Disseminated Pencillium marneffei infection.

The Giemsa staining of bronchoalveolar lavage fluid (figures 1 and 2) suggested a differential diagnosis of infection due to *Histoplasma*, *Leishmania*, and *Toxoplasma* species [1]. However, the methanamine silver staining (figures 3 and 4) indicated elongated septate cells, not budding yeast-like cells, which would have suggested an infection due to *Histoplasma* species [1]. The septate cells clearly suggest a diagnosis of infection due to *P. marneffei* [1]. *P. marneffei* reproduce by longitudinal fission.

The fungus *P. marneffei* was identified by Segretain [2] in 1959 at the Pasteur Institute as a pathogenic agent in bamboo rats. With the emergence of the AIDS epidemic, *P. marneffei* has emerged as a major cause of opportunistic infection in Southeast Asia, particularly in Thailand [1, 3].

A significant increase in tourism and associated activities across Southeast Asia has contributed to an increase in the number of cases of *P. marneffei* infection in other countries, which clearly demonstrates that the disease is no longer confined to a specific region in Asia [4]. Therefore, it is not a surprise that ∼20 patients from France have received a diagnosis of *P. marneffei* infection. Meanwhile, statistics on the number of patients with *P. marneffei* infection and their respective geographical locations render a different perspective [5, 6]. For instance, a patient of African origin, living in Germany and having no history of travel to Asia and no source of exposure, has been reported to have contracted this infection [7]. Therefore, it could be hypothesized that African patients with smear-negative pulmonary tuberculosis could be infected with *P. marneffei*.

The diagnosis of this disease is usually suggested by a history of travel to an area of endemicity, together with pulmonary and/or cutaneous manifestations, fever, lymphadenopathy, and splenomegaly in disseminated forms [1]. The diagnosis is confirmed by direct examination and culture of the pathology specimen [1, 6, 8, 9]. Infection is invariably fatal in the absence of treatment. However, with prompt treatment, a survival rate of >80% has been obtained [1]. Current treatment strategies recommend an initial dose of amphotericin B (0.6 mg/kg per day) for 2 weeks, followed by oral itraconazole (400 mg per day) for 8 weeks [3, 10, 11]. The response rate after 12 weeks of therapy is 97.3% [10]. Approximately one-quarter of patients with HIV infection and *P. marneffei* coinfection experience relapse at discontinuation of the treatment in the absence of antiretroviral therapy [1, 11].

For this patient, there was dramatic improvement, both clinically and biologically, after 2 weeks of amphotericin B therapy. Her cough, fever, and abdominal pain had decreased, and cul-
Figure 3. Short septate filaments of *Penicillium marneffei* in bronchoalveolar lavage fluid (methanamine silver staining; original magnification, ×400).

Figure 4. Elongated septate *Penicillium marneffei* cells (methanamine silver staining; original magnification, ×400).

ture results were negative. Abdominal and thoracic CT indicated regression of enlarged lymph nodes. The patient was discharged from the hospital with maintenance therapy of 200 mg of itraconazole per day.

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Nadine Mayasi,1 Kavitha Chandrikakumari,1 Didier Mukeba,1 Jean Baptiste Giot,1 Philippe Leonard,1 Marie Pierre Hayette,1 Michel Moutschen,1 and Frederic Frippiat1

1Infectious Diseases and AIDS, Internal Medicine, and 2Department of Microbiology, Centre Hospitalier Universitaire, Liege, Belgium

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* N.M., K.C., and D.M. are the primary authors and contributed equally to this article.

Reprints or correspondence: Dr. Kavitha Chandrikakumari, Services des Maladies Infectieuses, B35, Centre Hospitalier Universitaire, Domaine du Sart Tilman, Liege 4000, Belgium (drchandrika@gmail.com).

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