

Images in Infectious Diseases

Pneumocystis jirovecii pneumonia in a patient with HIV infection: complex diagnosis using Giemsa-stained bronchoalveolar lavage fluid

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A 54-year-old Brazilian man presented to the emergency department with cough, chest pain, high fever, and dyspnea. He had no history of sexually transmitted infections. A thoracic computed tomography scan showed ground-glass opacification areas and mediastinal lymphadenopathy. Laboratory tests revealed the following abnormalities: absolute monocyte count, 80 cells/mm³; partial pressure of oxygen, 55.3 mmHg; and C-reactive protein, 304.3 mg/L. Blood tests for cytomegalovirus, *Chlamydia pneumoniae*, *Legionella pneumophila*, and *Mycoplasma pneumoniae* and a sputum analysis for *Mycobacterium tuberculosis* were negative. Microscopic examination of Giemsa-stained bronchoalveolar lavage fluid (BALF) showed cysts of the atypical fungus *Pneumocystis jirovecii* (Figure 1), the etiological agent of pneumocystis pneumonia (PCP). Additional investigations revealed human immunodeficiency virus (HIV) infection, low CD4⁺T-cell count (128 cells/mm³), and increased lactate dehydrogenase levels. Antiretroviral therapy (ART) and trimethoprim/sulfamethoxazole (14 days) treatment were established. The patient was discharged 30 days post-admission.

PCP is a life-threatening infection that is often observed in immunocompromised individuals. Although the incidence has decreased among HIV-infected individuals due to the widespread use of ART and prophylaxis, PCP remains the most prevalent opportunistic infection among HIV-infected patients worldwide and persists as the main acquired immunodeficiency syndrome-defining infection¹.

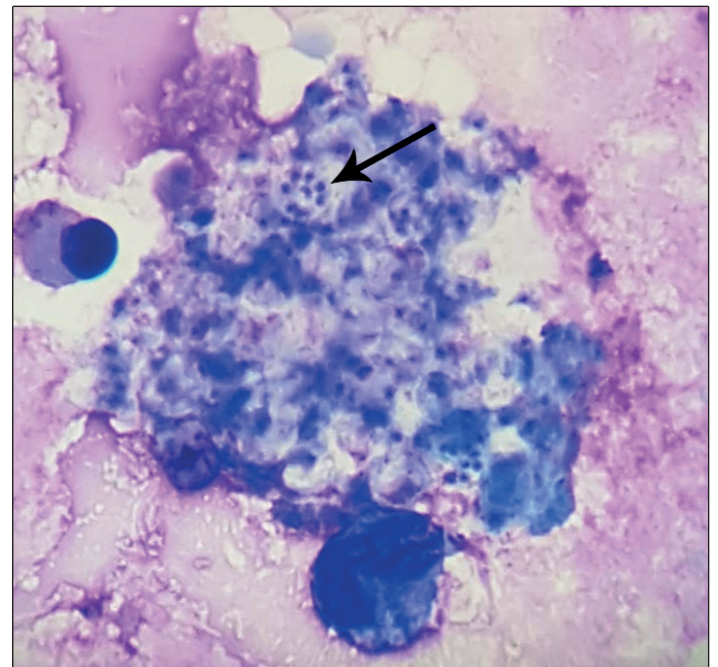


FIGURE 1: Giemsa staining (original magnification, ×1000) of bronchoalveolar fluid showing cyst forms of *Pneumocystis jirovecii* (black arrow).

Due to non-specific signs and symptoms, and because *P. jirovecii* cannot be cultured in artificial media, the diagnosis of PCP is challenging. Methods involving DNA detection and serological biomarkers are available, but the microscopic observation of *P. jirovecii* in BALF is still the gold standard for PCP diagnosis^{1,2}.

ETHICAL APPROVAL

The study was a retrospective analysis of laboratory data. No ethical approval was applied.

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AUTHORS' CONTRIBUTION

LSS: Conceptualization, Data curation, Formal analysis, Writing-original draft, and Writing-review & editing; LOS: Conceptualization, Data curation, Formal analysis, and Writing-original draft; MRBA: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, and Writing-review & editing.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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