Photo Quiz: Rapidly Progressive Pneumonia in a Resident of the U.S. Midwest

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FIG 1 (A) Gram stain of BAL fluid at $\times 400$ magnification. Many round forms are seen. A neutrophil (black arrow) is present. (B) Cytologic smear of BAL fluid with Papanicolaou stain at $\times 1,000$ magnification.

A 38-year-old male presented to our emergency department (ED) with a persistent and productive cough, diffuse chest pain that worsened with exertion, and a 20-pound unintended weight loss over the past 6 months. He was nicotine dependent and had insulin-dependent type 2 diabetes mellitus. The patient lived in the Midwestern United States with his two children. He also had two dogs that he frequently took to the local parks and lakes. A chest radiograph in the ED revealed a large area of consolidation in the left lower lung, concerning for pneumonia. The patient was prescribed azithromycin and amoxicillin for presumed community-acquired pneumonia, but he left, against medical advice, before blood or sputum cultures could be collected.

Ten days later, the patient presented to another ED for worsening symptoms, despite reporting having taken the prescribed antibiotics. A computed tomography (CT) scan of the chest demonstrated consolidative airspace opacities in both upper lung fields and in the left mid- and lower lung, suggestive of infection or cancer. Piperacillin-tazobactam and levofloxacin were administered for suspected pneumonia, and he was transferred to our institution for further evaluation. Upon arrival, he was noted to have tachycardia, high blood pressure (180/82 mm Hg), and low arterial oxygen saturation levels on room air (88%). Given the lack of response to

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prior antimicrobials, the differential diagnosis was broadened to include bacterial or fungal pneumonia, tuberculosis, nocardiosis, pneumocystosis, and lymphoma. A bronchoalveolar lavage (BAL) was performed, and fluid was submitted for microbiologic studies, including Gram staining (Fig. 1A), bacterial culture, fungal staining, and fungal culture. BAL fluid was also submitted for routine cytologic studies (Fig. 1B).