A Patient with Dyspnea, Cough, and Fever

(See pages 1461–2 for the Photo Quiz)

Figure 1. A, Grocott methenamine silver (GMS) stain showing Pneumocystis organisms within a granuloma. Inset, digitally magnified Pneumocystis organism showing characteristic paired “dark bodies” diagnostic of Pneumocystis species. B, Immunohistochemical stain using antibodies directed against Pneumocystis species with use of the treptavidin-biotin immunoperoxidase method. The discreet nature of the organisms is overshadowed by an abundance of fragmented and collapsed forms that are not well visualized on the GMS stain.

Diagnosis: granulomatous Pneumocystis pneumonia.

The Grocott methenamine silver stain demonstrated ring-shaped structures within granulomas (figure 1A), suggestive of Pneumocystis species, confirmed by immunohistochemical stain (figure 1B). Pneumocystis pneumonia generally produces foamy, acellular, and eosinophilic intra-alveolar exudates, whereas our patient developed necrotizing granulomas. He had predisposing factors for this infection, including lymphoma and chemotherapy with corticosteroid therapy.

Granulomatous disease is an unusual manifestation of Pneumocystis pneumonia. It was first described in 1975 in a renal transplant recipient with bilateral nodular lung infiltrates [1]. Granulomatous Pneumocystis pneumonia has been reported to occur rarely in patients with AIDS [2]. In 2002, Bondoc and White [2] found that granulomatous Pneumocystis pneumonia occurred in only 3% of patients with malignancy in their institution. Similar to our case, these authors note that corticosteroid therapy had been discontinued in several of their patients before presentation. Numerous authors point out that, in contrast to most cases of Pneumocystis pneumonia, cytological examination of induced sputum samples and examination of bronchoalveolar lavage fluid samples are commonly nondiagnostic in cases of granulomatous Pneumocystis pneumonia [2, 3]. Because of the confinement of Pneumocystis within granulomas, lung biopsy is often required for the diagnosis of this condition. Pneumocystis granulomatosis may present as an acute, subacute, or chronic disease with various radiographic appearances, including localized infiltrates, nodules, or diffuse reticular infiltrates [4].

Our patient was treated with trimethoprim-sulfamethoxazole, and his symptoms resolved completely. A follow-up chest radiograph and chest CT scan demonstrated complete resolution of infiltrates. This case highlights the importance of prompt lung biopsy in similar patients with unexplained pneumonia.

Acknowledgments

We thank Dr. Kevin O. Leslie, Consultant and Professor of Pathology
at the Mayo Clinic (Scottsdale, AZ) for pathological consultation and preparation of pathological slides.

Potential conflicts of interest. All authors: no conflicts.

Alex Studemeister1 and Sharad Dass2
Sections of 1Infectious Diseases and 2Pulmonary and Critical Care Medicine, San Jose Medical Group, San Jose, California

References

Reprints or correspondence: Dr. Alex Studemeister, San Jose Medical Group 625 Lincoln Ave., San Jose, CA 95126 (studemeister@earthlink.net).

Clinical Infectious Diseases 2006; 43:1490–1
© 2006 by the Infectious Diseases Society of America. All rights reserved.
1058-4838/2006/4311-0020$15.00