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**Recommended Citation**
Fadel, Raef; Ouellette, Daniel; Ramo, Aula; Binz, Sophia; and Abreu-Lanfranco, Odaliz, "Necrotizing Cavitary Lung Mass in Patient with AIDS: A Rare Manifestation of PCP" (2019). *Case Reports*. 48.  

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Necrotizing cavitary lung mass in patient with AIDS: A Rare Manifestation of Pneumocystis jirovecii Pneumonia

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Introduction

Pulmonary infections in immunocompromised hosts encompass a wide differential diagnosis. Of the possible etiologies, Pneumocystis jirovecii presents as a rare cause of necrotizing cavitary pneumonia, particularly in advanced HIV and AIDS.

Case Report

A 50-year-old male patient presented with progressively worsening cough productive of green blood-tinted sputum of 2-week duration, associated with pleuritic chest pain, night sweats, and diarrhea. Past medical history was significant for AIDS due to HIV-1 with CD-4 count 73/mm3 not on antiretroviral therapy. He was admitted to an outside hospital two months prior for similar symptoms, and chest x-ray at that time demonstrated no acute process (figure 1).

On presentation he was tachycardic, tachypneic, and afebrile. Oxygen saturation was 98-100% on room air. Physical examination revealed inspiratory crackles on right upper lung field auscultation with associated dullness to percussion, tenderness in the epigastrium and right upper quadrant of the abdomen, and oral thrush. CXR demonstrated diffuse airspace opacification throughout the right upper lobe (RUL), with internal lucent areas consistent with cavitation (figure 2).

A follow-up chest computed tomography (CT) with intravenous contrast demonstrated cavitation of the RUL, with cystic spaces and air fluid levels (figure 3,4). Sputum culture was grossly contaminated with oropharyngeal flora. Three consecutive acid-fast bacilli (AFB) sputum smears were initially negative. Pneumocystis qualitative PCR was positive, with B-D glucan assay (Fungitell) of 239 pg/mL (ref range: <60 pg/mL). Histoplasma urine antigen was negative. Cryptococcus serum testing was negative.

On admission, sputum and bronchoalveolar lavage (BAL) samples were collected. The laboratory results were negative for M. avium complex (MAC) growth, and AFB, Pneumocystis, and fungal cultures were negative.

This case highlights the complexity of cavitary pulmonary lesion diagnosis in a patient with AIDS. The diagnosis of Pneumocystis pneumonia (PCP) was made through sputum and BAL qualitative PCR testing, with Fungitell assay testing. The atypical radiographic presentation necessitated exclusion of alternate diagnoses. The possibility of superimposed anaerobic infection was not entirely ruled out, however the location of cavitation with multiple negative cultures on sputum and BAL sampling made this less likely.

Fig. 1. Chest x-ray, PA view, performed two months prior to presentation. Normal.

Fig. 2. Chest x-ray, AP view, performed on admission. Demonstrating right upper lobe opacification with cystic spaces and air fluid levels.

Fig. 3. CT chest with contrast, axial view, performed on admission. Demonstrating right upper lobe cavitary mass with air fluid levels.

Fig. 4. CT scan with contrast, coronal view, performed on admission. Re-demonstration of right upper lobe cavitary lesion with cystic components involving apical lung.

Case Report

A bronchoscopy with bronchoalveolar lavage (BAL) demonstrated findings consistent with necrotizing cavitary pneumonia. Pneumocystis was again identified on qualitative PCR. Anaerobic and aerobic culture, AFB culture, Nocardia, Legionella, and fungal culture were negative. No malignant cells were visualized.

After 4 weeks of incubation, the AFB culture from sputum sampling on admission demonstrated Mycobacterium avium complex (MAC) growth in 1 of 3 samples consistent with contamination.

Discussion

This case highlights the complexity of cavitary pulmonary lesion diagnosis in a patient with AIDS. The diagnosis of Pneumocystis pneumonia (PCP) was made through sputum and BAL qualitative PCR testing, with Fungitell assay testing. The atypical radiographic presentation necessitated exclusion of alternate diagnoses. The possibility of superimposed anaerobic infection was not entirely ruled out, however the location of cavitation with multiple negative cultures on sputum and BAL sampling made this less likely.

Conclusion

Pneumocystis jirovecii can present as a necrotizing cavitary pneumonia, and increased awareness regarding this atypical and rare presentation is critical for accurate diagnosis and prompt management.

References
