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Diagnosing and Managing PCP, TB and PE in an HIV Infected Patient

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Introduction

- Pulmonary manifestations in the human immunodeficiency virus (HIV) infected patient involve an extensive differential diagnosis.
- Co-infection with more than one opportunistic infection in the HIV infected patient has been previously described.
- Additionally, HIV can lead to a hypercoagulable state placing patients at increased risk for venous thromboembolism (VTE).
- This case report examines a patient with HIV presenting concurrently with *Pneumocystis pneumonia* (PCP), pulmonary tuberculosis (TB) and acute bilateral pulmonary embolism (PE).

Case Presentation

- A 57 year old African American male with a past medical history of HIV and noncompliance with medical treatment presented with fatigue, nausea, and decreased appetite. He had not recently been on HIV antiretroviral therapy. He was febrile to 39 C but otherwise hemodynamically stable with no tachycardia nor tachypnea. He was breathing on room air but PaO2 was 72 mmHg on arterial blood gas.
- His lungs were clear to auscultation without wheezes or rales. His CD4 count was 29 cells/mm³ and HIV viral load was 400,000 copies/mL. Chest x-ray was showing diffuse patchy infiltrates with no cavitary lesions.
- The patient was empirically started on sulfamethoxazole/trimethoprim and prednisone for suspected PCP. His sputum PCP PCR later resulted positive.
- He had risk factors for TB and further testing for additional co-existing diagnoses was pursued. Three acid fast bacilli smears resulted positive for acid-fast bacilli. PCR identified *Mycobacterium tuberculosis*.
- The patient was started on rifampin, isoniazid, pyrazinamide and ethambutol for pulmonary tuberculosis. Further work up revealed acute bilateral PE on CT imaging and the patient was started on lovenox.
- The patient encountered numerous complications and side effects from the medications started for his opportunistic infections. After numerous medication changes, he was able to tolerate treatment medications for his opportunistic infections.
- He clinically and symptomatically improved with treatment.



121	92	12
4.2	26	1.01

~~9.3~~
5.5 279

LDH: 314 units/L
Fungitell: <31
HIV VL: 400,743 copies/mL
Total CD4: 29 cells/mm³

Sputum *Pneumocystis Jirovecii* PCR **DETECTED**

Sputum AFB smear: Positive for Acid-fast bacilli. PCR **POSITIVE** for *Mycobacterium Tuberculosis*.

Discussion

- Patient with advanced HIV disease and AIDS can present with numerous co-existing opportunistic infections that can be easily missed if investigation is halted after the first diagnosis is made.
- In addition, management of adverse effects and treatment of opportunistic infections in the HIV patient can be challenging. The patient's PCP pneumonia course was complicated by multiple failed therapies. He developed refractory hyperkalemia on sulfamethoxazole/trimethoprim and was changed to primaquine and clindamycin.
- Subsequently, he developed neutropenia on primaquine and was changed to third line treatment atovaquone for the remainder of his treatment.
- In addition, the patient developed symptoms of peripheral neuropathy while on isoniazid for treatment of pulmonary tuberculosis despite B6 prophylaxis. He was switched from isoniazid to moxifloxacin and continued on his other medications for tuberculosis.

Conclusion

- HIV infected patients can present with numerous simultaneous coinfections including multiple overlapping pulmonary diagnoses.
- It remains important not anchor or stop investigation after a single diagnosis is made when evaluated these patients and approach work-up with an extensive differential diagnosis.
- In this case, the patient had three separate acute pulmonary diseases, PCP, TB and acute bilateral PE yet presented with no tachypnea nor tachycardia on room air.
- If the additional work-up had not been pursued after the first diagnosis was made, the missed diagnosis and treatment of the other co-existing diseases would have resulted in increased morbidity and mortality risk.
- Additionally, serious side effects of the medications used to treat these opportunistic diseases often challenge the ability to safely manage these infections.

References

- Dragana Orlovic, Ranmini Kularatne, Vivian Ferraz, Raymond A. Smego; Dual Pulmonary Infection with *Mycobacterium tuberculosis* and *Pneumocystis carinii* in Patients Infected with Human Immunodeficiency Virus, *Clinical Infectious Diseases*, Volume 32, Issue 2, 15 January 2001,289–294.
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