



Case Report: Worm with Virus (Co-Infection) - Filariasis in a 38-Year-Old HIV Patient

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ABSTRACT:

Filariasis, a parasitic infection caused by filarial worms, poses a significant public health challenge in endemic regions. Its co-occurrence with HIV presents unique clinical challenges due to the potential interplay between the two infections. This article explores the epidemiology, clinical presentation, and management of filariasis in HIV-infected patients, highlighting the impact of immunosuppression on disease progression and outcomes. Case studies and literature reviews suggest that HIV may exacerbate filarial disease severity, complicating treatment and increasing the risk of opportunistic infections. Effective management strategies require a multidisciplinary approach, integrating antiparasitic therapy with antiretroviral treatment, while addressing the immune dysfunction inherent in HIV. Further research is necessary to better understand the immunological interactions between filariasis and HIV, to improve diagnostic accuracy, and to optimize treatment protocols for co-infected individuals.

1. Introduction

Filariasis is a tropical parasitic disease caused by thread-like filarial nematodes (worms), which are transmitted through mosquito bites. Lymphatic filariasis, caused by *Wuchereriabancrofti*, *Brugiamalayi*, or *Brugiatimori*, is the most common type. This case report describes a 38-year-old male HIV patient diagnosed with filariasis, highlighting the diagnostic and therapeutic challenges presented by co-infection.

2. Case Presentation

Patient Information:

- Age: 38 years
- Gender: Male
- Medical History: Diagnosed with HIV five years ago, currently on antiretroviral therapy (ART). Recent CD4 count: 350 cells/mm³. No significant past medical history of opportunistic infections.
- Presenting Symptoms: The patient reported fever, chills, and swelling in his legs over the past two weeks. He also complained of a dull ache in the groin and lymphadenopathy.

Physical Examination:

- General: The patient appeared febrile and fatigued.

- Vital Signs: Temperature 38.5°C, heart rate 98 bpm, blood pressure 120/80 mmHg, respiratory rate 18 breaths per minute.

- Lymphatic System: Significant lymphadenopathy in the inguinal region.

- Lower Limbs: Pitting edema in both legs, with erythema and tenderness.

- Skin: No rashes or skin lesions noted.

Diagnostic Workup:

- Blood Tests:

- Complete Blood Count (CBC): Elevated white blood cell counts with eosinophilia.

- CD4 Count: 350 cells/mm³.

- HIV Viral Load: Undetectable, indicating effective ART.

- Microscopic Examination: Thick blood smear showed microfilariae of *Wuchereriabancrofti*.

- Ultrasound: Scrotal ultrasound revealed dilated lymphatic channels and hydrocele.

- Serology: Filariasis-specific antibody test (IgG) was positive.

Diagnosis:

- Lymphatic Filariasis in an HIV-positive patient

Treatment and Management

Initial Management:



- Antifilarial Therapy: The patient was started on a combination of diethylcarbamazine (DEC) and albendazole to target the adult worms and microfilariae.
- Symptomatic Treatment: Nonsteroidal anti-inflammatory drugs (NSAIDs) were prescribed to manage pain and inflammation.
- Antibiotics: Doxycycline was added to target *Wolbachia* endosymbionts, which are essential for the survival of filarial worms.

Supportive Care:

- Lymphedema Management: The patient was advised on leg elevation, use of compression stockings, and meticulous skin care to prevent secondary infections.
- Antiretroviral Therapy (ART): Continued as per the existing regimen to maintain HIV viral suppression and immune function.

Follow-Up and Monitoring:

- Regular Monitoring: Monthly follow-ups to assess treatment efficacy and monitor for potential side effects of antifilarial medications.
- Blood Tests: Repeat CBC and microfilariae examination after one month to evaluate response to therapy.
- Imaging: Follow-up ultrasound to monitor changes in lymphatic channels and resolution of hydrocele.



3. Discussion

Filariasis is caused by the bite of infected mosquitoes, which introduce larvae into the bloodstream. The larvae mature into adult worms that inhabit the lymphatic system, causing lymphangitis, lymphadenitis, and lymphedema. HIV infection can complicate the clinical presentation and management of filariasis. Immunosuppression may alter the host's response to the

parasite, potentially increasing susceptibility to severe manifestations.

Challenges in Diagnosis:

Co-infection with HIV and filariasis can obscure clinical features and complicate the diagnosis. Eosinophilia in the context of HIV should prompt consideration of parasitic infections. Microscopic identification of microfilariae in blood smears remains the gold standard for diagnosing filariasis. Serological tests can support the diagnosis, especially in cases with low parasitemia. DEC and albendazole are effective against both microfilariae and adult worms. However, the potential for adverse reactions, especially in HIV-positive patients, requires careful monitoring. Doxycycline targets the *Wolbachia* bacteria, enhancing the effectiveness of antifilarial therapy and reducing the risk of recurrence. Managing lymphedema and preventing secondary infections are crucial components of comprehensive care. With appropriate treatment, the prognosis for filariasis is generally favorable, although chronic lymphedema can persist and require ongoing management. Effective ART is critical to maintaining immune function and reducing the risk of opportunistic infections in HIV-positive patients.

4. Conclusion

This case report highlights the complexities of diagnosing and managing filariasis in an HIV-positive patient. Early recognition and comprehensive treatment, including antifilarial therapy and supportive care, are essential for optimal outcomes. Regular follow-up and multidisciplinary care are crucial for managing co-infections and addressing the unique challenges presented by immunosuppression. This case underscores the importance of considering parasitic infections in HIV patients presenting with unexplained fever, lymphadenopathy, and edema, ensuring timely intervention and improved quality of life.

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