

Demystifying opportunistic infections in an AIDS patient of 21st century in Nepal

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Keywords: Acquired Immunodeficiency Syndrome; Opportunistic infections; Social stigma; Treatable disease



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Abstract

Currently, there is no cure for Human immunodeficiency virus /Acquired immunodeficiency syndrome (HIV/AIDS) but, there are medications to control HIV and prevent opportunistic infections. Clinicians must be vigilant enough to extract history and send relevant laboratory investigations to diagnose the disease in early stage. Patient may not have known his /her diagnosis or intentionally avoided to reveal the disease status which further complicates the diagnosis and treatment. This is case of a 51 years male , where social stigma forces the patient to hide his diagnosis and reluctant to seek medical treatment ultimately reaps the life . Hence, government and concerned authority must work up for wide availability of HIV/AIDS medications and motivate people to seek medical advices as soon as possible. Concerned authority must motivate people to consider it as any other treatable disease .

Introduction

Human immunodeficiency Virus (HIV) infection and Acquired Immune-Deficiency Syndrome (AIDS), is an ongoing pandemic which has been revolutionized by advent of new drugs and molecules. However, untreated HIV infection still remains prevalent in developing countries, some due to misinformation and many due to reluctance. Larger part also is about the stigma that HIV infection brings in the community and social structure in Asian context. Timely detection, appropriate treatment and screening in high-risk population remains the key to proper management of HIV. Some percentage of HIV infected subjects still land up in AIDS defining conditions with multiple opportunistic infections (OI) with around 14% completely unaware of its occurrence.¹

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AIDS is currently defined by a CD4 cell count <200 cells/UL or the presence of any AIDS-defining condition regardless of the CD4 cell count. AIDS-defining conditions are opportunistic infections (OIs) or malignancies that occur more frequently or more severely in immuno-compromised persons.² In this article we present a gentleman with CD4 + T cell count of 5/UL, delayed presentation and undiagnosed HIV infection with multiple OIs and subsequent complications.

Case Report.

A male in his 50s initially presented to us with twenty-day long fever. He complained of shortness of breath (MMRC=II), which was associated with loss of nine Kilos of weight in a month and loss of appetite without abdominal features. In addition, his chest X-ray showed multilobar consolidation. He was started on antibiotics empirically on his first admission for this pneumonia. His general frailty and long-standing history prompted us to screen for immune deficiencies. He was identified as HIV positive by rapid screening test. Upon further investigation, it was confirmed by western blot test. When detail history was evaluated patient was aware of this HIV status ten years prior to our diagnosis but opted out of therapy. This information was not divulged to the family nor to any Nepalese physicians. He was diagnosed when he was working outside the country for last decade. Antimicrobial protocol was adjusted to include the coverage for his immuno-compromised status including cotrimoxazole, linezolid, and voriconazole with prednisolone. He recovered well from the pneumonia within a week.

Upon recovery he was discharged to home with attachment to government based Anti Retro viral Therapy (ART) Clinic for CD4 level estimation, viral load and initiation of ART. We also advised his spouse for the HIV screening at the center, which turned out positive. Patient was then lost to follow up for next two months and did not come to post discharge OPD visits. After two months patient visited our outpatient facility with frontal headache but without fever, chills or rigor. Until this time patient has not visited ART clinic or initiated therapy. He reported projectile vomiting without alteration of sensorium. Para-nasal sinuses and cervical spine were screened. He was discharged with the diagnosis of nonspecific headache with cervical spondylitis.

Within a week he again presented to emergency department (ED) with severe headache, vomiting, blurring of vision and neck pain. He was readmitted for persistent headache. Non-contrast CT scan of head revealed no abnormalities. Lumbar puncture (LP) and complete cerebrospinal fluid (CSF) analysis was done. CSF analysis showed lymphocytes with total protein of 53 mg/dl and India ink showed encapsulated budding yeast cells structure morphologically consistent with cryptococcus neoformans 3-4/HPF. (Figure 1) As per protocol he was treated Liposomal Amphotericin-B in 0.7 mg/kg for 14 days along with high dose Fluconazole. The flucytosine based therapy was not initiated because of non-availability in Nepal. During this period cotrimoxazole was also continued as prophylaxis. After 14 days patient was again discharged to home on high dose lifelong fluconazole and prophylactic dose of cotrimoxazole.

Patient again presented within ten days to ED with dizziness, headache and vomiting multiple times. LP was done which showed lymphocyte predominance, low glucose, borderline ADA with opening pressure of 34mmH2O. He was managed conservatively for his symptoms and Anti-Tuberculous Treatment (ATT) was started. Cotrimoxazole prophylaxis, high dose fluconazole, levetiracetam seizure prophylaxis was continued along with Prednisolone for tuberculous meningitis.

On his fourth visit he continued having headaches, nausea,

vomiting and this time additionally frequent loose motions. During his stay in the wards, he developed generalized tonic clonic seizure and was shifted to intensive care. CSF continued showing cryptococcus neoformans. Liposomal Amphotericin-B was restarted for 14 days. Subsequent LP showed persistence of Cryptococcal neoformans. Amphotericin-B was continued for next 14 days. During this period co-trimoxazole was stopped due to leukopenia. With subsequent improvement he was then discharged to long care facility at his home town.

During the follow-up visit patient present in OPD with vesicular pleomorphic rashes through the body consistent with measles starting from his torso extending to all four limbs, oral mucosa. In addition, some papules appeared with central umbilication throughout the body suggestive of molluscum contagiosum. They were treated with antiviral agents locally and intravenously, keeping in mind of his renal status. He was shifted to ICU for further management of his hypotension and sepsis. He was treated with vasopressor support, zinc, metronidazole. Anti-retroviral Therapy (ART) was finally started after consulting ART clinic on 13th Jan, 2020. Fluconazole, Cotrimoxazole, ATT along with dexamethasone and levetiracetam were continued. Patient continued complaining of generalized weakness with loose motions. ART (Efavirenz 600mg, Lamivudine 300mg, Tenofovir 300mg) was continued with ATT and Fluconazole. Symptoms gradually subsided and the patient was discharged home.

After few weeks' patient had an unplanned visit to the OPD for blurring of vision in his left eye. Ophthalmology consults and examination revealed Cytomegalovirus (CMV) retinitis with positive CMV serology. He was started on oral valganciclovir with intravitreal injection of ganciclovir for zone-1 retinitis. Regular visits were made at tertiary eye center in Kathmandu. He developed clinic blindness in his left eye due to macula-involving retinitis, with residual vision in the right. The patient remained stable for next four weeks. After which he developed severe pancytopenia and sepsis with deranged renal and liver functions. His last admission was in ICU for septic shock. Compassionate palliative care was offered to the patient and the family due to persistent illness and refractory care. The patient was with his wife, daughter and close family members during his last hours of life. His treatment and chronology of events evolved for almost twelve months from the time of diagnosis to death.



Figure 1. Picture of *Cryptococcus neoformans* in India Ink.

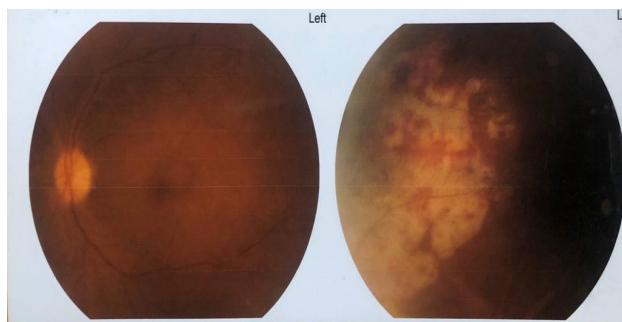


Figure 2. Picture of CMV retinitis fundoscopy.

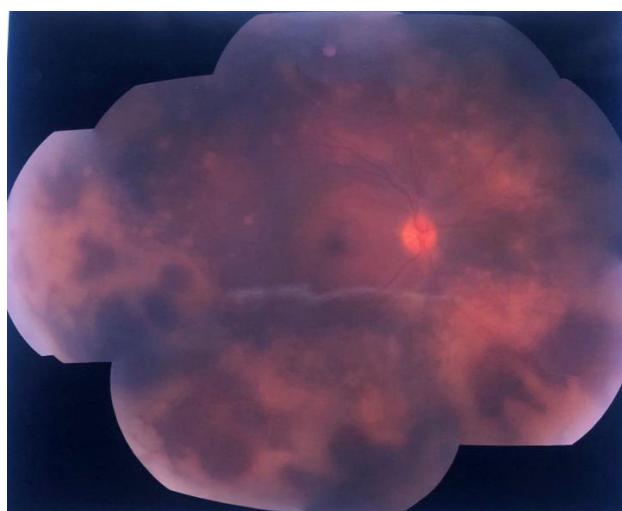


Figure 3. CMV retinitis fundoscopy (Left eye)

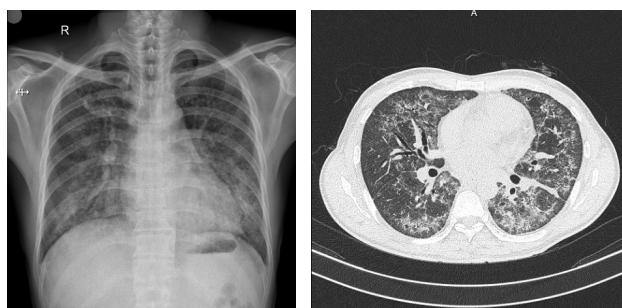


Figure 3. Chest X-ray and HRCT chest during the patients first admission

Discussion :

HIV infection has been common in Nepal from the time of the rise of cases worldwide. The current day statistics suggest the prevalence with the tune of 0.03 % per thousand.³

One in Seven patients who are HIV positive are unaware of the infection even in developed countries most being younger generations.⁴

Certain number of HIV patients though aware of their HIV positive status are reluctant for treatment or are stigmatized to present to ART clinics.^{5,6}

Opportunistic Infections (OIs) are common in HIV/AIDS due to their frail immune system. These are major causes of death in AIDS patients with low CD4 counts. The advent of HAART

therapy has significantly decreased the mortality related to AIDS. OIs associated with AIDS- defining event includes about 75 % of cases.^{7,8} Common OIs in HIV/AIDS are - pneumocystis carinii pneumonia(PCP) , oral and esophageal candidiasis ,varicella infection , molluscum contagiosum , cryptococcal meningitis , Toxoplasma gondii , Mycobacterium Avium Complex (MAC). Among these infections the presented case developed bacterial Pneumonia, cryptococcal meningitis, tuberculosis, CMV retinitis, Molluscum Contagiosum, Measles, wasting syndrome and succumbed due to sepsis.⁹

Pneumocystis jirovecii pneumonia is the most common reported initial opportunistic illness, occurring in 35.9 percent.¹⁰ These opportunistic illnesses typically occur when the CD4 cell count has decreased to <200 cells/microL, although they can occur at higher CD4 cell counts . Certain opportunistic infections, such as disseminated Mycobacterium avium infection, cytomegalovirus disease, and cryptococcal meningitis, occur predominantly with a CD4 cell count <50 cells/microL as happened in this case .^{11,12} In the absence of effective ART, the median survival of patients with advanced HIV infection (CD4 cell count <50 cells/microL) is 12 to 18 months.^{13,14} Our patient survived for one year after diagnosis.

The AIDS mortality rate is 6.17 per 100,000 cases in 2016 and decreasing from 7.98 per 100,000 cases in 2015 whereas globally, 1 million people died from HIV/AIDS in 2016.^{15,16}

Conclusion

Even in 2021 people are still dying due to HIV and AIDS related complication. The issue is not the availability but the proper and timely diagnosis, evaluation and early initiation of ART.

Acronyms :

HIV = Human Immunodeficiency Virus

AIDS = Acquired Immunodeficiency Syndrome

ART = Anti- Retrovirus Treatment

HAART = Highly Active Anti -Retroviral Therapy

CD 4 = Cluster Differentiation 4

MAC = Mycobacterium Avium Complex

OI = Opportunistic Infection

CMV = Cytomegalo Virus

ATT= Anti Tubercular Treatment

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Consent : Taken

Conflict of interest :None

Acknowledgement : None

Grants : None