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Case Report

Disseminated herpes zoster and some other infections may navigated to newly-diagnosed human immunodeficiency virus infection

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ABSTRACT

Almost half of the human immunodeficiency virus (HIV)-positive patients are late diagnosed, which is always associated with higher mortality and morbidity due to various opportunistic infections (OI). Thus, recognition of HIV indicator conditions is important for HIV screening. Cluster of differentiation 4 (CD4) counts <200 cells/mm^3 are at the highest risk of herpes zoster-related complications, including disseminated herpes zoster (HZ). Oral candidiasis (OC) is a clinical predictor of HIV infection progression. Here we report a 52-year-old female presented with grouped vesicles with bulla on dermatome L2-L4 sinistra and multiple scattering erythematous vesicular rashes on the whole body. White patches on the tongue with painful swallowing and progressive shortness of breath, cough, low-grade fever, and night sweats. She had an unintentional weight loss of 15 kg. Chest radiograph showed infiltrates in the left lung and right para hilar and paracardial fields, negative Xpert MTB/RIF, and patient newly diagnosed with advanced HIV infection (reactive result on provider initiative test and counseling (PITC) with CD4 level was 8 cell/ml). The patient showed improvement after early treatment with antiviral, antifungal, antimicrobial, first-line fixed-dose combination (FDC) tuberculosis, and prophylactic antibiotic.

Keywords: Disseminated herpes zoster, Oropharyngeal and esophageal candidiasis, Pneumocystis pneumonia, Pulmonary tuberculosis, Newly diagnosed HIV infection

INTRODUCTION

The number of people living with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) reached 37.7 million in 2020.[1] Early diagnosis of HIV is a crucial step to reducing the risk of HIV transmission. Nevertheless, almost half of HIV-positive patients are late diagnosed and are always associated with higher mortality and morbidity due to various opportunistic infections (OI).[2,3]

Two of the 14 specific HIV indicator conditions (IC) observe in HIV indicator disease across Europe (HIDE) study are herpes zoster (HZ) and oral candidiasis (OC).[2] In the general population, the incidence of HZ is about 3.6 cases per 1,000 person years. In antiretroviral therapy (ART) era, the risk of HZ remains three-fold higher in adults with HIV than in the general population.[4] OC was more frequently observed in patients with CD4 <200 cells/µl.[5] The prevalence of *Candida sp* in the oral cavity of HIV-infected patients was higher (62-93%) compared to 40-60% in healthy individuals.[6] While tuberculosis (TB) accounted for one-third of the estimated 1.1 million people dying from AIDS-related causes globally in 2015 and pneumocystis pneumonia (PCP) is a leading cause of mortality among hospitalized adults (13%) of people living with HIV/AIDS (PLWHA).[7] Late presentation and advanced HIV disease among patients with newly diagnosed HIV/AIDS has a significant correlation with

patient's characteristics such as older age, lower level of education, divorced or widowed.[2] Here we report disseminated HZ and some other infections that may navigate to newly diagnosed HIV infection in a 52-year-old female.

CASE REPORT

A 52-year-old female presented multiple scattering erythematous vesicular rashes with pain over the entire body. It was started 3 months before admission, she recognized lesions on the left buttock, thigh, and knee as several multiple scattering erythematous rashes. One month before admission, the former lesion becomes grouped vesicles with a pricking pain, gradually increasing in size and count. Two days before, she observed grouped vesicles become bulla, and 24 hours before admission she developed multiple scattering erythematous vesicular rashes with pain over the entire body (Figure 1). She also complained of progressive shortness of breath and cough with low-grade fever and night sweats for 3 months. She had an unintentional weight loss of 15 kg in 1 month and white patches on the tongue with painful swallowing. She had the same skin lesion on the left hand and forearm 1 year ago. She had a history of chickenpox during her childhood. Her husband died 1 year ago. History of multiple partners (+).

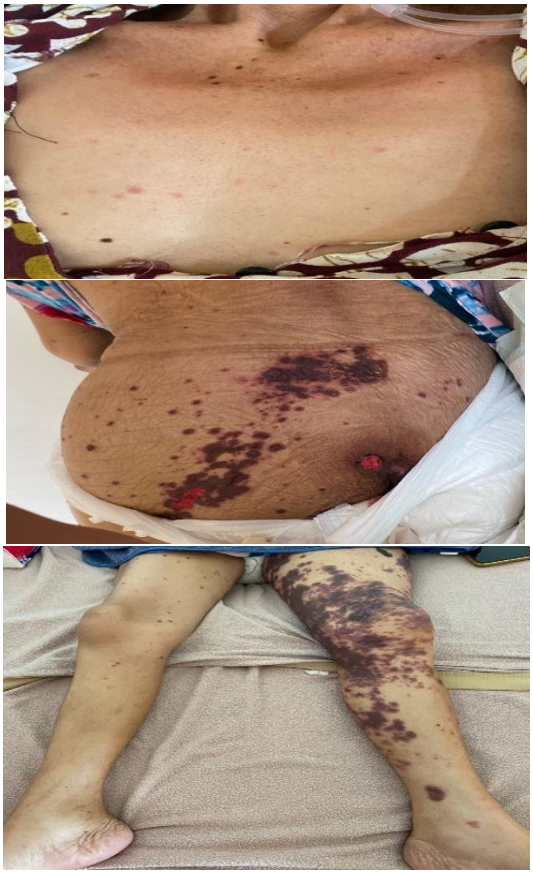

Figure 1: Grouped vesicles with bulla on the L2-L4 sinistra and multiple scattering erythematous vesicular rashes on the whole body.

On physical examination found tachycardia, tachypnea (oxygen saturation 97% with cannula 2 lpm), and white plaque which has red baseline when cleaned on the patient's tongue (Figure 2). On auscultation found normal lung sound. Grouped vesicles with bulla on dermatome L2-L4 sinistra and multiple scattering erythematous vesicular rashes on the whole body.

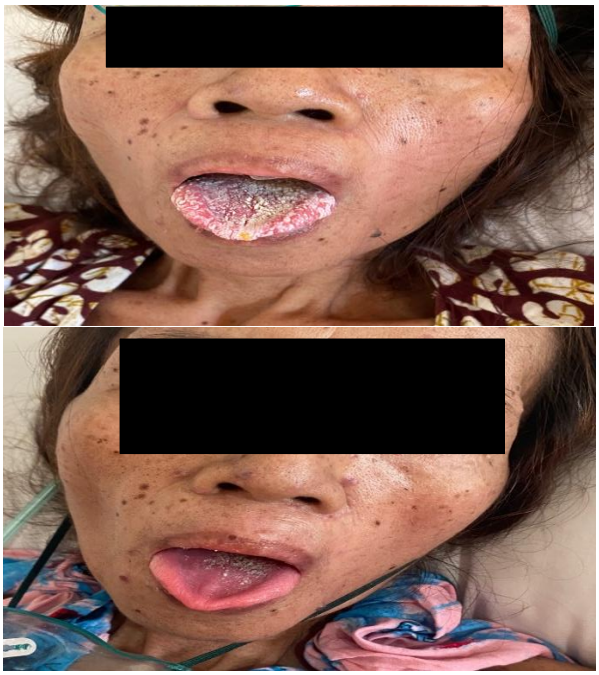

Figure 2: Oropharyngeal candidiasis before (left) and after (right) treatment.

Complete blood count was leucocyte $9.04\times10^3/\mu l$, hemoglobin 11.7 mg/dl, thrombocytosis $460\times10^3/\mu l$. Chest radiograph showed infiltrates in the left lung and right para hilar paracardial fields. (Figure 3). Blood gas analysis shows respiratory acidosis. Provider initiative test and counseling (PITC) was reactive with CD4 8 cells/µl. Xpert MTB Rif test results (-).

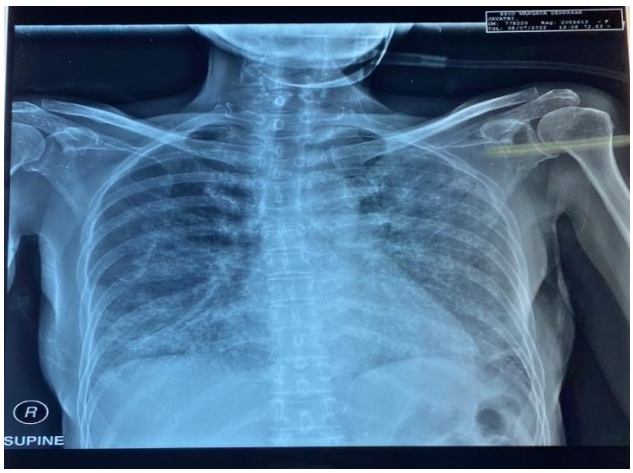

Figure 3: Chest radiograph showed infiltrates in the left lung and right para hilar and paracardial fields.

The patient was diagnosed with advanced HIV disease, disseminated HZ, OC, esophageal candidiasis, suspicious PCP, and clinically pulmonary TB. Patient improve and survive after early treatment with antiviral, antifungal, antimicrobial, first-line fixed-dose combination (FDC) for tuberculosis, and prophylactic antibiotic.

DISCUSSION

The presented case is a 52-year-old female that has the manifestation of disseminated HZ, OC, and pneumonia, which put her in advanced HIV disease when newly diagnosed (CD4 level was 8 cells/µl). Diagnosing HIV in the hospital was a relatively strong factor associated with late presentation and advanced HIV disease, suggesting that patients didn't visit a doctor until the clinical symptoms appeared and treatment was initiated at a later disease stage. The other possible explanations could be that the clinical manifestations lack specificity, contributing to the missed diagnosis of HIV infection by health care professionals. We recognized the indicator condition soon, thus the patient was screened for HIV directly. Advanced HIV disease is associated with older age because the symptoms were often misjudged as other illnesses of being older.[2]

Based on the pilot study HIDE, which informed the guidance evidence base HIV testing there are eight of the ICs studied fulfilled the study's criteria having an HIV prevalence of >0.1%, one of that IC is HZ.[8] An audit of HIV testing in TB, esophageal candidiasis, non-Hodgkin's lymphoma, anal cancer, cervical cancer, and hepatitis B across Europe demonstrated poor performance of IC-guided testing in people presenting with well-recognized AIDS-defining and non-AIDS defining indicator conditions.[9]

In immunosuppressed patients, HZ is often multi-dermatome in distribution, persistent, extensive, and associated with severe pain and debility. Patients with HIV who have CD4 counts <200 cells/mm^3 are at the highest risk of herpes zoster-related complications, including disseminated HZ, defined as than 20 small widespread vesicles resembling varicella outside the area of the primary and adjacent dermatomes, and may or may not involve visceral.[10] In adults, the lesions are more common in the lower thoracic and upper lumbar dermatomes. Usually, 1 or, less commonly, 2 or 3 adjacent dermatomes are affected.[11] About 20% to 30% of patients with HIV have one or more subsequent episodes of HZ, which may involve the same or different dermatomes. The presented case also experienced maculopapular rashes in dermatome C6-C8 1 year ago without post-herpetic neuralgia (PNH). Approximately 10% to 15% of patients with HIV report PNH as a complication following HZ.[12] Thus pain management is essential besides antiviral therapy.

A lot of studies documented a relation between low CD4 counts to OC. Significant associated risk factors for OC in PLWHA are age, sex, xerostomia, smoking, alcohol consumption, antibiotic usage, CD4 counts, and advanced HIV clinical stage (AIDS).[5] The presence of OC and dysphagia or odynophagia in an immunocompromised host is frequently predictive of esophageal candidiasis. A therapeutic trial with fluconazole for patients with presumed esophageal candidiasis is a cost-effective alternative to endoscopic examination. The patient showed improvement in the symptoms 1 week after oral fluconazole.

Diagnosis of PCP is multifactorial. Lactate dehydrogenase (LDH) is not a highly valuable diagnostic tool in the presented case because there was obvious tissue damage (skin lesions). Computed tomography of the chest may show ground glass attenuation or cystic lesions with high sensitivity but is not evaluated in this presented case because clinical and chest radiograph positive suggestive of PCP.

A definitive diagnosis of PCP by PCR in the presented case was not examined because patient had debilitating pain because of HZ thus collecting the sample from BAL was not performed. If there is clinical concern or suspicion of PCP in a high-risk patient, even without a definitive diagnosis, treatment should give accordingly.[13] Patient was treated with trimethoprim 15-20 mg/kg/day and sulfamethoxazole 75-100 mg/kg/day. Patient showed improvement on day 4 of treatment.

Pulmonary TB can present at any CD4 count and should be considered in the differential diagnosis of anyone presenting with cough, weight loss, night sweats, or fever (WHO-recommended four-symptom screen (W4SS)).[14,15] Newly diagnosed HIV is at a high risk of TB disease or reactivation, a greater risk of death, and therefore a highly sensitive and specific screening strategy is required to ensure rapid initiation of treatment. Staging of HIV disease and testing to exclude TB with lateral flow urine lipoarabinomannan (LF-LAM) and molecular WHO-recommended rapid diagnostic (mWRD) tests are recommended in people with advanced HIV disease. The overall sensitivity of mWRD when W4SS is followed in all PLWHA is estimated to have a sensitivity of 62% and a specificity of 99%.[15]

When mWRD from induction sputum was negative in advanced HIV patient with a high level of suspicion as presented case, a diagnosis of clinically pulmonary TB was made, especially when the patient showed no improvement after being given non-TB antibiotic.[16] Patient was treated with the 4-drug regimen for TB in FDC.

CONCLUSION

Awareness of indicator conditions for HIV infection will help the health care professionals decided to do PITC, screening for HIV infection. Knowledge of atypical presentation and the complication of OI, coinfections, and

conditions related to HIV is needed to ensure rapid initiation of treatment.

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