Disseminated Zoster in an Immunocompromised*

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ABSTRACT

In an immunocompromised patient such as HIV infection, disseminated herpes zoster is a common cutaneous manifestation. It is very important to have clinical suspicion of HIV, whenever a patient presents with cutaneous manifestation of HIV. This is a case of a 32 year old male who came in at for consult at our institution with a chief complaint of fluid filled bumps which started on the left abdominal area progressing to the trunk, upper and lower extremities with associated pricking pain. Patient was diagnosed with disseminated zoster and was given acyclovir with noted complete resolution of lesions. Laboratory tests were requested which revealed that the patient also had concomitant HIV and Hepatitis B. Patient was referred to the Center for Tropical and Travel Medicine for proper management.

Keywords: Disseminated zoster, HIV, Hepatitis B, acyclovir

INTRODUCTION

The Philippines has been ranked as the country with the fastest growing number of HIV cases in the world and in January, 2019, there are 1,249 newly confirmed HIV-positive individuals.[1] Disseminated zoster is one of the most common cutaneous manifestations of HIV in 25-50%, which, in advanced HIV disease, may present atypically with scattered vesicles in the absence of dermatomal lesions.[2] Early and prompt recognition of the cutaneous manifestations of HIV is very important to be able to start treatment.

CASE REPORT

This is a case of a 32 year old Filipino male, single from Makati who came in for consult last March 23, 2018 at our institution with a chief complaint of fluid filled bumps all over the body. History started 3 weeks prior to consult, patient was noted to have pain on the left abdominal area, pricking even with light touch, nonradiating, persistent and graded as 8/10. No fever, rashes, diarrhea, constipation or dysuria noted. No medications were applied or taken and no consult was done. 2 weeks prior to consult, patient noted fluid filled bumps on the left abdominal area, still with the same quality of pain. 1 week prior to consult, patient noted progression of the fluid filled bumps to the face, trunk, upper and lower extremities. Pain on the left abdominal area was noted to increase to 10/10. Persistence prompted consult at the Emergency room was diagnosed with herpes zoster with secondary infection. Patient was then referred to our department.

For the review of systems, patient was noted to have no fever, malaise, chills and vision loss or changes. No noted shortness of breath, dyspnea, chest pain or discomfort.

Patient was previously diagnosed with pulmonary tuberculosis in 2012 and treated with anti-Koch's medications for 6 months with normal chest radiography findings after treatment. Patient previously had cleft lip and palate repair. No medications taken, no allergies nor blood transfusion done. No similar lesions were seen with family members.

Sexual history revealed that the patient had his first coitus when he was 25 years old with more than 30 partners, with preference for both male and

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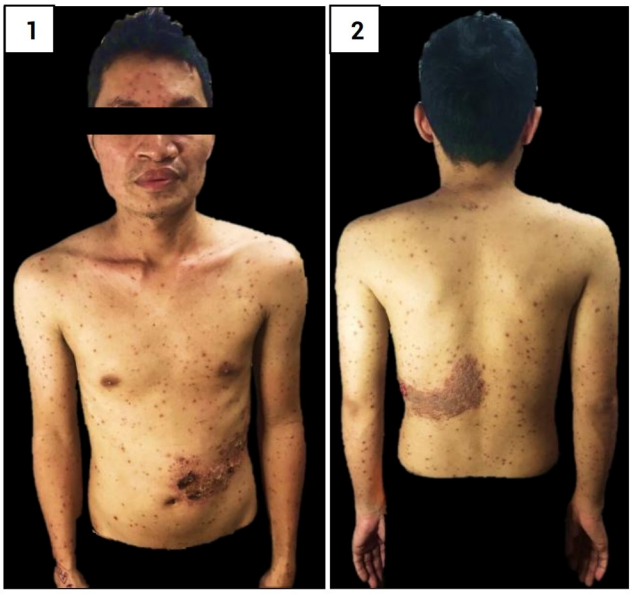
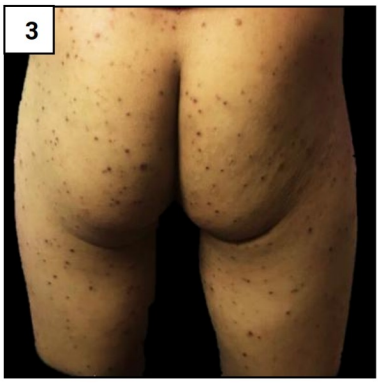
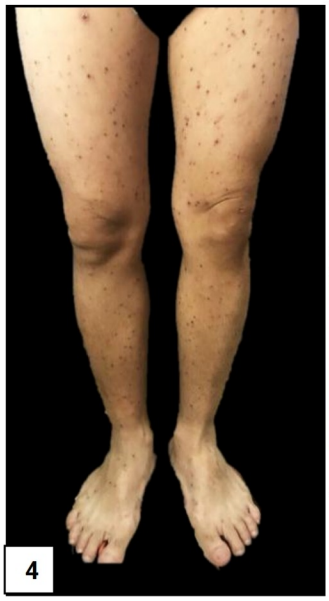
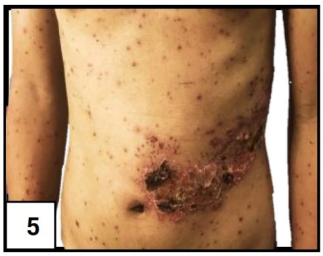
female. Patient practices both anal and oral sexual intercourse with no use of protection such as condom. His last sexual encounter was on January, 2018. Patient was also diagnosed with anal fissure secondary to trauma. Patient works as a teacher in secondary education, is a non smoker and non-alcoholic beverage drinker and denies illicit drug use.

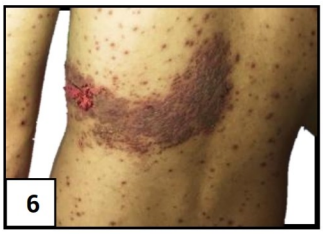
Physical examination findings revealed that the patient was awake, conscious, oriented to time place and person. Other physical examination was unremarkable except for the cutaneous manifestation with generalized involvement, lesions consist of multiple, well-defined, erythematous to hyperpigmented grouped vesicles with erythematous base, some with hemorrhagic crusts and erosions and some coalescing into plaques in a dermatomal distribution as seen in Figures 1-6.











Figures 1-6. Generalized involvement, lesions consist of multiple, well-defined, erythematous to hyperpigmented grouped vesicles with erythematous base, some with hemorrhagic crusts and erosions and some coalescing into plaques in a dermatomal distribution

Gram stain and Mycologic examination using potassium hydroxide was done with negative results. Tzanck smear was also done which revealed the presence of multinucleated giant cells as seen in Figure 7.

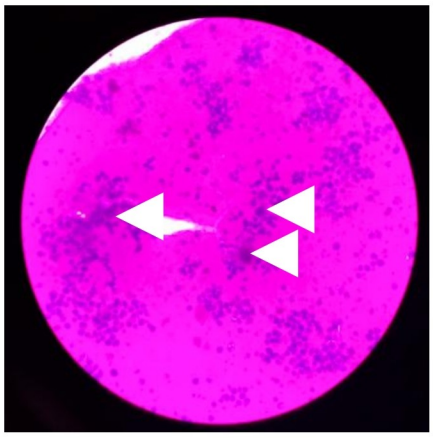


Figure 7. Tzank smear: Multinucleated giant cells are present (white arrows)

Patient was advised. Patient was asked to do NSS compress to the affected areas for 15 mins 3x day. Medications given were Acyclovir, 800mg/tab 1 tab 5x a day and co-amoxiclav 625mg/tab, 1 tab 3x a day for 7 days. Patient was advised to refrain from sexual intercourse during the duration of management. Also, the individuals who had contact with the patient were asked to follow up at our institution, however, the patient had lost contact with those individuals. Patient was also referred to Ophthalmology department for evaluation of Herpes zoster ophthalmicus. Patient was asked to follow up after 1 week.

Diagnostic tests requested were CBC, chest radiography, RPE, Hepatitis B surface antigen and HIV screening with the following results (Tables 1-3).

Table 1. CBC results

	March 22, 2018	April 5, 2018	Reference Range
Hemoglobin	15.3	11.8	14 – 18 g/dL
Hematocrit	0.47	0.37	0.40 – 0.54
WBC count	**11.4**	7.4	4 – 11 x 109
RBC count	5.5	**4.3**	5 – 6.4 x 109
Platelet Count	330	410	150 – 450 x 109
Segmenters	70	56	50 – 70%
Lymphocyte	16	28	20 – 40%
Monocyte	**14**	**11**	2 – 5%
Eosinophil	0	**5**	2 – 4%

Table 1. Clinical Chemistry and Chest Xray-PA

	RESULT	REFERENCE RANGE
SGOT	35	5 – 35 U/L
SGPT	22	0 – 55 U/L
BUN	3.7	3.2 – 7.4 mmol/L
Creatinine	69	64 – 104 umol/L
Na	143	136 – 145 mmol/L
K	3.9	3.5 – 5.1 mmol/L
Chest Xray-PA	No significant findings	

Table 3: HIV, RPR and HbsAg Results

TEST	RESULTS
HbsAg	**Reactive**
RPR	Non-reactive
HIV test	**Positive**

Since we requested HIV screening for the patient, in accordance with Administrative order for the Policies and Guidelines for the conduct of HIV Testing Services in Health Facilities.[3] It is composed of different components. First is confidentiality in which the confidentiality of all data gathered from the patient shall be emphasized. Next, information. The HIV counselor shall provide the following information to the patient such as HIV and relationship with patient's current health condition, benefit of knowing one's HIV status and the flow of HIV test procedures. The patient shall be given the chance to express any other concern or needs in relation to HIV and test procedures.

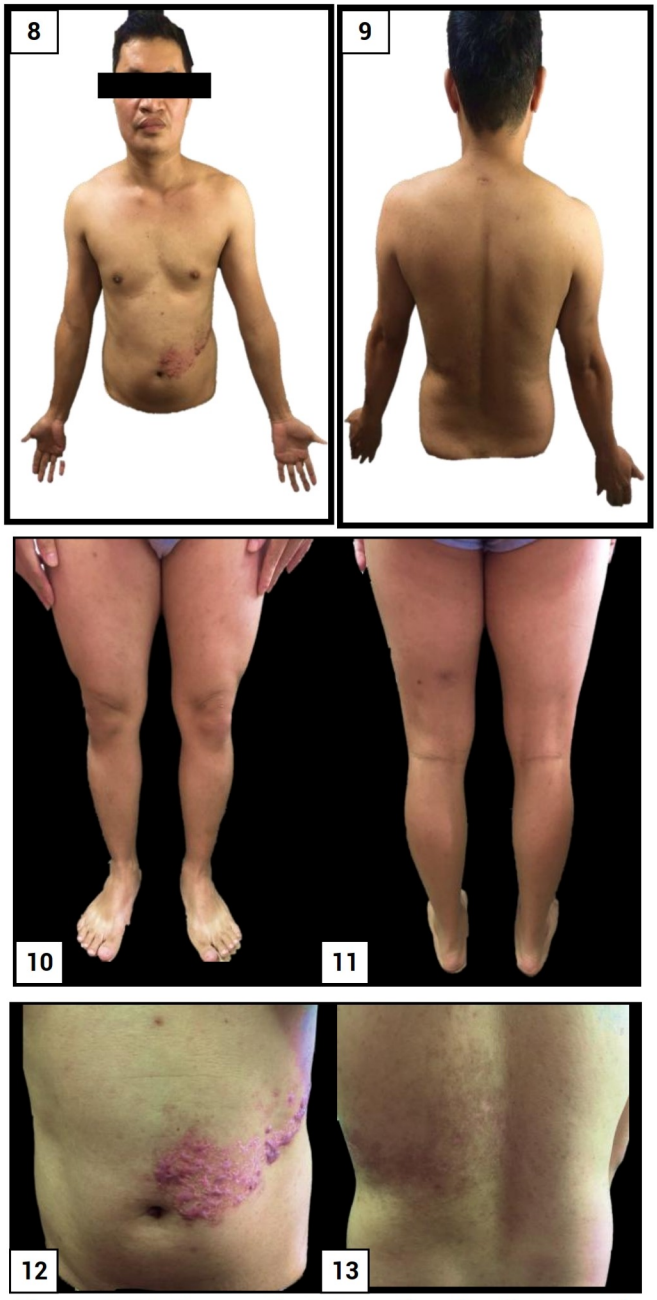
HIV counselor shall review or validate the given information and patient is asked to sign the informed consent.

Since the patient is positive for HIV, patient underwent post-HIV test counseling. Confirmation test was done using the same blood sample by rapid HIV diagnostic algorithm. If the patient is negative for the confirmatory test, results are verified and patient is given a copy of the result. On the other hand, if the patient is positive, results are verified. Post-test counseling is done to ensure that the patient wound undergo treatment and follow up religiously. Patient underwent assessment for risk for suicide, self-harm or violence to others. Patient was also counseled on immediate support, risk reduction, protection such as condoms, disclosure to family and partners and to start antiretroviral treatment. In our case, the patient is referred to the Center for Tropical and Travel Medicine where counseling and CD4+ T cell count monitoring is done every 3 months. Patient was given a combination of Efavirenz, Lamivudine and Tenofovir once at bedtime with no reported rashes, fever or dyspnea after 1 month treatment. These were the CD4+ T cell counts before and 3 months after treatment (Table 4).

Table 4. CD4+ T cell counts before and 3 months after treatment

JUNE 6, 2018	SEPTEMBER 20, 2018
125 cells/mm^3	120 cells/mm^3

Patient came in for follow up at our department 4 months after the first consult with noted complete resolution of lesions as shown in Figures 8-13



Figures 8-13. Same patient 4 months after first consult. Note complete resolution of lesions.

DISCUSSION

Varicella (chickenpox) and herpes zoster (shingles) are distinct clinical entities caused by a single member of the herpesvirus family, varicella-zoster virus (VZV) (Friedman et. al., 2003). During primary infection of varicella (chickenpox), the varicella zoster virus (VZV) establishes latency in the dorsal root and cranial nerve ganglia. When the virus is reactivated, patients presents with herpes zoster infection or "shingles" and its spread from single ganglion to corresponding dermatome and neural tissue of the same segment. The lifetime risk of having herpes zoster infection in a person is 15% to 20%, with most cases occurring in the elderly and immunocompromised populations. Other possible risk factors for herpes zoster include physical trauma at the involved dermatome, psychological stress, and white race. Lesions are mostly distributed in the thoracic dermatomes (40%–50% of cases), followed by cranial nerve (20%–25%), cervical (15%–20%), lumbar (15%), and sacral (5%) dermatomes. Lesions starts as an erythematous macules and papules followed by the appearance of vesicles with noted pain then appearance of pustules and crusts which may last for 2 to 3 weeks. Although the rash is important, pain is the cardinal problem posed by herpes zoster, especially in the elderly. Most patients experience dermatomal pain or discomfort during the acute phase that ranges from mild to severe. Patients describe their pain or discomfort as burning, deep aching, tingling, itching, or stabbing. Patients compared the severity of herpes zoster pain to angina and kidney stones for prodromal; labor and post surgical pain for acute pain and arthritis and arthritis and fibromyalgia for chronic post herpetic neuralgia.[2]

Our patient presented with disseminated type of herpes zoster which is mostly seen in the elderly and patients with immunocompromised conditions such as human immunodeficiency virus infection, acquired immunodeficiency syndrome (AIDS), hematologic malignancies, organ transplants (especially bone marrow transplant), and immune-mediated diseases. Disseminated zoster means that there are at least 20 lesions outside the affected dermatome. In patients with concomitant infection with HIV, there is increased

severity of cutaneous lesions and the disease course may be prolonged. Herpes zoster is considered as an "opportunistic infection" in patients infected with HIV and often occurs as the first sign of immunodeficiency. The primary target organ for patients with disseminated herpes zoster with HIV co-infection is the CNS which may lead to neurologic syndromes such as CNS vasculitis, multifocal leukoencephalitis, ventriculitis, myelitis and myeloradiculitis, optic neuritis, cranial nerve palsies and focal brain-stem lesions, and aseptic meningitis.[4]

Dermatologic manifestations are very important indicators for the level of immunodeficiency of HIV patients as seen in Table 5.[2] In our case, disseminated zoster is seen in HIV patients with CD4+ T cell counts between 250-500/μL. So the clinical suspicion of immunocompromised state when faced with these dermatologic manifestations is very important.

Table 5. Correlation of Mucocutaneous Manifestations of Human Immunodeficiency Virus Infection with CD4 T Cell Counts

CD4 T CELL COUNT > 500/μL	500/μL > CD4 T CELL COUNT > 250/μL	CD4 T CELL COUNT < 200/μL
Acute retroviral syndrome Herpes zoster infection (nondisseminated) Seborrheic dermatitis	Dermatophyte infections, recurrent or persistent Oral candidiasis Oral hairy leukoplakia **Herpes zoster infection, disseminated**	Bacillary angiomatosis Hyperkeratotic scabies Cutaneous miliary tuberculosis Eosinophilic folliculitis Herpes simplex virus infection (>1 month's duration) Idiopathic pruritus Invasive fungal infections Kaposi's sarcoma Molluscum contagiosum, large facial lesions Papular pruritic eruption of HIV

In the Philippines, there is an increasing number of newly diagnosed cases of HIV. In a cross-sectional analytical hospital-based study by Abdalla et. al.[5], conducted at Khartoum Dermatology Hospital in Khartoum city, wherein they determined the HIV seroprevalence in patients with herpes zoster infection and to identify the factor that may affect its prevalence. Patients who came in with a diagnosis of herpes zoster were examined and blood samples were tested for presence of antibodies against HIV using ELISA technique and confirmed by Western blot. A total of 40 patients were screened and 6 (15%) were seropositive for HIV. Of all HIV positive patients, 5 (83%) were in the age group 25- 45 years and most of them were females residing in urban areas (83%). The head was the most affected area (67%) and only 2 cases (33%) had multi dermatomal involvement.

Aside from disseminated zoster, patients with HIV may have co-infection with Hepatitis B since both of them are sexually transmitted diseases. Since risk factors for acquisition are the same for both disease entities, coinfections are common globally. Among patients with HIV, the leading cause of end stage liver disease worldwide is chronic Hepatitis B with a prevalence ranging from 5-20% in various studies of HIV-infected subjects.[6]

Infection with both Hepatitis B and HIV compromise the benefits of efficient antiretroviral drugs by increasing the morbidity and mortality in patients infected with HIV. Both viruses are blood-borne and because of their shared transmission, people at risk for HIV infection are also at risk for HBV infection. Also, co-infection alters the natural history of the disease in which the progression to chronic hepatitis is accelerated, resulting in more complications in the patient's condition which may lead to deterioration of the many vital organs especially, the liver with noted increase in the levels of liver enzymes like alanine aminotransferase in the blood stream.[6]

Immediately after diagnosis of disseminated herpes zoster and HIV co-infection, prompt antiviral therapy with oral valacyclovir, famciclovir, or acyclovir for 7 to 10 days, although

longer durations are recommended if lesions resolve slowly. Because of their improved pharmacokinetic properties and simplified dosing schedule, valacyclovir or famciclovir are preferred. For extensive cutaneous lesions and if visceral organs are involved and suspected, IV acyclovir should be initiated and continued until clinical improvement is evident.[7]

In patients with HIV and Hepatitis B co-infection, the principal goal of management is to stop or decrease the progression of liver disease and prevent cirrhosis and hepatocellular carcinoma. Control of HIV infection is the usual priority when treating HIV-HBV–coinfected patients. In treating these patients, the needs of individual patients should depend on the clinical status of both HIV and HBV, and whether they will be treated concurrently, should always be kept in mind. Other considerations are need for combination antiretroviral therapy for HIV infection, the severity of liver disease, the likelihood of response, and potential adverse events. Indications for treatment of HIV and Hepatitis B co-infection include All HIV/HBV coinfected patients, regardless of CD4 count and HBV DNA level. HBV reactivation can occur during treatment of HCV infection in the absence of HBV-active drugs; therefore, all HBV patients who will be treated for HCV should be on HBV-active ART at the time of HCV treatment initiation. Tenofovir disoproxil fumarate (TDF) 300 mg + Emtricitabine (FTC) 200 mg OR Lamivudine (3TC) 300 mg OR Tenofovir alafenamide (TAF) 10 or 25 mg + Emtricitabine (FTC) 200 mg is the preferred treatment regimen for HIV and Hepatitis B co-infections.[6]

CONCLUSION

Cutaneous manifestations may be the early and the only sign of HIV infection. The early recognition and management in HIV patients with co-infections of Hepatitis B and Herpes zoster is very important.

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