

CASE REPORT



## Shingles: a harbinger of chronic HIV infection

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### ABSTRACT

Early diagnosis and treatment are essential to reduce the risk of community transmission and morbidity and mortality of individuals infected with HIV. A 49-year-old woman presented with a painful, vesicular rash on the left side of her neck after being treated with valacyclovir for a separate perianal rash. She admitted recent weight loss and diffuse lymphadenopathy. She reported one family member with HIV but denied intravenous drug use or recently new sexual partners. Serum HIV-1 antibody screen was positive. Herpes zoster reactivation is associated with waning immunity in chronic HIV and should prompt testing. Delays in treatment impacts short-term and long-term prognosis for patients infected with HIV.

### ARTICLE HISTORY

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### KEYWORDS

Human immunodeficiency virus (HIV); herpes zoster; reactivation; shingles

## 1. Background

Human immunodeficiency virus (HIV) is a retrovirus that has a devastating impact on patients' lives worldwide. Earlier diagnosis and treatment are essential to reduce risk of community transmission and morbidity and mortality of individuals infected with HIV [1]. The earlier highly active antiretroviral therapy (HAART) is initiated in the disease course, the larger the clinical benefit [2]. Approximately one out of four individuals live with HIV for 7 years or more before diagnosis [3]. Early signs that someone may be chronically infected with HIV include fever, fatigue, adenopathy, arthralgia, and rashes, including herpes zoster reactivation [4].

## 2. Case presentation

A 49-year-old Caucasian woman with past medical history significant for systemic lupus erythematosus (SLE) and seizure disorder presented to the emergency department after an unwitnessed seizure. The patient reported multiple 'jerking' movements but denied any urinary or bowel incontinence and tongue biting. She reported a painful, vesicular rash on her buttock that began 3 days prior, for which she was started on valacyclovir, and had spread to her neck, back and shoulders (Figure 1). She admitted recent weight loss and lymphadenopathy. She reported a previous diagnosis of SLE that was never treated. No diagnostic information or evidence of treatment was available in the electronic medical record.

The patient denied a history of new sexual partners or intravenous drug use. She reported a sister who passed away due to AIDS and a niece currently being

treated for HIV. Physical examination revealed bilateral superficial cervical and left inguinal lymphadenopathy, no malar rash, no oral ulcerations, no joint pain or swelling, a painful vesicular rash on left lateral neck along the C4 dermatome and pruritic erythematous rash on back, bilateral shoulders, and bilateral buttock.

She was empirically started on intravenous acyclovir due to concerns for encephalitis and phenytoin for seizure prophylaxis. Lab work did not show evidence of pancytopenia. Lumbar puncture was performed in the ED. Pertinent cerebrospinal fluid (CSF) findings on admission included CSF total protein 51 mg/dL (normal: 15–45 mg/dL), CSF white blood cell 3 cells/mm<sup>3</sup> (0–5 c/mm<sup>3</sup>), CSF glucose 44 mg/dL (40–70 mg/dL), and negative polymerase chain reaction (PCR) for herpes simplex virus and varicella zoster. Magnetic resonance imaging of the brain was not completed due to patient experiencing claustrophobia. Presentation secondary to untreated SLE was considered but thought to be less likely due to lack of diagnostic information and presenting features.

Serum HIV-1 antibody screen was positive. Further evaluation found HIV viral load of 535,929 copies/mL and CD4 count of 369/μL (360–1,500/μL). The patient completed a seven-day course of valacyclovir after discharge and continued to follow with infectious disease as an outpatient for further treatment of HIV.

## 3. Discussion

HIV can be difficult to diagnose due to the non-specific and variable presentation during the early stages of disease. As many as 50% of initial HIV-



**Figure 1.** Painful vesicular rash across neck that spread to back consistent with herpes zoster.

infected patients suffer from flu-like or mononucleosis-like illness [5]. Symptoms can include fever, malaise, generalized rash, and generalized lymphadenopathy. More advanced stages of HIV present as life-threatening malignancies and opportunistic infections, otherwise known as acquired immunodeficiency syndrome (AIDS) defining illnesses. An AIDS defining illness is defined as  $CD4 < 200$  cells/ $\mu$ L or several opportunistic infections, including *pneumocystis* pneumonia, cytomegalovirus disease, and invasive cervical cancer (but not including recurrent herpes zoster) [6]. When an AIDS defining illness is encountered, it should prompt consideration for an underlying HIV infection.

Early identification of HIV infection ensures the early therapeutic intervention with HAART. Reduction of delayed treatment prevents morbidity and mortality in infected patients, their partners, and reduces transmission to the community overall. Per current US Centers for Disease Control and Prevention guidelines, individuals between the ages of 13–64 should be screened at least once in their lifetime for routine health care. Annual testing is recommended in patients with risk factors including, but not limited to, men who have intercourse with men, sexual exposure to a partner with HIV, intravenous drug use, multiple sexual partners and history of sexually transmitted infection (including hepatitis and tuberculosis). Public Health England (PHE) recommends individuals at risk of HIV including homosexual individuals, bisexual individuals and men who have intercourse with men should be tested annually and every 3 months if having sexual intercourse without protection with new or casual partners. For African men and women, the PHE

recommends regular screening if having sexual intercourse without condoms with new or casual partners due to the high rate of disease and risk of exposure in this community [7]. Of the approximately 1.1 million people in the USA that have HIV, it is estimated 15% are currently unaware of their diagnosis. [3] Clinicians must also keep in mind that patients may not be forthcoming on initial encounters to reveal their sexual history or may be unaware of the importance this may have on potential impact on their care.

Herpes zoster, otherwise known as shingles, is a reactivation of latent herpes varicella zoster virus in the dorsal root ganglia that results in a painful, vesicular, and dermatomal rash [5,8,9,10]. Shingles is more common in those with cell-mediated immunodeficiency and older age. According to Thomas et al., up to 50% of people over the age of 85 years are diagnosed with herpes zoster. Associated risk factors include psychological stress, metals, volatile organic substances, and pesticides, such as arsenic, whereas independent considerations include geographical location, origin of birth, sex, smoking, socioeconomic status, and alcohol use [4].

One variation of suppressed cell-mediated immunity that has a notable occurrence of herpes zoster is HIV infection. According to Thomas et al, the incidence of herpes zoster was 12–17 times greater in HIV-positive rather than HIV-negative individuals [4]. Herpes zoster presentation has been shown to be one of the most frequent indicator conditions associated with a missed opportunity for HIV testing with an associated 7.8 months median delay of HIV diagnosis [11,12].

This delay in treatment impacts short-term and long-term prognosis for patients infected with HIV. In a study by Jansen et al.

10.7% of all HZ [Herpes Zoster] cases occurred at HIV diagnosis and might be the reason for HIV testing, while 25.8% of all cases were diagnosed within the first 6 months after HIV diagnosis ... The impact of older age as a risk factor for HZ in the general population may be abrogated in HIV-positive patients by other risk factors, such as the age-independent impairment of the immune system.

As reported by Jansen et al., HIV patients diagnosed with herpes zoster have a higher risk of disease progression to AIDS and death [12]. However, there is confounding evidence reporting the overall risk of AIDS is not significantly altered by the diagnosis of herpes zoster in HIV positive patients [13].

Prompt HIV testing in patients presenting with herpes zoster infection, even without high-risk features in the history, can prevent delay in diagnosis and treatment. This case reinforces the need to screen for HIV when patients have an unusual presentation regardless of high-risk features in their history.

### Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

### Informed consent

Verbal informed consent was obtained from the patient for their anonymized information to be published in this article.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

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