

# A case of non-disseminated herpes zoster as the presenting sign of HIV in a 3-year-old

## Abstract

Herpes zoster is rare in healthy and immunocompetent children. While disseminated presentations of zoster are often concerning for underlying immunodeficiency, non-disseminated zoster can also be a presenting illness in such patients. Here, we report a case of non-disseminated herpes zoster in a presumably healthy immunized child that led to a diagnosis of human immunodeficiency virus infection.

## 1 | CASE REPORT

A 3-year-old male child was evaluated for a progressive rash involving the left lower back extending to the left buttock, left groin, and anterolateral thigh. He was afebrile (37.3°C) and looked robust and well hydrated. Physical examination revealed grouped papules and vesicles, some with hemorrhagic crust, on an erythematous base distributed in a dermatome (Figure 1). The patient's mother was concurrently undergoing a psychiatric evaluation, and thus, a comprehensive past medical history was not available. Relatives were not aware of a preceding varicella infection and believed the child to be up to date on vaccinations (subsequently confirmed to have received the Merck ProQuad vaccine at 12-month-old). Polymerase chain reaction testing of vesicle fluid confirmed the presence of varicella zoster virus. Given the unusual presentation of zoster in a child, the unknown past medical history and the unstable social situation at the time of evaluation, HIV testing was performed, revealing a positive HIV-1 antibody assay and viral load of over 1 million copies/mL. The patient was started on intravenous acyclovir, trimethoprim-sulfamethoxazole for *Pneumocystis jirovecii* prophylaxis (CD4 count was 81), and highly active antiretroviral therapy (HAART) with raltegravir, tenofovir, and lamivudine. This diagnosis led to investigation for the source of HIV infection. The patient's mother had had a negative third-trimester HIV screen. However, following the patient's diagnosis, both parents were retested and diagnosed HIV positive.



**FIGURE 1** Grouped papules and vesicles on an erythematous base distributed along a dermatome (left hip, leg and knee)

His two younger siblings were HIV negative. The evaluation for child sexual abuse was unrevealing, and vertical transmission was suspected.

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TABLE 1 Case reports of non-disseminated HZ in HIV-positive children

Age (sex)	History of VZV infection	Dermatomal distribution	Treatment/resolution
3-year-old (male)	Yes, at 1 year	T4, with second occurrence at T10	Oral acyclovir, resolved within 1 week <sup>3</sup>
14-month-old (male)	Yes, at 6 months	T5–T7	None, recovered after 3 weeks <sup>4</sup>
34-month-old (female)	Yes, at 28 months	T10	IV acyclovir, resolved <sup>5</sup>
37-month-old (male)	Yes, at 35 months	Right chest	IV acyclovir, cleared rapidly <sup>5</sup>
3-year-old (male) <sup>a</sup>	No, VZV vaccine at 12 months	Left groin, left buttock, left anterolateral thigh	IV acyclovir, resolved

Abbreviations: HIV, human immunodeficiency virus; HZ, herpes zoster; IV, intravenous; T, thoracic dermatome; VZV, varicella zoster virus.

<sup>a</sup>Patient reported in this case report.

## 2 | DISCUSSION

Herpes zoster is an uncommon but reported presentation in both healthy and immunocompromised pediatric patients. In epidemiological studies, the incidence rate of HZ in healthy children after varicella infection has been reported as 262.1 per 100,000 person-years, more commonly after infection than vaccination.<sup>1</sup> In comparison with the healthy pediatric population, the incidence rates of HZ among children with HIV is higher. HZ is one of the most common opportunistic infections in immunocompromised children with HIV, likely due to impaired cellular and humoral immunity. One study reported an incidence rate of HZ among perinatally HIV-infected children with documented prior varicella in the HAART era (2001–2006) to be about 1.4–3.1 events/100 person-years, higher with lower CD4 counts.<sup>2</sup>

While disseminated and recurrent presentations of HZ are more commonly associated with underlying immunodeficiency, we report a case of a 3-year-old who presented with non-disseminated HZ leading to the diagnosis of HIV infection. Non-disseminated HZ is a rare presentation as first sign of immunocompromise in pediatric patients. Table 1 describes the other reported cases of dermatome-limited HZ in pediatric patients with HIV. Notably, in all four of these cases, HZ occurred after an episode of varicella; however, our patient had received the varicella vaccine and had no history of varicella infection.

This case highlights the need to consider a diagnostic workup when diagnosing HZ in pediatric patients with a medical history concerning immunocompromise or when a comprehensive medical history is not available, even in the setting of a non-disseminated presentation.

### KEYWORDS

immunodeficiency, infection-viral, skin signs of systemic disease

### ACKNOWLEDGEMENTS

None.

### CONFLICT OF INTEREST

None reported.

### DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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