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# CASE REPORT: HERPES ZOSTER IN A FULLY VACCINATED CHILD WITHOUT A HISTORY OF PRIMARY VARICELLA INFECTION

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**ABSTRACT**
Herpes zoster (HZ) is an acute skin infection caused by reactivation of the varicella-zoster virus (VZV), characterized by unilateral radicular pain and clustered vesicles following a dermatomal pattern. Although more commonly seen in older adults and immunocompromised individuals, HZ can also occur in immunocompetent children who have received complete varicella immunization, although this is rare. This report aims to describe a case of HZ in an immunocompetent child without a prior history of varicella infection and to raise clinical awareness of the possibility of HZ in low-risk pediatric populations. The method used is a case report with a descriptive clinical approach, including symptom evaluation, physical examination, and treatment with antiviral and supportive therapies. The findings indicate that HZ can be clinically diagnosed even in children considered low-risk. In conclusion, HZ should remain a differential diagnosis in children presenting with characteristic vesicular lesions, to ensure prompt recognition and appropriate management.

Keywords: herpes zoster; immunocompetent; pediatric shingles; varicella-zoster virus

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## INTRODUCTION

Herpes zoster (HZ) is an acute papulovesicular infection caused by reactivation of the varicella-zoster virus (VZV), characterized by unilateral radicular pain and clustered vesicles distributed along a single dermatome (Alatery et al., 2025). While commonly seen in the elderly, HZ can affect all ages, including children. The incidence in children varies from 42 to 238.5 cases per 100,000 population annually. Pediatric HZ is often linked to immunosuppressive conditions such as leukemia and HIV, but it also occurs in immunocompetent children, especially those with varicella infection during their first year of life. Vaccine-associated HZ incidence in immunocompetent children is lower, about 14 cases per 100,000 annually, compared to 20–63 cases after natural infection (SuYing et al., 2019)Reactivation triggers include prior VZV exposure, psychological stress, aging, immunosuppression, immunosuppressive drugs, transplantation, trauma, and surgery (Levin etal., 2019; Pusponegoro et al., 2014). In immunocompetent individuals, HZ usually resolves spontaneously and tends to be milder in children than adults (Janniger, 2019; Koshy et al.,2018). The onset involves pain or itching in the dorsal root ganglion area, followed by erythema and grouped vesicles along a dermatome within 2–3 days. Immunocompromised patients may exhibit multi-dermatomal or visceral involvement with more severe, prolonged disease (Cunningham et al., 2025).

Typical HZ presents as dermatomal vesicular eruptions and pain, but immunocompromised patients may show atypical symptoms resembling herpes simplex, drug reactions, or contact dermatitis, requiring confirmatory testing for atypical or painless lesions and persistent neuropathic pain without visible lesions. Laboratory evaluation is necessary when there is central nervous system or visceral involvement. (Barakat et al., 2024)Treatment goals focus on accelerating healing, preventing complications, and reducing acute and chronic pain. Antivirals like acyclovir, famciclovir, and valacyclovir inhibit VZV replication and are standard treatments. Symptomatic care includes cold compresses and calamine lotion to ease local symptoms and facilitate vesicle drying during the acute phase (Levin et al., 2019). This case report aims to document the occurrence of herpes zoster in an immunocompetent child without a prior varicella infection, and to enhance clinical vigilance regarding its potential presentation in pediatric populations considered to be at low risk.

## CASE REPORT

A 13-year-old female student presented to Padang Bulan Public Health Center on January 24, 2024, with complaints of clustered fluid-filled blisters on the left side of the neck and face, accompanied by a burning sensation and pain, which had been present for three days. Initially, the patient noticed a single reddish bump on the right side of the neck without itching or pain. Over time, more red papules appeared in clusters and evolved into vesicles, accompanied by itching and sharp, stabbing pain two days later. About six days before the visit, the patient experienced fatigue and reduced appetite, but denied having a fever. The patient resides in a dormitory, and according to her, one of her teachers experienced similar symptoms. According to the parents, the patient had no history of trauma, drug allergies, autoimmune diseases, or similar symptoms among family members. She had never had varicella (chickenpox) previously. Her varicella vaccination was complete, with the first dose administered at 12 months and the second at 15 months of age.

On physical examination, the patient appeared mildly ill with a compos mentis level of consciousness. Vital signs were within normal limits: body temperature 37.1°C, blood pressure 110/70 mmHg, heart rate 98 bpm, respiratory rate 20 bpm, body weight 34 kg, and height 143 cm. Pain assessment using the Visual Analog Scale (VAS) scored 7. Dermatological examination revealed multiple vesicles and pustules with erythematous bases, ranging in size from millet to lenticular, arranged in grouped (herpetiform) patterns on the right side of the neck (colli dextra). The rash followed the dermatomal distribution of the C2–C5 spinal nerves (Figure 1).

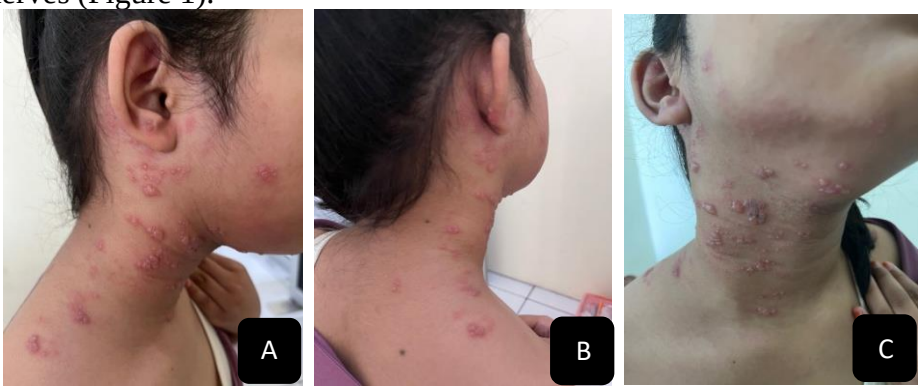


Figure 1. Multiple vesicular papules and pustules with erythematous bases, ranging in size from millet to lenticular, arranged in clustered (herpetiform) patterns observed on the lateral neck region (A), right suprascapular region (B), and right sternocleidomastoid region (C).

Based on the history and physical examination, the patient was provisionally diagnosed with herpes zoster, with differential diagnoses including dermatitis venenata and herpes simplex. A Tzanck smear was performed by scraping the base of the lesion, and the result revealed the presence of multinucleated giant cells (Figure 2).

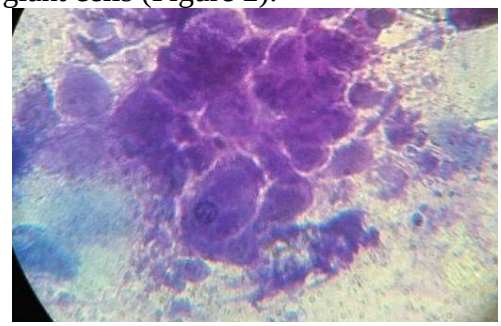

Figure 2. Tzanck smear showing a multinucleated giant cell (red arrow).

The working diagnosis for this patient was herpes zoster. The patient was treated with oral acyclovir 800 mg five times daily for 7 days, paracetamol 500 mg three times daily as needed for pain, cetirizine 10 mg once daily, and 0.9% NaCl compresses applied to the vesicular and exudative lesions for 30 minutes every 6 hours. For drying lesions, 2% fusidic acid cream was applied twice daily, and a medicated powder containing talc and 2% salicylic acid (Salicyl Talk®) was used twice daily on intact vesicles. The patient was advised to rest adequately, consume a nutritious diet, and keep the lesions clean and dry to reduce the risk of secondary infection. The patient was instructed to return for follow-up after one week. At the first follow-up visit post-treatment, the skin lesions had begun to dry, pruritus occurred occasionally, and no pain was reported. No new lesions had appeared during the treatment period. Dermatological examination revealed multiple hyperpigmented macules with crusts in the lateral cervical region (Figure 3). Based on this follow-up assessment, the patient was prescribed cetirizine 10 mg once daily and 2% fusidic acid cream to be applied twice daily to the skin lesions.

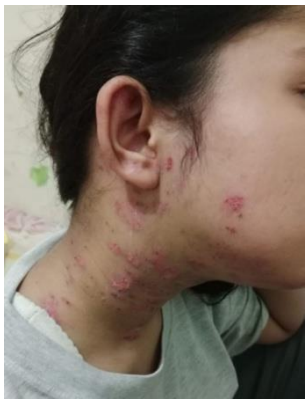

**Figure 3.** Dermatological findings at the first follow-up visit after one week of treatment, showing multiple erythematous macules with crusts in the lateral cervical region.

At two weeks after treatment, the patient did not return for follow-up due to having resumed residence at the dormitory. According to the patient's mother, no new lesions appeared, and only residual dry skin lesions remained. The prognosis for this patient is good with respect to life (*quo ad vitam bonam*), function (*quo ad functionem bonam*), and recovery (*quo ad sanationem bonam*). A 13-year-old female student presented with complaints of painful, warm fluid-filled blisters on the left side of her neck and face, which had appeared three days prior. Based on the literature, herpes zoster (HZ) is a reactivation of latent varicella-zoster virus (VZV) from the dorsal root ganglion, typically characterized by painful, unilateral vesicular

eruptions confined to a dermatome, and can resolve spontaneously. Although HZ is generally considered a disease of the elderly, it can also affect individuals across all age groups, including children, with an increasing incidence. HZ in children and adolescents is often associated with immunocompromised states, such as malignancies (e.g., leukemia) and HIV infection. (Kanamori et al., 2019; Janniger et al., 2021)

While age is the primary risk factor for HZ, it can also occur in immunocompetent children, with a higher risk among immunocompromised individuals. Approximately 10% of HZ cases are reported in immunocompromised patients. Studies have also identified female sex, frequent involvement of certain dermatomes, IL-10 gene polymorphisms, a family history of HZ, and white race as risk factors, with an associated incidence of 1–6%. (Levin et al., 2019) Initially, the patient reported a single red papule on the right side of her neck without itching or pain, which later multiplied and clustered into vesicles, accompanied by a prickling pain and itching sensation. Six days prior to presentation, she experienced fatigue and loss of appetite but denied having a fever. According to the literature, HZ manifests in three phases: the pre-eruptive (preherpetic neuralgia) phase, the acute eruptive phase, and the chronic (postherpetic neuralgia) phase. The pre-eruptive phase is marked by localized dermatomal pain, paresthesia, or itching lasting 1–10 days, possibly mimicking other conditions. The acute eruptive phase is characterized by grouped vesicles on an erythematous base, following a dermatomal distribution, most commonly involving dermatomes C2 to L2 and cranial nerves V and VII. (Paller, 2016; Nikhat, 2024)

Typical reactivation involves pain and paresthesia followed by erythematous macules, which evolve into painful vesicular eruptions within 24 hours, crusting, and spontaneous healing. Pain may be described as burning or stabbing, and postherpetic neuralgia can persist for months. (Quesada et al., 2020). Dermatological examination revealed grouped vesicles and pustules with an erythematous base, measuring from miliary to lenticular size, distributed along the right cervical dermatomes C2–C5. Tzanck smear showed multinucleated giant cells, supporting the clinical diagnosis of herpes zoster. HZ is diagnosed clinically based on characteristic dermatome-distributed vesicular eruptions and confirmed with tests such as Tzanck smear, histopathology, PCR, immunofluorescence, viral culture, and serology. (Tsareva et al., 2024)

Differential diagnoses included herpes zoster, allergic contact dermatitis (dermatitis venenata), and herpes simplex. Dermatitis venenata was excluded due to the absence of contact history with known allergens, and the lesion characteristics differed. Herpes simplex, which may present in a zosteriform pattern, must be considered in cases with recurrent, localized grouped vesicles, especially involving oral or genital areas. HZ can be distinguished from zosteriform herpes simplex through direct fluorescent antibody testing, IgM indirect immunofluorescence, or viral culture. (Luzius et al., 2025) The patient was treated with oral acyclovir 800 mg five times daily for seven days, paracetamol 500 mg three times daily (as needed for pain), cetirizine 10 mg once daily, 0.9% NaCl compresses for 15 minutes every six hours on moist lesions, fusidic acid 2% cream twice daily for dried lesions, and Salicyl Talk® powder (talc and 2% salicylic acid) twice daily on intact vesicles. The goal of HZ management is to control symptoms, improve healing, reduce pain, prevent bacterial superinfection, and improve quality of life. Lesions must be kept clean and dry to reduce the risk of secondary infection. Antiviral therapy is ideally initiated within 72 hours of rash onset to shorten the disease course and prevent complications. (Levin et al., 2019)

While antiviral treatment may not be necessary for uncomplicated pediatric HZ, some experts recommend oral acyclovir (30 mg/kg/dose; maximum 800 mg/dose) to shorten the disease

duration. Famciclovir and valacyclovir, preferred in adults due to simpler dosing and pharmacokinetics, are not approved for pediatric use. Mild pain can be treated with NSAIDs or paracetamol, while moderate to severe pain may require mild opioids. (Rork J, 2017) The prognosis for this patient is good: quo ad vitam bonam, quo ad functionam bonam, and quo ad sanationam bonam. Herpes zoster generally has a favorable outcome, especially in immunocompetent children and young adults, who often recover without complications. Complete resolution in children typically occurs within 1–2 weeks. (Cunningham et al., 2025)

## CONCLUSION

Herpes zoster (HZ) is an acute papulovesicular skin and mucosal infection caused by reactivation of the varicella-zoster virus (VZV). It typically begins with pain and paresthesia, followed by erythematous macules that evolve into painful vesicles within 24 hours, confined to a single dermatome. These lesions eventually crust and heal spontaneously. In immunocompetent children, risk factors include intrauterine VZV infection, varicella in infancy, chronic illness, or no clear risk at all. Treatment aims to promote healing, reduce acute and chronic pain, prevent complications, and limit disease progression. The prognosis is generally good, with complete recovery expected in 1–2 weeks for healthy children.

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