Herpes zoster in a 6-month-old infant with 13-year follow-up: a retrospective case report

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Received 3 January 2011; received in revised form 7 April 2011; accepted 29 April 2011

Key indexing terms:

Herpes zoster;
Infant;
Varicella zoster virus;
Therapy;
Recurrence

Abstract

Objective: The purpose of this report is to present a case of herpes zoster in a 6-month-old infant, conservatively managed without oral antivirals, and its 13-year follow-up, demonstrating no sequelae or recurrences.

Clinical Features: A 6-month-old white female infant presented with a vesicular rash of the right lower extremity to a chiropractic office. The rash consisted of grouped vesicles on erythematous plaques, the characteristic herpetiform lesion, distributed in the S1 dermatome of the right lower extremity only. The infant's history was significant for exposure to chicken pox at age 1 week through siblings. Consequently, only one vesicle developed, representing subclinical chicken pox. The clinical diagnosis of herpes zoster was made.

Intervention and Outcome: The infant was treated conservatively at home. Treatment consisted of aluminum acetate (Burow) solution compresses 3 times each day, followed by a loose dressing. The lesions crusted in 1 week and completely resolved in 2 weeks. Follow-up, consisting of 13 years of observation, demonstrated no evidence of sequelae, such as postherpetic neuralgia, or recurrence.

Conclusion: Herpes zoster is uncommon in infants; however, it may occur. The presentation of the rash is characteristic; but otherwise, the condition differs from that in adults in that it is mild and not associated with postherpetic neuralgia. In uncomplicated cases, conservative treatment measures support the quick resolution with no sequelae.

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Introduction

Varicella zoster virus (VZV) causes varicella (chicken pox) in the nonimmune host.¹ After resolution of the primary infection, the virus enters the latent phase and remains in sensory ganglia until an opportunity arises for reactivation.^{1,2} This reactivation, called *herpes*

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zoster (HZ; shingles), demonstrates the characteristic skin finding: grouped tense vesicles on erythematous plaques.³ Besides HZ, this herpetiform lesion may also be seen in herpes simplex virus infection and dermatitis herpetiformis, associated with gluten intolerance.^{2,3} The rash of HZ is further characterized by its dermatomal distribution and typically does not cross the midline.^{2,4} Such a distribution will point to HZ; but zosteriform herpes simplex is a possible, though less likely, consideration.^{5,6}

Herpes zoster is rare in the immunocompetent infant.⁷ Infantile HZ has 2 recognized risk factors: (1) exposure to VZV infection in utero and (2) exposure to VZV during the first months of life.^{6,8-10} Herpes zoster is frequent in children with acquired cellular immune deficiency from chemotherapy or human immunodeficiency virus.¹¹ The condition in infants differs from that in adults in that it is milder and not associated with postherpetic neuralgia.^{5,7,12} The purpose of this report is to present a case of infantile HZ and to describe conservative chiropractic management of this uncomplicated case.

Case report

A 6-month-old white female infant presented with a vesicular rash of the right lower extremity. The rash had begun as an erythematous plaque with small grouped vesicles located on the right superior gluteal area. Over the next 2 days, 3 other such groups of vesicles developed, one midcalf, one over the heel, and the last on the dorsal foot.

The infant was otherwise well, without fever, malaise, or disturbance in food consumption. She was breast-fed, with the addition of fruit and vegetable commercial baby food. Disturbance of nighttime sleeping was noted. The history included an uneventful home birth, birth weight of 7.5 lb (3400 g), and a subsequent healthy rate of weight gain and development. There had been exposure to varicella (chicken pox) at age 1 week from school-aged siblings. Subsequent careful home monitoring of the infant revealed the development of only 1 vesicle on the anterior thigh without any other signs of illness at that time. Maternal history was positive for varicella infection in childhood. There was no history of orolabial herpes simplex among the household members; there were no other caregivers.

Physical examination revealed a content, healthy infant without fever, lymphadenopathy, or hepatosplenomegaly. The rash consisted of small grouped vesicles on erythematous plaques (Fig 1). Four groups were

Fig 1. A and B, Groups of vesicles on erythematous bases (herpetic lesions) are noted on the right buttock, calf, and lateral aspect of the foot, approximately the S1 dermatome. (Color version of figure is available online.)

noted, located inferior and medial to the right posterior superior iliac spine, midcalf, over the heel, and on the dorsolateral foot at the bases of the fourth and fifth toes, following the S1 dermatome. The lesions were confined to the right lower extremity. Each round group measured 3 to 4 cm in diameter. No pus or crusting of the lesions was noted at that time.

Home care consisted of aluminum acetate solution compresses for 10 minutes 3 times a day, followed by application of dry linen towels to provide a soft cast. Crusting of lesions was identified in 1 week, and there was complete resolution in 2 weeks. After healing, mild scarring was noted on the dorsolateral foot. There was no evidence of postherpetic neuralgia, and there have been no subsequent episodes of HZ during the following 13 years. Parental consent to publish personal health information was obtained.

Discussion

Varicella zoster virus causes primary infection, manifested as varicella (chickenpox), and can reactivate after establishing latency in the dorsal (spinal) sensory

ganglia or cranial nerve ganglia to cause reactivated infection, manifested as HZ.^{2,13} The development of HZ is associated with a decline in cell-mediated immunity due to aging, an immunosuppressive illness or treatment, or an immature cell-mediated immune system.^{13,14} Herpes zoster is more common in older adults; but it can occur in healthy infants, children, and young adults, in whom the disease is usually milder.¹⁵

Maternal varicella zoster antibodies are transferred through the placenta; but their levels in the infant decrease by age 6 to 9 months and disappear altogether at around the age of 12 months, after which sensitivity to the disease develops.^{13,16-18}

In the case of the older adult, HZ includes a painful vesicular rash, presenting in a dermatomal distribution, with significant neural pain.^{3,14} In addition, many experience postherpetic pain, neuralgia that persists in the affected dermatome for months or years after the skin lesions have resolved.^{3,13} In the infant, however, HZ typically demonstrates the skin lesions only, without acute pain or postherpetic neuralgia.^{1,5,12} In both, the skin lesions typically develop from central to peripheral and do not cross the midline.³ During this vesicular stage, the condition is contagious, as virus is found at the lesion sites^{3,19}; and vesicles and erosions are susceptible to bacterial superinfection.^{7,19} After several days, the vesicles will erode and crust, heralding resolution.³

Herpes zoster is usually diagnosed clinically by the characteristic presentation of the disease, and laboratory testing is not usually necessary.^{5,20} However, it has been shown that herpes simplex infections may have a zosteriform presentation.⁶ Two situations in which laboratory confirmation can provide helpful information are (1) to confirm the diagnosis of varicella before initiation of antiviral therapy in a patient who presents with unusual symptoms and (2) to confirm susceptibility or immunity in exposed pregnant women.^{8,11} A common confirmatory laboratory test, Tzanck smear, can be done to support the clinical diagnosis, demonstrating a viral cause. However, to differentiate a possible HZV infection from that of herpes simplex, cultures or other antigen-based testing must be done.¹³

Generally, the treatment of HZ is indicated to limit the spread, duration, and bacterial superinfection of the skin lesions; to reduce the acute symptoms of pain and malaise; and to prevent the development of postherpetic neuralgia and ophthalmological complications in HZ ophthalmicus whenever these complications exist or are likely to develop.¹⁰ The treatment of adults with oral antivirals has had little effect on the acute course of HZ,

but has been shown to reduce the rate of postherpetic neuralgia.²¹ Infants do not suffer postherpetic neuralgia, so oral antiviral use has been questioned.¹² Some authors have recommended that oral antiviral use in immunocompetent children with HZ be reserved for the more severe cases, as with ophthalmic involvement.^{1,12,19,21} Other authors have used oral antivirals as a general approach.^{5,22} In the uncomplicated infant case, whether treated with antivirals or not, resolution of the condition was quick and free of sequelae.^{1,5,12,18-20,22}

In general, skin lesions should be kept clean and dry to reduce the risk of bacterial superinfection; and some have used topicals such as sulfa drugs to that end.¹⁹ In our case, compresses with Burow solution were effective in caring for the vesicles and erosions; and no bacterial superinfection developed. Use of the over-the-counter aluminum acetate (Burow) solution has been shown to have astringent, soothing, and antibacterial properties.²³ Sterile, nonocclusive, nonadherent dressings placed over the lesion sites will protect them from contact and clothing, as well as prevent exposing others to VZV.³

Limitations

The lack of laboratory confirmatory studies represents a weakness of this case. The dermatomal distribution of the classic herpetiform lesions, though highly suggestive of HZ, is not quite pathognomonic; and zosteriform herpes simplex is known to occur.⁵ A simple Tzanck smear, if positive, would have declared a viral origin, but would not have differentiated the 2 main viral causes, VZV and herpes simplex virus,^{3,20} and therefore would not have added significantly to this case. Antigen-based testing is both reliable and sensitive and would have settled the question.^{6,13} At that time (1996), no laboratory tests were performed; but the lack of known exposure to herpes simplex virus and of recurrences of the rash in the ensuing 13 years speaks against the likelihood of zosteriform herpes simplex.³

Conclusion

This case represents a presumptive reactivation of the VZV subsequent to exposure of the infant to chicken pox at age 1 week and the waning of maternal antibodies after several months of life. It demonstrates that HZ can occur in infants, although it is uncommon. The clinical presentation is similar to that of the adult, but differs in that the uncomplicated infantile type is

milder, remits spontaneously, and is not associated with postherpetic neuralgia. This case also demonstrates a successful conservative chiropractic treatment approach. Patient follow-up for more than a decade demonstrated no sequelae or reactivation.

Funding sources and potential conflicts of interest

No funding sources or conflicts of interest were reported for this study.

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