



Dermatomal rash on a 6-year-old boy

The lesion on his trunk looked like zoster, but the patient had been vaccinated against varicella.

THE MOTHER OF A 6-YEAR-OLD BOY brought her son into our clinic because he had recently developed abdominal pain and an itchy rash. She reported that he had a decreased appetite and was irritable. Four days earlier, the boy had complained of “stinging” pain in his right lower abdomen after playing in the yard. The next day, he developed an erythematous raised rash, which his mother thought was poison ivy. Within 48 hours, the rash developed vesicles and the mother began to suspect that her son had shingles. The child had no history of chickenpox, but had received a single dose of varicella vaccine as an infant.

The patient and his mother denied any recent fever, nausea, vomiting, respiratory symptoms, or other rashes. They reported that no family members were similarly affected. The child was otherwise healthy and not taking any medications. His exam was unremarkable except for the rash (**FIGURE 1**), which included healing vesicles and was limited to the T7 dermatome on the right side of his trunk.

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE 1

A 6-year-old boy with a pruritic, 4-day-old vesicular rash



PHOTOS COURTESY OF: E.J. MAVEAUX, JR, MD

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Diagnosis: Herpes zoster

The patient had a classic case of herpes zoster (HZ), caused by a reactivation of the varicella-zoster virus (VZV), which also causes chickenpox. HZ is characterized by a painful vesicular rash distributed in a dermatomal pattern, as opposed to the chickenpox rash, which is generalized and more likely to be associated with systemic symptoms. Both rashes develop new lesions over time, producing vesicles in a variety of stages and sizes. The vesicles rupture and crust over as the patient recovers.¹

■ Unintended results of immunization.

The varicella vaccine—a live attenuated vaccine prepared from the Oka/Merck strain of VZV—may produce symptomatic infections.² Breakthrough chickenpox with wild-type varicella is also possible after immunization, although such infections are typically mild and uncomplicated.³ To learn more, see “Varicella vaccine: Adverse effects, contraindications” below.

HZ occurs infrequently in healthy children after natural infection and after immunization.² In children with leukemia, who are more likely to develop zoster, the incidence of HZ after immunization is about 3 times lower than after natural infection, according to re-

search data supplied by Florence Synn, MD, of Merck & Co, Inc., on May 7, 2008.

Contact dermatitis, herpes simplex comprise the differential

The differential diagnosis includes contact dermatitis, which is often associated with exposure to poison ivy. The vesicles of contact dermatitis follow the pattern of exposure, often forming a linear pattern, and are not distributed along a dermatome.⁴

Herpes simplex, caused by HSV-1 or HSV-2, may present with a vesicular rash similar to HZ. The rash does not follow the dermatomal distribution and the vesicles are more uniform than is seen in HZ. The rash may periodically recur, which confirms the diagnosis.¹

When lab testing is helpful

Generally speaking, diagnosis of HZ does not require lab work, but tests may be helpful with atypical or complicated presentations. Direct fluorescent antibody testing of scrapings or viral specimens can demonstrate specific antigens for a relatively quick and inexpensive confirmation of VZV.

Varicella vaccine: Adverse effects, contraindications

In the late 1900s, chickenpox affected about 3.5 million people annually—mostly children. Each year varicella caused 3837 to 6458 hospitalizations and an average of 96 deaths.⁷ These complications spurred the development of the vaccine,⁸ which became commercially available in 1995.⁵

The varicella vaccine has been shown to decrease the incidence of infection by 83% compared with historical controls, to decrease household attack rate by 81% to 90%, and to provide 96% protection when compared to placebo.³ Questions persist about its long-term effect on the complications of chickenpox.³

The vast majority of reported adverse effects (AEs) have been benign and self-limited. According to a 10-year safety review performed after some 55 million doses of the vaccine had been administered, the more serious AEs included 6 cases of herpes zoster (HZ)-related meningitis, 30 additional neurologic syndromes, and 7 patients with disseminated Oka varicella zoster virus infection. Most of these serious AEs involved immunocompromised patients.⁵ Of 403 samples tested, only 97 of the AEs were identified as Oka-type virus by polymerase chain reaction testing, including 57 of the 697 reports of HZ. Only 3 confirmed cases of secondary transmission of the Oka virus were reported.⁵

Varivax is contraindicated in immunocompromised and pregnant patients, and vaccinated individuals should avoid close contact with susceptible high-risk individuals for up to 6 weeks after immunization.³ However, studies in vaccinated patients who later developed leukemia provide some reassurance about inadvertent exposure.

Although the varicella vaccine is generally safe and efficacious, physicians should review the immunization status of all household members and discuss contact precautions with patients and their families before administering any live vaccine.

Polymerase chain reaction (PCR) testing is superior to culture for definitive identification and can distinguish between wild-type and the Oka (vaccine)-type varicella.⁵ Serology is available, but is used more to identify those at risk for infection than to assist with diagnosis.

■ **With our patient**, the diagnosis of HZ was evident by the history and physical exam. Testing was performed with the assistance of our microbiology lab to aid in postmarketing surveillance of the varicella vaccine. Samples, obtained from aspiration of vesicular fluid and swabs of unroofed vesicles, were placed in viral culture media and sent to the Centers for Disease Control and Prevention for PCR. The results were genotype specific for vaccine type VZV.

Is treatment necessary?

Most children with uncomplicated HZ do not require treatment. Antiviral medications, ideally given within the first 72 hours, are indicated for patients with moderate to severe pain, an extensive rash, or a rash involving the face, and for patients ages 50 years or older⁶ (strength of recommendation [SOR]: A). Acyclovir is the treatment of choice for children.²

Antivirals have been shown to lessen the acute pain of HZ, reduce the number of lesions, speed healing, and limit the duration of viral shedding.⁶ Most studies also show a decreased incidence of the persistent severe pain syndrome known as postherpetic neuralgia, which is more common in older individuals.⁶

Our young patient gets better, but Dad starts to itch

Our 6-year-old patient was treated symp-

FIGURE 2

Father developed chickenpox as the son's herpes zoster rash resolved



tomatically with calamine lotion and acetaminophen-codeine at night. He returned to school once his lesions crusted over. As the boy's rash resolved, his father developed a fever and pruritic vesicular rash (FIGURE 2). The father's varicella lesions also contained the Oka-type VZV. He, too, recovered without complications. **JFP**

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