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Letter

Herpes zoster in a 2-year-old vaccinated against varicella

Catherine A. Ulman BA, Julian J. Trevino MD, Rishi K. Gandhi MD

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Wright State University, [1]Boonshoft School of Medicine, [2]Department of Dermatology, Dayton, OH

Correspondence:

Rishi K. Gandhi, MD
725 University Blvd.
Dayton, OH 45435
rishi.gandhi@wright.edu

Abstract

Herpes zoster is uncommon in the pediatric population. We report a case of herpes zoster in a 2-year-old boy who received the live attenuated varicella zoster virus vaccination at his 12-month pediatric visit. The child was treated with acyclovir and recovered without complications.

Keywords: Herpes zoster, Varicella zoster virus vaccination

Case synopsis

A previously healthy 2-year-old boy presented with a 5-day history of an exquisitely painful eruption on his left upper extremity. His rash started initially on the left palm and spread proximally and unilaterally along the left forearm and scapula. The patient experienced fever, rhinorrhea, cough, and generalized fussiness prior to his eruption. Vaccinations were up to date. Past medical history and family medical history were unremarkable.

Physical examination revealed multiple, grouped vesiculopustules and papules on an erythematous background on the patient's left hand extending along the arm, deltoid, and left scapula in a dermatomal distribution (Figure 1).

Figure 1. Multiple grouped vesiculopustules and papules on an erythematous background that extend in a dermatomal distribution from the patient's left hand to his left scapula

Complete blood count with differential revealed a leukocytosis with increased neutrophils (13,900 WBC/ml, 66.2% neutrophils). Epstein-Barr Virus, Parvovirus B19, and adenovirus serologies were negative. Complete metabolic panel was otherwise within normal limits. Real-time polymerase chain reaction (PCR) performed with fluorescent primers verified the presence of varicella zoster virus (VZV) from vesicular fluid (Figure 2), confirming the diagnosis of herpes zoster.

The patient was treated with acyclovir four times daily for seven days. At one week follow-up the eruption healed with mild post-inflammatory hyperpigmentation and complete resolution of symptoms. Additional review of the patient's medical record revealed that he received his first live attenuated VZV vaccination at his twelve-month pediatric visit.

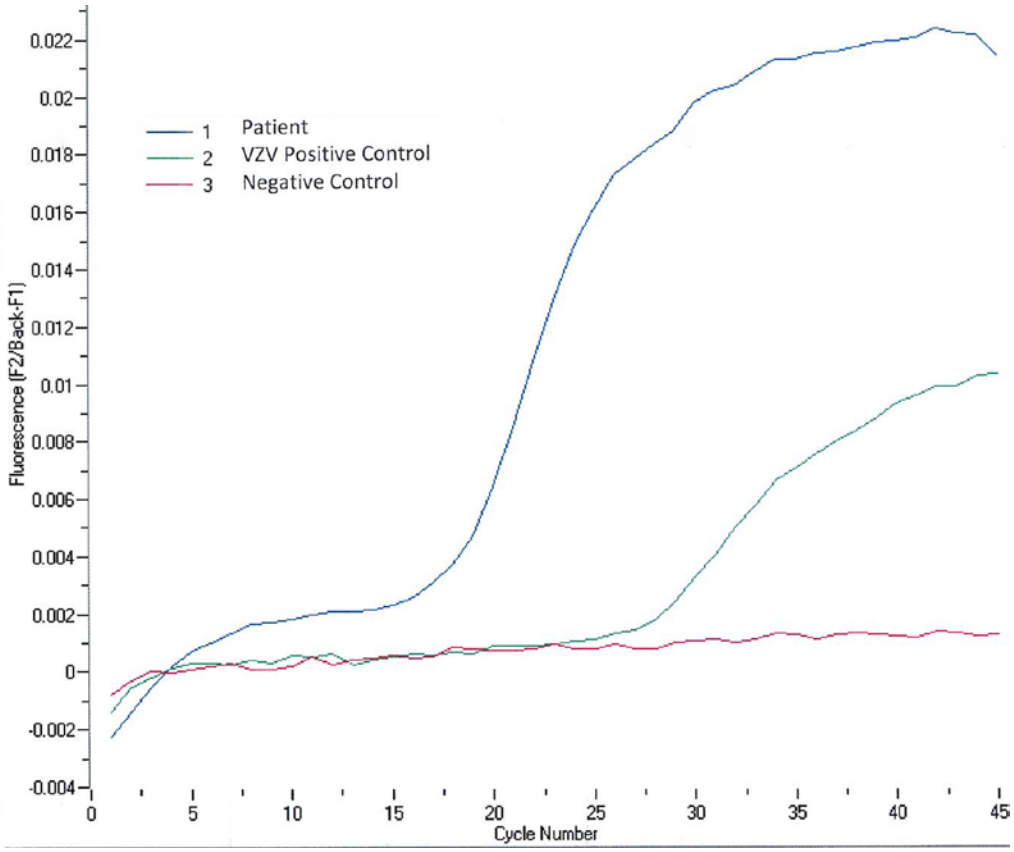

Figure 2. Amplification graph showing increased fluorescence detected from the patient's sample (blue line) compared to the varicella positive control (green line) and the negative control (red line).

Discussion

In 1995, the live attenuated varicella zoster virus (VZV) vaccine was approved for use in the United States [1]. Most children receive the first of a two-part vaccination series at their twelve-month pediatric visit. The VZV vaccine has been shown to be approximately 90% effective [1]. However, breakthrough varicella is not uncommon and occurs in 15% to 20% of vaccinated patients [2]. Breakthrough varicella has fewer vesicular lesions and less systemic involvement [2, 3, 4]. Children vaccinated before 14 months are three times more likely to develop breakthrough disease than those vaccinated after 14 months. This may be attributed to the maturity of the child's cell-mediated immunity at the time of vaccination [3].

The initial live attenuated VZV vaccination may establish a latent infection, which can cause herpes zoster (HZ) upon reactivation [1, 2, 4]. The incidence of HZ in vaccinated children is approximately 14 cases per 100,000 person-years [1]. The cause of HZ in vaccinated children is controversial, but may relate to reduced immunogenicity of the varicella strain used in the vaccine [1].

This case illustrates HZ in a healthy child who received the VZV vaccination. PCR analysis rapidly established the diagnosis with high sensitivity and specificity. Herpes zoster should be a diagnostic consideration for pediatric patients presenting with a painful vesicular eruption even if they received their routine VZV vaccination. Despite the potential for establishing a latent infection, we recommend that children receive the VZV vaccination because there is an overall decreased incidence of HZ in immunized children [1, 5].

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