Late Onset of Vaccine-associated Measles in an Adult with Severe Clinical Symptoms: A Case Report

To the Editor:

Measles is a highly contagious disease causing an estimated 2.6 million deaths per year before a vaccine was developed. However, the attenuated measles vaccine has brought the disease under control. Vaccine-associated measles can occur in children and immunocompromised individuals. Little is known about the occurrence of vaccine-associated measles in healthy adults because preschool children usually are vaccinated. We describe an adult who presented with vaccine-associated measles and severe clinical symptoms after an atypical incubation period.

A 23-year-old healthy man was given a measles vaccine, not rubella or mumps vaccine at the same time, on March 27, 2013, as part of an occupational health protocol; however, he presented with a high fever (40°C) at 18 days post-vaccination. At 20 days post-vaccination, a rash appeared on his trunk, legs, and arms. Koplik’s spots, a runny nose, and red eyes also were noted. Two days after disease onset, blood samples, a throat swab, and a urine sample were collected and tested for measles virus by reverse transcription-polymerase chain reaction. A sequence corresponding to the measles N protein (533 bp) was amplified from the serum, peripheral blood mononuclear cells, and throat swab, and was identical to that of the genotype A virus (DQ345721). The subject had no history of travel before the vaccination or contact with patients with measles. Before vaccination, he tested negative for serum antibodies against the measles virus. Thus, he was diagnosed with vaccine-associated measles.

According to the National Infectious Disease Surveillance Center of Japan, genotype A measles virus was detected in 71 individuals who showed adverse effects after measles vaccination between May 2006 and May 2013 (~0.0004% of vaccinations at most). The age range of the patients was 1 to 14 years (median, 1 year). No adult cases were reported. The most frequently reported clinical signs were fever (91.6%; temperature range, 37-41°C; median, 39.1°C) and a rash (81.7%). Less common clinical signs included upper respiratory tract inflammation (29.6%), lymphadenopathy (15.5%), and lower respiratory tract inflammation (14.1%). The most common symptoms (fever and rash) were observed in the current adult case reported.

The US Centers for Disease Control and Prevention reports that complications after measles infection are more common among children aged less than 5 years and adults aged more than 20 years, consistent with this case. Analyses of 57 of these cases revealed that the average time of disease onset was 8.8 days post-vaccination (median, 9 days; range, 0-18 days). The majority (94.7%) developed clinical signs within 2 weeks post-vaccination. The case reported developed symptoms at 18 days post-vaccination, which is exceptionally long among these cases.

Side effects of measles vaccine, including vaccine-associated measles, are rarely reported in adults because they are usually not vaccinated. The case reported is notable because some adults may be given the measles vaccine during regional outbreaks of mumps, rubella, or measles. Clinicians should be aware of the possibility of vaccine-associated measles in both children and adults.

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