



California Department of Public Health – August 2012



# Coxsackievirus A6

## Atypical hand, foot and mouth disease

### Enteroviruses

Enteroviruses are RNA viruses. This group includes polioviruses and non-polio enteroviruses such as coxsackieviruses and echoviruses. Hand, foot and mouth disease (HFMD) is a common manifestation of enterovirus infection that predominantly affects children aged < 5 years. The most common cause of HFMD in the United States has been coxsackievirus A16.

In December 2011, CDPH VRDL identified coxsackievirus A6 (CVA6) in a patient with an atypical rash. This strain of enterovirus had not widely circulated in the United States until recently. Since then, CVA6 activity has become widespread, both within California and throughout the United States. Not only are atypical clinical features seen in these cases but cases in adolescents and adults are also being reported, likely because of lack of prior exposure to this virus. CVA6 has also been reported outside of the U.S and outbreaks were reported as early as 2008 in Finland, Taiwan, Japan and Singapore.

### Clinical symptoms

While persons infected with CVA6 can have typical HFMD manifestations, some may have an atypical presentation. This includes a more extensive rash with large body surface area (>10% BSA in some cases), often involving entire extremities, the face and sometimes trunk. The rash often affects areas of previous skin disease or skin damage (e.g., atopic dermatitis, sunburn, irritant dermatitis). The facial skin lesions are often more extensive than with classic HFMD. Some patients have widespread papules while others have had large, sometimes hemorrhagic blisters. Onychomadesis (nail shedding) and/or peeling of skin has been described in several cases. Cases have been misdiagnosed as eczema herpeticum, atypical Kawasaki, impetigo, and vasculitis.

### Diagnosis

Diagnosis of hand-foot-and-mouth disease is typically made based on clinical symptoms. CVA6 does not grow in standard viral culture; therefore, molecular techniques (e.g., PCR) are needed for determination of viral etiology if CVA6 is suspected. Most cases to date have been diagnosed by PCR of throat swabs or skin lesion material.

### Treatment

No specific therapy is available.

### Infectious period

For most enteroviruses, respiratory tract shedding usually is limited to 1-3 weeks or less, but fecal viral shedding can continue for several weeks or months after onset. Persons with CAV6 infections can have more pronounced skin manifestations and may have a higher risk of transmitting virus since the blisters are so large in some individuals.

### Modes of transmission

Enteroviruses are spread by the respiratory and fecal-oral routes, and from contact with vesicles or blisters or fluid from these lesions. Enteroviruses may survive on environmental surfaces for periods long enough to allow transmission from fomites.

### Incubation period

Limited data are available on CAV6 but incubation period is thought to be similar to other enteroviruses (3-6 days).

### Enteroviruses and pregnancy

Most enterovirus infections during pregnancy cause mild or no illness in the mother. However, mothers infected shortly before delivery may pass the virus to the newborn. The risk of severe illness is also higher for infants infected during the first two weeks of life. No data are available on CVA6 specific effects on pregnancy and newborns.

### Childcare infection control

General recommendations for enteroviruses and HFMD in the childcare setting include hand and respiratory hygiene, cleaning and disinfection of diapering area and potty chairs after each use and cleaning and disinfection of bathroom toilets, sinks, and toys at least daily and when soiled. Clean and sanitize mouthed toys, objects, and surfaces at least daily and when soiled. Because enteroviruses are nonenveloped viruses like norovirus, bleach solutions may be more effective than commercial disinfectants unless they are licensed to kill norovirus.

### Childcare exclusion

Exclude until afebrile and diarrhea and/or vomiting have stopped and child is able to participate in routine activities. If atypical rash is present, additional exclusion criteria can be considered, e.g., exclude until afebrile for 24 hours without fever reducing medicines, and lesions are healed or scabbed and not draining or oozing.