

## **Parvovirus B19 (Fifth Disease)**

### **What is "fifth disease?"**

Fifth disease is a mild rash illness that occurs most commonly in children. The ill child typically has a "slapped-cheek" rash on the face and a lacy red rash on the trunk and limbs. Occasionally, the rash may itch. An ill child may have a low-grade fever, malaise, or a "cold" a few days before the rash breaks out. The child is usually not very ill, and the rash resolves in 7 to 10 days.

### **What causes fifth disease?**

Fifth disease is caused by infection with human parvovirus B19. This virus infects only humans. Pet dogs or cats may be immunized against "parvovirus," but these are animal parvoviruses that do not infect humans. Therefore, a child cannot "catch" parvovirus from a pet dog or cat, and a pet cat or dog cannot catch human parvovirus B19 from an ill child.

### **Can adults get fifth disease?**

Yes, they can. An adult who is not immune can be infected with parvovirus B19 and either have no symptoms or develop the typical rash of fifth disease, joint pain or swelling, or both. Usually, joints on both sides of the body are affected. The joints most frequently affected are the hands, wrists, and knees. The joint pain and swelling usually resolve in a week or two, but they may last several months. About 50% of adults, however, have been previously infected with parvovirus B19, have developed immunity to the virus, and cannot get fifth disease.

### **Is fifth disease contagious?**

Yes. A person infected with parvovirus B19 is contagious during the early part of the illness, before the rash appears. By the time a child has the characteristic "slapped cheek" rash of fifth disease, for example, he or she is probably no longer contagious and may return to school or child care center. This contagious period is different than that for many other rash illnesses, such as measles, for which the child is contagious while he or she has the rash.

### **How does someone get infected with parvovirus B19?**

Parvovirus B19 has been found in the respiratory secretions (e.g., saliva, sputum, or nasal mucus) of infected persons before the onset of rash, when they appear to "just have a cold." The virus is probably spread from person to person by direct contact with those secretions, such as sharing drinking cups or utensils. In a household, as many as 50% of susceptible persons exposed to a family member who has fifth disease may become infected. During school outbreaks, 10% to 60% of students may get fifth disease.

### **How soon after infection with parvovirus B19 does a person become ill?**

A susceptible person usually becomes ill 4 to 14 days after being infected with the virus, but may become ill for as long as 20 days after infection.

### **Does everyone who is infected with parvovirus B19 become ill?**

No. During outbreaks of fifth disease, about 20% of adults and children who are infected with parvovirus B19 do not develop any symptoms. Furthermore, other persons infected with the virus will have a non-specific illness that is not characteristic of fifth disease. Persons infected with the virus, however, do develop lasting immunity that protects them against infection in the future.

### **How is fifth disease diagnosed?**

A physician can often diagnose fifth disease by seeing the typical rash during a physical examination. In cases in which it is important to confirm the diagnosis, a blood test may be done to look for antibodies to parvovirus. Antibodies are proteins produced by the immune system in response to parvovirus B19 and other germs. If immunoglobulin M (IgM) antibody to parvovirus B19 is detected, the test result suggests that the person has had a recent infection.

### **Is fifth disease serious?**

Fifth disease is usually a mild illness that resolves on its own among children and adults who are otherwise healthy. Joint pain and swelling in adults usually resolve without long-term disability.

Parvovirus B19 infection may cause a serious illness in persons with sickle-cell disease or similar types of chronic anemia. In such persons, parvovirus B19 can cause an acute, severe anemia. The ill person may be pale, weak, and tired, and should see his or her physician for treatment. (The typical rash of fifth disease is rarely seen in these persons.) Once the infection is controlled, the anemia resolves. Furthermore, persons who have problems with their immune systems may also develop a chronic anemia with parvovirus B19 infection that requires medical treatment. People who have leukemia or cancer, who are born with immune deficiencies, who have received an organ transplant, or who have human immunodeficiency virus (HIV) infection are at risk for serious illness due to parvovirus B19 infection.

Occasionally, serious complications may develop from parvovirus B19 infection during pregnancy. For details, please see the CDC information sheet entitled, "Parvovirus B19 Infection and Pregnancy."

### **How are parvovirus B19 infections treated?**

Treatment of symptoms such as fever, pain, or itching is usually all that is needed for fifth disease. Adults with joint pain and swelling may need to rest, restrict their activities, and take medicines such as aspirin or ibuprofen to relieve symptoms. The few people who have severe anemia caused by parvovirus B19 infection may need to be hospitalized and receive blood transfusions. Persons with immune problems may need special medical care, including treatment with immune globulin (antibodies), to help their bodies get rid of the infection.

### **Can parvovirus B19 infection be prevented?**

There is no vaccine or medicine that prevents parvovirus B19 infection. Frequent handwashing is recommended as a practical and probably effective method to decrease the chance of becoming infected. Excluding persons with fifth disease from work, child care centers, or schools is not likely to prevent the spread of the virus, since people are contagious before they develop the rash.

For further information, contact the Respiratory and Enteric Viruses Branch, National Center for Infectious Diseases, at 404-639-3607 (telephone) or 404-639-4960 (facsimile).