



Canine Parvovirus

Canine Parvovirus is currently the most common infectious disease affecting dogs in the United States. Parvovirus is predominately a disease affecting puppies between 6 weeks and 6 months of age. Without treatment, approximately 70%-80% of affected puppies will die. Infection occurs after contact with infected feces and the virus may persist in the environment for long periods. Once exposed, many dogs will become clinically ill within approximately 5-10 days.

HOW IS IT TRANSMITTED

Parvovirus is spread through contact with infected feces containing the virus. The virus is known to survive on inanimate objects such as clothing, food bowls, and floors for long periods of time under optimal conditions. Insects and rodents may also serve as vectors playing an important role in the transmission of the disease. The incubation period (time from exposure to the virus to the time when signs of disease appear) is from 5-10 days. The virus can be detected in the feces several days prior to the appearance of clinical signs and last for several weeks after the onset of the disease.

CLINICAL SIGNS

Parvovirus attacks and has affinity for cells that are rapidly dividing. In puppies younger than 3 weeks old the heart muscle is often the target. As a result, many of the puppies do not survive. If they do, many continue to have heart related difficulties throughout the remainder of their life. Thankfully, infection in puppies at this age is not as common due to the natural antibodies that the puppies receive while nursing the mother. Most cases of "parvo" occur between 3 to 6 months of age where intestinal tract cells are among the most rapidly dividing cells at this age. Therefore, sudden onset vomiting, diarrhea, loss of appetite, and lethargy are the most common symptoms. In most cases, the diarrhea is severe and is often bloody.

HOW IS IT DIAGNOSED

In general, a complete history and physical examination could lead to a presumptive diagnosis of parvo. Not all cases of bloody diarrhea and vomiting are caused by parvovirus and many sick puppies can be misdiagnosed. The only definitive way to know if a dog is infected with parvovirus is a simple fecal test that is available through most veterinary clinics. Additional tests, such as a complete blood count and serum chemistry panel, may help to determine the severity of the disease.

HOW IS IT TREATED

Many cases of parvovirus that are not treated appropriately are fatal. With aggressive and proper treatment approximately 75% of dogs will recover fully from the infection and will be able to live a normal healthy life. In general, the therapy for parvo is supportive. In most cases, the cause of death is dehydration and secondary bacterial infections that lead to organ failure and shock. Therefore, treatment usually consists of correcting dehydration by the administration of intravenous fluids, as well as broad

spectrum antibiotics, to help prevent any secondary infections that commonly occur. In those dogs whose symptoms are severe, some additional treatments may include blood transfusions and antiemetic (vomiting) medications. In some cases, antiserum against endotoxins may be administered. In any case, treatment of puppies with parvo is a challenge. Even with the best possible care, many severely ill animals will not recover from the infection.

IMMUNITY AND IMMUNIATION

Proper immunization is the most common and effective way to help prevent a puppy from becoming infected with parvovirus. This, however, does not guarantee that a puppy will not become infected with the virus. The primary cause of vaccine failure is the interference of maternal antibodies against the vaccine. Antibodies are present in the mother's milk and are present in the newborn puppies shortly after birth. High levels of antibodies present in the bloodstream of the puppy will block the effectiveness of the vaccination. When the antibodies drop to a low enough level the vaccinations will induce an immune response from the recently vaccinated puppy. The complicating factor is a window of susceptibility in which the maternal antibody level is not high enough to prevent disease, but too high to allow the vaccinations to work. During this time period a properly vaccinated puppy can still contract the virus. This window of susceptibility is different in each puppy in each litter. For these reasons, there are many different types of vaccines and vaccination protocols that are being used to help prevent puppies from contracting the virus. Most protocols being developed will protect the widest range of dogs. We do understand that we will be vaccinating some dogs that are not capable of responding and also vaccinating dogs that have already developed immunity to the virus. There is no practical way to determine if the puppy has acquired a level of immunity needed to protect against the infection of the virus. To help make this window of susceptibility as small as possible it is recommended to start vaccinating puppies between 6-8 weeks of age. The vaccinations should be repeated at 3 week intervals until the puppy reaches 16-20 weeks of age. A booster vaccination should be given 1 year later and at 1-3 year intervals depending upon the type vaccine used.

Parvovirus is a highly contagious disease that can be and often is fatal disease of young puppies. Due to its ability to be transmitted through hands, clothing, and most likely rodents and insects, it is virtually impossible to have a pet that will not eventually be exposed to the disease. Most vaccines are extremely safe and very effective, but despite the best vaccination protocol, all puppies will have a window of susceptibility where they will be at risk of contracting the disease. Prompt treatment by a veterinarian will increase survivability in puppies that have been infected. Working with your veterinarian on a vaccination program that is best for your puppy is imperative.