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Canine Parvovirus

Quick Facts:

As the name implies, parvovirus is a viral illness. Effective vaccination is possible. Parvovirus is predominantly a disease of young puppies between 6 weeks and 6 months of age. Without treatment approximately 80% of affected puppies will die. With proper treatment approximately 85% of affected puppies will live. The virus may persist in the environment for up to 5 months. Infection generally follows exposure to infected feces. The incubation period for the illness is 4 to 14 days. The major clinical signs are vomiting and diarrhea. The diarrhea is usually yellow to yellow gray at first but quickly becomes blood tinged or dark red in most cases. While parvovirus cases seem to increase in the spring, there is no true time of year that is free from parvovirus, as long as there are litters as puppies.

Background

The virus is shed in the feces of infected dogs. It is passed to another dog through the nasal or oral tissues after exposure. The virus begins to be shed about 4 days after exposure. There may not be clinical signs at the time that shedding starts. Parvovirus attacks rapidly dividing cells. In growing animals the most rapid cell division occurs in the lining of the gastrointestinal tract. Puppies who have other infections with worms, bacteria or intestinal viruses seem to be affected more severely than puppies who do not have these problems.

Diagnosis

There is a temptation to blame almost any case of vomiting and diarrhea in a young puppy on parvovirus but it is important to keep in mind there are many other causes of these symptoms. Most puppies with parvovirus seem very ill. They are usually noticeably depressed. There is usually vomiting and severe diarrhea. White blood cell counts are suppressed, especially the neutrophils. There is an easy, in clinic CITE test for parvovirus, that only takes about 10 minutes to get results. Adult dogs that become infected with parvovirus generally have no clinical signs or perhaps transient diarrhea. While these dogs may shed the virus they are not severely affected by it. It is rare to see confirmed clinically significant parvovirus in a dog over 18 months of age.

Treatment

Treatment for parvovirus is supportive. There is no direct anti-viral medication for this disease. Treatment efforts are focused on keeping puppies hydrated, making sure that their electrolyte balances are relatively normal and preventing secondary infections that occur due to the tissue damage and low white blood cell counts. There are a number of things that can be helpful when treating parvovirus: Antiemetic drugs, intravenous or subcutaneous fluid therapy, broad spectrum antibiotics – note that this is an important part of treatment even though this is a viral illness! If a puppy survives the first four days of treatment it is likely that it will survive parvovirus infection.

Vaccination and Prevention

Puppies receive protection from parvovirus in the colostrum, or first milk produced by their mothers. This protection is variable depending on whether the mother had antibodies against parvovirus and how much colostrum a puppy received in its first 24 hours of life. In some cases this protection is not conferred. This

variability in maternal protection is the major reason a series of vaccinations is given to puppies. A starting date for vaccination is picked based on the puppy's ability to respond to infection and the likely timing of exposure to the disease. In general the first vaccination in the puppy series is given between 6 and 8 weeks of age. Only a portion of puppies are capable of responding to this initial vaccine series but since it isn't practical to determine in advance which puppies can respond, all are vaccinated. The puppies that need the protection get it and the rest do not benefit from the first vaccine. At least 2 weeks later and preferably 3 to 4 weeks later, a second vaccination is given. A larger percentage of puppies respond to this vaccine, but not all of them. The vaccination series is continued at 3 to 4 week intervals until it is likely that all puppies who can respond to vaccination have done so. The number of vaccinations in the series and the age at which the final puppy series vaccination is given will depend on the type of vaccine used, the breed of the puppy, the puppy's lifestyle, the owner's experiences and the veterinarian's experiences with the disease. Vaccines are produced by several vaccine manufacturers for prevention of parvovirus. Most of the currently available vaccines are high antigen vaccines which break through maternal antibody protection earlier than the original parvovirus vaccines. These vaccines also provide protection in most puppies when given between 12 and 14 weeks of age. There is a period of time, between 2 and 3 weeks, when the parvovirus strains found in most infections can cause disease before there is a chance for vaccinations to work. At the present time there is no way to avoid this period. More frequent vaccination is not helpful and vaccinations given closer than two weeks apart may even impair immunity. For this reason, it is best to avoid exposure to potential sites of infection, such as dog parks, dog shows and kennels until after the last vaccine in the series. Parvovirus is very hardy in the environment. If your house becomes contaminated by the virus clean any surfaces that can be cleaned with chlorine bleach diluted 1 oz of bleach to 32 oz of water. The disinfectant potassium peroxydisulfate (Trifectant™ or Virkon™) is also effective. It is extremely hard to disinfect a yard. Realistically, if your yard has been potentially contaminated with parvovirus it would probably be best not to get a new puppy and expose it to the yard for at least six months and nine months would be better. Areas of the yard that are exposed to sunlight will require less time for the virus to die than areas of the yard that are shaded, moist and sandy. At the present time there is not a disinfectant product marketed for use in yards that has been proven to be effective against parvovirus.

In Summary

Parvovirus is a dangerous and potentially deadly disease to puppies, but is quite preventable with properly handled and administered vaccines, at the correct intervals. Following the vaccine schedule recommended by your veterinarian will help your puppy with the maximum available protection!