

Canine Parvo Virus

Disease associated with the canine parvovirus started appearing around 1978. It is postulated that this virus is a mutation of the feline distemper virus. Since so few dogs had developed natural antibodies in the late 1970's, a large number of dogs died from this disease. In some cases, the virus affected the heart, and caused death within a few hours. There was no parvo vaccine for dogs at this time. Universities and drug companies immediately responded, and identified the virus and manufactured a highly effective vaccine. 20 years later most dogs have encountered the parvovirus, either naturally (maternally) or through vaccines. These natural antibodies pass on to puppies (called maternal antibodies) when they nurse in the first few days of life. Maternal antibodies initially give a pup protection from parvovirus, along with many other viruses and bacteria. They last for a variable period of time, and start diminishing by around 2 months of age, yet can stay around until 5 months. It is at this time that a pup starts becoming vulnerable to the parvovirus. Since it is difficult to know exactly when these maternal antibodies diminish, it is time to begin administration of the parvo vaccine series. It does not do any good to start the series much before 2 months of age as the vaccines would be wasted as the maternal antibodies will negate the effects of the vaccine. In essence, best efforts are given to administer the vaccines just as the maternal antibodies are diminished and just before the pup becomes susceptible to an exposure to the parvovirus.

The disease is caused by a highly contagious virus that is transmitted mostly by dogs orally contacting infected feces. Being a virus, they contain only DNA or RNA, and are not capable of reproducing unless they invade a cell. Once inside the cell they take over and force the cell to produce so many new virus particles that the cell eventually bursts, releasing these new virus particles into the bloodstream and tissues so they can invade other cells. The only thing that can stop this is the immune system. The parvovirus is extremely small (the Latin word for small is parvo)- just 1 thimble full of stool can contain millions of virus particles. Incubation period varies from 5-10 days. As in many viral diseases of the intestinal tract, some dogs can pick up the disease and shed the virus without exhibiting significant symptoms themselves.

The majority of dogs presented with parvovirus show signs of fever, lethargy, vomiting, diarrhea, and lack of appetite. In severe cases the diarrhea is very watery and frequently bloody, with a telltale odor. They are very ill, with significant abdominal pain. The virus is so strong that it literally causes the lining of the intestines to slough. It is painful to eat, and with the severe diarrhea and vomiting that is present, they rapidly become dehydrated. They also have a disruption in their electrolytes (sodium, potassium, chlorine) that adds to the weakness. There is a complication that can occur from all the intestinal activity regarding vomiting and diarrhea. In the peracute form of this disease the virus attacks the heart and causes rapid death. Fortunately, it is rare.

The diagnosis of canine parvovirus is frequently made by age of pet (usually under 6 months of age), symptoms exhibited, and physical exam. Other diseases can mimic the signs of parvovirus, so x-rays and routine blood samples are sometimes run to help eliminate them as a cause. A CBC (complete blood count) might show a reduced white blood cell level, an indication that a virus is present in the body. A blood sample can be run looking for Parvo antibodies, but the results are open to interpretation as to whether the dog has an active infection or not. An accurate, simple to perform, and inexpensive test has been developed to test the feces for the virus. It can be performed in a veterinary hospital lab within 15 minutes. Recent vaccinations can interfere with the interpretation of this test. No test is perfect though, and like many diagnostic tests for diseases, there can be false positives and false negatives.

Dogs with parvovirus need immediate veterinary care because they are usually very sick. They should not be treated at home if they are significantly ill. This care involves large amounts of intravenous fluids, added electrolytes, antibiotics, and special medications to minimize vomiting. It is common for them to be hospitalized for 5 days. If the protein level becomes low, treatment can include additional fluids (called colloids) to combat the problem. Dogs that continue to decline in spite of therapy may also need a blood transfusion because they can become anemic and deplete their protein. It is best not to offer food until they have gone 24 hours without vomiting. A dog is not sent home until it has been eating and not vomiting for 24 hours. It is expected to have a persistent soft stool or diarrhea for several days after returning home. Special precautions must be taken when treating parvo dogs. They must be put in an isolation ward so that they are isolated from other dogs in the hospital as not to expose them to the virus. Staff members must wear disposable gloves and gowns, and clean their shoes in a chlorine foot bath to prevent hospital contamination of the virus.

Fortunately today, with quick diagnosis and proper treatment, most dogs recover. However some dogs don't recover and this may be due to a weak immune system that can not produce adequate antibodies, a particularly strong (virulent) strain of the virus, or a dog that presents with severe symptoms that have been present for awhile. Dobermans, Rottweilers and PitBulls seem to be especially sensitive to this virus, and have the most difficult time recovering from an infection. Since recovering dogs are potentially contagious to other dogs, it is well advised to keep it away from other animals for at least 30 days since it can still spread the virus. Dogs that have recovered from parvo do not get the disease later in life.

As with all infectious diseases, minimizing exposure from infected animals is the most effective means of prevention. Since infected dogs shed large amounts of virus in their stool, contamination is always a possibility. The virus is quite resistant in the environment, especially in public areas that are not disinfected. This is a good reason to keep your pup away from these areas until it is older, worm free, and had its full series of dog vaccines. Since this disease occurs mostly in puppies, worms (internal parasites) and poor nutrition add susceptibility. Puppies should be wormed frequently until they are 3 months old. Any dog currently in the household should be current on its vaccines and should have minimal exposure to the contaminated areas when re-introducing a recovering parvo dog. It is rare for an adult dog that is current on its parvo vaccine (yearly boosters) to get parvo. If a dog does die of parvo, it is recommended to thoroughly clean any infected areas with diluted bleach (1:30 with water, or 4 ounces of Clorox in a gallon of water) and waiting 1-2 months before introducing a new dog to the area. Spray the yard as best as possible with a hose and keep new dogs away from the area for 1-2 months. Never put bleach on your dog. Vaccines are highly effective. Parvo vaccines given at 8, 12, and 16 weeks of age are highly effective. Highly susceptible breeds such as Dobermans, Rottweilers and Pitbulls should receive an additional vaccine at 20 weeks. Puppies should not be exposed to other dogs or the feces of other dogs until the vaccine series is complete.