



Veterinary Emergency and Critical Care
8650 W Tropicana Ave Suite B-107
Las Vegas NV 89147
Tel: 702.262.7070
Fax: 702-262.7099
www.vecc24.com

Canine Parvovirus

Canine parvovirus is a devastating disease that affects puppies and young, typically unvaccinated, dogs. Canine parvovirus is a member of the parvoviridae family of viruses. This class of virus is very species specific and canine parvovirus cannot infect other species such as cats. There are two known canine parvoviruses, one and two, but canine parvovirus 2 (CPV-2) is the virus that causes the condition commonly referred to as “parvo”. CPV-1 usually only causes mild respiratory or GI disease if it causes any signs at all.

Parvovirus infects the rapidly dividing cells of the intestines and the bone marrow. In very young puppies the virus can also infect the cells of the heart. In the intestines the virus destroys the lining of the intestines and the villi that are very important for intestinal absorption. This destruction of the cells lining the GI tract results in both a decreased ability to properly absorb nutrition and breaks down the barrier that protects the body from being exposed to the bacteria within the GI tract. Within the bone marrow the virus destroys the early white blood cells, causing a low white blood cell count, making the body susceptible to infection.

Dogs are generally infected with parvovirus between 10 days to 6 months of age. Puppies born to a mother that has antibodies (has been vaccinated) to canine parvovirus are resistant to the virus at birth. The antibodies obtained from the mother begin to diminish at 10 days after birth and this is when puppies become susceptible. Immunity from vaccinations and from previous infection is long lived and is the reason that following vaccination protocols is so important. Infection occurs when a puppy is exposed to contaminated feces or to an object, such as shoes or a sidewalk, which has been contaminated by feces. The virus becomes widespread throughout the body in 3-4 days.

Signs of canine parvovirus typically start with anorexia and lethargy and progress to diarrhea and vomiting. Occasionally puppies born to unvaccinated mothers can develop infection of the tissues of the heart and can result in sudden death. Puppies can have a painful abdomen (belly) due to the enteritis or due to intussusception (a telescoping of intestines into one another). Puppies that develop gastrointestinal signs should be taken to the veterinarian and examined. While parvo is a common cause of vomiting and diarrhea in puppies, other causes include foreign material ingestion, gastroenteritis from other causes, parasites and many other diseases.

Testing for canine parvovirus is generally done with a sample of feces or a rectal swab. The sample is run in the hospital in a test called an ELISA for canine parvovirus antigen. The test detects shedding virus particles in the feces. The peak shedding occurs 4-7 days post infection. There is the chance that in an acute infection the test could be negative and retesting several days later could result in a positive test. Other tests are available for detection of canine parvovirus, but generally require samples to be submitted to a laboratory and take several days to return.

In addition to testing specifically for parvovirus, a veterinarian will generally recommend a complete blood count (CBC) to look at the number of white blood cells, red blood cells and platelets in the blood. The CBC will likely be rechecked every day or so to see if the numbers are improving. A chemistry profile allows for evaluation of kidney function, liver function and evaluation of electrolytes that will help guide in the treatment of the disease. X-rays or an abdominal ultrasound will help to look for an intussusception and evaluate for other causes of vomiting such as foreign material within the intestines.

Aggressive treatment is very important for puppies infected with canine parvovirus. Survival has been as low as less than 10% without treatment as higher than 60% with treatment. Treatment generally consists of IV fluids to maintain hydration and replace fluid loss, antibiotics to help prevent against secondary infection, pain medication, anti-nausea medication and antacids. Puppies with parvovirus are generally kept in an isolation ward to prevent them from exposing other dogs in the hospital to the virus. Occasionally puppies need to have tubes placed to allow them to be fed a liquid diet. IV nutrition is used in those puppies that vomit continuously. A plasma or albumin transfusion is occasionally needed. Some puppies only need to be hospitalized for 1-2 days, but others may need to stay in the hospital much longer.

Unfortunately parvovirus infection can be fatal. Puppies who succumb to infection commonly die from overwhelming infection, abnormal blood clot formation or bleeding.

When puppies are sent home from the hospital it is very important that they are monitored closely to ensure they are recovering. Puppies should be eating and drinking, without vomiting or having profuse diarrhea. Your veterinarian will instruct you on how best to feed your puppy. If puppies appear to be becoming more lethargic, begin vomiting again, have a worsening of diarrhea or otherwise appear to deteriorate they should be taken to see a veterinarian right away.

After discharge from the hospital puppies may continue to shed the virus for 3-4 weeks. The virus can live on contaminated surfaces or clothing for up to 5-6 months. Puppies should be kept isolated for 4-6 weeks at home and unvaccinated or immune compromised dogs should not be exposed to the infected environment for 6 months.

Dogs who have recovered from parvovirus infection generally have the same immune protection or better than if they were vaccinated. Despite this immunity it is very important that pets receive a full set of vaccines as the common parvovirus vaccines contain vaccinations against other infections such as distemper virus.

Unfortunately there is no way to completely prevent a puppy from being exposed to parvovirus as it is so common in the environment, but minimizing their exposure until they are fully vaccinated should be attempted. The highest concentration of virus tends to be in environments where a known infected animal lives or at places with lots of dog traffic, such as the dog park or pet store. Keeping your puppy away from areas where other dogs frequent until fully vaccinated is a good strategy to reduce their risk of infection. If at any point a puppy is ill they should be examined by a veterinarian.

Reference:

Goddard A, Leisewitz AL. Canine Parvovirus. Vet Clin Small Anim 40 (2010) 1041–1053

