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Canine distemper virus

Distemper, Hardpad disease

Affected Animals:

Distemper affects dogs, ferrets, skunks, raccoons, and foxes.

Overview:

Impossible to cure and sometimes fatal, canine distemper is a serious viral illness that attacks a dog's body on all fronts. The disease may harden the paws and nose, damage the teeth, make breathing difficult and diminish the appetite. Even more disturbingly, canine distemper affects a dog's nervous system, often resulting in seizures and paralysis. Dogs who do not die from this disease usually suffer later in life from recurring neurological problems, such as nervous twitches and seizures.

The virus is highly contagious. It is passed typically by aerosolization, in which droplets containing the virus are expelled into the air through the infected animal's breath and nasal secretions. Fortunately, there is a vaccine. Until the virus is completely eradicated, however, supportive care is the only relief available to the animals that contract it.

Clinical Signs:

Anorexia; depression; listlessness; fever; upper respiratory tract infections; a thick, yellow discharge from the nose and eyes; coughing; dyspnea; vomiting; and diarrhea.

Hyperkeratosis of the nose and pads of the paws can occur. In young dogs, enamel hypoplasia of the teeth is seen in neonatal infections. Neurological disease can occur and often includes seizures, paraparesis or tetraparesis, hyperesthesia, myoclonus, and death.

Symptoms:

Decreased appetite and weight loss; depression; listlessness; fever; upper respiratory tract infections; a thick, yellow discharge coming from the nose and eyes; coughing; difficulty breathing; vomiting; and diarrhea. Hardening of the nose and pads of the paws can occur, and with younger dogs, damage to the teeth may result. Neurological disease signifies the most serious stage of the illness: seizures, paralysis of two or four legs, and involuntary twitching of the muscles are common nervous system disorders resulting from distemper. The disease can be deadly.

Description:

Canine distemper is a highly infectious virus that is clinically known as a Morbillivirus in the Paramyxoviridae family. It is closely related to the measles virus. When an animal with the disease coughs, sneezes or expels any respiratory secretions, the virus is distributed as droplets into the air.

When another dog in the area comes into contact with the droplets, usually by breathing, the distemper immediately invades the respiratory tract. From here, it then passes along to the lymph nodes and other organs of the body, including the spleen, stomach, small intestine, and liver.

After eight or nine days of infection, the virus will have attacked the central nervous system. At this point, if the dog's immune system is able to kill the majority of the virus, then the dog will not become sick. If the dog's immune system fails to fight off the virus, then the distemper will be able to spread throughout the body, making the dog ill.

Diagnosis:

Diagnosis commonly is made on suspicion, based on the clinical signs and vaccination status of the dog. An unvaccinated dog that comes into contact with an animal carrying canine distemper is likely to develop the virus since the disease is so infectious.

However, scientifically concluding the presence of canine distemper is difficult and takes time as well as complex diagnostic tests. One test, called serology, detects antibodies made by the dog's body to fight the virus. The accuracy of this test is questionable, though, because true exposure cannot be distinguished from vaccine exposure. This is because the distemper vaccine causes the dog's immune system to produce antibodies to the distemper virus, just as natural exposure does.

Another option for the veterinarian is to take a sample of cerebrospinal fluid that surrounds the brain and spinal cord, and then submit this fluid to a laboratory to determine the presence of antibodies to the virus. Occasionally, in special blood smears and tests of certain tissues, the viral antigen or viral material may be detected. Diagnosis also can be made after an animal dies or is euthanized and tissue samples are studied for evidence of the virus.

Prognosis:

The prospect of survival depends on the dog's immune system and its individual ability to kill the virus. Generally, 50 percent of dogs that contract the virus will develop the clinical signs and symptoms associated with distemper, but the illness can range from mild clinical signs to death. Death may occur from one or two weeks to three months following infection.

Transmission or Cause:

Transmission commonly occurs in unvaccinated dogs that come into contact with infected animals. Canine distemper virus is spread most frequently by contact with respiratory

tract secretions from an infected animal. Other potential sources of infection include contact with infected body tissues and secretions such as urine. Pregnant dogs that contract the virus can infect their unborn puppies.

Treatment:

There is no cure for canine distemper virus. Therapy consists of supportive care only: intravenous fluid therapy can alleviate dehydration, and antibiotics can be beneficial in preventing bacterial infection, which is secondary to the virus. Once an animal develops neurological symptoms of the disease, such as seizures or paralysis, its chances of surviving are slim and its quality of life is bound to become progressively worse. Thus, these animals are usually "put to sleep," or euthanized, in order to ensure a humane death.

Prevention:

The key to prevention is to vaccinate puppies properly when they are between six and 16 weeks old. Keep puppies that have not had all their vaccinations away from unvaccinated and wild animals. The use of appropriate disinfectants such as quaternary ammonium disinfectants is effective in killing the canine distemper virus in kennels, hospitals, or other potentially infected areas; sanitation is very important in preventing the spread of any infectious disease. The owner should consult with a veterinarian about the best vaccination schedule for an individual dog.