

Ettinger & Feldman – Textbook of Veterinary Internal Medicine

Client Information Sheet

Canine Distemper

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What is distemper?

Canine distemper is a disease that primarily affects the lungs, intestinal tract, and nervous system of dogs. Among the virus-induced diseases in dogs, the mortality rate of distemper is second only to that of rabies. The virus is highly contagious and is passed directly from dog to dog by close contact. Detergents and heat easily kill the virus. The virus dies within minutes in a warm environment but can persist for weeks at near-freezing temperatures.

What are the symptoms of distemper?

Young, unvaccinated dogs 3 to 6 months of age are most often infected with distemper. Nasal discharges containing virus are aerosolized by sneezing, thereby spreading the virus. The virus establishes itself in the nasal passages of a susceptible dog, multiplies, and spreads through the body. Dogs develop a fever a week after infection but this fever may not be noticed. Two weeks after infection, the virus produces severe damage to the cells of the nasal passages, eyes, lungs, and intestinal tract. These damaged tissues commonly become secondarily infected with bacteria. This combined infection with virus and bacteria produces loss of appetite, fever, a snotty nose, thick discharge from the eyes, pneumonia, and diarrhea. The virus infects the pads of the feet, producing a hard, scaly thickening referred to as “hard pad” disease. The virus also damages the immune system, thereby interfering with the body’s ability to fight off the infection.

If the bacterial component of the infection can be controlled with antibiotics, the dogs will appear normal for 2 to 3 weeks until signs of brain and spinal cord disease occur. Half of the dogs with distemper develop neurologic disease. The canine distemper virus is attracted to and grows well in nervous tissue. The damage done to the brain and spinal cord results in epileptic seizures and localized seizures of the head often called “chewing gum fits.” Damage to the spinal cord can produce weakness and paralysis. Nerve damage may also produce involuntary twitching of the legs. Most dogs with neurologic disease die or are euthanized.

What tests are needed?

Making a definite diagnosis of distemper can be difficult if the dog does not develop the typical snotty nose–pneumonia syndrome. After the initial 14 days of the infection, the virus is difficult to identify in swabs of infected tissues. Increasing antibody titers against distemper in dogs that have not been vaccinated strengthen the suspicion of distemper. It is especially difficult to diagnose distemper in dogs with nervous system signs that have not had the other typical signs of distemper.

What treatment is needed?

Currently, no drugs are available to treat the distemper virus, so treatment with antibiotics is aimed at controlling the secondary bacterial infection. The antibiotic treatment relieves many of the signs of disease but does not prevent the virus from entering and damaging the brain and spinal cord. Nursing care; good-quality, palatable food; and a stress-free environment are helpful in improving appetite and general well-being. Because the treatment options are limited, prevention by vaccination is the prime strategy.

Vaccines against distemper should be started when puppies are weaned. If the mother has been vaccinated or recovered from an exposure to distemper, she will pass protection (antibodies) against distemper to her puppies in her milk. These maternal antibodies protect the pups for a few weeks after birth. The amount of antibodies passed from the mother to her pups depends mainly on the level of the mother's antibodies. The antibodies not only protect the pups from distemper but also interfere with the pups' response to vaccination. As long as the pups have maternal antibodies, they cannot be successfully vaccinated.

By 6 weeks of age, half of the litters of pups no longer have enough antibodies to interfere with vaccination. As the pups grow, the antibodies obtained from the dam are gradually broken down, and by 13 weeks of age more than 95% of the pups are susceptible to distemper and can be protected by vaccination. It is not economically feasible to measure antibodies in the pups, so a vaccine schedule has been developed to protect pups optimally against distemper. Vaccines should be started soon after weaning, at 6 to 7 weeks of age, and given every 2 to 3 weeks until the puppies are 14 weeks of age. The pups should be kept away from other dogs until the vaccination schedule is complete. This scheme of vaccination has proved effective in preventing this lethal disease.

Contacts for Further Information



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