

# Canine Distemper

## Basics

### OVERVIEW

- Contagious disease that appears suddenly (acute) or over a moderate amount of time (known as “subacute”), characterized by fever and a variety of signs involving the eyes, central nervous system, and respiratory, urogenital, and gastrointestinal tracts; often a fatal disease
- Caused by the canine distemper virus
- Affects many different species of the order Carnivora; mortality rate varies greatly among species

### SIGNALMENT/DESCRIPTION OF PET

#### Species

- Most species of the order Carnivora—including dogs, fox, wolves, hyenas, weasels, ferrets, mink, raccoons, skunks, and civets
- Large cats in California zoos and in Tanzania

#### Mean Age and Range

- Young, especially unvaccinated, animals are more susceptible to infection than are adults

### SIGNS/OBSERVED CHANGES IN THE PET

- Fever—first fever occurs 3–6 days after infection, may go undetected; second fever several days later (and intermittent thereafter), usually associated with discharge from the nose and eyes, depression, and lack of appetite (known as “anorexia”)
- Gastrointestinal and/or respiratory signs follow, often enhanced by secondary bacterial infection
- Central nervous system signs—occur in many infected dogs; often, but not always, after generalized (systemic) disease; depends on the virus strain; either sudden (acute) gray or white matter disease (“gray matter” is the nerve tissue of the brain and spinal cord that contains the nerve cell bodies; “white matter” is the part of the brain and spinal cord that contains nerve fibers covered with myelin, a fatty covering that increases conduction of nerve impulses)
- Gray-matter disease—affects the brain and spinal cord; may cause inflammation of the meninges (the membranes covering the brain and spinal cord; inflammation of the meninges known as “meningitis”), seizures, stupor, hysteria, and wobbly, incoordinated or “drunken” appearing gait or movement (known as “ataxia”); dogs may die in 2–3 weeks; some dogs recover (associated with prompt immune response), while others progress to develop white-matter disease; “gray matter” is the nerve tissue of the brain and spinal cord that contains the nerve cell bodies; “white matter” is the part of the brain and spinal cord that contains nerve fibers covered with myelin, a fatty covering that increases conduction of nerve impulses
- White-matter disease—variable signs of disease involving multiple locations of the central nervous system; commonly see weakness and wobbly, incoordinated or “drunken” appearing gait or movement (ataxia) secondary to spinal cord disease; occasionally may see twitching or contraction of a group of muscles (known as



“myoclonus”); some dogs die 4–5 weeks after initial infection; some dogs may recover with minimal central nervous system injury

- Inflammation of the optic nerve (the nerve that runs from the back of the eye to the brain; condition known as “optic neuritis”) and lesions in the back of the eye (known as the “retina”) may occur
- Hardening of the footpads (known as “hyperkeratosis”) and nose—some virus strains; but relatively uncommon
- Abnormal development of the enamel layer of the teeth (known as “enamel hypoplasia”) after neonatal infection is common

## CAUSES

- Canine distemper virus (closely related to the measles virus and the seal and dolphin distemper viruses)
- Incompletely altered, modified live canine distemper virus vaccines (rare)

## RISK FACTORS

- Contact of animals that have not been vaccinated or have not responded to vaccinations with animals that are infected with canine distemper virus (dogs or wild carnivores)

# Treatment

## HEALTH CARE

- Inpatient treatment in isolation, to prevent infection of other dogs
- Supportive treatment
- Intravenous fluids—cases with lack of appetite (anorexia) and diarrhea
- Once fever and secondary bacterial infections are controlled, pets usually begin to eat again
- Carefully clean away discharges from the nose and eyes

## ACTIVITY

- Limited

## DIET

- Depends on the extent of gastrointestinal involvement

# Medications

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive

- Antiviral drugs—none known to be effective in treating canine distemper viral infections
- Antibiotics—to reduce secondary bacterial infection, because canine distemper virus decreases the ability of the dog to develop a normal immune response (known as “immunosuppression”)
- Medication to control seizures (known as “anticonvulsant therapy”)—phenobarbital, potassium bromide

# Follow-Up Care

## PATIENT MONITORING

- Monitor for signs of pneumonia or dehydration from diarrhea in the sudden (acute) phase of the disease
- Monitor for central nervous system signs, because seizures often follow

## PREVENTIONS AND AVOIDANCE

- Routine vaccination against canine distemper virus is key to prevention and avoidance; series of vaccinations administered initially followed by periodic booster vaccinations, as directed by your pet's veterinarian
- Avoid infection of puppies by isolation to prevent infection from wildlife (such as raccoons, fox, skunks) or from canine distemper virus-infected dogs

## POSSIBLE COMPLICATIONS

- Secondary bacterial infections, frequently involve the respiratory and gastrointestinal systems
- Possibility of occurrence of central nervous system signs for 2–3 months after discharge from the eyes and nose has subsided

- Seizures
- Death

## **EXPECTED COURSE AND PROGNOSIS**

- Depend on the strain of virus and the individual host response—dog may be infected, but have no signs of disease (known as a “subclinical infection”) or have signs of disease involving various areas of the body; the infection may be fatal or non-fatal
- Mild central nervous system signs—pet may recover; twitching or contraction of a group of muscles (myoclonus) may continue for several months or indefinitely
- Death—2 weeks–3 months after infection; mortality rate approximately 50%
- Euthanasia—owner may elect euthanasia, if or when nervous system signs develop; indicated when uncontrollable seizures occur
- Fully recovered dogs are not carriers, as they do not shed canine distemper virus

## **Key Points**

- Mortality rate is about 50%
- Dogs that appear to recover from early signs (such as discharge from the eyes and nose) may later develop fatal central nervous system signs
- Fully recovered dogs are not carriers, as they do not shed canine distemper virus
- Routine vaccination against canine distemper virus is key to prevention and avoidance; series of vaccinations administered initially followed by periodic booster vaccinations, as directed by your pet's veterinarian