Canine Distemper Virus in Ferrets

Basics

OVERVIEW

• A highly contagious disease that appears suddenly (acutely), characterized by fever and a variety of signs involving the respiratory system, eyes, central nervous system, and skin.
• Canine distemper virus is always fatal in ferrets.
• The virus can live for long periods in the environment. It can be passed to pet ferrets by exposure to other ferrets, infected dogs, or raccoons or other wildlife and can be carried into the home on contaminated shoes or clothing.
• The incubation period (time from exposure to the virus to symptoms) is 7 to 10 days.
• In unvaccinated ferrets, death occurs within 12 to 35 days after exposure. There is no treatment for this disease. All ferrets that are unvaccinated and develop symptoms caused by distemper virus will die.

SIGNALMENT

SPECIES

• Most species of the order Carnivora—including dogs, foxes, wolves, hyenas, weasels, ferrets, minks, raccoons, skunks, and civets
• Large cats in Californian zoos and in Tanzania

MEAN AGE AND RANGE

Young animals are more susceptible to infection than are adults.

SIGNS

• First symptoms—respiratory symptoms develop 7 to 10 days after infection, including fever, clear or mucous nasal and eye discharge, sneezing, depression, and lack of appetite
• Ten to 15 days following exposure, a characteristic, red, itchy rash appears on the chin and lips and may spread to the skin around the hind legs.
• Thick, white to yellow discharge occurs with secondary bacterial infections and crusts appear on the eyes, nose, and chin.
• Hardening of the footpads and nose is common.
• Coughing is common, since the primary site of virus infection is the lungs; secondary bacterial pneumonia is common in ferrets not treated with antibiotics.
• Vomiting, diarrhea, and bloody stool occurs in some ferrets.
• Central nervous system (brain and spinal cord) symptoms are seen in many infected ferrets; these symptoms
often (but not always) occur after the respiratory symptoms. May see seizures, rigid body posture, incoordination, weakness, paralysis, and muscle tremors

**CAUSES**
- Canine distemper virus (closely related to the measles virus and the seal and dolphin distemper viruses)
- Use of modified live canine distemper virus dog vaccines that are not specifically for use in ferrets (rare)

**RISK FACTORS**
Contact with animals that have not been vaccinated or have not responded to vaccinations and are infected with canine distemper virus (ferrets, dogs, or wild carnivores)

**TREATMENT**

**APPROPRIATE HEALTH CARE**
- Inpatient treatment in isolation, to prevent infection of other ferrets or dogs
- Supportive treatment and antibiotics may initially help with secondary bacterial infections. However, there is no treatment for the virus itself, and all infected ferrets die within days to weeks of developing characteristic symptoms.

**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 all-inclusive.
- Antiviral drugs—none known to be effective in treating canine distemper viral infections
- Antibiotics—to reduce secondary bacterial infection; however, all infected ferrets eventually die from the virus

**FOLLOW-UP**

**PATIENT MONITORING**
Monitor for symptoms of pneumonia or dehydration from diarrhea in the acute phase of the disease. Treatment is often begun while awaiting a definitive diagnosis of canine distemper. Monitor for development of the characteristic rash or paw pad thickening, which is very helpful in confirming the diagnosis (along with specific viral testing).

**PREVENTION/AVOIDANCE**
- Routine vaccination against canine distemper virus is key to prevention and avoidance; a series of vaccinations is administered initially followed by annual booster vaccinations.
- Use vaccines that are specially derived for use in ferrets only. Do not vaccinate with distemper vaccines intended for use in dogs, as these may cause distemper in ferrets.
- Isolate kits to prevent infection from wildlife (such as raccoons, fox, skunks) or from infected dogs.

**POSSIBLE COMPLICATIONS**
Severe allergic reactions to canine distemper vaccination is common and may be life-threatening. Vaccine reactions usually occur within 30 minutes of receiving the vaccine and consist of sudden onset of bloody diarrhea, vomiting, and collapse. Premedication with diphenhydramine 20 minutes prior to vaccination may prevent vaccine reactions in many cases. Monitor ferrets for 30 minutes following vaccination for adverse reaction.

**EXPECTED COURSE AND PROGNOSIS**
- Death occurs 12 to 35 days after infection; mortality rate is 100%.
- Humane euthanasia is generally elected once a definitive diagnosis is made.

**KEY POINTS**
- Ferrets are extremely susceptible to canine distemper virus, and the disease is 100% fatal in ferrets.
- Routine vaccination against canine distemper virus is key to prevention and avoidance. Use only vaccines approved for use in ferrets. The use of vaccines manufactured for use in dogs can cause fatal distemper virus in ferrets.