NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Mary T. Bassett, MD MPH
Commissioner

2018 Veterinary Alert # 3

Canine Distemper Virus Identified in Raccoons from Central Park

- **Raccoons collected from the northern section of Central Park tested positive for canine distemper virus.**
- **Additional raccoons with evidence of disease have been reported from Central Park.**
  - **Rabies testing on raccoons collected from this area has been negative.**
- **Veterinarians should ensure their patients are properly vaccinated to prevent potential infection with canine distemper virus.**
- **Raccoons, as well as mustelids such as ferrets, minks, and skunks, are highly susceptible to canine distemper virus.**
  - **Dogs and raccoons infected with canine distemper virus may have a clinical presentation similar to that of rabies.**
- **Information on diagnostic testing is provided here for New York City veterinarians who have suspect cases.**

Please share with your colleagues in Veterinary Medicine and your staff

July 23, 2018

Dear Veterinary Colleagues,

Recently, the New York City (NYC) Department of Health and Mental Hygiene (DOHMH) was notified by the NYC Department of Parks and Recreation of several raccoons exhibiting signs of respiratory and neurological disease in Central Park. Several raccoons collected from this area and submitted to the DOHMH Public Health Rabies Laboratory have been negative for rabies, however additional testing on specimens forwarded to the New York State Wadsworth Laboratory were positive for canine distemper virus. To date over 20 raccoons have been identified, the majority of which were collected from the northern section of the park, though there is potential for the virus to spread to raccoons throughout the park. This alert summarizes clinical and diagnostic information regarding canine distemper in dogs.

Canine distemper virus is a paramyxovirus and is related to human measles virus. It is most commonly identified in dogs and other canines, but can also affect mustelids such as ferrets, minks, and skunks, and procyonids such as raccoons. It is a highly contagious, systemic, viral disease of dogs with potential gastrointestinal, respiratory and neurological complications. Clinical illness in dogs can vary depending on their age and immune status. Mild illness can include fever, anorexia, fatigue, upper respiratory illness, and oculonasal discharge that may mimic “kennel cough”. Severe systemic manifestations are most common in younger dogs with inadequate immunity. In addition to the signs described, dogs may go on to develop lower respiratory illness, vomiting, and a watery and/or bloody diarrhea. Dogs that develop vesicular or pustular skin lesions rarely go on to develop central nervous system disease (CNS), whereas dogs that develop hyperkeratosis of the nasal planum and digital pads usually do have CNS involvement. CNS illness may develop concurrently or 1 to 3 weeks after recovery from systemic illness and is typically progressive. Signs may include myoclonus, ataxia, paresis, hyperesthesia and seizures with “chewing-gum”-like behavior. Infected dogs with minimal clinical illness that develop CNS signs months to years later are described as having old dog encephalitis (ODE).

Infection is spread primarily via respiratory secretions from infected animals, and the virus can be shed for several months. The virus is sensitive to lipid solvents and most disinfectants so routine disinfection is effective in its destruction. It is inactivated by ultraviolet light, heat, and desiccation and is relatively unstable outside the host, although it has been known to survive in affected tissues or secretions for up to 3 hours at room temperature.

Infection can be prevented in dogs through routine vaccination of puppies starting at 6 to 8 weeks of age, using a canine distemper vaccine, and at 2 to 4 weeks intervals until 16 weeks of age. The vaccine is usually given as part of a combination canine vaccine. Booster protocols for older dogs may vary from annually to every three years.

Whole blood in EDTA or a conjunctival or nasal swab placed in viral transport medium can be submitted for PCR testing. If viral transport medium swabs are unavailable, a swab moistened with sterile saline and placed in a sealed sterile tube is a good substitute. Urine can also be submitted for PCR testing. Serologic demonstration of virus-specific IgM antibodies or an increased ratio of CSF to serum virus-specific IgG antibodies can also be used. In dogs with multisystemic signs, an immunofluorescent assay can be conducted on smears of the conjunctiva, trachea, vagina, or other epithelium, or the buffy coat of blood, although results may be negative when the dog is showing only neurologic manifestations and/or when circulating antibody is present.

For PCR, the optimum time for sample collection is during the height of the febrile response, when nasal discharge is still serous or sero-mucoid. This is also the best time to collect the "acute" sample if paired serology is pursued. Convalescent serum samples should be collected 2-3 weeks following the acute sample and CSF samples can be collected whenever CNS signs are observed.

Clinical laboratory findings include lymphopenia caused by lymphoid depletion; regenerative anemia and thrombocytopenia may be less consistent findings. Distemper inclusion bodies may be evident in lymphocytes, and less frequently in monocytes, neutrophils, and erythrocytes. Necropsies performed on affected dogs have identified neurologic lesions of leukoencephalomyelitis, upper respiratory tract lesions of conjunctivitis, rhinitis, inflammation of the tracheobronchial tree, and hyperkeratotic lesions of the nasal planum and digital pads. Thymic atrophy has been noted in puppies affected prenatally or neonatally.

Testing is offered at the Cornell University Animal Health Diagnostic Center. For more information on appropriate specimens and submission call the AHDC at 607-253-3900. Treatment involves a regimen of supportive care that may include intravenous fluid therapy, antiemetics, and antibiotics to curb the likelihood of secondary bacterial infection of the respiratory tract. Treatment of neurologic signs may include steroids and anticonvulsants.

Dogs and raccoons infected with canine distemper virus may have a clinical presentation similar to that of rabies. Remember to consider rabies for any animal presenting with an acute, rapidly progressive neurologic illness. Rabid animals have been reported regularly in New York City. For the most recent rabies activity in NYC, visit our website at www.nyc.gov/health/rabies.

The virus is not thought to be transmissible to humans, although general precautions should always be taken when handling any suspicious animals, as infection with rabies may mimic that of canine distemper.

As always, we greatly appreciate your partnership and cooperation.

Sincerely,

Sally Slavinski, DVM, MPH

Zoonotic, Influenza and Vector Borne Disease Unit
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References

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