Lake Shore Pet Hospital

Tick and Tick Control

Basics

OVERVIEW

- Dogs and cats may be parasitized by ticks; ticks found on dogs and cats are in the families "*Ixodidae*" and "*Argasidae*"
- Ectoparasites are parasites that live on the surface of the host animal, such as on the skin
- Ticks are ectoparasites that feed only on the blood of their hosts; they are arthropods, closely related to scorpions, spiders, and mites
- Ticks can carry many disease-causing organisms that they transmit to their host animal—the disease-causing organisms include protozoa, bacteria, rickettsiae, and viruses; diseases caused by organisms carried by ticks are called "tick-borne diseases"; diseases in ticks are transferred to them when they feed on deer, small wild mammals such as rodents
- Ticks may cause other health problems, including toxicosis, allergic reactions (hypersensitivity), tick paralysis, and blood-loss anemia

SIGNALMENT/DESCRIPTION OF PET

Species

- Dogs
- Cats
- Cats are efficient at removing ticks, but tick attachment and infection with disease-causing organisms carried by the tick and transmitted to the cat (tick-borne diseases) have been diagnosed in domestic cats; these diseases include Lyme disease, anaplasmosis, and cytauxzoonosis

SIGNS/OBSERVED CHANGES IN THE PET

- Attached ticks or tick feeding cavities may be seen on the skin
- Associated tick-borne diseases—numerous signs, vary with the organ system(s) affected
- Irritation caused by the tick bite and subsequent self-trauma (as from scratching or biting at the site of tick attachment)
- Small, pinpoint areas of bleeding (known as "petechia") associated with diseases transferred by ticks
- Blood-loss anemia (low red-blood cell count)—from bite or from diseases transferred by ticks
- Leg and joint abnormalities (for example, arthritis associated with diseases transferred by ticks)
- Irregular heart beat related to blockage of electrical conduction in the heart (known as "heart block") associated

with Lyme disease transferred by ticks
- Kidney—Lyme diseases-related protein losses through the kidney, generally fatal
- Muscle inflammation (known as "pyogranulomatous myositis"), low white cell counts, generalized diseases secondary to *Hepatozoon americanum*, the dog is intermediate and reservoir host, the dog eats the tick *A. maculatum* which is the definitive host
- Weight loss, anemia, fever, low white cell counts, changes in the proteins with *H. canis* infection, dog is intermediate and reservoir host, and dog ingests the tick *A. americanum,* the definitive host.
- Weakness or paralysis from neurotoxin such as the disease transferred from ticks: *R. rickettsii*

CAUSES
- Ticks—attracted to hosts by warmth, presence of carbon dioxide, physical contact, and host-associated odors

RISK FACTORS
- Pets can be in close contact with ticks, owing to movement of ticks into suburban environments and expansion of suburban environment into surrounding forests, prairies, and coastline areas
- Travel is a risk for exposure outside of a pet's home environment

Treatment

HEALTH CARE
- Outpatient, after removal of ticks
- Removal—do as soon as possible to limit time available for transmission of the disease-causing organism or nervous-system poison (known as a "neurotoxin") from the tick to the dog or cat; grasp ticks close to the skin with fine-pointed tweezers and gently pull free; wash feeding cavity (area of tick attachment) with soap and water; generally sufficient to prevent local inflammation or secondary infection; wear gloves while handling ticks and tick bite areas

Follow-Up Care

PREVENTIONS AND AVOIDANCE
- It may be difficult to avoid environments that harbor ticks
- There are two types of Lyme prevention vaccines for dogs, see handout on Lyme disease for further information—the vaccine does not stop the tick biting the dog
- Tick control does not always equal control of tick-borne diseases; often the goal is the perceived absence of ticks on the host animal (clinical repellence)
- Pets—some period of attachment and tick feeding may occur or live ticks may spend some time crawling on the pet after the ticks have been exposed to lethal levels of an agent or chemical designed to kill ticks (known as an "acaricide"); immature ticks of some species are very small
- Disease-causing organisms carried by ticks—may be transmitted very rapidly (viruses) or may require several hours (such as for *Rickettsia rickettsii* that causes Rocky Mountain spotted fever) or less than one day (such as for *Anaplasma phagocytophilum)* or for *Borrelia burgdorferi* [cause of Lyme disease] ,requires 1–2 days, or for *Ehrlichia* and *B. canis*, requires 2–3 days)
- Control of *Hepatozoon* species is problematic, due to ingestion of ticks

Insecticides and Acaricides (Chemicals to Kill Insects and Ticks)
- In the United States, the Environmental Protection Agency (EPA) licenses topical agents as safe and effective; in many areas, tick control is required year-round
- Collars containing chemicals to kill and repel ticks (known as "acaricidal collars") such as Preventic®, Seresto®, Scalibor®
- Spot-on treatments (such as Frontline® Top Spot, K9 Advantix®, Ovitrol® X-tend spot-on, Activyl®, Vectra® 3D)—have gained wide use; due to safety, ease of application and owner compliance; (NOTE: always read the entire label of any chemical designed to kill insects or ticks and use it only as instructed; *do not* use dog products on cats)

- Disease transmission interruption studies have been published for products containing fipronil, amitraz, and permethrin; rapid killing and repellence are essential to prevent/interrupt feeding of the tick
- At approximately 4 weeks after product application effectiveness in prevention of transmission of *B. burgdorferi* (organism that causes Lyme disease) to dogs was 75–87.5% for fipronil and 100% for permethrin; amitraz was 100% effective at 7 days post-application; speak to your veterinarian about the product that is most appropriate for your pet

POSSIBLE COMPLICATIONS

- Tick-borne diseases or tick paralysis; see handouts for the various agents that can be transmitted via tick feeding or ingestion of the tick (in a few cases)

EXPECTED COURSE AND PROGNOSIS

- Depends on which disease-causing organism has infected the dog or cat or if the nervous-system poison carried by the tick has affected the pet

Key Points

- Removal of ticks—do as soon as possible to limit time available for transmission of the disease-causing organism or nervous-system poison (known as a "neurotoxin") from the tick to the dog or cat; grasp ticks close to the skin with fine-pointed tweezers and gently pull free; wash feeding cavity (area of tick attachment) with soap and water; generally sufficient to prevent local inflammation or secondary infection; use gloves to handle tick and tick wound area as some of the infectious agents in ticks can cause disease in people (*B. burgdorferi, A. phagocytophilum, R. rickettsia, E. chaffeensis*)
- Application of hot matches, petrolatum jelly, or other materials not only fails to cause tick detachment but allows for longer periods of attachment and feeding
- Tick control is challenging; in many areas, tick control is required year-round