

Ticks and Tick Control

BASICS

DEFINITION

Dogs and cats may be parasitized by hard ticks of the family Ixodidae, such as Deer Ticks. These ectoparasites which feed only on the blood of their hosts are arthropods, closely related to scorpions, spiders and mites. Ticks have a great potential to act as vectors of protozoa, fungi, bacteria, viruses, rickettsiae, filarial nematodes and spirochetes.

PATHOPHYSIOLOGY

- Hard ticks have four life stages: egg, larva, nymph, and adult. Larvae and nymphs must feed to repletion prior to detaching and molting. As adult female ticks engorge, they may increase their weight by more than 100 fold and after detachment may lay thousands of eggs.
- Blood loss anemia may result from heavy infestations.
- Damage to the integument occurs as tick mouth parts cut through the host's skin. Tick bites are generally painless but local irritation and infection may occur.
- Salivary secretion of neurotoxins may lead to systemic signs (tick [paralysis](#)) and local action of salivary contents may cause impaired hemostasis and immune suppression.
- Pathogens may be acquired when ticks feed on infected reservoir hosts (often rodents and small feral mammals). In some cases transovarial transmission of pathogens occurs and infected eggs will hatch and produce infected larvae. The greatest potential for systemic disease occurs when infections acquired in early life stages are transmitted to new hosts when the next stage feeds. Transmission of pathogens and toxins often requires periods of attachment from hours to days and the essentially painless bite of ticks allows feeding times of adequate duration.
- Tick-borne pathogens may affect virtually any organ system.

Systems Affected

- Skin/Exocrine
- Hemic/Lymphatic/ Immune
- Nervous

Geographic Distribution

Strong geographic specificities exist for some tick species and hence geographic prevalence of associated diseases exist. Lyme [borreliosis](#) (Lyme Disease) is associated with populations of Ixodes scapularis in the midwest, northeast and parts of the southeast and Ixodes pacificus in western coastal states. Canine [ehrlichiosis](#) is most common in the southeast although its tick vector, Rhipicephalus sanguineus, has been found throughout the continental United States.

SIGNALMENT

Tick parasitism is often considered to be most common in large, hunting breeds of dogs which are likely to come in contact with environments harboring questing ticks. However, the encroachment of tick populations into suburban environments as well as the expansion of the suburban environment into surrounding forests, prairies and coast line areas has placed domestic animals in close contact with ticks. While cats are thought to be fastidious groomers and quite efficient at removing ticks, tick attachment and subsequent tick-vector-borne diseases are routinely diagnosed in felines.



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