VECTOR-BORNE DISEASES

Anaplasma spp.

DOG

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01 — SECTION

CAPC Recommends

- Screening dogs for exposure to the agents of anaplasmosis to identify dogs at risk of disease.
- Reducing risk of infection through year-round tick control and avoiding areas with ticks.
- Diagnosing anaplasmosis based on a combination of clinical signs, positive serology, PCR testing, and hematology with platelet count.
- Veterinarians recognize that dogs can be sentinels for the risk of anaplasmosis to people.

View forecasts for Anaplasmosis in your local area at https://petdiseasealerts.org.

02 — SECTION

Species

Canine

Anaplasma spp.

*Both *Anaplasma phagocytophilum* and *A. platys* infections have been detected in cats. However, compared to dogs little is known about the prevalence of infection or disease manifestations. Treatment recommendations are often extrapolated from canine protocols.

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03 — SECTION

Overview of Life Cycles

- Dogs and cats become infected with *Anaplasma* spp. when feeding ticks inoculate the organisms. The rickettsiae enter granulocytes (*A. phagocytophilum*) or platelets (*A. platys*), where they survive, multiply, and disseminate throughout the host.
- All *Anaplasma* spp. common to dogs and cats in the United States are maintained in a tick vector/vertebrate reservoir host system in nature.
    - Rodents and white-tailed deer are considered the main reservoir hosts of *A. phagocytophilum* although a wide variety of mammals are susceptible to infection.
    - Infection with *A. phagocytophilum* is transmitted by *Ixodes scapularis* in the northeastern and upper Midwest and by *Ixodes pacificus* in the western United States.
    - Dogs appear to be the reservoir host *of A. platys* and transmission is suspected to occur via feeding *of Rhipicephalus sanguineus.*

- Morulae of *Anaplasma* spp. occasionally can be found on Giemsa-stained blood smears inside granulocytes (*A. phagocytophilum*) or platelets (*A. platys*).
- Organisms are usually rare and can be found on blood smears only during acute infection; therefore, other diagnostic methods are recommended for identifying infection in dogs and cats (see Diagnosis).

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05 — SECTION

Disease

- Clinical signs of anaplasmosis can overlap with other tick-borne diseases.
- Subclinical infections with *Anaplasma* spp. are common among dogs.
- *Anaplasma phagocytophilum* is the causative agent of canine granulocytic anaplasmosis. The most common clinical signs include fever, lethargy, anorexia, and a neutrophilic polyarthritis resulting in lameness, stiffness, joint swelling, and reluctance to move. Splenomegaly and lymphadenopathy are also reported.
- Thrombocytopenia is commonly reported in dogs infected with *A. phagocytophilum.* A mild anemia may also be present among other abnormalities.
- *Anaplasma platys* is the causative agent of infectious canine cyclic thrombocytopenia. The hallmark of infection is a waxing and waning thrombocytopenia which may result in bleeding tendencies. Disease is usually mild in the absence of coinfections or comorbidities. More severe disease has been reported in Europe and South America.
- Coinfection with multiple *Ehrlichia* spp., *Anaplasma* spp., and additional tick-borne pathogens has been documented and when present, may complicate interpretation of the clinical presentation and diagnostic assays.
- Disease caused by infection with *Anaplasma* spp. is less well characterized in cats. The most common clinical signs associated with *A. phagocytophilum* infections are fever, lethargy, and anorexia. Infections with *A. platys* in cats are rarely reported.

- Canine infections with *Anaplasma* spp. is common throughout the world. Infection is more common in areas where tick infestation pressure is high and when routine acaricide use is not practiced.
- The geographic distribution of *Anaplasma* spp. closely follows that of the vector ticks responsible for transmitting the infections.
    - *Anaplasma platys* is reported throughout the United States, much like its tick vector *R. sanguineus*, although it is more commonly found in the Southwest where *R. linnaei* (previously the tropical lineage of *R.sanguineus*) is also more common.
    - *Anaplasma phagocytophilum* is most commonly found in dogs in the northeastern, upper Midwestern, and West Coast foci where populations of *I. scapularis* and *I. pacificus*, respectively, maintain infection pressure on dogs.

Click here to view our Prevalence Maps and to sign up for updates on reported cases in your area.

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07 — SECTION

Host Associations and Transmission Between Hosts

- Dogs and cats become infected with *Anaplasma* spp. upon inoculation of organisms by tick feeding. The feeding time required to allow disease transmission varies between ticks and disease agents. Data indicates that *Anaplasma phagocytophilum* can be transmitted within 24-48 hours of tick attachment.
- Direct transmission from an infected to a naïve animal is considered rare but could occur following blood transfusion or iatrogenic inoculation with contaminated needles or surgical instruments.
- Ticks acquire these infections by feeding on infected hosts, and these infections remain in ticks as they molt to different stages (*i.e.*, through transstadial passage of

some *Anaplasma* spp.

- Passage of Anaplasma spp. to tick offspring (*e.g.*, transovarian passage) has not been conclusively demonstrated in any of the tick species that commonly feed on dogs and cats.

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08 — SECTION

Prepatent Period and Environmental Factors

- Morulae appear in circulating blood within a few weeks after the organisms are introduced by tick feeding.
- *Anaplasma* spp. may set up persistent or chronic infections in dogs with extremely low-level or waxing and waning bacteremia.
- Reinfections may commonly occur when infected ticks from the environment are able to again feed on pets.

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09 — SECTION

Site of Infection and Pathogenesis

- Ticks inoculate infectious *Anaplasma* spp. directly into the tick feeding lesion. Organisms invade circulating blood cells and disseminate via the bloodstream to peripheral tissues.
- Inflammatory processes induced by the infection result in the development of hematologic abnormalities, most notably thrombocytopenia.

pathogens.

10 — SECTION

Diagnosis

- Diagnosis of *Anaplasma* spp. infections relies upon a combination of clinical signs, compatible findings on bloodwork, positive serology, and PCR.
- Classical microscopic diagnosis of *Anaplasma* spp. infection relies on identification of morulae in circulating granulocytes or platelets in Giemsa-stained blood smears. However, morulae are usually difficult to find in blood smears, even during the acute stage of the disease.
- Cell culture isolation, which some consider a gold standard for confirming these infections, is laborious, expensive, time-consuming and available only in specialized research laboratories.
- Serology may be helpful in identifying the presence of antibodies to *Anaplasma* spp., but may not detect early infections during the acute phase of disease.
- Indirect fluorescent antibody (IFA) assays to determine IgM and IgG titers are available through diagnostic laboratories. Cross-reaction among *Anaplasma* spp. is commonly recognized, and nonspecific IFA titers may develop due to infection with related agents.
- Patient-side enzyme-linked immunosorbent assays (ELISA) are available for identifying antibodies to *Anaplasma* spp.
- Antibody titers may persist months to years after treatment and resolution of clinical signs, suggesting either persistent infection or reinfection. However, the presence of antibodies alone does not indicate a need for treatment in the absence of any evidence of clinical disease.
- In recent years, molecular diagnosis of *Anaplasma* infection in dogs and cats via polymerase chain reaction (PCR) of whole blood has become readily available. To

11 — SECTION

Treatment

- CAPC does not recommend treatment of asymptomatic dogs that test antibody positive during yearly vector-borne screening. Treatment should be initiated based on a combination of clinical signs, bloodwork, and diagnostic tests described above.
- Doxycycline is the treatment of choice for anaplasmosis. A treatment regimen of 10 mg/kg once daily for 28 days is currently recommended. A split-dose protocol of 5 mg/kg twice daily for 28 days has also been used successfully and may help minimize side effects. A shorter course of therapy (14 – 21 days) may be effective at treating anaplasmosis, however, concern for treatment failure and the potential for coinfections is why the protracted protocol is often recommended.
- In instances where doxycycline is not available, minocycline (10 mg/kg twice daily for 28 days) may be a viable alternative and has been used successfully in the treatment of non-acute *Ehrlichia canis* infections.
- Protective immunity does not appear to develop, and reinfection may occur following treatment, requiring additional courses of therapy.
- Some recent data suggest that treatment may not be entirely effective at clearing the organisms and that recrudescence of infection is possible. Although additional research into this area is needed, re-treatment may be indicated in cases of relapse of clinical disease or reinfection from ticks.

12 — SECTION

Control and Prevention

areas where ticks are active, CAPC recommends that all pets be maintained on tick-control products year-round.

- Attached ticks found on pets should be removed promptly to prevent transmission of any pathogens they may harbor.
    - To avoid both zoonotic infection and accidental inoculation of agents into the pet during the removal process, ticks should be retracted using forceps or a commercial tick-removal device, and care should be taken to avoid contact with tick contents, ideally by wearing gloves.
    - Careful attention to handwashing following tick removal is also recommended.
- Tick infestations and resultant infection with *Anaplasma* spp. can be prevented by avoiding tick-infested areas whenever possible and by modifying the habitat around the home through such basic measures as keeping shrubbery and grass closely clipped to discourage both tick populations and the wildlife species that often harbor them from flourishing. In some areas, immature ticks on rodents may be controlled using pyrethrin-treated cotton baits.

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13 — SECTION

Public Health Considerations

- *Anaplasmaphagocytophilum* is the causative agent of human granulocytic anaplasmosis. Common symptoms include fever, malaise, headache, and muscle pain. Severe illness can develop but is uncommon.
- Infections with *A. platys* have also been reported, but they appear to be rare.
- People contract anaplasmosis the same way that pets do: via the bite of an infected tick. Although direct transmission from an infected animal is possible through inoculation of contaminated blood or tissue, pets are not an considered a direct source of infection to people.

- Such precautions include wearing light-colored, protective clothing; performing frequent tick checks and promptly removing any ticks found.
- Using repellent products specifically labeled as effective at preventing tick attachment.

- More information about preventing transmission can be found at the CAPC web page about ticks.

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14 — SECTION

Selected References

- Allison RW, Little SE. 2013. Diagnosis of rickettsial diseases in dogs and cats. *Vet Clin Path* 42:2: 127-144.
- Breitschwerdt EB, Hegarty BC, Qurollo BA, Saito TB, Maggi RG, Blanton LS, Bouyer DH. 2014. Intravascular persistence of *Anaplasma platys*, *Ehrlichia chaffeensis,* and *Ehrlichia ewingii* DNA in the blood of a dog and two family members. *Parasit Vectors* 7:298.
- Diniz PPVP, Moura de Aguiar D. 2022. Ehrlichiosis and anaplasmosis: an update. *Vet Clin North Am Small Anim Pract* 52:1225-1266.
- Jenkins S, Ketzis JK, Dundas J, Scorpio D. 2017. Efficacy of minocycline in naturally occurring nonacute *Ehrlichia canis* infection in dogs. *J Vet Intern Med* 32:217-221.
- Little SE. 2010. Ehrlichiosis and anaplasmosis in dogs and cats. *Vet Clin NA Sm Anim Pract* 40(6): 1121-1140.
- Little et al., 2014. Canine infection with Dirofilaria *immitis*, *Borrelia burgdorferi*, *Ehrlichia* spp., and *Anaplasma* spp. in the United States: 2010-2012. *Parasit Vectors* 7:207.
- Yancey CB, Diniz PPVP, Breitschwerdt EB, Hegarty BC, Wiesen C, Qurollo BA. 2018. Doxycycline treatment efficacy in dogs with naturally occurring *Anaplasma*

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