

TOP

COMPLICATIONS OF
FLEA
& TICK
INFESTATIONS

Our first instinct is to get rid of fleas and ticks as quickly as possible; however, in addition to treating and preventing parasites, we must look for evidence of related conditions or diseases. Following are some common—and some less common but highly significant—complications of flea and tick infestations.

1 Flea allergy dermatitis or flea bite hypersensitivity

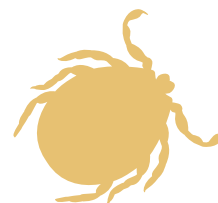
Dogs and cats with flea bite (or flea saliva) allergies show signs of intense pruritus (itching) and secondary skin lesions such as hair loss, scaling and crusting, self-trauma (excoriations from scratching), and secondary infections. Flea allergy dermatitis can usually be confirmed by presence of fleas, pruritus, typical signs and distribution, and patient response to flea control.

However, the diagnosis is not always straightforward: Patients may not have fleas at the time of examination, clients may claim they use flea control regularly even when non-compliant (presence of flea dirt can be helpful in these cases), or patients may have concurrent allergic conditions such as atopic dermatitis or adverse food reaction.

The best approach is to assume that flea allergy dermatitis is involved, review the flea life cycle with clients, and prescribe appropriate flea-control measures.

2 Tapeworms

Fleas are the main vector for the common tapeworm *Dipylidium caninum*, which infects dogs and cats when they ingest fleas that contain cysticercoids (tapeworm larvae). This tapeworm rarely causes signs, but it does have zoonotic potential, and recent studies indicate that tapeworms may be more prevalent than once thought. One study showed that 58.5% of shelter dogs and 45.5% of pet dogs were infected with either *Dipylidium* spp or *Taenia* spp,¹ while another showed 49.5% of shelter dogs with *Dipylidium* spp and 7.2% with *Taenia* spp.² In the latter study, routine fecal flotation did not recover *Dipylidium* ova from most samples (only 6.3% of dogs tested positive by flotation). Cats also have a high prevalence of tapeworms (>50% in one study of shelter cats³). Because about half the dogs and cats with fleas also have tapeworms, routine deworming with cestocidal drugs (eg, praziquantel, epsiprantel) should be considered.



3 Bartonellosis in cats

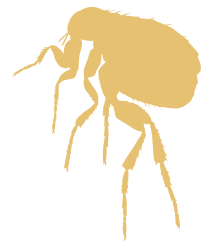
Cats are reservoirs of several species of *Bartonella* that cat fleas (*Ctenocephalides felis*) may transmit, including *B henselae*, *B clarridgeiae*, and *B koehlerae*. Cats are typically infected by contact with either infected fleas or flea feces. *Bartonella* spp is important because of its association with cat-scratch disease in humans, as most infected cats are subclinical and show no signs. Cat claws may become contaminated with flea feces that contain *Bartonella* spp, and a human may be inoculated with the bacteria when scratched. Cat-scratch disease in humans typically causes low-grade fever and enlarged, painful lymph nodes that can develop 1 week to 2 months after the scratch. More serious diseases (eg, bacillary angiomatosis, peliosis hepatis) have been reported in immunosuppressed humans.⁴

Several tests (eg, serology, PCR, blood culture) can be used to diagnose *Bartonella* spp in cats, but results can be difficult to interpret because many cats in flea-endemic areas test positive. Prevention includes avoiding scratches and ensuring that pets receive appropriate flea control. A scratch wound to a human should be promptly and copiously washed, and the patient should contact a healthcare provider.

4 Lyme disease, ehrlichiosis, & other tick-borne bacterial infections

Many tick species transmit bacterial and rickettsial organisms to dogs and, on occasion, cats. Types of ticks and related diseases differ according to U.S. region, although animals travel and regional patterns change. When dogs are presented with ticks, a complete history should be obtained and a thorough physical examination performed to look for common signs of tick-borne disease: lethargy, anorexia, fever, lameness, joint swelling, lymph node enlargement, weight loss. Additional diagnostic tests may be helpful, such as antibody titers, PCR on whole blood, blood smear examinations, and routine laboratory work (CBC, chemistry panel, urinalysis).

For some infections (eg, Lyme disease), no single test can confirm diagnosis, so a combination of history, signs, and treatment response is necessary. Other tick-borne diseases can also be difficult to diagnose because similar signs may be associated with different organisms (eg, *Ehrlichia canis*, *E ewingii*, *Anaplasma phagocytophilum*, *A platys*, *Rickettsia rickettsii*, *Bartonella* spp). Not all patients with ticks become infected or need extensive diagnostic workups, but careful observation and monitoring for up to 6 months after tick removal is worthwhile.



Cats are typically infected with *Bartonella* spp by contact with either infected fleas or flea feces.



When we see fleas or ticks on a patient, we must do more than just get rid of them.

5 Babesiosis, hepatozoonosis, & cytauxzoonosis

Ticks can transmit protozoal organisms, as well as bacterial and rickettsial infections, that may be overlooked when dogs and cats are examined because there are no obvious signs or quick diagnostic tests. Dozens of species of *Babesia* infect dogs, humans, and other animals worldwide, but *B gibsoni*, spread by both ticks and dog bites, is likely the most common U.S. species.⁵ *B canis*, *B conradae*, and *B coco*, as well as other novel species, are also seen in the U.S.⁶

Babesiosis can be subclinical, and healthy dogs may test positive for exposure; affected animals often have

fever, anorexia, lethargy, splenomegaly, and hemolytic anemia. Diagnostic tests, treatment, and prognosis differ for the various infecting species.^{6,7}

Hepatozoon americanum is a tick-borne disease first reported in Texas but now spread throughout the South; dogs become infected when they ingest an infected tick. The resulting disease, which affects muscles and bones, requires long-term treatment and may be fatal. Signs include fever, anorexia, weight loss, weakness, muscle pain and wasting, and lymphadenopathy.

Cytauxzoon felis is another tick-borne protozoal infection that affects cats and is often rapidly fatal, although some cats do survive. Signs include a high fever initially (hypothermia in advanced cases), anorexia, respiratory distress, pallor, icterus, and disseminated intravascular coagulation (DIC). However, in mild cases, these animals may become carriers that continue to test positive and serve as disease reservoirs.

Conclusion

When we see fleas or ticks on a patient, we must do more than just get rid of them. To help prevent these parasites and the diseases they inflict, preventive and therapeutic drugs and treatments are available. ■

See Aids & Resources, back page, for references & suggested reading.

