

Bartonella: Scratching the Surface By Lisa Dzyban, DVM, DACVIM

What is it? *Bartonella* is a unique genus of hemotropic gram (-) bacteria that colonize the interior of erythrocytes of the mammalian host (This infectious agent should **not** be confused with the unrelated organism Hemobartonella which is actually *Mycoplasma haemofelis!*).

Who gets it? There are many species of *Bartonella* that have adapted to many mammalian reservoir hosts including cats, humans, rodents, cows and coyotes. Domestic dogs can also be incidental hosts of several species of *Bartonella*.¹

Where does it occur? *Bartonella* infection is common in cats in the United States, with an incidence rate of 10-30 percent seropositivity in most areas. Stray cats with fleas have the highest incidence of carrier status. Clinical signs in the cat are usually mild and transient and not recognized by the owner. However, an increased incidence of gingivitis, uveitis, rhinitis and urologic disease may occur in *Bartonella* positive cats, especially if co-infected with FIV.¹

Continued on next column

Bartonella does have a zoonotic potential called “Cat Scratch Fever” or bacillary angiomatosis. Most people infected with *Bartonella* are asymptomatic or have mild transient signs such as fever, lymphadenopathy and skin pustule at inoculation site.



Immunocompromised individuals are considered at greatest risk for more severe forms of bartonellosis including: endocarditis, thrombocytopenia, encephalopathy, hepatic granulomas and optic neuritis. Interestingly, a study in Austria in 2003 showed 23 percent of all people tested had antibodies against *Bartonella henselae*, **regardless** of if they owned pets²!

How to diagnose? *Bartonella* is diagnosed by IFA, ELISA or Western immunoblot antibody testing of serum or PCR

Continued on Page 2

Ask an Internist! By Lisa Dzyban, DVM, DACVIM

Q: What does hyperkalemia mean when the sodium is normal?



A: Hyperkalemia is a common finding on chemistry panels. The most common cause is artifact (pseudohyperkalemia) due to hemolysis or microclotting in the sample, high platelet counts and delay in separating serum from red cells. Hyperkalemia with normal sodium also occurs secondary to acidosis (low CO₂),

tissue necrosis, dehydration, marked exercise, blood transfusions, oliguric renal disease, high dose trimethoprim sulfa and breed related high potassium erythrocytes (Akitas and Shiba Inus). Hyperkalemia and hyponatremia are classic findings in hypoadrenocorticism (Addison’s disease), but can occur in other pseudoaddisonian conditions including: pleural effusion, heart failure or liver failure. Patient history, non-regenerative anemia, hypoglycemia, hypercalcemia or lack of neutrophilia, are evidence that a true Addisonian condition exists and ACTH stimulation testing should proceed immediately.

Continued on next column

Continued from previous column

Q: What causes elevated T₄ in dogs?

A: Most commonly, elevated T₄ is due to anti-thyroglobulin antibodies. The dog may be physiologically hypothyroid or euthyroid at the time of elevated T₄. Euthyroid dogs would be expected to develop clinical hypothyroidism in the future (within two years). The freeT₄ED would be expected to be normal or low in such dogs and the thyroglobulin antibodies positive. It is extremely rare for dogs with thyroid carcinoma to have elevated T₄, because this very aggressive

Continued on Page 2

Using Add-on Tests at Phoenix Lab

There are a variety of “add-on” tests available at Phoenix Lab. Unlike other labs, Phoenix allows add-ons to be used in two unique ways. Add-ons may be used as panel builders at the time of ordering tests for your patient, or as additions to existing samples recently reported by our laboratory.

Using Add-on tests as panel builders: This allows you to customize your testing at the moment by adding tests to a base panel at a decreased cost.

Add-on to existing sample: This allows you to continue testing on a previously submitted sample,

Continued on Page 2



11620 Airport Road
Everett, WA 98204-3742

Phone: (425) 355-5252
(800) 347-0043

Fax: (425) 290-5892

Web: www.pclv.net

**In This
Issue...**

Bartonella: Scratching the Surface • Ask an Internist! Using Add-on Tests at Phoenix Lab

Bartonella *Cont'd from page 1*

testing in cats, humans or dogs. Unfortunately, antibody levels have very poor correlation with either bacteremia or disease in the cat. Therefore, a negative test is very accurate (90%) in demonstrating a cat is not bacteremic, but a positive test is not accurate (42%) for diagnosing bacteremia³.

Why test? A newly acquired cat, or a cat belonging to an immunocompromised individual, could be tested to prove it is not a carrier. A cat with signs possibly related to *Bartonella* could be tested to affect treatment decisions, especially if FIV positive. The Centers for Disease Control does not currently recommend routine testing of healthy cats living with healthy owners (See www.cdc.gov for more information.). If you decide to treat a cat for *Bartonella*, azithromycin 5-10mg/kg once daily for 5 days and then every other day for 40 days is considered the treatment of choice. However, assessing therapy is difficult because bacteremia is cyclic in the cat and therefore, it is not unusual for PCR testing to return to positive weeks

Continued on next column

to months after antibiotic therapy and antibody titers will persist for years, even after successful therapy.³

Prevention? Scrupulous flea control and gentle play with cats to prevent bites and scratches (especially with new kittens) is the best preventative measure to decrease the zoonotic transfer of *Bartonella* from cats to humans.³

References

¹Greene, Craig E. Infectious diseases of the dog and cat, 3rd edition. Saunders: Canada, 2006.

²Skerget, M, et al. Cat or dog ownership and seroprevalence of ehrlichiosis, Q fever, and Cat-Scratch Disease. Emerging Infectious Diseases, vol. 9, no. 10, October 2003.

³Wolf, A. Feline Bartonella infections-just the facts. The North American Veterinary Conference 2006.

Internist *Cont'd from page 1*

malignancy does not usually produce functional hormone.

Q: I'm pretty certain my canine patient has auto-immune hemolytic anemia (AIHA), but the Coombs' test is negative. Should I even bother doing the test in the future?

A: False negative Coombs' occurs in 35-60 percent of dogs with AIHA. This most commonly occurs in dogs in which the slide agglutination test is positive, but can also occur in dogs with very low erythrocyte antibody. A positive Coombs' does support the diagnosis of AIHA, but is not definitive. Positive Coombs' also occurs with neoplasia, hemobartonella, babesia, the use of certain drugs and a history of previous blood or plasma transfusions. I do run a Coombs' test in patients in which AIHA is suspected, but the slide auto-agglutination is negative.

Add-on tests *Cont'd from page 1*

reacting to results you have received. Add-ons save you time in re-collecting and are a savings to your clients, as well.

The most commonly ordered add-ons are:

- Amylase & Lipase
- Antinuclear Antibody (ANA)
- Bile Acids
- Coombs
- Direct Bilirubin
- FeLV Screen, ELISA
- FIP Screen, IFA
- FT4, ED
- Platelet Count (on existing CBC) No Charge
- Reticulocyte Count (on existing CBC) No Charge
- T4
- Urinalysis