Pacific Tide

An informational newsletter

Pacific Veterinary Specialists & Emergency Service
1980 41st Avenue
Capitola, CA 95010
Specialty 831-476-2584 ~Emergency 831-476-0667

Pacific Veterinary Specialists Monterey
2 Harris Court Suite A-1
Monterey, CA 93940
Monterey Office 831-717-4834 or Capitola 831-476-2584

www.pacificveterinaryspecialists.com

April 2015
Volume 4, Issue 1

About our Author

Merrianne Burtch, DVM, DACVIM (small animal internal medicine)

Dr. Burtch received her Doctorate in Veterinary Medicine from UC Davis in 1993. She completed an internship at Santa Cruz Veterinary Hospital in 1994. In 1996 she completed an ACVIM SAIM approved residency in internal medicine at the same facility, which included out-rotations at UC Davis. She became board certified in internal medicine in 1999. Dr. Burtch's special interests include diabetes mellitus, gastroenterology and liver disease.

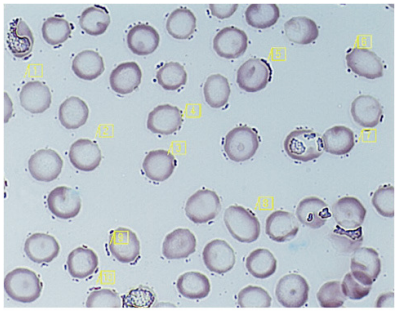
Dr. Burtch is available in Monterey, Tuesday through Thursday and Fridays in Capitola. In her free time she enjoys anything outdoors, racquetball and Pilates. She also enjoys spending time with her husband, two sons and two dogs. She is passionate about preserving the human-animal bond and started a non-profit foundation called Birch Bark in 2013.

Merrianne Burtch, DVM, DACVIM
(small animal internal medicine)

Update on Bartonellosis

By: Merrianne Burtch, DVM, DACVIM

Bartonella species are gram negative bacteria adapted to mammalian reservoir host and can create a prolonged intraerythrocyte bacteremia. Various species have co-evolved with different hosts and new species are being identified at a fast rate. Prior to 1990 only 2 named Bartonella species existed whereas now there are at least 32 named and more unnamed species.



Bartonella spp.— Dominant coccobacilli adherent to erythrocytes indicated with arrows. (Fry Laboratories LLC)

In the natural reservoir host (ticks and fleas) the organism can be detected by blood culture or PCR in healthy individuals. This is in contrast to the non reservoir hosts (dogs, cats and humans) where detection can be extremely difficult. These "accidental hosts" can localize bacteria both intraendothelial and intra-erythrocyte. This provides unique capability for bacterial persistence and creates a challenge for definitive diagnosis. Preservation of the Bartonella organism ensues for efficient vector transmission, protects it from the host immune system and potentially contributes to decreased anti-microbial efficacy during treatment. Epidemiology indicates that Bartonella can be a co-infection with many dogs expressing Ehrlichia sp infection, suggesting transmission by similar vectors. Pathogenesis is presumed to be transmission from the bite of a tick or flea but some concern for direct transmission in body fluids into open wounds or scratches from one host to another is being considered. In the laboratory, fleas have been documented to transmit Bartonella spp.

Clinical findings for dogs and cats infected with Bartonella can be many but include endocarditis, lameness and bone pain, epistaxis, fever of unknown origin and myocarditis manifesting as arrhythmias as well as hemolytic anemia and granulomatous lymphadenitis and also vasculitis and hepatitis. Pathogenesis is thought to include endothelial wall inflammation, suppression of CD8+ and stimulation of CD4+ lymphocytes potentially creating a degree of chronic immunosuppression or altered function of the immune system. Concerns include whether single organism or co-infection with multiple tick borne organisms exists in these patients.

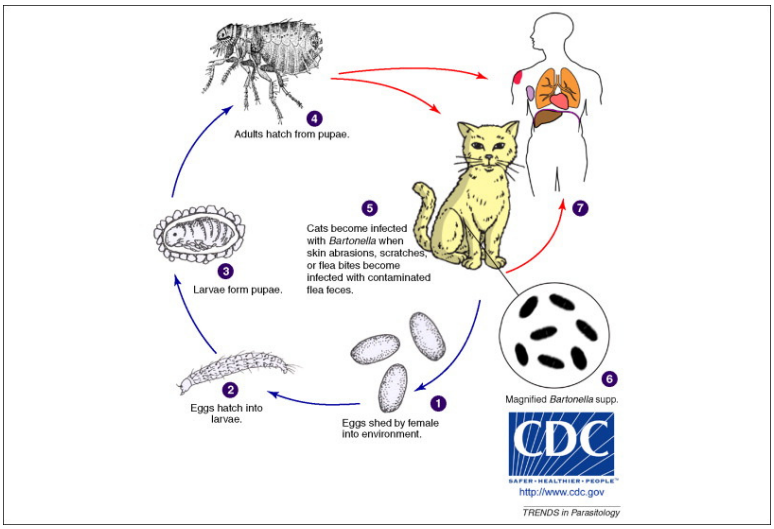
Diagnosis in dogs most frequently shows thrombocytopenia, anemia and neutropenia- each can be immune mediated. Thrombocytopenia is present in about 50% of cases, eosinophilia in 30%. Monocytosis frequently is present in Bartonella endocarditis. Serum biochemical finding are generally mild to non existent. In cats Bartonella spp. antibodies were correlated to polyclonal hyperglobulinemia and hypoglycemia. Antibodies are infrequently detected in sick (< 4%) or healthy (<1%) dog populations in endemic regions, so any positive titer animal should be treated. Knowing that conventional microbiological isolation tech-

niques lack sensitivity, Bartonella spp. is usually diagnosed by PCR amplification of organism specific DNA. A more sensitive isolation approach using the BAPGM (Bartonella alpha Proteobacteria growth medium) followed by real time PCR is available through galaxy labs (http://www.galaxydx.com/web/). The use of this approach has facilitated the recognitions of blood borne Bartonella spp. infections in many species.

Therapy is not clear cut. An optimal therapeutic plan has not been established for treatment in humans or companion animals. What is known is that a long period of treatment (4-6 weeks) may be necessary to eliminate the infection. Rapid resistance can develop- so macrolides (azithromycin) are no longer recommended. Fluroquinolones in combination with doxycycline are currently being used at North Carolina to treat clinical cases as researchers explore other treatment options. Doxycycline alone does not eliminate common Bartonella. Serum antibody titers decreased rapidly (3 to 6 months) and are no longer detectable in dogs that recover. Post treatment serology can be a useful adjunct to BAPGM/PCR to determine therapeutic elimination has been achieved. Cats often do not become seronegative in short term, but bacteremia can resolve with treatment and sometimes spontaneously.

Prevention and public health concerns include recent evidence that fleas and ticks can transmit Bartonella to humans. Therefore minimizing or eliminating flea and tick exposure becomes a greater veterinary and public health issue than previously. Veterinarians have an occupational risk of infection because of exposure to arthropods, body fluids, as well as bites and scratches. The increasing number of defined Bartonella spp. along with the high level of bacteremia in reservoir-adapted hosts ensures continued and increased exposure to the organism which has been isolated from effusions, CSF, blood and joint fluid. Frequent hand washing, protective equipment and covering cuts and avoiding needle sticks become more important in our field. Human physicians will also have a learning curve to look for and identify these infectious agents in chronically ill people particularly in patients working in the animal medical field.

References on request
Pictures Courtesy of Google Images



Our Doctors

Internal Medicine
Kelly Akol, DVM, DACVIM (SAIM)
Merrianne Burtch, DVM, DACVIM(SAIM)
Michelle Pressel, DVM, DACVIM (SAIM)
Bryn Hoffman, MVB (Residency Trained in Internal Medicine)

Surgery
Lisa Metelman, MS, DVM, DACVS
Tom LaHue, DVM, DACVS

Critical Care
Colleen Brady, DVM, DACVECC
Lillian Good, DVM, DACVECC

Cardiology
Kristine Chan, DVM, DACVIM(Cardiology)

Radiology (VRS)
Larry Kerr, DVM, DACVR
Mark Lee, DVM, DACVR

Emergency
Christian Robison, DVM
Mark Saphir, DVM
Jessica Kurek, DVM
Sara Heidelberger, DVM

Behavior
Jan Brennan, DVM (practice limited to behavior)

About Our Hospitals

Pacific Veterinary Specialists was founded to provide high quality, specialized medical care to companion animal patients. Our practice is dedicated to serving the veterinary community as a partner in total patient care. We offer comprehensive specialized services including video endoscopy, Doppler ultrasound, surgery, 24-hour ICU care, and emergency and critical care. Our staff is committed to providing compassionate and thorough medical care that meets the needs of the patient, client, and referring veterinarian. In September 2011 we opened PVSM and currently offer internal medicine appointments and same day referrals, Tuesday through Thursday in Monterey. Behavior consultations by appointment are available on Mondays.

PLEASE PLACE STAMP HERE

Pacific Veterinary Specialists

1980 41st Avenue