



# NATIONAL VETERINARY LABORATORY

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## NEWSLETTER

### Tribute to Veterinary Technician: Jan Corbishley<sup>©</sup>

Evelyn E. Zuckerman, Editor

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#### In This Issue:

In the winter 2019 issue of the NVL Newsletter (our 17<sup>th</sup> year and 69<sup>th</sup> issue- all issues are available at [www.natvetlab.com](http://www.natvetlab.com)) we will discuss our more than 50-year association with the Oradell Animal Hospital, Paramus, NJ and the importance of veterinary technicians- one special collaborator, Jan Corbishley, CVT. Veterinary technicians are central to efficient and safe functions of veterinary hospitals, laboratories and research facilities. Our laboratory has been fortunate to have had the collaboration of an outstanding veterinary technician, Jan Corbishley, who assisted us for more than 40 years in her position at the Oradell Animal Hospital and has been a co-author on 7 of our publications.<sup>1-7</sup> We will celebrate her 42-year career which just ended in retirement in January, 2019.

#### Oradell Animal Hospital:



The Oradell Animal Hospital, Paramus, NJ

The Oradell Animal Hospital (OAH) was established in 1961 by Drs. Gary Johnson and Anthony Palminteri, later to be joined by Dr. William Stockman, a University of Pennsylvania graduate and Dr. Hardy's classmate.



Drs Stockman, Johnson and Palminteri

OAH has grown into one of the largest, most technologically advanced, state of the art veterinary facilities in the country. The 37,000 sq. ft. hospital houses 65 veterinarians, including 15 interns yearly and 40 veterinary technicians for a total of about 340 staff. The hospital sees more than 50,000 thousand patients yearly.

#### AVMA and Veterinary Technicians:

Recently, during the AVMA House of Delegates business meeting, the Veterinary Information Forum was devoted to the topic of enhancing the utilization of veterinary technicians. The discussion made clear that the value of veterinary technicians is unquestioned and that efforts need to be made to increase technician use and boost job satisfaction. This consensus led to the recommendation that the AVMA Board of Directors convene a task force to design a plan to improve the utilization of veterinary technicians.

#### Jan Corbishley, CVT:

Jan Corbishley joined the Oradell Animal Hospital in 1975 after working at a previous veterinary hospital. She worked her way up from a starting technician to the supervisor of the technical staff. Jan earned her Certified Veterinary Technician (CVT) certification in 2012. After realizing her love for veterinary dentistry, she became chief dental technician and supervisor of the veterinary dental technicians. The dental department was extremely busy over the years due to Jan's coordination with the veterinarians and her departmental supervision and dental skills. She has been a member of the Veterinary Dental Society, since 1993, and has given several wet labs for veterinarians and veterinary technicians.

Working with us, Jan was one of the first to observe the frequency of oral inflammatory diseases in *Bartonella* infected cats.<sup>3,5,6,7</sup> With her coordination with the veterinarians at OAH, and her ability to obtain blood samples from the feline dental patients, we began to test these cats for *Bartonella*. We found a strong association with the oral inflammatory diseases and Jan documented the diseases and responses to therapy with excellent photographs. We have used her photographs in many of our laboratory notes and Newsletters (some are reproduced here in this Newsletter).



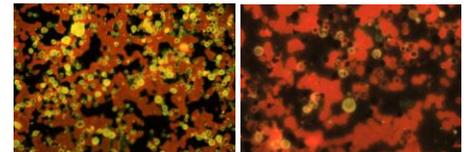
Jan Corbishley, in her new state-of-the-art dental suite at the opening of the new Oradell Animal Hospital in 2003.



Jan Corbishley, CVT at her retirement this month after 42 years of service.

#### Early Studies:

While at the Memorial Sloan Kettering Cancer Center, Dr. Hardy wanted to try new forms of therapy in naturally occurring cancers of outbred animals, such as dogs and cats, rather than relying on the experimentally-induced tumors of inbred mouse and rat systems. The early (1980s) collaboration of medical and veterinary teams occurred when he, and Evelyn Zuckerman, studied the antiviral compound AZT, from the Burroughs Wellcome Company, and found it to be effective against FeLV in cell culture as well as in FeLV infected pet cats.<sup>1</sup> Jan assisted us in coordinating the therapy of several FeLV-infected pet cats at OAH. This enabled the company to quickly test AZT (now Zidovudine) in human trials. Unfortunately, AZT is too toxic for use in FeLV-infected cats, but it was the first successful drug used to treat HIV in people, and is still in use.



Left: FeLV positive in 100% of WBCs before AZT therapy. Right: After AZT therapy less than 10% of WBCs were FeLV positive by IFA antigen detection.

#### Oral Inflammatory Disease in Cats:

Oral inflammatory diseases (OID) are among the most common diseases of pet cats. They occur in all regions of the oral cavity and consist of gingivitis, stomatitis, caudal stomatitis (faucitis), tonsillitis, and pharyngitis, periodontitis, oral ulcers, glossitis, and cheilitis. Cats of all ages suffer from OID, even kittens less than one year of age. There are numerous infectious causes of

OID including: bacteria (biofilm- bacterial plaque, numerous oral bacteria, *Staphylococcus* spp. *Streptococcus* spp., *Pseudomonas* spp., *Dermatophilus congolensis*, *Actinomyces*, *Pasteurella multocida*, and *Bartonella* spp.); viruses: (feline Calicivirus (FCV), feline Herpesvirus (FHV), FIV, FeLV, Panleukopenia virus), and Mycoses: (Cryptococcosis). Infectious agents can invade the oral cavity locally or systemically as generalized infections. *Bartonella* have been shown to cause disease in humans, dogs and cats. Humans have served as the "animal model" for *Bartonella* diseases of dogs and cats. Almost all of the *Bartonella* diseases of cats and dogs were first discovered and published from humans infected, most often with *Bartonella* originating from pet cats. An exception to this is the strong association of *Bartonella* induced OID of cats that has not been seen in humans. However, there are several reports of finding *Bartonella* in the oral cavities of humans, dogs and cats. OIDs have not yet been induced by experimental infections of cats.

All photographs on this page taken by Jan Corbishley



Gingivitis in young cats with little or no calculus. All were *Bartonella* WB seropositive.



Gingivitis and oral ulcer in a *Bartonella* WB seropositive cat.

### Etiologic Evidence for *Bartonella*:

Our evidence for the association of *Bartonella* with OID in cats is: 1) the serologic detection of *Bartonella* infections in approximately 48% of cats with OID<sup>3,5,6,7</sup>, 2) the excellent clinical response to specific anti-*Bartonella* antibiotic therapy<sup>2,4,6</sup> and 3) the correlation of the clinical improvement with the elimination of *Bartonella* after therapy.<sup>7</sup> There is often inflammatory disease in other systems such as the eye (uveitis) respiratory tract (URI, rhinitis, sinusitis), and GI tract in cats with OID caused by *Bartonella*. The inflammation in all the sites often resolves after therapy for the *Bartonella* infection in these cats.



Stomatitis and posterior stomatitis (faucitis) in *Bartonella* WB seropositive cats.



Severe stomatitis- *Bartonella* WB seronegative cat.

### Interpretation of a western blot serology positive *Bartonella* FeBart<sup>®</sup> test results in a cat with OID:

1. *Bartonella* is the sole cause of the OID.
2. *Bartonella* is a contributing cause of the OID along with another agent(s).
3. *Bartonella* is not the cause of any of the OID- (*Bartonella* is in the cat but not causing the OID).
4. *Bartonella* is not in the cat any longer but the antibody persists (history of infection).

### Interpretation of the Comparative Therapy Titration Test and Clinical Response to Therapy in OID:

Clinical Response:	Titer Reduction*	Interpretation:
100% resolved	Yes	Cause
100% resolved	No**	Not Cause
<u>Excellent:</u>		
80-99% improved	Yes	Polymicrobial
80-99% improved	No**	Not Cause
<u>Good:</u>		
60-79% improved	Yes	Polymicrobial
60-79% improved	No**	Not cause
<u>Fair:</u>		
50-59% improved	Yes	Polymicrobial
50-59% improved	No**	Not cause
<u>Failure:</u>		
<50% improved	Yes	Not cause
<50% improved	No**	Unknown**

\* A reduction in *Bartonella* antibody titer 6 months after therapy indicates elimination of the infection.

\*\* Must retreat to eliminate the infection and re-titer 6 months after therapy.

Polymicrobial= *Bartonella* and other organisms- viruses & other bacteria.

### *Bartonella* Therapy- Clinical Response:

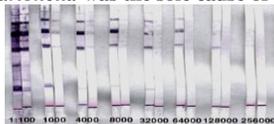
As summarized in the table above, the involvement of *Bartonella* in cats with OID can best be determined after specific antibiotic therapy. If there is a 100% resolution of the OID, especially in cats who have failed previous other antibiotic therapy, *Bartonella* was the sole cause of the OID. Cats with between 50 and 99% improvement should be considered co-infected with *Bartonella* and other microorganisms such as other bacteria or viruses. Each agent contributes to the inflammation to various degrees.



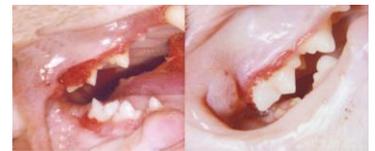
Therapy result- 100% resolution and titer decrease- *Bartonella* was the sole cause of the OID.



Therapy result-Cat #44703 100% resolution and titer decrease- *Bartonella* was the sole cause of the OID.



Cat #44703- 16-fold titer reduction indicating elimination of *Bartonella* infection.



Therapy result- 80% improvement and titer decrease- indicating a polymicrobial cause- *Bartonella* and other agent(s).



Therapy result- no improvement and titer decrease- indicating *Bartonella* was not the cause but was eliminated from the cat.

### References: With Jan Corbishley

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3. Hardy, WD, Jr., Zuckerman, EE, Corbishley, J, Seroprevalence of *Bartonella*-infection in Healthy and Diseased Cats in the United States and Caribbean: Evidence for *Bartonella*-Induced Diseases in Cats. International Conference of the American Society for Rickettsiology, Big Sky, Montana, August 17-22, 2001.
4. Hardy, WD, Jr., Zuckerman, EE, Corbishley, J, Gold, JWM, Baron, P., Gilhuley, K, Kiehn, TE, Polsky, B, and Armstrong, DA. Efficacy of High Dose, Long Duration Doxycycline or Azithromycin Treatment for *Bartonella* Infections in Pet Cats. International Conference of the American Society for Rickettsiology, Big Sky, Montana, August 17-22, 2001.
5. Hardy, WD, Jr., Zuckerman, EE, Corbishley, J. Serological Evidence that *Bartonella* Cause Gingivitis and Stomatitis in Cats. American Veterinary Dental Society Meeting, Savannah, GA, October 2002.
6. Hardy, WD, Jr., Corbishley, J, and Zuckerman, EE, Azithromycin Therapy of *Bartonella*-Infected Cats with Gingivitis and Stomatitis. American Veterinary Dental Society Meeting, Savannah, GA, October 2002.
7. Hardy, WD, Jr., DeForge, DH, Colmery, BH, White, J, Richter, JG, Corbishley, J and Zuckerman, EE. *Bartonella* spp.: An Etiologic Agent of Feline Oral Inflammatory Disease. 25th Dental Forum, American Veterinary Dental Society Meeting, Boston, MA, November 10-13, 2011.

We are very grateful for the 50-year collaboration of the Oradell Animal Hospital, the numerous staff clinicians at OAH who identified and followed cases of FeLV- and *Bartonella*-infected cats, and especially to Jan Corbishley, a truly dedicated, scientifically capable, and energetic veterinary technician, for their assistance in our research.

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*Bartonella* references can be obtained at:  
[www.nlm.nih.gov/](http://www.nlm.nih.gov/) or [natvetlab.com](http://natvetlab.com)