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Bovine Anaplasmosis

Cases of clinical anaplasmosis are
diagnosed year round in Oklahoma
cattle; however, the incidence is high-
est during late summer and fall. The
most commonly reported clinical signs
of anaplasmosis are unexpected death,
respiratory distress, lethargy, anorexia
and abortion.

OADDL offers two rapid diag-
nostic tests for bovine anaplasmosis.
The polymerase chain reaction (PCR)
test detects pathogen-specific DNA of
Anaplasma marginale in whole blood
or blood-rich tissues such as the spleen.
The enzyme-linked immunosorbent
assay (ELISA) detects antibodies in the
serum.

– B. Peake & Dr. A. Ramachandran

Seasonal Distribution of Bovine Anaplasmosis
Cases at OADDL by PCR Testing: 2015-2017

[Graph showing seasonal distribution of cases]

Center for Veterinary Health Sciences
Healthy Animals — Healthy People
A 5-Year Survey of Intestinal Parasites in Cats

A total of 2,188 fecal samples from client-owned (1,683) and shelter (505) cats were examined from 2013-2017.

Intestinal parasites were not identified in the majority of the samples (72.1%). The five most commonly detected parasites were Cystoisospora spp. (11.8%), Toxocara cati (8.0%), Giardia spp. (4.3%), Alaria spp. (3.6%), and tapeworms (taenid and Dipylidium caninum; 2.6%). Less commonly identified parasites (1.2%; “OTHERS”) included Capillaria spp., Physaloptera spp., Aelurostrongylus abstrusus, trichomonads, Spirometra spp., Platynosomum spp., Toxascaris leonina, Mesocestoides spp., and Sarcocystis spp.

Interestingly, the prevalence of intestinal parasites in client-owned and shelter cats was comparable.

Veterinarians should be aware of Alaria spp., as the incidence of infection with this parasite has been increasing in Oklahoma since 1990 (https://www.ncbi.nlm.nih.gov/pubmed/28358635).

In addition to identifying intestinal parasites, a fecal flotation examination may also assist in diagnosing ectoparasites such as Demodex and Cheyletiella.

– Dr. Y. Nagamori & M. Wohltjen

Ethylene Glycol Toxicosis in a Cat

Ethylene glycol (antifreeze) toxicosis was recently diagnosed in a cat submitted to OADDL. The patient exhibited an acute onset of lethargy and died within few hours.

Microscopic examination of the kidney showed renal tubular necrosis throughout the cortex (Figures A and C), along with the presence of numerous intratubular oxalate crystals that were birefringent under polarized light (Figures B and D).

Ethylene glycol intoxication in cats and dogs occurs most commonly in the fall, winter and early spring. The lethal dose in cats (1.4 mL/kg) is much lower than in dogs (4.4 mL/kg). Following ingestion, ethylene glycol is rapidly absorbed by gastrointestinal tract. Highly-toxic metabolites of ethylene glycol are formed following liver metabolism with accumulation of calcium oxalate crystals in the kidney, resulting in acute renal failure and death.

– Dr. R. Chien
Brucella canis Abortion in an Oklahoma Dog

Brucellosis was recently diagnosed at OADDL in a 2-year-old American Pitbull with a history of preterm labor and abortion. Two fetuses were presented for necropsy. The primary histologic finding was placentitis with intraslesional bacteria. Brucella canis was cultured from fetal lung.

The B. canis isolate was forwarded to the National Veterinary Services Laboratories (NVSL) for whole genome sequencing. Genome sequence revealed that the Oklahoma isolate was closely related to a B. canis isolate from a Nebraska dog and both shared as a common ancestor an isolate from a Texas dog. The Oklahoma isolate revealed two unique single nucleotide polymorphisms, SNPs (Fig 1).

Brucellosis is a zoonotic disease. Brucella canis, a gram-negative bacterium, is the usual cause of brucellosis in dogs and disease usually involves the reproductive organs. Infection can spread vertically from mother to pup and horizontally by ingestion or contact with bodily excretions or secretions from infected dogs. B. canis infection should be considered in dogs with reproductive failure.

– Dr. A. Ramachandran

Phylogenetic tree detailing the genetic relationship of Brucella canis isolates (n=59) from the NVSL database. The red font indicates the Oklahoma isolate of interest. (Dr. Suelee Robbe-Austerman, NVSL).

Figure 1. Single nucleotide polymorphism comparison table of different Brucella isolates from Texas, Nebraska and Oklahoma (Dr. Suelee Robbe-Austerman, NVSL).

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**Come see our booth at the**

Central Oklahoma Cattle Conference

Friday, February 2, 2018
8 a.m. – 4 p.m.
at the Payne County Expo Center

For more information about the conference, call Nathan Anderson at (405) 747-8320.
Letter from the Director

As we begin a new year, I would like to thank all of our clients for their tremendous support in 2017!

We are very optimistic that 2018 is going to be a successful year for OADDL. January 26 will mark our 42nd year of serving veterinarians and animal owners in Oklahoma. In 2018, we also will celebrate our 40th consecutive year of full accreditation by the American Association of Veterinary Laboratory Diagnosticians (AAVLD).

We hope you enjoy the articles in this issue of our e-Newsletter, including a reminder that we see cases of bovine anaplasmosis throughout the year in Oklahoma.

Dr. Nagamori has provided parasitology results from fecal examinations on more than 2,000 client-owned and shelter cats over a 5-year period. If you need assistance identifying any of these parasites in your patients, please contact us.

Also, Drs. Ramachandran and Chien share recent cases of brucellosis in a dog and antifreeze toxicosis in a cat. As you will see, genetic analysis revealed that the *Brucella canis* isolate (and its closest relative) appears to have tracked along interstate 35. These newer tools provide valuable information on the epidemiology of pathogens we see at OADDL.

As always, we welcome comments and suggestions to help make our e-Newsletter a more useful resource.

– Dr. K. Bailey

Getting to Know Us

Megan Wohltjen grew up in a military family and has lived in seven different states. She moved to Stillwater, Oklahoma in 2012 to attend Oklahoma State University where she earned a Bachelor’s of Science in Zoology. In January 2017, she began work as a research technician in the College of Veterinary Health Sciences, Veterinary Pathology - Parasitology Laboratory located in the OADDL. In addition to her diagnostic cases, Megan also teaches parasitology diagnostics to fourth year veterinary students and is working towards a MS degree in Veterinary Biomedical Sciences with a research focus on the prevalence of *Cercopithifilaria* in dogs. Megan enjoys staying active and being outdoors. She has two dogs, Junior and Jade. She loves to take them on walks, play fetch and cuddle. Check out some of her fascinating work on the [Okstate Parasit D-lab YouTube channel](https://www.youtube.com/channel).

Ideas/Suggestions for Future Content

We want to hear from you. Send us your ideas and suggestions to oaddl@okstate.edu.

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