

OADDLE-News

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Hepatozoonosis in an Oklahoma Dog

A dog infected with *Hepatozoon americanum* was recently diagnosed at OADDL by histopathology on a muscle biopsy. Characteristic “onion skin” parasitic cysts (Fig. A) and pyogranulomatous myositis (Fig. B) were identified. Few merozoites of *H. americanum* were also observed in leukocytes within the inflammatory foci (Fig. C).

Hepatozoonosis is a protozoal disease transmitted by ticks, especially the Gulf Coast tick, *Amblyomma maculatum*. Dogs infected with *H. americanum* develop debilitating clinical disease associated with myositis. Clinical signs include high fever (102-106°F), depression, generalized muscular atrophy, and hyperesthesia that are unresponsive to antibiotic treatments. Prominent leukocytosis, specifically neutrophilia, ranging from 20,000 to 200,000 leukocytes/μL is commonly seen in affected dogs.

The most reliable diagnostic test methods for hepatozoonosis are polymerase chain reaction (PCR) analysis on whole blood and histopathology examination on muscle biopsies. Rarely, *H. americanum* can be identified in peripheral blood leukocytes.

— Drs. R. Chien, A. Confer & K. Allen

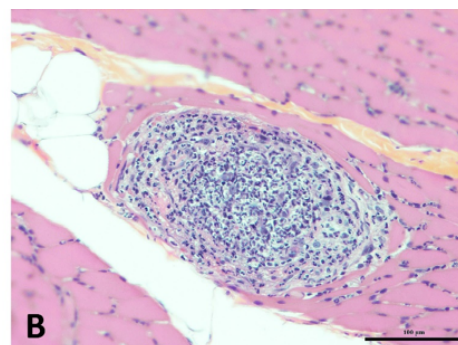


Figure B: Pyogranulomatous inflammation in the skeletal muscle secondary to released merozoites of *H. americanum*. H&E stain.

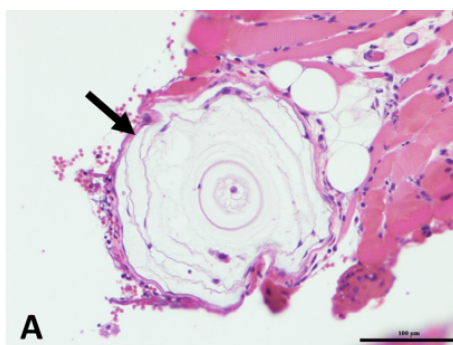


Figure A: A large “onion skin cyst” (arrow) in the skeletal muscle caused by *Hepatozoon americanum*. The cyst contains multiple concentric layers of mucopolysaccharide material surrounding a central, infected host cell. H&E stain.

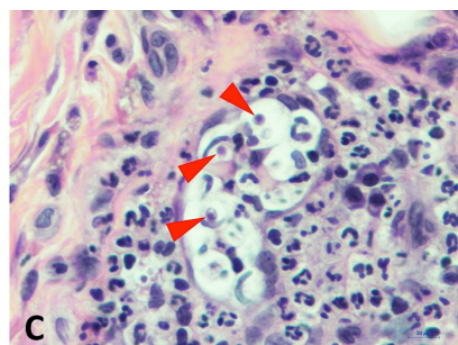


Figure C: Pyogranuloma in the adipose tissue. Note the small merozoites (arrowheads) in the cytoplasm of the leukocytes. H&E stain.



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Tick Identification Results in Surprising Find

It's not every day you see a new tick! In May 2018, *Haemaphysalis longicornis*, the longhorned tick or bush tick, was identified at Oklahoma State University's veterinary college from a dog in Arkansas. This exotic tick was only recently recognized to be in the United States. Although the USDA investigation is ongoing, this finding underscores the importance of accurate tick identification on veterinary patients.

Originally from Asia, *H. longicornis* has successfully established in other areas of the world including Australia and New Zealand. It readily feeds on cattle, small ruminants, horses, dogs, cats, people, and several common wild-life species, including deer, opossums, and raccoons.

The tick can also serve as a vector of several disease agents, including *Theileria orientalis*, an agent of bovine



Anterior end of *Haemaphysalis longicornis* from a dog from Arkansas identified at Oklahoma State University's Center for Veterinary Health Sciences. (Photo credit: Dr. Meriam Saleh)

theileriosis. Cattle present with disease similar to anaplasmosis and blood samples should be submitted to OADDL for direct evaluation for infection.

OADDL provides affordable tick identification services as well as blood testing for anaplasmosis and other pathogens. Ticks can be submitted

to the clinical parasitology service at OADDL or may be sent to the ongoing national survey of ticks on pets (www.showusyourticks.org) run through the CVHS research laboratory led by Dr. Susan Little.

– Dr. S. Little

High Sulfate Content in Water Samples

In the first six months of 2018, OADDL has received 30 water samples for water quality analysis.

Of the 30 water samples, the sulfate content in 17 samples exceeded the livestock water consumption guideline of 1000 ppm sulfate. The sulfate content in these 17 samples ranged from 1,081 ppm to 4,248 ppm.

In cattle, the clinical signs associated with the consumption of high-sulfate water depend in large measure on the sulfate content in the water. The following are recognized clinical conditions:

- 1,000-3,000 ppm: diarrhea, decreased water and feed intake, decreased availability of copper
- > 3,000 ppm: copper deficiency, polioencephalomalacia (PEM)

It is important to note that other factors (e.g. confinement, diet, environmental conditions) may impact an animal's ability to tolerate high sulfates in the



water. Grazing cattle tend to tolerate high-sulfate water better than cattle in confinement.

The sources of the 30 water samples included ponds, creeks, tanks,

or were not identified. Water quality analysis was performed at OSU's Soil, Water & Forage Analytical Laboratory (SWFAL) in Stillwater.

– Dr. K. Bailey

Pathology Wet Lab



OADDL hosted forty (40) 1st – 3rd year veterinary students in a Pathology wet lab to learn how to properly remove obex, brain, lymph nodes, and aqueous humor and proper collection procedures for TSE diseases. A special thanks to the Oklahoma Department of Agriculture, Food and Forestry (ODAFF) and USDA-APHIS for providing specimens for each student, Drs. Roach (shown on far right) and Stone from ODAFF, and Dr. Proctor, Dr. Aebi and Vicki Ernsting from USDA VS.

– K. Larrabee



Meet Our New Pathologist

Craig Miller is an Anatomic Pathologist and Assistant Professor in the Department of Veterinary Pathobiology.

Originally from Tucson, Arizona, he earned his DVM and PhD degrees from Colorado State University and is a Diplomate of the American College of Veterinary Pathologists.

Dr. Miller's research interests focus on animal models of HIV pathogenesis

and virology.

In his spare time, Craig enjoys playing guitar and going fishing, hiking and doing other outdoor activities with his wife and 3 boys. While in veterinary school, Craig was the lead singer and front man of a veterinary-themed rock band called "Bog Spavin" and headlined several large symposium events.



Get Your Kicks

at the 66th Annual OCA
CONVENTION & TRADE SHOW

July 20 & 21, 2018
Embassy Suites, Norman, OK



Letter from the Director

According to the Farmers' Almanac, the traditional dog days of summer extend from July 3 to August 11, coinciding with the rising of the Dog Star, Sirius.

In this issue of our e-Newsletter, we spotlight summer concerns such as a new tick species in our area, high

sulfates in livestock water, and hepatozoonosis in an Oklahoma dog.

We also welcome a new pathologist and new staff members to OSU.

In addition to our daily diagnostic testing, we work closely with our state, federal and industry partners to support training opportunities for vet-

erinary students and technicians. We have very enthusiastic students who are eager to learn.

At OADDL, we value our wonderful clients and partners! It is our goal to help you solve problems.

– Dr. K. Bailey

Getting to Know Us

Heather Ross is originally from Southern California and moved to Oklahoma at a young age. She graduated from Glencoe High in 2016 and attended OSU for a year. She has one older brother who proudly serves in the US Army overseas. Heather enjoys spending time with her family and friends, riding horses and playing with her dog, Cora. She raises and trains barrel horses and has ridden and competed in multiple disciplines, both Western and English. Heather's favorite pastime is competing in barrel races or rodeos with her



family and her 3 horses. Heather is a Receiving/Necropsy Technician.

Cristina Ramos joined the Molecular Diagnostics Lab in March as a Senior Lab Technologist. She received a B.S. in Health Science from Baylor University before coming to OSU and receiving her B.S. in Food Science, with a concentration in Meat Science in December of 2017.

Cristina grew up on a beef cattle ranch in Dexter, NM. She and her family have enjoyed the quiet lifestyle that comes with growing up and working on a ranch.

She recently got engaged (the same day as her interview with OADDL) to her boyfriend of 3 years.



In her spare time, Cristina enjoys baking, horseback riding, fishing, movies, and spending time with family and friends.

Ideas/Suggestions for Future Content

We want to hear from you. Send us your ideas and suggestions to

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