OKLAHOMA STATE UNIVERSITY CENTER FOR VETERINARY HEALTH SCIENCES — OKLAHOMA ANIMAL DISEASE DIAGNOSTIC LABORATORY

OADDL E-News

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In this Issue

Faculty

Liver Fluke Infection in an Oklahoma Beef Herd

Liver fluke (*Fasciola hepatica*) infection was recently diagnosed in a beef cow originating from Lincoln County, OK. Several cows in the herd were in poor body condition despite increasing their plane of nutrition and a history of deworming. The pregnancy rate last November was 30%.

Sectioning of the liver at necropsy revealed numerous flukes within prominently thickened bile ducts (Fig. 1).

To diagnose *F. hepatica* infection in live cattle, a fecal sedimentation test to detect its egg is still the gold standard (Fig 2). Clorsulon and albendazole are effective in eliminating adult flukes in cattle. Since no currently-approved drugs are efficacious against migrating juveniles (i.e. flukes less than 8 weeks old), the timing of treatment is critical.

Please click on this link for a video of the flukes in this case being removed from the cow's liver: https://www.youtube.com/watch?v=LFxRZWUP32Y.

– Drs. R. Chien & Y. Nagamori

***Figure 2:** Fasciola hepatica egg identified during fecal sedimentation examination (400x). Photo courtesy of Y. Nagamori.*

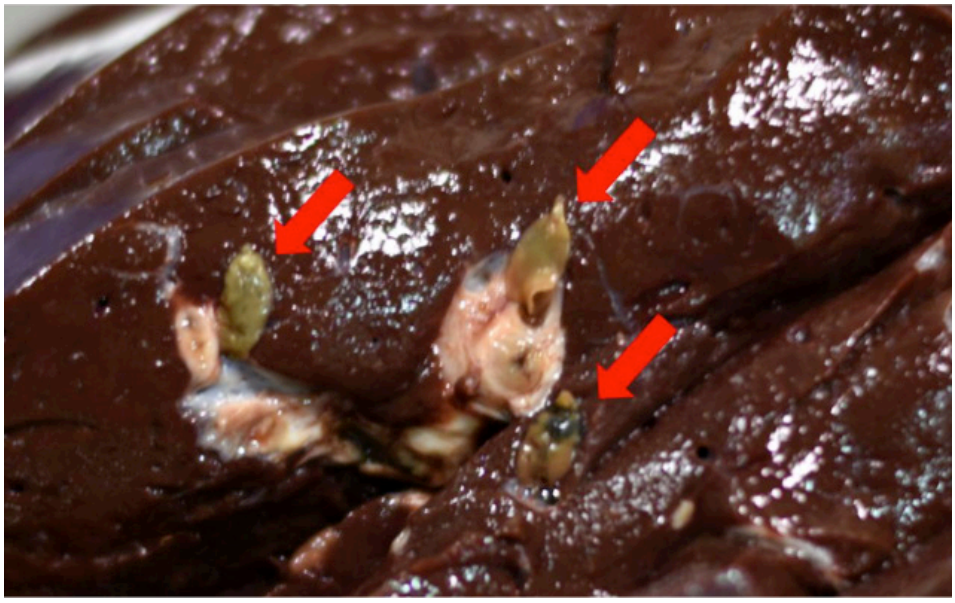


Figure 1: Cow liver with 3 flukes lodged in bile ducts (arrows). Note prominent thickening of the bile ducts by fibrosis. Photo courtesy of R. Chien.

CENTER FOR VETERINARY HEALTH SCIENCES
Healthy Animals — Healthy People

Amoebic Meningoencephalitis in a Dog

Free-living amoebae are microscopic parasites (protozoa) that have been found in soil and water worldwide. Several free-living amoebae have been reported to cause infection of the central nervous system, including the genera *Acanthamoeba, Balamuthia, Naegleria* and *Sappinia* in both human and animals.

A case of severe necrotizing and hemorrhagic meningoencephalitis caused by *Balamuthia mandrillaris* infection in a dog was recently diagnosed at OADDL. The dog showed acute onset of neurologic disorders, deteriorated rapidly, and died in 4 days after onset of clinical signs despite medical treatment.

During necropsy examination, a hemorrhagic focus was found on the cerebral cortex. Microscopically, locally extensive inflammation and hemorrhage were observed (Fig 1) with numerous intralesional amoebic trophozoites (Fig 2). The organisms were positive by indirect immunofluorescence assay (IFA) specific to *B. mandrillaris* (Fig 3).

Amoebic encephalitis should be considered among clinical rule-outs in dogs with neurologic disorders, especially those with a history of exposure to soil and stagnant water.

— Drs. R. Chien & A. Confer

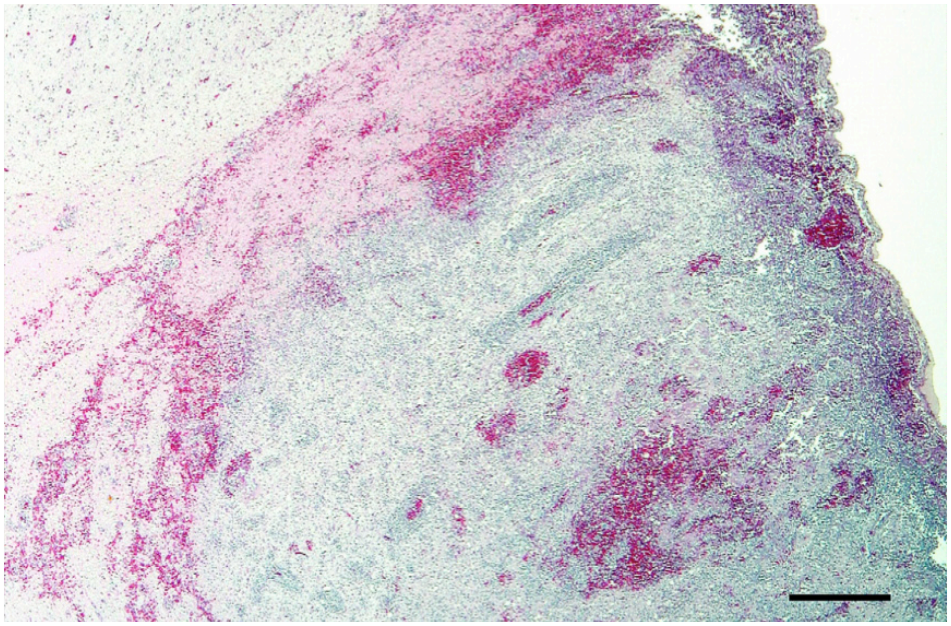


Figure 1: Dog brain. Locally extensive necrotizing and hemorrhagic meningoencephalitis. H&E Bar = 500 μm. Photo courtesy of R. Chien.

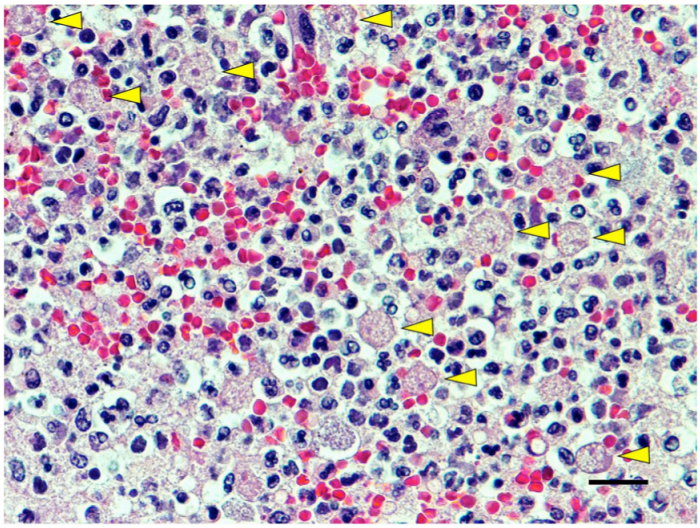


Figure 2: Dog brain. Intralesional amoebic trophozoites (arrowheads). Note the undulating cell membranes and distinct karyosome. H&E Bar = 20 μm. Photo courtesy of R. Chien.

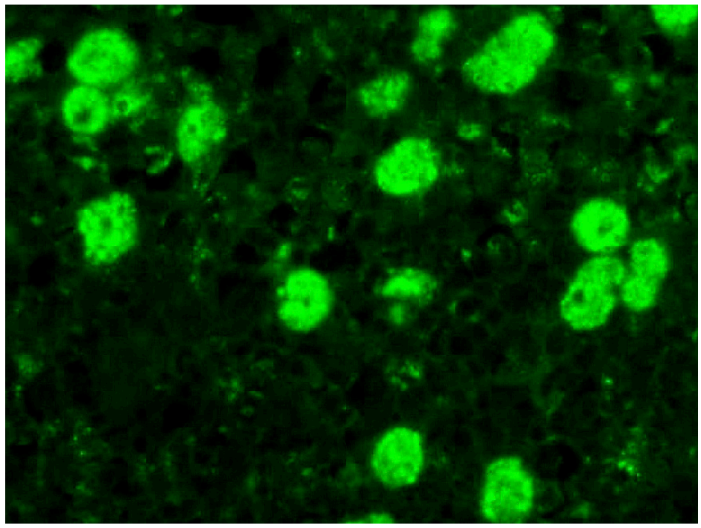


Figure 3: Dog brain. Immunofluorescence assay specific to Balamuthia mandrillaris. Photo courtesy of CDC.

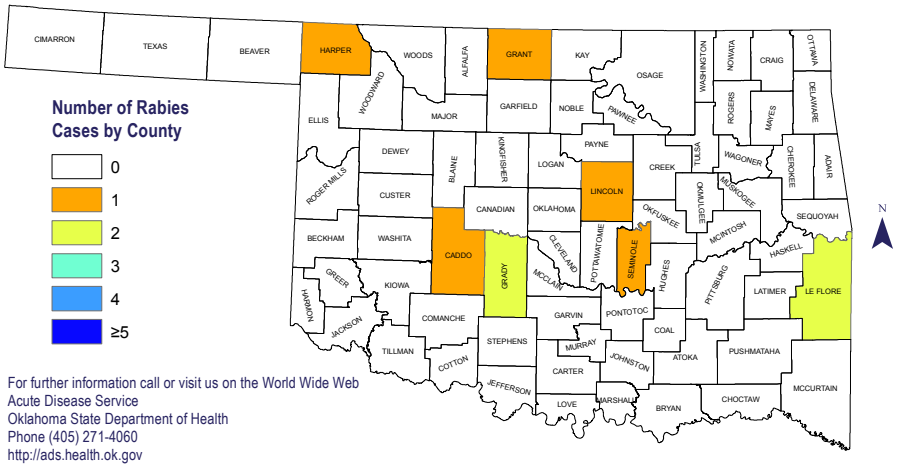
Rabies Confirmed in a Cow

On April 10, OADDL received confirmation of the first case of rabies for 2017. The case involved a 4-5 year old red Angus cow from Washita County that exhibited staggers, aggression and pytalism prior to death.

As of April 12, OADDL has forwarded brain tissue from 25 animals to the Oklahoma State Department of Health (OSDH) in Oklahoma City for rabies testing (see table). Note, the OSDH data does not reflect this recently identified positive.

– D. Pettit & Dr. V. Windiate

OSDH County Location of Animal Rabies in Oklahoma January 1 through March 31, 2017 (n=9)



For further information call or visit us on the World Wide Web
Acute Disease Service
Oklahoma State Department of Health
Phone (405) 271-4060
http://ads.health.ok.gov

Rabies Testing on OADDL Cases: Jan. 1 – Apr. 12, 2017			All Rabies Positive Animals at OSDH: Jan. 1 – Mar. 31, 2017
Species	**Number Tested**	**Number Positive**	**Number Positive**
Bovine	6	1	1
Canine	9	0	0
Equine	3	0	0
Feline	5	0	0
Opossum	1	0	0
Rabbit	1	0	0
Skunk	0	0	8
TOTALS:	**25**	**1**	**9**

Anthrax Testing Reminder

Postmortem blood is the preferred sample for anthrax testing at OADDL. Entire carcasses should not be submitted due to the health risk it poses to the public and laboratory staff.

Initial screening of the blood sample by microscopic examination will be performed. However, animals undergoing decomposition have cadaver bacilli in their blood vessels, so bacterial culturing is required to definitively rule-out anthrax. Bacterial culturing takes at least 24 hours.

To prevent any leakage, please double-bag all blood samples submitted for anthrax testing. Paperwork should be placed outside the bags.

Additional testing may be performed on blood samples that are negative for anthrax to rule-out other causes of acute death such as anaplasmosis or lead toxicity.

– Dr. A. Ramachandran

Come see us at our booth during the

OSU/OVMA Summer Seminar

June 16 & 17

Letter from the Director

We are excited to share this issue of our e-Newsletter with you. As you will see, we continue to have interesting cases come through the lab on a near-daily basis. Some of the cases include important diseases that are only sporadically diagnosed in Oklahoma.

A more common issue we see in springtime here is lead toxicosis in calves, particularly in cattle coming out of winter in a marginally-deficient mineral status. We have also included a reminder about a safe way to perform anthrax testing and a recent case of rabies that we had in a beef cow.

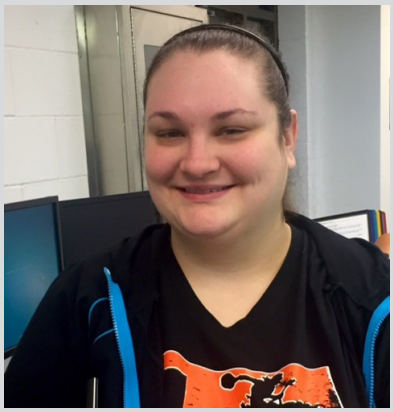
At OADDL we work very hard to provide you with high-quality and timely results. We have a great team and we are proud to spotlight some of them in each issue.

The next time you are in Stillwater, we encourage you to drop by the lab and visit. We are committed to continual improvement and value your input.

Congratulations to the graduating class of 2017!

Getting to Know Us

Stephanie Taylor is originally from Miami, OK where she received her Associate's degree in Liberal Arts from NEO A&M. She moved to Stillwater in 2007 and studied Zoology at OSU. She began working at OADDL as a Data Entry Technician in February 2017. She has three goofy cats at home, Binks, Emily, and Hana, and in her free time enjoys reading and spending time with friends and family.



Leanne Tillman is originally from Oswego, IL. She received her Bachelor's degree in Animal Science, Biotechnology from Oklahoma State University in 2015. Leanne has been working at OADDL since mid- November as a Senior Laboratory Technologist in the Microbiology Lab. In her free time, Leanne enjoys baking, hiking and playing with her dog.

Ideas/Suggestions for Future Content

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

Contact Us

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