

OADDL E-News

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Histophilus somni Infection in Cattle



Figure 1. Brain from a heifer with histophilosis. Note the yellow-gray, purulent exudate in the leptomeninges overlying the ventral brainstem and part of the thalamus.

Histophilosis is an important disease of feedlot cattle and manifests clinically as respiratory, neurological and cardiac diseases. *Histophilus somni* is one of the major pathogens of bovine respiratory disease (BRD) complex, usually causing fibrinous pleuropneumonia. The bacterium can also invade the circulation and cause vasculitis, thrombosis in multiple organs and septicemia.

The neurological form of histophilosis is known as infectious thrombotic meningoencephalitis (TME). Cattle with the neurological form may develop purulent meningitis (Figure 1) and reported clinical signs include ataxia, paresis, blindness and seizures.

Occasionally, animals infected with *H. somni* die prior to observation of any clinical signs. At necropsy, myocardial infarction and necrotizing myocarditis

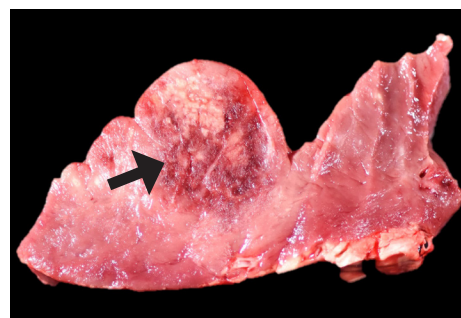


Figure 2. Heart from a heifer with histophilosis. Note the locally extensive, necrotizing myocarditis in the papillary muscle of the left ventricular wall (arrow).

(Figure 2) may be observed. Myocardial necrosis is often limited to the papillary muscle of the left ventricle of the heart.

Histophilosis should be considered among clinical rule-outs in cattle with respiratory and neurologic signs.

— Dr. R. Chien



CENTER FOR VETERINARY HEALTH SCIENCES
Healthy Animals — Healthy People

Antimicrobial Susceptibility Profile of *Histophilus somni* Isolates at OADDL: 2018 – 2019

Histophilus somni is a significant respiratory pathogen of cattle and a component of bovine respiratory disease (BRD) complex.

In 2018 and thus far in 2019, thirty-five percent (35%) of the *H. somni* isolates at OADDL were resistant to at least 3 or more different classes of antimicrobial agents, qualifying the isolates as multidrug resistant (Table 1).

OADDL continues to monitor *H. somni* and *Mannheimia haemolytica* isolates for multi-drug resistance patterns.

– Dr. A. Ramachandran

Table 1. Antimicrobial Susceptibility Profile for *Histophilus somni* Isolates at OADDL (January 2018 – March 2019)

| ANTIBIOTIC | SUSCEPTIBLE | INTERMEDIATE | RESISTANT |
|-----------------|-------------|--------------|-----------|
| Ceftiofur | 100 | 0 | 0 |
| Danofloxacin | 57 | 0 | 43 |
| Enrofloxacin | 57 | 43 | 0 |
| Florfenicol | 86 | 7 | 7 |
| Oxytetracycline | 21 | 0 | 79 |
| Penicillin | 93 | 0 | 7 |
| Spectinomycin | 36 | 0 | 64 |
| Tilmicosin | 57 | 21 | 21 |
| Tulathromycin | 57 | 14 | 29 |

Number of *H. somni* isolates tested = 14

Strobilocercosis in a Pet Rat

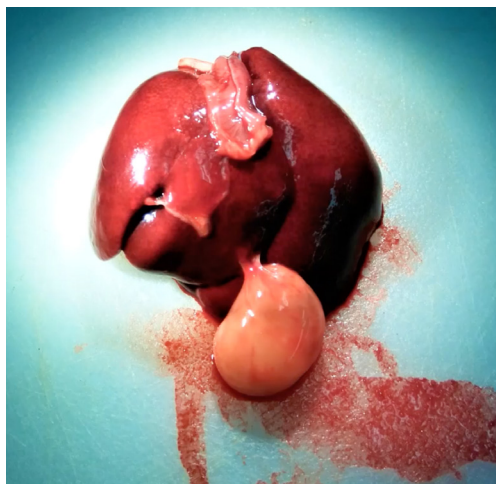


Figure 1. Liver with attached parasitic cyst from a pet rat.



Figure 2. Juvenile tapeworm (*Taenia taeniaeformis*) removed from the liver cyst.

A 2-year-old, spayed female, pet rat presented to OADDL for necropsy after being treated for severe respiratory distress associated with left atrial thrombosis.

During necropsy, a cystic structure was attached to the edge of the left medial liver lobe (Figure 1). The cyst contained a single, 14-15 cm long, juvenile *Taenia taeniaeformis*, called a strobilocercus (Figure 2).

T. taeniaeformis is a common tapeworm found in cats following ingestion

of infected rodents. Rodents can serve as an intermediate host by ingestion of eggs. In a rodent, the larva migrates through the intestine and then forms a cyst associated with the liver. Strobilocercosis is usually non-pathogenic and an incidental finding during necropsy examination.

Click on the following link to watch a video of a live strobilocercus in this case being removed from the cyst: [Strobilocercus in a pet rat.](#)

– Drs. S. Salopek & Y. Nagamori

34th Annual

GOAT & HAIR SHEEP FIELD DAY

APRIL 27, 2019
LANGSTON UNIVERSITY



TOPIC: Holistic Approach
GUEST SPEAKERS: Ms. Gianacis Caldwell & Dr. Ann Wells
 Free registration begins at 8 a.m. and the first speaker will begin at 9 a.m.
 Lunch can be purchased for \$10.



Recent Lead Toxicosis Cases at OADDL

Over the past 12 months, OADDL received samples from 30 animals for lead testing. The samples included whole blood (24), liver (6) and kidney (1); blood and liver was received from one animal.

Lead toxicosis was diagnosed in 6/30 animals (20%). Of the 6 animals with lead toxicosis, 5 were cattle and 1 was a bald eagle. The reported ages of the affected cattle ranged from 5 months to 5 years old (Table 1).

Clinical signs in the affected cattle included blindness, depression, stupor, grinding teeth, drooling, seizures, twitching, stumbling and thrashing prior to death. In one case, 5 animals were dead within a 100-yard area. In another case, 3 cows died with central nervous system (CNS) signs and a burned car battery was found on the property.

It has been suggested that some calves coming off winter pasture are deficient to marginally deficient in trace minerals, and this imbalance leads them to preferentially seek out lead-containing (salty) substances such as exposed automobile battery plates, old plumbing, putty, drilling pipe thread compound, electrical cable shielding, or paint on old outbuildings.



Table 1. Lead Toxicosis in Cattle from April 2018 – March 2019

| AGE | DATE OF SUBMISSION TO OADDL | REPORTED CLINICAL SIGNS |
|-------------------------|-----------------------------|---|
| 5 months | May 2018 | Blind, stuporous, grinds teeth and drools |
| Calf (unspecified age) | August 2018 | Seizures and CNS signs |
| 8 months | January 2019 | Blind |
| Steer (unspecified age) | February 2019 | Blind, depressed and grinds teeth |
| 5 years | March 2019 | CNS signs, twitching, stumbling, thrashing prior to death |

Calves with lead toxicosis may be found dead or exhibit neurologic signs. The preferred sample to test in a neuro-

logical animal is whole blood in EDTA. In dead cattle, fresh kidney and liver are good samples to test.

Reminder: New Transport Medium for Trich PCR Testing of Bulls!

OADDL now offers an alternative to the Trich InPouch® for trichomoniasis PCR testing of bulls.

Benefits of the new transport medium include:

- Inexpensive
- No incubation required (same-day testing)
- Easier to handle
- Longer expiration time

Call us for details! (405) 744-6623

– Dr. K. Bailey





SUMMER SEMINAR

JUNE 21-22, 2019

REGISTER TODAY

Online registration open until June 11.



Letter from the Director

Your team at OADDL is off to a strong start in 2019!

Undoubtedly, many of you have probably heard about the recent diagnosis of porcine epidemic diarrhea virus (PEDv) at OADDL. And you are probably aware that the outbreak involved show pigs at the Oklahoma Youth Expo (OYE).

But what you may not be aware of is how many Oklahomans are actively engaged in OYE. The 2019 OYE concluded on March 22 and involved 21,159 head of cattle, pigs, goats and sheep – making it the world's largest junior livestock show!

We extend our congratulations to all exhibitors at OYE, but particularly our next generation of ranchers, farmers and livestock producers whose hard work resulted in valuable scholarships.

In addition to testing for common diseases of swine like PEDv, OADDL was recently approved to test for African swine fever (ASF) virus. Outbreaks of ASF are currently resulting in high swine mortality in China, Russia, southeast Asia, and parts of eastern Europe. This disease is a serious threat to U.S. swine and emphasizes the biosecurity measures we take every day to protect our swine interests.

OADDL is fully accredited by the American Association of Veterinary Laboratory Diagnosticians (AAVLD) and is a proud member of the USDA's National Animal Health Laboratory Network (NAHLN). Our participation in NAHLN allows us to test for foreign animal diseases and helps ensure that the state of Oklahoma can react quickly to any real or perceived livestock threats.

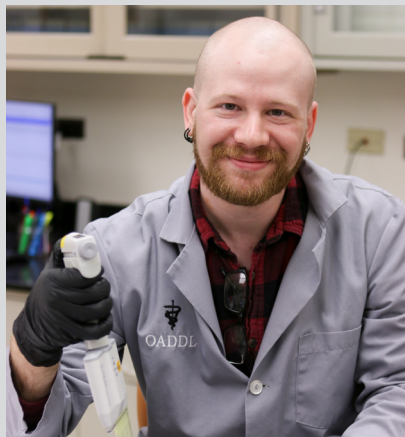
On behalf of OADDL, we are proud to serve you and we ask for your continued support.

– Dr. K. Bailey

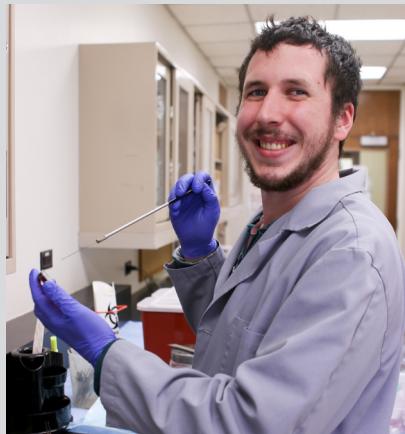


Getting to Know Us

Alan Jones is originally from Monticello, Arkansas, and joined the OADDL family as a lab technologist in November 2018. Before coming to OSU, he worked as an undergraduate researcher helping to investigate larval over-wintering and springtime emergence of emerald ash borers in forest stands with green ash trees. Alan obtained his B.S. in wildlife management in 2017. In his spare time, he enjoys playing his drums and guitars. He also enjoys being outdoors, hunting, fishing, and looking for reptiles and macro-invertebrates in forested and wetland systems.



Christian Holcomb joined the Bacteriology lab in October of last year as a Senior Laboratory Technologist after graduating from Oklahoma State University with a B.S. in Microbiology. He is married to his wife Kaitlynn, and together they have one child, William. In his spare time he enjoys video games, reading, and cooking.



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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