Diagnostic Forum

A Quarterly Newsletter from the Indiana Animal Disease Diagnostic Laboratory at Purdue University

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Inside the Forum

From USDA Veterinary Services

TB Testing

When tuberculosis (TB) testing any species, including cattle and cervids, USDA regulations dictate ANY response to the TB test, no matter how slight, must be reported to the USDA Federal Veterinary Services office in your state or to the State Veterinarian's office. Some sources indicate certain size parameters are reportable; however, these parameters are not recognized by the USDA. TB tests are considered "official tests"; therefore response parameters are determined by USDA APHIS Veterinary Services

Veterinary Services

From the Director
Stephen Hooser

Parasitology Availablet hrough the ADDL

Winterize your Animals NOW!

As described in this issue of the ADDL Diagnostic Forum, in conjunction with the Clinical Parasitology Service in the Purdue School of Veterinary Medicine, the ADDL offers complete Parasitology Diagnostic Services.

On page 3, you can immerse yourself in the exciting details of parasitological diagnostics. Samples can be submitted to the ADDL via UPS Authorized Return Service labels (see p.4), the U.S. Postal Service, or you can drop them off in person and say "Hi" to the ADDL staff.

The Clinical Parasitology Service is directed by Dr. Joe Camp, an internationally known parasitologist in the Department of Comparative Pathobiology.

Hot Topics

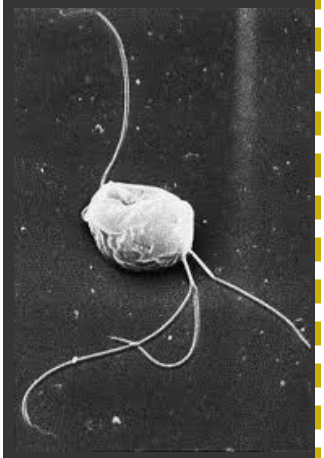
- **ADDL Website enhancements. p. 1**
- **TB Testing Guidelines from USDA Veterinary Services. p. 1**
- **Parasitology at ADDL, p. 3**
- **GlobalVetLink available for EIA electronic test request and results delivery. P. 4**
- **Reduced UPS shipping rates for ADDL clients. p. 4**

Our website has changed!
www.addl.purdue.edu

The ADDL website has been updated to allow for easier searching of our tests and fees. You can now search for tests by section, species, test name, or pathogen.

The online reports section now allows veterinarians to track the charges incurred on an accession in addition to the test results.

This is just the beginning of what we hope will be a continued expansion and improvement of our web presence. If you have any comments, please send them to us at addl@purdue.edu



What's the trick with trich?

Craig Bowen, PUSVM Class of 2011

Abstract. *Tritrichomonas foetus* is a venereally transmitted protozoan that infects the reproductive system of cattle and is the causative agent in bovine trichomoniasis. The disease can be devastating to a herd—early embryonic death, abortions, prolonged calving seasons and open cows at pregnancy check. The protozoan is 20 µm x 10 µm, pyriform in shape, and contains a single nucleus, an undulating membrane, and three flagella that extend from the anterior end with one off the posterior end. *Tritrichomonas foetus* is present in the United States with most cases being in western states where cattle are co-grazed on large rangeland.

In this article, an overview of Tritrichomonas will be discussed. Topics covered include transmission, recognition of infection, testing, and prevention. Current diagnostics available for *T. foetus* which are discussed in further detail include direct microscopic examination, culture and PCR. The gold standard for testing is serial culture samples. A comparison of testing modalities is summarized to help choose the method that will work best and most accurately for your practice.

More than 15 states have established regulations for testing and control; however, no regulations are in place for Indiana. Bulls shipped to states with regulations will need to be tested prior to their shipment. Be aware of Trich, and don't let It trick you!

-edited by Dr. Bill Wigle,
ADDL Pathologist

To see the entire article and references, please visit our website at www.addl.purdue.edu

Focus on Graduate Students

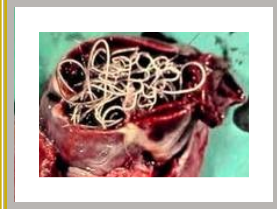
ADDL Anatomic Pathology Graduate Students

From left to right

Chad Frank
Grant Burcham
Munhee Kim
Ryan Jennings
Tiffany Reed
Nozomi Shimonohara
Laura Baseler
Erica Twitchell
Abby Durkes

Diagnostic Profiles

Parasitology Diagnostics at ADDL



Since parasitic diseases have the potential to affect most organ systems, no one set of clinical signs or syndromes characterizes parasitic disease diagnostics.

Diagnosis of parasitic disease has always been part of ADDL's standard services to its clients. These services have always been provided through the Clinical Parasitology Service in the Department of Comparative Pathobiology of the Purdue University School Veterinary Medicine. Since this service was considered a subcontracted test, information on parasitology testing was difficult to find on the ADDL website and was not specifically listed in the ADDL fee schedule. The updated ADDL website will provide information on availability and cost of testing for parasitic diseases.

A variety of diagnostic techniques are available for parasitic diseases, depending upon what type of parasite and the species of host involved. Diagnosis of enteric parasites is still routinely done the old-fashioned way: direct smear and fecal flotation for detection of most nematode and cestode eggs. Alternatively, zinc sulfate or Streather's sugar flotation, combined with centrifugation, is utilized for its enhanced ability to detect nematode eggs and protozoal cysts (including *Giardia* sp.) and oocysts. Acid fast staining for *Cryptosporidium,* which enhances detection, is also available. The ProtoFix procedure is another staining technique that aids in the identification of flagellates such as *Tritrichomonas* and other protozoa such as amoeba. Quantitative flotation provides a count of parasite eggs per gram of feces. Such information can be used to determine whether a pasture is contaminated, the presence of shedding animals, and for monitoring parasite control programs.

The sedimentation technique is used for detection of parasite eggs that do not float well. This is the desired method of diagnosis for trematode infections as well as demonstration of heavy nematode eggs that do not float in routine flotation solutions.

Some nematode infections result in shedding larvae in the feces. These include *Strongyloides stercoralis* in dogs, cyathostomes in horses and lungworms of cats, cattle, small ruminants and donkeys. The preferred method of diagnoses for such parasites is the Baermann technique. Since lungworm infections in horses are not patent, diagnosis requires direct examination of tracheal wash fluid that contains numerous eosinophils and may reveal the presence of larvae.

Since equine strongyle eggs and trichostrongyle eggs, especially those affecting small ruminants and camelids, are almost indistinguishable, identification to the genus or species level requires use of fecal culture. The eggs are hatched and the third stage larvae can then be examined and identified. Identification to this level can be valuable in establishing a control strategy. Morphologic identification of gross specimens of both endoparasites and ectoparasites is also available.

Detection of heartworm disease in dogs and cats differs because of the low parasite load that characterizes feline heartworm disease. In the past, blood samples from dogs were routinely examined for microfilariae using the Modified Knott's technique, but this should be considered as a complementary test used in conjunction with more sensitive methods. Because of the possibility of amicrofilaremic infections (occult infections) in dogs and the low parasite load common in cats, immunodiagnostic tests based on the ELISA method are the current primary mode of testing. In dogs, the serologic test detects antigen to female *Dirofilaria* worms. Since cats may be infected by a single worm and male only infections are common, an antibody detection test is the primary test, often followed by an antigen test.

Identification of protozoal and metazoan parasites in tissue sections is provided by histopathology. Protozoa in tissue that are difficult to distinguish, such as *Cryptosporidium, Neospora, Toxoplasma* or *Sarcocystis* can be positively identified by immunohistochemical staining.

PCR technology is available at ADDL for *Encephalitozoon*, *Neospora caninum*, and *Toxoplasma gondii*. This procedure also identifies the organisms in tissue. Visit the Molecular Diagnostics section on our web page (www.addl.purdue.edu) for information on the preferred specimen.

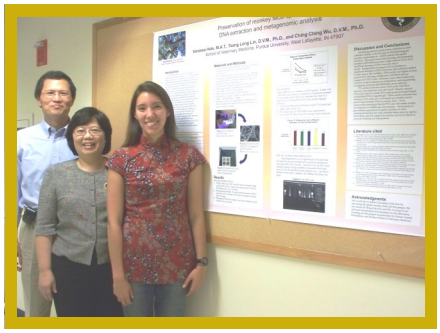
The tests listed below are currently available through ADDL. If there are additional diagnostic tests for parasitic diseases which our clients would like ADDL to offer, please contact us at 765-494-7440 or email us at addl@purdue.edu and efforts will be made to establish those tests if possible.

Current prices

A handling fee of $2.00 will be added to each accession requesting only parasitology. There is no additional accession fee.

Baermann	$8.00	Cryptosporidium exam	$8.00	Feline heartworm antibody test	$15.00
Direct exam	$8.00	Knott's test	$8.00	Occult heartworm test	$15.00
Egg hatch	$12.00	ProtoFix	$20.00	Parasite identification	$15.00
Sedimentation	$8.00	Qualitative flotation	$8.00	Qualitative flotation (routine)	$6.00
Zinc sulfate flotation	$8.00				

People



Our congratulations to Vanessa Hale, PUSVM Class of 2012, who won first place at the Merial-NIH National Veterinary Scholars Symposium in Athens, Georgia for her summer research project. "Preservation of monkey fecal specimens for DNA extraction and metagenomic analysis. Vanessa was mentored by ADDL faculty Drs. Ching Ching Wu and Tsang Long Lin and was supported by the Morris Animal Foundation.

Our congratulations to Dr. Grant Burcham, ADDL Graduate Student, who recently passed the ACVP board examination and is now a Diplomate of the American College of Veterinary Pathologists.

Diagnosticians in Print

ADDL Graduate Student, Dr. Chad Frank and ADDL Faculty Pathologist, Dr. Peg Miller were featured in the "Pathology in Practice" section of a recent JAVVMA issue. You can find the entire article on perineal squamous cell carcinoma in a horse using the following link: http://avmajournals.avma.org/doi/full/10.2460/javma.237.6.637

Reduced UPS shipping rates for ADDL clients

- ADDL has reached an agreement with UPS for submitters to send samples to the West Lafayette Lab at a reduced rate using its Authorized Return Service. Packages will arrive at ADDL the following morning.
- Pre-addressed labels will be provided to you by ADDL.
- Submitter will be billed $6.00 per package.
- Call us at 765-494-7440 or visit our website at www.addl.purdue.edu to request labels.

If you are currently using our histopathology mailers (via U.S. mail) and would prefer taking advantage of the UPS option with its guaranteed delivery time, we will provide you the formalin-filled jars **without an address label** at $15.00/box of 12.

ADDL Lab Results by

Email (Call ADDL with email address)
Fax
Internet/Web

Laboratory results are available on the Internet. Call us to set up an account or go to our web page WWW.ADDL.PURDUE.EDU
- Click on Online Reports tab
- Click on Request Info and follow instructions

ADDL Schedule

Purdue ADDL and Heeke ADDL will be closed on the following University holidays in 2010.

November 25-26.....Thanksgiving
December 23-24.....Christmas
December 30-31.....New Year's

GlobalVetLink is now available for electronically requesting and reporting Coggins tests (Equine Infectious Anemia): ELISA and AGID at $8.50/test with no accession fee). In order to have access to a GlobalVetLink account, contact the company directly at www.globalvetlink.com or phone 515-296-0860.

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