MESSAGE FROM THE DIRECTORS
Jeremiah (Jerry) T. Saliki and Murray E. Hines II

We want to dedicate the Spring issue of our newsletter, Diagnostic Veterinary Matters, to you, our clients and stakeholders. We would like to thank you again for your steadfast support and loyalty over the years, which recently culminated in the legislative approval for the $1.35 million equipment bond issue implemented in the Georgia Amended FY15 supplemental appropriation. Your continuous support of the remaining equipment bond requests will be critical in helping us catch up with obtaining needed equipment to better support animal health testing and disease surveillance in the state of Georgia. Furthermore, as the economy improves, we will count on your support at the state level to progressively restore the funding that was drastically cut during the recession.

We want to describe the steps the Georgia Diagnostic Laboratories are taking to better serve your needs. It takes people to serve people. In the last newsletter we informed you of the creation of a faculty-level Outreach Services Chief position to serve as the primary liaison between practitioners and the Diagnostic Laboratories. In that issue we introduced Dr. Paula Krimer, who currently performs the outreach duties for 50% of her appointment. Our outreach team has been recently enhanced by recruiting Ms. Shauna Corsaro as Business Manager in the Athens Lab with 50% of her assignment dedicated to outreach activities. Please see her biography on the last page of this newsletter. She brings to our Laboratory System a wealth of knowledge and experience that will greatly enhance our ability to continuously meet your current and future needs. Please, call 706-542-5568 to meet Shauna and Paula and let them know of any unmet needs you would like to bring to our attention or to discuss any concerns.

The outreach team has been hard at work to enhance our interactions with you. First, our “window to the world”, our website, has been completely re-designed to enhance your experience when receiving test results, searching for information, or making payments on our secure portal. To explore the new site, please visit www.ugavetlab.org. Second, the team has been communicating with practitioners to become better aware of issues encountered while interacting with the diagnostic labs and seeking information regarding the needs of practitioners. For example, we have begun to provide complementary in-clinic CE programs upon request. Third, steps are being taken to serve the needs of producers more directly. In this regard, our BVD testing services have been revamped and we are offering free ear-notch sample collection kits for BVD persistently infected screening samples. Finally, following the recent College of Veterinary Medicine Advisory Board meeting, we have begun reaching out to food animal producer groups, beginning with the Georgia Cattlemen’s Association. The plan is for our outreach team to work more effectively with the College of Veterinary Medicine Food Animal program field clinicians to directly serve producers.

Please, do not hesitate to contact our outreach team to let us know how we can better serve your particular needs or the general needs of the state for continuous improvement of animal health and human well-being.

Murray E. Hines II
Jeremiah [Jerry] T. Saliki
Dr. Ian K. Hawkins was recently hired as an anatomic pathologist at the TVDIL and Assistant Professor with the Department of Pathology. Dr. Hawkins earned his Bachelor of Science degree in Zoology and Entomology from The Ohio State University and his VMD degree from the University of Missouri – College of Veterinary Medicine. After receiving his VMD degree in 2007, he entered into the Anatomic Pathology Residency program at the University of Florida, College of Veterinary Medicine. He successfully completed his residency in July of 2010 and in September of 2011, he received Diplomate status with the American College of Veterinary Pathologists. From May, 2011 until February of 2015, he worked as a veterinary pathologist at Bridge Pathology Limited, a private veterinary diagnostic laboratory in Bristol, England. Here he gained experience with tumor pathology, immunohistochemistry, resident training, and diagnostic pathology. He has interests in liver pathology, renal pathology, and pathology of wildlife/exotic animal species. In his spare time, Ian enjoys cooking, running, travel, and spending time outdoors.

On Friday February 27, 2015, the Athens Veterinary Diag nostic Laboratory (AVDL) confirmed Porcine Epidemic Diarrhea virus (PEDv) infection in samples taken from two pigs at the Georgia Junior National Livestock Show. Since then several other cases of the disease have been diagnosed in various locations in Georgia, indicating that the disease might now be widespread in our state. PED is a recently emerged disease of swine that appeared for the first time in the United States in April 2013 and has been reported in 31 states (see map), but this is the first confirmation of its occurrence in Georgia. The disease causes severe diarrhea and vomiting, with high mortality, especially in suckling piglets less than 16 days old. Pigs with vomiting and diarrhea should be suspected of having this disease and should be tested to rule it in or out.

Following the initial report of PEDs in our state, the USDA immediately provided some funding for our laboratory to perform up to 100 PEDv tests at no cost to producers. Submissions should meet the following guidelines:

- Samples may include individual animal samples or environmental samples which are linked to specific farm sites and live pigs.
- USDA will only support diagnostic testing using PCR. Support for other diagnostic assays will be considered in the future.
- All samples must have a valid Premises ID number in order to be reimbursed; this number can be obtained by calling the State Veterinarian’s office.
- Approved sample types eligible for reimbursement include:
  - Intestines
  - Feces
  - Fecal Swabs
  - Oral Fluids
  - Environmental samples (such as floor swabs) specifically associated with a farm site and live pigs.
- Excluded sample types are: specimens submitted from truck washes, trucks, trailers, other transport vehicles, feed, feed mills, and other non-farm site samples, including those submitted for research purposes.

**REMINDE RS**

**Porcine Epidemic Diarrhea Reaches Georgia**

By Jeremiah T. Saliki, DVM, PhD, DACVM

**PEDv: Cumulative and Presumptive PEDv Positive Premises since June 5, 2014**
Granulomatous typhlocolitis, lymphangitis, and lymphadenitis in a Georgia horse infected with Listeria monocytogenes, Salmonella Typhimurium, and Cyathostomes

By Dr. Uriel Blas-Machado, DVM, PhD, DACVP

Athens Veterinary Diagnostic Laboratory

Listeria monocytogenes, a facultative intracellular bacterium, is a ubiquitous and highly adaptable, opportunistic pathogen that is resistant to adverse conditions and survives long-term in the environment. Among domestic animals, L. monocytogenes infection is most common in ruminants, which are often infected via ingestion of contaminated foodstuffs (e.g., silage). Infection often manifests as encephalitis and associated neurologic disease. Intravenous infection leads to abortion or neonatal sepsis. Infected small ruminants, such as sheep, can develop suppurative abomasitis and ketosis, or serve as asymptomatic carriers.

Listeria monocytogenes infection is rarely reported in horses. In the current report, the clinical course, necropsy, histologic, and immunohistochemical findings, as well as microbiological characterization, indicated concurrent infection of an adult horse with L. monocytogenes, S. enterica serovar Typhimurium, and cyathostomes.

Large intestine and lymph nodes were received from a 15-year-old American Quarter horse mare from northwestern Georgia with a history of lethargy, weight loss, and profuse watery diarrhea, followed by death within one week of the onset of illness. The horse was one out of four that had died with similar clinical signs on the premises during the spring or summer of each of the three previous years. The horse received a 10-day course of metronidazole treatment. Horses were dewormed 3-4 times a year. The 12 horses on the farm were dewormed 3-4 times a year. The irregular colonic mucosa is thickened and nodular, with widely scattered, reddened shallow ulcers (arrow) (Fig 1).

Histopathologically, the colon and cecum had widely scattered nodules of epithelial macrophages and multinucleated giant cells, centered around foci of lymphoid nodules (Figs 2-4). Within most of the densely cellular nodules (including those in the submucosa and lymph nodes), macrophages, multinucleated giant cells, and neutrophils contained many clusters of Gram-positive, non-acid-fast cocccobacilli that were immunohistochemically positive for Listeria monocytogenes (Fig 4). A few nodules of epitheloid macrophages were arranged around nematodes embedded in the mucosa or, less commonly, in the submucosa (Fig 5). The nematodes (most likely cyathostomes based on microscopic features and location) had an annulated cuticle, a thin hypodermis, somatic musculature and pseudocoelom, and a single layer of epithelial cells with multiple nuclei lined the intestine, which had a distinct brush border.

Polymerase chain reaction assays on intestinal contents were positive for Salmonella enterica subspecies enterica (S. enterica) and Listeria monocytogenes, and negative for Yersinia enterocolitica. enterica was cultured from the intestine, and the isolate was serotyped as Typhimurium var 5. Bacterial culture from an intestinal wall nodule resulted in moderate growth of short, Gram-positive, non-acid-fast rods characteristic of L. monocytogenes.

The finding of granulomatous typhlocolitis was characteristic of an infectious disease process with multiple causes, supported by concurrent detection of intestinal L. monocytogenes, S. enterica, and nematodes. However, the presence of numerous intracellular, Gram-positive coccobacilli that were immunohistochemically-positive for Listeria spp. within the lesions supports L. monocytogenes as the primary cause of disease. Epidemiologic factors that may have contributed to the development of enteric listeriosis on this farm include a 4-year history of sporadic seasonal, watery diarrhea, previous use of the pasture for a beef cattle operation, location (northwest GA), age of the horse (15 years), and lack of antibiotic treatment.

Gross and microscopic were consistent with an inflammatory disease process, such as alimentary lymphoma or proliferative typhlocolitis, which is often associated with various granulomatous diseases including chronic salmonellosis, corythostomiasis, mycobacteriosis, and yersiniosis. Less likely entities in the differential diagnosis included fungal or algal infections. The differentials considered were ruled out based on histopathology and laboratory assays performed.

Infection with Listeria spp. has been documented in many species, but listeriosis, sometimes with associated neurologic disease or abortions, is most common in domestic ruminants. Infection with L. monocytogenes in horses is rarely documented. Co-infection with Salmonella and small strongyles probably contributed to infection with Listeria and to the development of the granulomatous typhlocolitis.

The source of L. monocytogenes that potentially led to severe diarrhea in multiple horses over a 4-year period on the present farm remains undetermined, but possibilities include environmental contamination by wildlife defecation, the previously used beef cattle, or contaminated feed. The route of infection in this horse was probably via ingestion.

In summary, although uncommon, L. monocytogenes could be a potential cause of granulomatous typhlocolitis in horses. Diagnostic tools, such as immunohistochemistry, Gram’s and other bacterial stains, and PCR tests, in addition to bacterial culture, were used in the present case to aid in differential diagnosis of L. monocytogenes, as the major cause of enteric disease.

References:
Livestock well-being begins on the farm

By Dr. Lee Jones DVM, MS
Tifton Veterinary Diagnostic and Investigational Laboratory

Producning healthy, low risk calves begins on the farm. It is important to assess our own farms and make sure we are doing everything we can do to improve the lives of the animals in our care. It is just good stewardship.

The question we could ask is "Am I doing all I can to make sure my cattle are healthy and produce calves that are not high risk cattle?" On-farm practices that have the most benefit on the health and well-being of calves are: low-stress weaning, vaccinations, deworming and proper castration and dehorning.

There is a lot of information about the benefits of low-stress weaning. Some people just remove their calves from their momma cows and take them to the sale barn. Some of these calves sit at the barn for a day or two before being sold and taken to a gathering facility. Commingling abruptly weaned calves is one of the most significant causes of stress and disease in young calves.

Anybody who has taken their young children to a new kindergarten class knows that something is going to be missed around pretty quick. Since many of these calves are not vaccinated against respiratory diseases they are easily infected and often get sick within seven-ten days of being exposed.

Some producers practice fence-line weaning or a two-step weaning process. Fence-line weaning allows the calf to be close to its momma but keeps it from nursing. The calves fuss some but not nearly as much as with a complete, abrupt separation. Because the calves are calmer, they also eat better, don’t get hoarse from bawling and don’t lose as much weight during weaning. Two-step weaning uses nose paddles, clipped into the nose, that keep the calf from nursing but allow it to still graze next to mom or eat creep feed. These weaning methods have been proven to reduce stress in calves and improve calf health.

Vaccination to enhance the immunity and resistance to common diseases is a mimicking natural infection. The type of vaccine, selection of antigens and timing of administration are important. Typical calf vaccination programs include the respiratory viruses that cause pneumonia. It is important to follow the label instructions when vaccinating calves with a MLV vaccine. MLV are not recommended for calves nursing pregnant cows that have not been vaccinated with a MLV vaccine.

Clostridial organisms also cause diseases in cattle like tetanus, blackleg and intestinal disease. Ideally, calves should receive a combination 7-way clostridial toxoid vaccine by two to three months of age with a booster three to four weeks later. Bulls castrated by banding should also be vaccinated with tetanus toxoid two weeks before banding.

Internal parasites can cause significant health problems and production losses in cattle. Often, production losses caused by parasites are subtle but severe infestations cause disease and even death in any age of cattle. Subtle infestations can reduce the animal’s immunity and resistance to infections. There have been reports of cattle intestinal parasites that are resistant to our generic pour-on wormers due to their overuse.

Overgrazing increases the likelihood calves will get infected by parasite larvae on pasture. Rotational grazing helps break the lifecycle of internal parasites and reduces the need for regular deworming and the negative environmental effects of some products.

Preferably, castration and dehorning should be done by four months of age to reduce the impact on the calf. The easiest way to dehorn calves is by using polled bulls.

Age of calf, available facilities, time of year and experience of person performing the procedure may determine the method selected. Some producers believe later castration will aid in weight gain, but delayed castration has been proven to increase pain, stress, bleeding, reduce feed intake and increase risk of disease after the procedure.

These practices and good nutrition will get our calves off to a healthy start. We have the power to make a positive difference in the lives of our cattle with very little effort and expense. It’s just good animal welfare.

Reference:

2015 Continuing Education

The UGA Diagnostic Laboratory and CVM Department of Pathology are happy to announce the following upcoming continuing education events:

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<tr>
<th>Course Title</th>
<th>Date &amp; Location</th>
<th>Registration/Contact Information</th>
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<tbody>
<tr>
<td>Basic Ultrastructure and Ultrastructural Pathology (Electron Microscopy)</td>
<td>April 25 &amp; 26, 2015 Athens, GA</td>
<td>Online registration at vet.uga.edu; contact Dr. Buffy Howorth at <a href="mailto:howorth@uga.edu">howorth@uga.edu</a></td>
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<tr>
<td>43rd Annual Southeastern Veterinary Pathology Conference</td>
<td>May 30 &amp; 31, 2015 Tifton, GA</td>
<td>Online registration at <a href="http://www.vet.uga.edu/vpp/sevpac/2015/">http://www.vet.uga.edu/vpp/sevpac/2015/</a>; contact Dr. Murray Hines at (229) 386-3340</td>
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<tr>
<td>“S” is for Skin: Dermatology in Companion Animals</td>
<td>August 9, 2015 Athens, GA</td>
<td>Contact: Dr. Paula Krimmer at <a href="mailto:krimerp@uga.edu">krimerp@uga.edu</a></td>
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<tr>
<td>Annual meeting of the Comparative Ocular Pathology Society (COPS)</td>
<td>September 11 &amp; 12, 2015 Athens, GA</td>
<td>Contact Melissa Kilpatrick at <a href="mailto:melissak@uga.edu">melissak@uga.edu</a> or (706) 542-1451</td>
</tr>
<tr>
<td>South Georgia Veterinary Medical Association Seminar Series</td>
<td>September 13, 2015 Tifton, GA</td>
<td>Contact Dr. Lee Jones at <a href="mailto:leejones@uga.edu">leejones@uga.edu</a></td>
</tr>
<tr>
<td>Cy “Tao” logy: Cytology collection and submission</td>
<td>In Hospital By request</td>
<td>Contact Shauna Corsaro at <a href="mailto:scorsaro@uga.edu">scorsaro@uga.edu</a></td>
</tr>
<tr>
<td>True Blood: CBC/chemistry processing and interpretation</td>
<td>In Hospital By request</td>
<td>Contact Shauna Corsaro at <a href="mailto:scorsaro@uga.edu">scorsaro@uga.edu</a></td>
</tr>
<tr>
<td>Inside the Black Box: What happens to samples at the lab</td>
<td>In Hospital By request</td>
<td>Contact Shauna Corsaro at <a href="mailto:scorsaro@uga.edu">scorsaro@uga.edu</a></td>
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For additional UGA College of Veterinary Medicine sponsored CE events, please visit the Office of Continuing Education calendar at http://www.vet.uga.edu/ce/calendar.php or call Melissa Kilpatrick, Continuing Education Coordinator, at melissak@uga.edu or (706) 542-1451.
Shauna Corsaro joined the AVDL last fall as the new Business Manager and as the second member of the UGA Diagnostic Laboratory System outreach team. Most of her professional career has been in specialty & emergency veterinary medicine with strong clinical and management background. After working as an emergency veterinary technician and earning her degree in Business Administration, she moved to management in a large specialty practice in Atlanta, and eventually to regional manager for a large veterinary group. Having held virtually every position in a veterinary hospital, she brings to our Laboratory System a wealth of knowledge and experience that will greatly enhance our ability to continuously meet your current and future needs. Currently, Shauna resides in Dacula, GA with her husband, son, and dog, Ratley. When not at work, Shauna enjoys UGA football (Go Dawgs!), horseback riding, crafting, and crossfit.