We are pleased to update you with information on the Georgia Veterinary Diagnostic Laboratory System within this Fall 2014 issue of Diagnostic Veterinary Matters. In the last issue we learned of the good news of legislative approval for a $1.35 million equipment bond for fiscal year 2015 (FY15), which started on July 1, 2014. Unfortunately, a glitch in the system resulted in postponement in the issuance of the equipment bond until sometime after the 2015 legislative session. We are hopeful that this hitch can be corrected in time for us to procure the much needed equipment before the end of FY15 which occurs on June 30, 2015. We wish to thank the UGA Administrative officials, Georgia state legislators, various stakeholder groups, and veterinary practitioners, whose collective efforts helped secure approval of the equipment bond. We will appreciate your ongoing support to secure issuance of the approved bond in time for needed equipment to be purchased in FY15.

It should be noted that the approved equipment bond represents only 38% of funds we have requested to catch up on replacing obsolete equipment. Therefore, we will need your continuous support to secure approval of the remaining equipment bond funds in FY16 and FY17. We are looking forward to using the equipment bond money to not only replace aging or obsolete equipment, but also to obtain state of the art technology that will greatly improve the quality of our services to clients. An example is MALDI-TOF mass spectrometer – a cutting edge technology that will reduce the turn-around time for culture results by 1-2 days. Another piece of equipment we hope to purchase will enable us to systematically provide sensitivities for all pathogenic bacterial isolates. We value your support in obtaining additional funding for our state operating contract to ensure a level of state funding that is commensurate with the disease surveillance and emergency preparedness duties of the laboratories.

After years of demand from practitioners and numerous searches by us for a reliable and affordable medical courier service, we are pleased to announce that we have finally established a courier service (see page 2 for more details). The initial coverage area for the service is limited to the 11 counties of Metro Atlanta/Athens (Barrow, Clarke, Cobb, Dekalb, Fulton, Gwinnett, Jackson, Madison, Oconee, Oglethorpe, and Walton) as well as parts of 7 other counties (Clayton, Forsyth, Hall, Henry, Morgan, Newton and Rockdale). Another recent development that will improve our service and outreach to you is the appointment of a faculty-level Outreach Services Chief – Dr. Paula Krimer (see page 7). This position will serve as the primary liaison between practitioners and the Diagnostic Laboratories for a meaningful dialogue to improve your experience with our laboratory system and our ability to provide you accurate results in a timely manner. This, and other initiatives such as improved test turn-around time and new test offerings to meet evolving diagnostic needs, will strengthen our partnership with you in maintaining and improving animal health and human well-being.
The University of Georgia Department of Pathology and Athens Veterinary Diagnostic Laboratory are launching the first specialized interpretation of ocular biopsies, a choice of extended pathology services such as cultures, immunohistochemistry, PCR, and real-time PCR proficiency tests. For further information on how to submit samples and specimen required, please call the laboratory (259-356-3340) or visit our website (www.ugavetlab.org).

**People involved**

**Personnel Highlights**

**UGA-Athens Veterinary Diagnostic Laboratory**

**Courier Service Highlights**

As of August 4th, 2014, we have partnered with medical courier Laboratory Express to pick up and deliver samples to the Athens Veterinary Diagnostic Laboratory. They specialize in the transportation of medical specimens (human and veterinary) throughout the United States and have been in business for 18 years. The current coverage area includes clinics in the 11 counties of Metro Athens/Athens (Barrow, Clarke, Cobb, DeKalb, Fulton, Gwinnett, Jackson, Madison, Oconee, Oglethorpe, and Walton) as well as parts of 7 other counties (Clayton, Forsyth, Hall, Henry, Morgan, Newton, and Rockdale). We hope to gradually expand the service to cover other areas of the state. The courier service is simple, easy to use, and spares you the trouble of packaging samples and meeting federal government specimen transport regulations. Use it only when you want, no commitments!

- **Cost**? $10/pickup, any number of samples. You pay for the visit, not the number or weight of samples. The cost is added to your monthly DLab invoice; you don’t receive a separate bill.
- **Pickup times**? One stop in the late afternoon M-F. Contact Lab Express at 1-800-643-1659 for your specific pickup time.
- **Place a request**? On the days you have samples, request a pickup online at www.labexp.com/OrderFinr.aspx or call 1-800-643-1659 before 2 pm.
- **Sample packaging**? We provide dual chambered plastic bags; submission form goes in the outer chamber and corresponding sample(s) in the inner one. Use ziploc bags if you run out.

**After hours?** We will provide a free lockbox if your pickup time is after 5 pm. Please call Dr. Paula Krimer at 706-542-5921 to request a lockbox.

**Necropsy submissions**? Couriers will pick up pet carcasses up to 25 pounds, provided they are freshly deceased and packaged in well tied, leak-proof double bags or placed in a disposable cooler.

**Tracking and processing**? Samples are tracked, received by our laboratory that evening, and processed the following working morning. Samples received Friday evening are properly stored and processed first thing Monday morning.

Any other questions? Call our new Outreach Services Chief.

Dr. Paula Krimer at 706-542-5921

**Tifton Veterinary Diagnostic and Investigational Laboratory**

**Tifton Staff highlights**

- **Dr. Sue Turnquist**, anatometric pathologist at the TVDIL, is planning to retire in December 2014. TVDIL employees will miss Dr. Turnquist. She has brought experience and collegiality to our laboratory. We wish her a happy and enjoyable retirement.
- **Shahrieka Farley** has resigned her position as TVDIL histology technician. We wish Shahrieka good luck on her new job and career opportunities.
- We welcome **Sheele Litteral** who joined the TVDIL Histology Department on September 2 as our new histology technician.
- At the annual Staff Appreciation Luncheon, **Allen Bryant, Candice Jackson** and **Marcia Ilia** received awards for 5 years of service. **Barbara Guins** received an award for 10 years of service, **Ken West** for 15 years of service, **Murray Hines** for 20 years of service and **Tammie Vann** for 30 years of service.
- **Serology staff** successfully completed ELISA proficiency tests for pseudorabies, bovine leukosia virus and bluetongue virus.
- **Serology staff** successfully completed the equine infectious anemia AGID proficiency test.
- **Serology staff** successfully completed the brucellosis BAPA and card proficiency tests.
- **Jill Johnson** and **Lisa Whittington** successfully completed the real time PCR proficiency tests for avian influenza virus, swine influenza virus and Newcastle disease virus.
- **Michelle Coarsey** and **Candice Jackson** successfully completed the real time PCR proficiency tests for avian influenza virus and swine influenza virus.
- **Jill Johnson** successfully completed the Jhono’s fecal culture proficiency test.

**Tifton Laboratory Clinical Pathology section offers** Isolated Ca and Mg, Insulina, Diglisina, Fruoctosamina, Truc, and UIBC (total iron-binding capacity) tests. For further information on how to submit samples and specimen required, please call the laboratory (299-356-3340) or visit our website sar.svsmupload.com.

**Samples** received by the TVDIL on Friday that require referral testing at another laboratory, e.g. azure, will not be shipped until the next business day. Please consider this when submitting samples.

**Tifton Reminder**

**NEW OPHTHALMIC BIOPSY SERVICE**

The Georgia Department of Agriculture and the University of Georgia Veterinary Diagnostic Laboratory have formed a new ophthalmic pathology service in the state of Georgia. Two pathologists, Drs. Carchman and Ellis, were trained by the country’s leading ophthalmic pathologist and are among the few veterinary pathologists in the country specializing in eye pathology.

The service will include a special ophthalmic pathology submission form to facilitate communication of lesion location or distribution, specialized interpretation of ocular biopsies, a choice of extended (detailed ophthalmologic description) or routine (bottom line diagnosis and comment only) reports, and telephone consultations.

Additional services such as cultures, immunohistochemistry, PCR, and real-time PCR proficiency tests are also available. This service will officially start on January 1, 2015. However, prior to that time, you are welcome to submit eyes as regular biopsies.

**Detection of asymptomatic renal Leptospira infection in abattoir slaughtered cattle**

**PERSPECTIVE HIGHLIGHTS**

**Tifton Veterinary Diagnostic and Investigational Laboratory**

**By Dr. Sree Rajeev, BVS, PhD, DACVM, DACVP**

Leptospirosis is one of the most widespread zoonotic infectious diseases affecting humans and animals. Several animal species including cattle can act as potential asymptomatic carriers, facilitating zoonotic transmission of Leptospira. Scientists at the Tifton Veterinary Diagnostic and Investigational Laboratory have completed a study on the detection of asymptomatic leptospirosis infection in abattoir slaughtered cattle (1). In this study, 29.7% of the kidney samples collected from abattoir slaughtered cattle were positive by PCR for Leptospira species. Three Leptospira borgertseni isolates were obtained from this study.Hamsters experimentally infected with one of the Leptospira field isolates obtained from this study did not show clinical signs but developed renal infection with interstitial nephritis and tubular necrosis. In a previous study we conducted in dairy cattle in this region, 7 out of 10 dairy herds in the region tested positive for Leptospira in urine by Direct Fluorescent Antibody testing, and all the herds tested had at least one cow with positive antibody titers on the microscopic agglutination test (2). Thus, the overall global trends emphasize that Leptospira borgertseni infection is prevalent in cattle in the study area. As leptospirosis is a zoonotic disease and implicated in reproductive loss in cattle, elimination or reduction of L. borgertseni serovar hardjo infection in cattle populations is a desirable goal due to its economic and public health impact. Many aspects of Leptospira borgertseni infection, including the establishment of infection, variation in disease patterns, immune response generated, the mode of transmission and maintenance of infection, and the impact of various strains in relation to ecology and management systems, remain largely unknown. Life threatening disease and mortality due to leptospirosis in dogs have been reported in this region (3). Moreover, kidneys of multiple wild animal species (bobcats, coyotes, and opossums) tested were PCR positive for Leptospira indicating widespread distribution of animal reservoirs. Considering the abundance of animal reservoirs as shown in our data, changing climatic conditions of the region, and the overall global trends imply that leptospirosis incidence, UGA/CVM scientists are continuing their efforts to undertake prevalence studies and to develop better diagnostic tests and vaccines to control Leptospira infection in animals.

Handling and submission of nervous tissue samples for the diagnosis of neurological diseases in veterinary medicine

By Daniel R. Rissi, DVM, MS, PhD, Dipl ACVP
Athens Veterinary Diagnostic Laboratory

Diseases of the nervous system have always been of great importance in veterinary and human medicine since some of them may not only lead to astronomic losses to the economy, but also cross the interspecies barrier and affect humans. Thus, should veterinarians face a neurological case during practice, they must have the basic knowledge necessary to systematically handle and submit the appropriate samples to the veterinary diagnostic laboratory. However, clinical veterinarians often agonize over the need to remove the brain and/or spinal cord during a postmortem examination. Removal of these structures takes time, and time translates to additional cost for the owner. Therefore, one may consider that it is definitely appropriate to remove brain and/or spinal cord if the animal is exhibiting neurological signs, but maybe that extra time and money could be saved if there is no evidence of neurological disease. Sounds simple on paper, but in practice differentiating primary nervous system disorders from other conditions that could mimic neurological disease is often not clear cut.

A complete evaluation of a neurological case should include 1) signalment; 2) a complete history; and 3) a systematic physical and neurological evaluation. It is typically easy to complete the first two tasks for those depend exclusively on conversations with the owners and/or caretakers. A detailed history and physical evaluation may actually provide the information necessary to rule out a primary neurological disease, since it is not uncommon for animals that are systemically ill to present with clinical signs that may mimic neurological signs. If a primary neurological disease is still suspected after history and physical evaluation, then a neurological examination and determination of the neuroanatomical location of the lesion is extremely important, and that might require consultation with a neurologist.

The primary obstacle for conducting a brain and/or spinal cord removal is that these structures are tightly enclosed in bone. This is not a problem in the necropsy room, where all the necessary tools to remove the bone are available, but things are typically complicated in most veterinary practices when it comes brain removal, let alone spinal cord removal. Considerable effort may be required to access these structures (especially in large animals), and it is not uncommon for a diagnostic pathologist to receive a case with a history describing neurological signs but no nervous tissue for examination. Obviously, the pathologist cannot render a definitive diagnosis of a neurological disease, or exclude neurological disease as a differential, without the appropriate nervous tissue to examine. To avoid hindering the diagnosis of a neurological disease due to improper sample collection, you should perform a full necropsy and submit all your samples (including brain and/or spinal cord and/or peripheral nerves) to the diagnostic laboratory. If you are not able to remove brain and/or spinal cord, please consider two different options to increase the chances of obtaining a definitive diagnosis in the case of a primary neurological disease: 1) submit the whole carcass for a full necropsy; or when that is not feasible 2) perform a full necropsy, submit all appropriate samples, and submit the whole head as well. A simple technique to remove brain and spinal cord is shown in Figs. 1-3.

A careful examination of the neuroanatomical regions that are diagnostically useful when dealing with neurological diseases in veterinary medicine. By Daniel R. Rissi, DVM, MS, PhD, Dipl ACVP

The nervous tissue is very delicate, so it should be handled with extreme care to avoid artifacts. When collecting peripheral nerves, always collect small samples of the attached skeletal muscle for evaluation of the neuromuscular system. If you submit the whole carcass or the head for examination, it is now up to the pathologist to remove the brain and any other nervous tissues, to describe the gross findings (if any), and to handle, store, and direct all collected samples to the required diagnostic tests. If you remove the nervous tissue, you should describe the gross findings (if any) and decide which portions you will place in formalin solution for histology, and which portions you will keep frozen in case you need ancillary tests. An accurate gross description requires a basic knowledge of neuroanatomy. Thus, it is useful to have in mind a set of anatomical regions that are diagnostically useful when dealing with neurological cases.
neurological diseases (Fig. 4). The gross description is a visual exercise, so you should describe exclusively what you see, keeping it simple and concise. Having that in mind, your gross description should contain the following information: 1) lesion location; 2) color; 3) distribution; 4) shape and demarcation; 5) consistency; 6) size; and 7) symmetry. The decision of what to collect and how to collect can be made by taking into account the neuroanatomical localization of the suspected lesions (assuming that is possible) and associated knowledge of basic neuroanatomy (Figs. 5 and 6). Remember that a systematic approach to the necropsy and tissue handling and submission will always increase the chances of a final and accurate diagnosis with a rapid turnaround time. A complete history and description of the gross lesions (when present) is paramount for a good evaluation of the case in the laboratory. If you need more information you can always contact the UGA Diagnostic Laboratories or UGA Department of Pathology.

Meet our new Outreach Services Chief – Dr. Paula Krimer

The Georgia Veterinary Diagnostic Laboratories value and appreciate all our clients and their patients. We want to ensure we are providing you with the best service possible, the most accurate results, and the most helpful advice. In order to continue being your laboratory of choice, we have appointed a new Outreach Services Chief to focus on communicating with our clientele and responding to your needs and concerns. Dr. Paula Krimer began serving in this role on July 1, 2014. In the upcoming months, she will be visiting some clinics, improving our website, refining our online results/payments portal, creating informational materials, and attending local meetings. If you have any questions or concerns, requests for additional tests, website suggestions, recommendations to improve our services, or if you are interested in having her visit your clinic, please contact her by phone (706-542-5921) or email (krimerp@uga.edu). She will be at the November GVMA annual meeting in Atlanta at the University of Georgia booth – please stop by the booth and say hello!

References


Wohlsein P., Deschl U, Baumgärtner W. Nonlesions, unusual cell types, and postmortem artifacts in the central nervous system of domestic animals. Veterinary Pathology 50:122-143, 2013

Information regarding Coggins forms

The Diagnostic Laboratories have been contacted by the State Veterinarian’s Office in the last several months concerning incomplete Coggins (EIA) forms. Issues were related to inconsistencies in the written description and animal markings drawn on the form. These issues may cause delays in transport of horses to shows, sale events and even export to other countries. Therefore, a properly completed EIA form is required to avoid unnecessary delays in testing and result reporting. Please make sure that EIA forms are filled out completely and markings are drawn correctly matching the written description of the horse being tested.
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MEET THE STAFF

(left to right): Diane Rousey, Shaele Litteral, and Kim Bridges

Histology Section TVDIL

The Histology section at the TVDIL includes one laboratory manager and two full time technicians. This department processes tissues submitted to the TVDIL and prepares microscope slides from those tissues for the pathologists to read. Diane Rousey, the lab manager, has been with the Tifton lab for 23 years. She has been the lab manager for 7 years. Diane has a BS degree in education and holds a Histology Technician certification from ASCP. Diane is active in her church and enjoys getting lost in a good book.

Kim Bridges is has been employed in the histology section for 11.5 years. She is a friend to all, with a big smile always present. Kim is looking forward to becoming a mother-in-law next year when her son gets married. Shaele Litteral began working at the TVDIL in September. She holds a Histology Certification from ASCP. Shaele is also working on her associate degree at Darton College.

This department is often accused of “having too much fun” as laughter is frequently heard coming from the lab. We enjoy our jobs and love that we get to help our clients obtain a diagnosis.

(left to right): Glen Caldwell, Kelley Gibson, Mary Ard, and Bryan Center

Pathology Section AVDL

Pathology is a small but very hard working section at the AVDL with only 4 staff members who cover three separate areas. This group contains two of the lab’s most long term employees, Glen Caldwell and Mary Ard who have been employed at the lab for 34 and 28 years, respectively. Kelley Gibson and Bryan Center have been with the lab for 7 and 5 years, respectively. Glen and Bryan are necropsy technicians and are responsible for the lab’s most physically demanding work. They assist with necropsies of animals weighing anywhere from a few grams to over a ton. They also keep the necropsy floor clean and organized which is a monumental task. Kelley Gibson is in charge of preparing all biopsy samples that come into the lab for examination by the pathologists.

Despite their dedication to their jobs, all four occasionally find time for some personal interests. Glen has a son and daughter-in-law who lived in China for 2 years which gave him a great opportunity to visit a different country. Bryan enjoys movies and film making and has his own horror film podcast. Kelley is an avid football fan and is also very active in the Community Emergency Response Team (CERT) program, routinely participating in drills that help to train first responders for the university and the surrounding community. Mary is an active member of her church, and she is currently President-Elect of the Southeastern Microscopy Society of which she has been a member for over 15 years.