NDSU Veterinary Diagnostic Laboratory

Summer 2022, Vol. 6, No. 3

In This Issue

A newsletter about diagnostic trends at the laboratory, animal health topics, interesting cases and new test offerings.

www.vdl.ndsu.edu

Feedback is always welcome. Please feel free to send your comments or suggestions to ndsu.vetlab@ndsu.edu and specify "newsletter" in the subject line.

Director's Corner

As you are likely aware, there are a lot of changes happening at the NDSU VDL.

When I started my residency in 2014, I was often told that digital pathology is the future. As an enthusiastic collector of glass slides, I have been somewhat slow to join the digital bonanza. But, in this new age of remote working, there is no denying that the future is now.

Thus, while the search is underway for new pathologists, we have procured the services of three off-site anatomic pathologists to perform histopathologic evaluations of surgical biopsies. This is made possible due to the state-of-the-art Epredia™ slide scanner that was obtained through the 2020 CARES Act. Surgical biopsies are processed, made into slides, and stained as usual. Then slides are scanned and uploaded to our server, where the remote pathologists can access and evaluate them to make a diagnosis. The NDSU VDL joins a growing list of public and private labs utilizing this latest diagnostic technology.

Also, in the spirit of the "future is now," the NDSU VDL is transitioning to digital cytology. Slides prepared from fine needle aspiration, fluid and blood smears will soon be sent digitally to board-certified clinical pathologists for evaluation using the Zoetis VETSCAN IMAGYST™. Results will be ready within hours and follow up consultations with the clinical pathologist will be available upon request. This will be the first time NDSU VDL will have routine access to clinical pathologists. Clinical pathologists are experts in detecting abnormalities in body fluids (unlike anatomic pathologists who evaluate body tissues) and putting their findings into context of other clinical results. I am very excited to offer this service. More information will be on our website in the upcoming weeks.

Not all is new, however. The NDSU VDL toxicologist, Dr. Michelle Mostrom, and NDSU VDL staff brought back continuing education (CE) day, which hasn't been offered in over five years. On June 10, experts in ruminant nutrition, medicine and husbandry presented to regional and out-of-state veterinarians, technicians, nutritionists and students on cattle, bison, sheep, goat and camelid diseases. CE day was available in person, virtually or by recording. It was well attended and, by all accounts, a successful day. Future CE days may be organized depending on interest.

As temperatures reach 100 here in Fargo this week, I am wishing you all a happy, safe and COOL summer. I hope to see many of you at the annual North Dakota Veterinary Medical Association (NDVMA) meeting this August in Mandan.

Best wishes,

Sincerely,

Heidi Pecoraro, DVM, Ph.D., Diplomate, ACVP
NDSU VDL Director and Veterinary Anatomic Pathologist

NDSU VETERINARY DIAGNOSTIC LABORATORY
North Dakota State University

Bench Notes

Sample submission – There are new submission forms, including one specific to dermatopathology biopsies. Be sure to use the most appropriate form for your samples to ensure the most accurate results and diagnoses.

Referral tests – *Brucella canis* serologic assay, complete blood cell counts, chemistry panels and T4 tests are no longer offered at the NDSU VDL and are sent to other American Association of Veterinary Laboratory Diagnosticians (AAVLD) accredited referral laboratories. If only referral testing is requested (i.e., no testing will be performed on-site), the NDSU VDL will charge the cost of the referral test plus handling and shipping fees. Shipping fees are charged for each referral lab to which samples are sent.

Fee increases – Due to rising costs of materials and reagents, prices on some tests will increase July 1. Check the website for the most recent prices changes.

Johne's PCR changes – Improperly labeled submissions will be sent to the back of the queue, plus incur extra processing, handling and labeling fees. Samples labeled with only **animal IDs** (AYX34, B13, etc.) may take up to four weeks to complete. There will be no changes in turnaround times for Johne's submissions that are properly labeled with **sample numbers** (1, 2, 3, 4, etc.) starting with number 1.

If requesting specific individual tests on a Johne's pool case, the individual samples MUST be placed on a separate submission form and/or sample identification form. The samples must not be listed on the sample identification form for samples to be pooled. As long the samples are from the same owner, there will only be one accession fee.

If "individual" or "pool" is not checked, laboratory staff will use their discretion on whether to pool samples or not, but the client will be responsible for all charges.

All Johne's individual tests (including retests from pools) will be charged $35 starting July 1, 2022. This will help to reduce billing errors and offset increases in reagents and supplies. Johne's pool tests will remain at $43.

Trich PCR reminders – You MUST include a collection date on all requests for bovine *Tritrichomonas foetus* PCR testing. If no date is listed, the laboratory may run the test with a disclaimer.

Samples arriving more than five days post collection may not be tested based on laboratory discretion. If tested, a disclaimer will be on the report that sensitivity decreases five days after collection and false negative results are possible. Clients are still responsible for all charges. Many states will not accept results with a disclaimer; thus, it is critical to fill out forms properly and send samples overnight or in another timely manner.

Our PCR assay does not require culturing; therefore, InPouch TF® are not recommended.

New blister beetle assay – Toxicology is offering a new GC/MS/MS assay that can detect cantharidin (the blister beetle toxin) in plasma and urine. The best samples are from non-treated, acutely affected animals. See the NDSU VDL website for more information.

Livestock water quality – In many areas of North Dakota, the 2021-2022 winter and spring rains provided some moisture, but generally not enough to improve the water quality of livestock ponds or sloughs. Livestock water testing in problem areas continues to reveal high salinity (or total dissolved solids) and high sulfate concentrations. If some of your livestock water sources were poor or unacceptable last year, the lab recommends testing of water sources this year to determine water quality.

The NDSU VDL conducts a livestock water screen on water samples (prefer amount of 250 mL) submitted in clean, sealed containers. Please check the NDSU VDL website that has links for water collection and submission along with additional information on Livestock Water Quality: www.vdl.ndsu.edu/tests/water-screen-nitrates-ph-total-dissolved-solids-or-tds-sulfates/

Dr. Broughton's Mystery (Last) Photo

Photo by L Broughton, VDL pathologist

Abdomen of a 24-year-old horse.

This image is from the abdomen of a 24-year-old horse. Within the abdominal cavity is a free-standing parasitic worm.

What is this parasitic worm and how is it transmitted?

Visit the VDL Website (www.vdl.ndsu.edu) to see the answers and read more about the case.

There is also a BONUS image from Dr. Broughton at the link.

Although Dr. Broughton left last spring to join the faculty at the Washington State University College of Veterinary Medicine, he sent me two last photos from his NDSU VDL collection to share.

Mini Case Reports

Dr. Quynn Steichen, NDSU-VDL veterinary anatomic pathology resident

This mini case report focuses on disseminated fungal disease in two cats that were submitted to the NDSU VDL by two different referring veterinarians from two different locations on the same day.

Case #1 was a 6-year-old male, neutered, domestic short-haired cat who was euthanized after a chronic history of eye inflammation that progressed to bilateral blindness.

Gross examination revealed the bulging of the left eye (proptosis) and that the left eye was larger than the right eye (buphthalmos). The soft tissues within the left orbit were red while yellow fibrinous material was aspirated from the vitreous humor of the right eye. Within the left caudal lung lobe was a nodule composed of yellow inspissated material (abscess).

Microscopically within the posterior chamber, retina, choroid and sclera of both eyes was an exudate composed of numerous viable and degenerate neutrophils, macrophages, rare multinucleated giant cells (foreign body type), viable yeast and abundant eosinophilic homogenous to fibrillar and lacy material (fibrin and edema). The yeast were numerous 12-18 um in diameter with a 2-3 um thick wall, a centrally located eosinophilic or basophilic granular nucleus, and rare broad base budding.

Case #2 was a male, domestic short-haired cat who was euthanized after sudden onset of blindness. There was a history of lethargy, inappetence and weight loss.

Gross examination revealed lung lobes were mottled pink and red with the right middle lobe completely congested. No other obvious gross lesions were noted on examination.

The microscopic findings of both eyes were similar as those observed in case #1.

For both cats, the intralesional fungal yeast observed within the eyes are compatible with disseminated *Blastomyces dermatitidis* infection as the underlying cause of blindness and clinical signs.

Blastomyces dermatitidis is found mainly in Mississippi, Missouri, Ohio river valleys, and Mid-Atlantic states; however there have been an increasing number of cases reported in Minnesota and North Dakota. The NDSU VDL typically diagnoses blastomycosis several times per year.

This fungal organism lives in the soil. Moist conditions can liberate fungal conidia that can then be subsequently aerosolized and inhaled by host. After inhalation, spores travel to the lungs before disseminating throughout the body via blood or lymphatic vessels. The central nervous system and eyes are the most common sites of dissemination, and thus blastomycosis should be a differential in cases of sudden feline blindness, especially if there are other neurologic signs.

Reference

Morris JM, Sigmund AB, Ward DA, Hendrix DVH. Ocular findings in cats with blastomycosis: 19 cases (1978-2019). JAVMA. 2022; 260 (4): 422-427.

Staff Changes

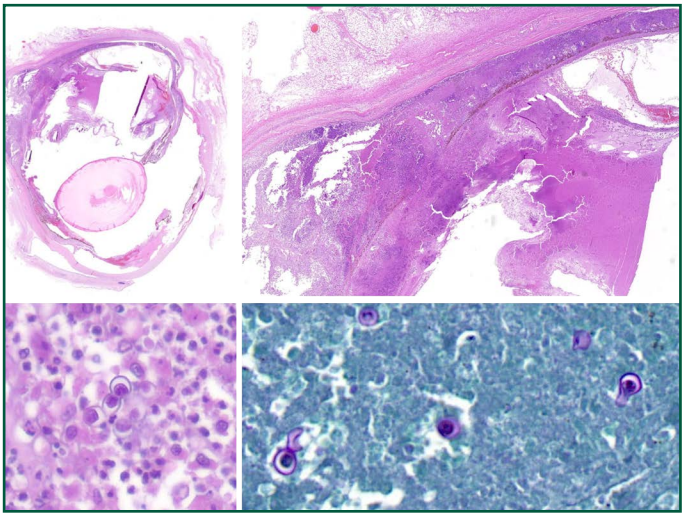
Administrative assistant – Ms. Sara Ogundolani, a previous NDSU employee in grants and contracts, joined the NDSU VDL as an administrative assistant. Sara recently returned to North Dakota from Kansas. Her main duties are behind the scenes in accounting and human resources. Sara will be integral to making sure the bills are paid and the NDSU VDL is fully staffed.

Sara Ogundolani, NDSU VDL Administrative Assistant

Postmortem and accessioning technician – We are excited to have Ms. Christie Erickson join us as the new postmortem floor technician. Christie comes to the NDSU VDL with experience as a veterinary and swine technician before joining the NDSU Soils Laboratory in 2011. She has been an assistant manager at the Soils Lab for nearly nine years. You may get a chance to meet Christie when dropping off samples.

Christie Erickson, NDSU VDL Postmortem Technician

Ocular blastomycoses in two adult cats. Top left: Globe with inflammation in the anterior and posterior chambers, sclera, and retina; lens is displaced by artifact. H&E stain. Top right: Higher magnification of the globe where the inflammation is most intense. H&E stain. Bottom left: Higher magnification shows mixed inflammatory cells surrounding yeasts. H&E stain. Bottom right: Grocott-Gomori's (or Gömöri) methenamine silver stain highlighting the yeast.



NDSU Veterinary Diagnostic Laboratory
P.O. Box 6050
NDSU Department 7691
Fargo, ND 58108-6050

Calendar: Summer-Fall Closures

July 4 – Independence Day
September 5 – Labor Day
November 11 – Veteran's Day
November 24 – Thanksgiving Day

Staff Spotlight

The NDSU VDL owes much of our AAVLD accreditation status to Dawn Walden, our quality manager. Dawn has been with the lab since 2007 and is responsible for ensuring the NDSU VDL is always in full compliance with AAVLD standards. Thanks to Dawn, you can trust us to give you accurate test results using approved and validated methods.

Dawn Walden
(Photo by Kelly Benson, VDL Chemist)

If you could teleport anywhere in the world right now, where would you go? *New Zealand*

Would you rather speak to animals or know other people's thoughts? *Speak to animals, I would love to know what they are thinking when they give you that quizzical look.*

You can only have one condiment for the rest of your life. Which one do you choose? *Horseradish! I hope it is considered a condiment; it sure is at my house.*

What's your favorite all-time movie quote? *I really don't have a favorite, but I do tend to use "I'll be back" a lot.*

Follow us on our our social media feeds.

www.facebook.com/NDSUVeterinaryDiagnosticLaboratory

linkedin.com/company/ndsu-veterinary-diagnostic-laboratory

Contact Information

NDSU Veterinary Diagnostic Laboratory
P.O. Box 6050
NDSU Department 7691
Fargo, ND 58108-6050
Phone: (701) 231-8307

For more information on this and other topics, see **www.vdl.ndsu.edu**