



The Work-Up

Diagnostic Services Unit | Issue 14 - July/August, 2024

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Histology Technicians
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DSU Announcements

Holiday Closures:

Alberta Heritage Day: Monday,
August 5, 2024

Labour Day: Monday, September
2, 2024

The DSU Cytology Service is
closed until September 2024. All
cytology submissions will be
sent out during this time.

Congratulations Patrick Fuller,
new role of Quality Program
Coordinator

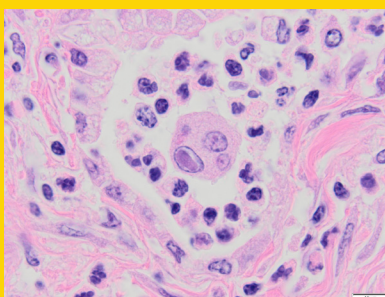
Welcome to:

Melanie Stenner - Accessioning
Technician

Kelsey Lennon - DSU
Administrative Assistant

Madison Fetherston - Necropsy
Technician

Maria Bravo Araya - Clinical
Virologist



Lung, horse. Intranuclear inclusion bodies
in an alveolar macrophage.

SPOTLIGHT

Histology is the examination of the microscopic structure of tissues. The histology lab at the DSU and technicians Lori and Jenn are responsible for the art and science of histology. They take small tissue samples from postmortems, field postmortem samples, or biopsies, process them, and embed them in paraffin blocks, then apply thin slices to glass slides. The standard stain used is hematoxylin & eosin (H&E) and special stains can be used to highlight different pathogens and tissue compartments. Alongside cases from the DSU, the histology lab also supports numerous research projects across the University of Calgary campus and is well-known for their high quality work. Lori and Jenn are constantly working to improve the histology lab at the DSU, whether through improving processes or bringing new special stains into the lab that previously needed to be sent out to other diagnostic labs.



Lori graduated from the Medical Laboratory Technology program at SAIT and was certified by the Canadian Society for Laboratory Technologists (now the CSMLS) in 1989. She spent the following 30+ years in healthcare working as a Medical Laboratory Technologist in Histology. In 2018 Lori took on the role of Histology Preceptor with Alberta Precision Laboratories. This role involved teaching SAIT MLT students histology skills during their practicum. In June of 2022 Lori left the world of human medicine and joined the UCVM Diagnostic Services Unit as Histology Supervisor.

Jenn completed her BSc. (Biology and Biotechnology) at the University of Saskatchewan and then worked for 2 seasons with the Canadian Wildlife Health Cooperative on their Chronic Wasting Disease Surveillance Program. Jenn worked in Quality Control in the Microbiology lab at Emergent BioSolutions in Winnipeg and then moved to Saskatoon where she held a position in Quality Assurance with Novozymes Biologicals Inc. In 2014, Jenn joined UCVM as a Necropsy Technician for the Diagnostic Services Unit (DSU). With the knowledge she gained in necropsy and her desire to return to a laboratory setting, Jenn joined Histology in 2018.

Equine Herpesvirus-5 (EHV-5) and lymphoma were found in a 16-year-old Thoroughbred mare with severe weight loss following winter on pasture. Ultrasound revealed an abnormal spleen alongside severe anemia and hypoproteinemia on blood work. On postmortem exam, the spleen was enlarged and meaty with white masses suggestive of a round cell tumor (e.g., lymphoma). No gross abnormalities were seen in the

lung. On histopathology, lung lesions included marked interstitial fibrosis, type II pneumocyte hyperplasia, and intranuclear inclusion bodies in macrophages, typical of an EHV-5 infection. Lymphoma was confirmed in the spleen. Gammaherpesviruses are known to cause lymphoid neoplasms in various species and EHV-5 has been linked to lymphoma in horses. PCR detected EHV-5 in both the lung and splenic masses.

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Diagnostic Services Unit

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DSU Team

Anatomic Pathologists:

Dr. Jennifer Davies
Dr. Dayna Goldsmith
Dr. Ashish Gupta
Dr. Cameron Knight
Dr. Carolyn Legge
Dr. Jamie Rothenburger (*on leave*)
Dr. Amy Warren
Dr. Katie Waine
Dr. Erin Zachar

Clinical Pathologists:

Dr. Angelica Galezowski
Dr. Catherine Wagg
Dr. Amy Warren

Microbiologist:

Dr. Beverly Morrison

Virologist:

Dr. Maria Bravo Araya

Support Staff:

Jim Carlsen
Nancy Coulter
Dr. Manga Devi
Mai Farghaly
Natasha Flores
Patrick Fuller
Karan Gadani
Lori Goodbrand
Chloe Ingham
Jennifer Larios
Kelsey Lennon
Callum MacDonald
Dr. Camila Meira
Mel Nicolas
Ciara O'Higgins (*on leave*)
Dr. Lindsay Rogers (*on leave*)
Sara Skotarek Loch

DSU Contact Information

<https://vet.ucalgary.ca/DSU>

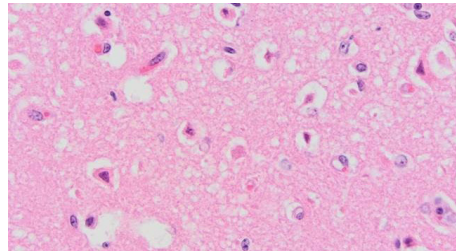
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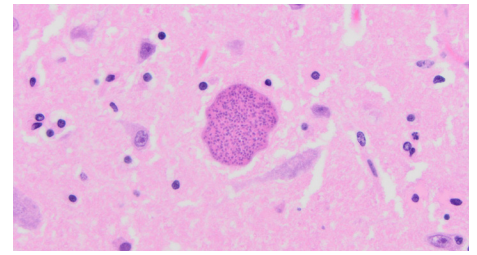


Salt toxicity caused sudden increased mortality in a herd of farmed bison. Increased mortality occurred over 4 days during calving season. The bison lived on pasture with a dugout for water. Anthrax was considered a differential diagnosis, therefore, prior to postmortem exam, a blood smear was examined and organisms typical of *Bacillus anthracis* were not observed by a clinical bacteriologist. PCR for *Bacillus anthracis* was also negative. Dehydration was the most significant finding on postmortem exam. Polioencephalomalacia was observed on histopathology. Brain sodium levels were at toxic levels.



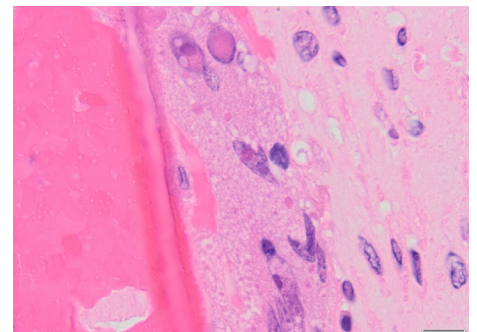
Brain, bison. neuronal necrosis.

Toxoplasma gondii was the cause of neurologic signs in a 2-year-old MN DSH cat. The unvaccinated, indoor-outdoor cat presented with vomiting, respiratory distress, dehydration, ataxia, and fever and was euthanized in clinic. On postmortem exam, severe dehydration was the only significant finding. Histopathology revealed nonsuppurative encephalitis with a large protozoal cyst in the brain, suggestive of *Toxoplasma gondii*. PCR was positive for *Toxoplasma gondii*. Cats can act as both definitive and intermediate hosts for *T. gondii* and cysts can develop in multiple organ systems when they are the intermediate hosts. These cysts may not cause clinical signs unless the cat has a large infectious dose or underlying immune compromise. *T. gondii* is zoonotic and of risk for pregnant women with infection though ingestion of undercooked meat containing tissue cysts or the ingestion of oocysts in material contaminated with cat feces.



Brain, cat. Protozoal cyst.

Canine distemper virus (CDV) was the cause of death of a 4-year-old female two-toed sloth. The sloth originally presented for respiratory signs and diarrhea with fecal sample results positive for CDV. The sloth aborted her fetus and then died 5 days later while in clinic for treatment. There was little seen on postmortem exam of the aborted fetus and placenta. Severe placentitis with vasculitis and intranuclear and intracytoplasmic inclusion bodies were seen on histopathology. These findings were suspicious for CDV and fetal lung was positive on PCR for CDV. CDV was confirmed as cause of death in the dam as well with intracytoplasmic and intranuclear viral inclusion bodies present on histopathology of several tissues. Tissues from the dam were also positive on PCR for CDV. The viral infection in the dam led to secondary bacterial bronchopneumonia and esophageal and gastric candidiasis. CDV infection has been reported as a cause of death in sloths but to our knowledge, abortion due to CDV has not been reported in this species.



Placenta, sloth. Intranuclear and intracytoplasmic inclusion bodies in endothelial cells.

Tips & Tricks

When submitting a skin biopsy, don't incise the mass prior to fixing and submission as this obscures the surgical margins. If a read on surgical margins is desired, inking the tissue in-clinic prior to submission is helpful for the pathologist assessing the histology slides.