



The Work-Up

Diagnostic Services Unit | Issue 15 - November/December, 2024

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SPECIAL EDITION: Parasitology

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Dr. Sawsan Ammar, Dr. Camila
Meira

Neospora caninum abortion in a
sheep

Echinococcus multilocularis in a
dog

DSU Announcements

Holiday Closures:

Remembrance Day: Monday,
November 11, 2024

Winter Break: noon on Tuesday,
December 24, 2024 to Wednesday,
January 1, 2024

The DSU Parasitology Service
opened (bovine samples only) on
November 4, 2024!

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

Avian metapneumovirus (aMPV)
is an emerging disease in the
USA and Canada and antibodies
to the disease have been de-
tected in Alberta chicken flocks.
The DSU offers aMPV ELISA as a
screening test for the purposes
of monitoring within Alberta's
poultry industry.

SPOTLIGHT

Parasitology studies both internal and external parasitic organisms. The DSU Parasitology Service opened on Monday, November 4, 2024 (for bovine samples only) thanks to the hard work of Dr. Sawsan Ammar (Veterinary Parasitologist) and Dr. Camila Meira (Parasitology Technician). The lab has a temporary home while it awaits completion of lab renovations for its permanent home. Updated bovine submission forms and information on collecting, storing, and submitting samples is available on our [website](#).

Dr. Ammar is the Veterinary Parasitologist at the DSU and the National Center of Veterinary Parasitology (NCVP) fellow at the University of Calgary Faculty of Veterinary Medicine (UCVM). Dr. Ammar oversees the development of the parasitology diagnostic lab and teaches veterinary students. Before her residency, she was a postdoctoral associate in Dr. John Gilleard's lab and her research aims to translate advanced technologies into routine diagnostic applications. Sawsan graduated from Sadat City University, College of Veterinary Medicine in Egypt. Following graduation, Sawsan did her MSc at the same university working on tuberculosis in water buffaloes in Egypt. Sawsan then worked on *Toxoplasma gondii* in wild birds during her PhD at the University of Tennessee, Knoxville. After her PhD graduation, Sawsan gained experience on bird trichomonads and histomonads and on the use of double stranded RNA as pesticides against fall armyworm during her postdoctoral appointments at the University of Tennessee.

Dr. Meira received her BSc in Biological Sciences from the Federal University of Bahia, Brazil, where her interest in parasitology first developed and led her to pursue research opportunities in tropical diseases at the Oswaldo Cruz Foundation (FIOCRUZ-BA). She went on to complete her PhD at the University of Calgary, developing an Alberta Innovates-Technology Futures (AITF) awarded project focused on host-parasite interactions using *Leishmania* spp. as research models. During her journey, Camila explored molecular mechanisms of parasitic diseases, gaining experience with diverse techniques, such as omics approaches, DNA sequencing, and comprehensive data analysis. Beyond her research, her involvement with science communication has led her to collaborate with veterinarians and producers in Alberta, where she provides education and support aimed at enhancing diagnostic services and improving livestock health.



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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
Dr. Katie Waine
Dr. Erin Zachar

Clinical Pathologists:

Dr. Angelica Galezowski
Dr. Catherine Wagg
Dr. Amy Warren (*on leave*)

Microbiologist:

Dr. Beverly Morrison

Parasitologist:

Dr. Sawsan Ammar

Virologist:

Dr. Maria Bravo Araya

Support Staff:

Jim Carlsen
Nancy Coulter
Sandra Damianos
Dr. Manga Devi
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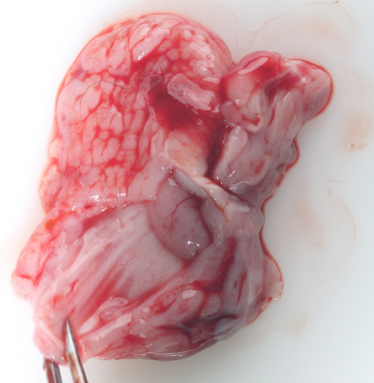
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Neospora caninum was the cause of abortion of a Katahdin lamb at approximately 23 week gestation. The placenta and lamb were submitted for necropsy to rule out infectious causes of abortion to inform management of the rest of the herd. Necropsy revealed significant lesions including a mummified twin, hydrocephalus, and scoliosis. Histologic evaluation showed non-suppurative encephalitis, hepatitis, and placentitis with protozoal cysts in the brain. Testing was pursued for Cache Valley Virus, Blue Tongue Virus, Epizootic Hemorrhagic Disease Virus, *Sarcocystis neurona*, *Neospora caninum*, and *Toxoplasma gondii*. PCR on brain tissue was positive for *Neospora caninum*, a protozoal infection. Clear association between *N. caninum* and human disease has not been shown but given the zoonotic risk in any small ruminant abortion, caution is advised when handling aborted tissues from sheep and goats.



Hydrocephalus, brain (PC: Mel Nicolas)

Echinococcus multilocularis caused a large abdominal mass in a 7 year old MN Bernese Mountain Dog. The dog presented for bloating and lethargy with a large cranial abdominal mass seen on ultrasound. The mass was excised on exploratory laparotomy and measured 15x20cm. On histopathology, the mass was determined to be a multilocular hydatid cyst with associated granulomatous inflammation. PCR of cystic fluid confirmed *Echinococcus multilocularis*. *E. multilocularis* is emerging as an important pathogen of dogs in Alberta and has zoonotic potential. This case of *Echinococcus* in Alberta highlights the importance of testing for emerging diseases and the use of advanced diagnostic techniques in parasitology.



Hydatid cyst, abdomen (PC: Mel Nicolas)

Tips & Tricks

When submitting feces for a fecal egg count, for the best results, collect feces directly from the rectum or immediately after defecation. 15-20g (golf ball sized) of feces is required for analysis. Samples should be stored in airtight and leak-proof containers and refrigerated until shipping. Freezing of the samples can destroy parasite eggs and distort results. Samples should be submitted to the lab within 24 hours or up to a maximum of 3 days after collection.

