MANITOBA AGRICULTURE, ANIMAL HEALTH & WELFARE BRANCH

Veterinary Diagnostic Services Lab Notes

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Tick Prevention for You and Your Pets

Aubrie Perry, M.Sc, Animal Health & Welfare Program Analyst

Spring has arrived in Manitoba, and while many of us are excited for the season to bring warm weather and flowers, it also brings ticks. Ticks are an ongoing challenge for humans and pets alike. They can transmit diseases such as Anaplasmosis and Lyme Disease, making prevention a crucial aspect of human and animal health.

Oral or topical flea and tick preventatives are one of the most common methods to stop ticks from attaching to our pets. These products are available from veterinarians and should be used at their guidance. They contain active ingredients such as fluralaner, fipronil, or permethrin, which kill ticks on contact or upon ingestion, providing continuous protection against tick-borne diseases when used as directed.

While humans cannot take these products, there are other methods we can use to keep ourselves and our pets safe. Environmental management is key to reducing tick populations in our outdoor spaces. Regular yard maintenance, including mowing the lawn, removing leaves, and creating barriers between wooded areas and lawns, can make environments less hospitable to ticks.

Additionally, when in wooded or grassy areas, wearing long sleeves, long pants tucked in socks, and using insect repellents can help for human tick prevention, but remember to use caution when applying repellents around your pets, as they can have toxic effects if ingested or absorbed through their skin. Thoroughly inspect yourself, your family, and your pets for ticks following outdoor activities. Ticks tend to attach to warm and moist areas, such as tails, ears, armpits, and between the toes. Promptly removing ticks using tools such as tweezers or tick-removal kits can help prevent the transmission of tick-borne diseases.

For more resources on tick prevention, please visit the websites below and talk to your veterinarian.

Pamphlet: Enjoy the outdoors, without a tick - Canada.ca

Prevention of Tick-Borne Diseases | Health | Province of Manitoba (gov.mb.ca)

New Extension Veterinarian – Dr. Douglas Bazinet

Welcome to Dr. Bazinet, who has joined the AHW branch as the new Extension Veterinarian, covering Dr. Deanne Wilkinson's maternity leave.

VDS Team

Dr. Scott Zaari – Chief Veterinary Officer

Dr. Md Niaz Rahim – Chief Scientific Officer

Dr. Neil Pople – Anatomic Pathologist/ Veterinary Microbiologist

Dr. Marek Tomczyk – Anatomic Pathologist

Dr. Brenda Bryan – Anatomic Pathologist

Dr. Vasyl Shpyrka – Anatomic Pathologist

Dr. Karlyn Bland – Clinical Pathologist

Shannon Korosec – Supervisor, Microbiology

Tracy Scammell-LaFleur – Supervisor, Virology

Rhonda Gregoire – Supervisor, Clinical Pathology

Agnieszka Gigiel – Supervisor, Accessioning

Genedine Quisumbing – Quality Assurance Officer

Sharon Niebel – SAP/Revenue Clerk

Lindsay McDonald Dickson – SAP Clerk

Barb Bednarski – Client Services Coordinator/Reception

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Trematodiasis in an Angus Cross Cow

Dr. Marek Tomczyk, DVM, Dipl. Anat. Path., Anatomic Pathologist

VDS recently examined a 2-year-old Angus cross cow, which had a sudden death without exhibiting any premonitory signs of illness. During the necropsy, there was a 10cm x 10cm area of abscess formations on the ventral side of the abdomen, filled with brown/red pasty material, potentially indicative of fluke migration. The lungs displayed mottled dark red-brown coloration with fibrous adhesions of the pleura to the thoracic wall. Notably, a substantial portion (60-80%) of the right caudal lung lobe exhibited marked bronchopneumonia with abscess formation, suggesting possible fluke migration.

Liver – centrally visible light pink/ brown area of necrosis; multiple green/ brown/ red foci of fluke migration.

Gross diagnoses from the examination included severe trematodiasis resulting in necrotic hepatitis with intralesional flukes, potential migration to the lung, hemorrhagic areas, and parasitic bronchointerstitial pneumonia. Additionally, fibrinous pleuritis and peritonitis were observed, along with possible parasite migration into the ventral abdomen between the peritoneum and skeletal muscle. With the severity of the lesions, there was a high likelihood of *Clostridium novyi* or *Clostridium haemolyticum* involvement in the etiology of necrotizing hepatitis, often associated with fluke migration. The identified fluke was *Fascioloides magna*, a parasite that can lead to significant economic losses in ruminant production systems globally.

Fascioloides magna, distinguished by its large size and absence of an anterior projecting cone, is endemic in the Canadian prairies, predominantly affecting ungulates. This fluke's life cycle spans approximately 7 months, with a prepatent period of 30 weeks. While *Fascioloides magna* is not recognized as a zoonosis, *Fasciola hepatica*, another fluke species, is increasingly identified as an important zoonotic agent worldwide. Reservoir hosts for *Fascioloides magna* include white-tailed deer, mule deer, elk, and caribou in the United States and Canada.

Liver – sectioned with visible green/ brown migration tracts.

Pet Spotlight: Meatloaf

Meatloaf (also known as Meanloaf, Meatball, Fatloaf, and "Meatloaf Cat Out of Hell") is a 9-year-old granny cat that was rehomed to live out her days with our branch's program specialist, Victoria. Meatloaf was taken into care by the Animal Welfare Program and was morbidly obese and extremely sassy. After living in the CVO for five months, she was adopted and currently lives as a happy barn cat. Her extremely sassy nature has been an adventure, but she has made significant progress and is now at a healthy weight, no longer requires leather gloves to pet her and even lets kids pick her up! She also loves ice cream and will stare through your soul if you don't share. Victoria's family loves Meatloaf and are very happy she is part of the family!

We love sharing photos!

We encourage VDS clients and Animal Health & Welfare staff to send any great animal photos or Manitoba moments our way to share with the veterinary community.

Photos can be sent to chiefveterinaryoffice@gov.mb.ca with the subject "VDS Lab Notes Pet Photos".

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Sapovirus in Suckling Piglets

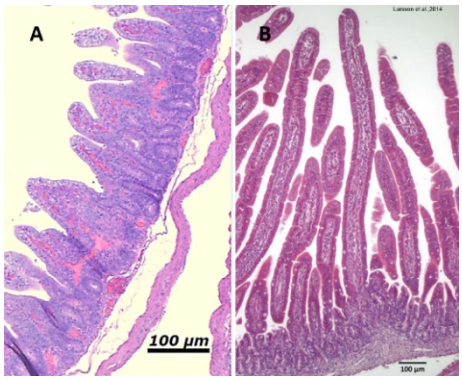
Dr. Vasyl Shpyrka, DVM, M.Sc., Anatomic Pathologist

In the swine industry, scours in suckling piglets is a persistent challenge for both veterinarians and farmers. Recently, VDS received four live female piglets, aged 4 to 7 days, with on-going scours for a full scour workup. The piglets were sedated and euthanized with carbon dioxide.

Pasty to semi-liquid diarrhea.

The perineum of all piglets was soiled with white to yellow creamy feces. Similarly, moderate amounts of yellow and watery feces were noted in the small and large intestines. There was a normal amount of milk curd in the stomach. No significant gross findings were found in the rest of the carcasses.

Upon histopathological examination of the jejunum and ileum, a diffuse pattern of moderate to severe alterations was observed. Apical, and to a lesser extent, lateral enterocytes often have vacuolated cytoplasm. Sometimes apical enterocytes are attenuated. The lamina propria contained rare neutrophils. The villi to crypt ratio decreased to 2:1 (normal is 7:1). Within the crypts, there was a mild to moderate increase in mitotic figures, and the nuclear chromatin appearing vesiculate with prominent nucleoli, suggestive of regeneration.



Moderate to severe villous atrophy, with mild lymphocytic infiltration in the lamina propria, variable villous vascular congestion, mildly vacuolated apical villous enterocytes.

The final diagnosis was moderate diffuse villous blunting and atrophy in the jejunum and ileum, along with villous fusion and crypt regeneration.

Histologic features of porcine sapovirus (PSaV) lesions are like those of other enteric viruses (rotavirus, porcine coronaviruses), characterized by villus atrophy and epithelial vacuolation at villus tips. The piglets were negative for other common enteric pathogens (rotavirus, PEDV, PDCoV, TGEV, bacteria, coccidia) based on PCR, culture, and histopathology results. At the same time all four samples of the small intestine from this case were positive for PSaV PCR with Ct values ranging from 12.1 to 16.7, indicating high viral loads. Although PSaV was first detected in the US in 1980, it now appears as a re-emerging pathogen in some herds. PSaV has recently been detected in suckling piglets with diarrhea in Manitoba herds. The suckling and post-weaning pigs are most susceptible to PSaV infection.

PSaV PCR has been developed and is now available for testing at VDS. It is important to submit fresh/frozen portions of small and large intestine and fixed portions of duodenum, as well as jejunum, ileum, and colon for histopathology.

VDS Dashboard

Visit here for the latest information on cases counts, tests conducted, and pathology diagnoses.

Veterinary Diagnostic Services Contact Information

Accounts Payable: agrinvoices@gov.mb.ca

Clinical Pathology: clinpath@gov.mb.ca

Microbiology (Bacteriology/ Mycology/Parasitology): microbiology@gov.mb.ca

Virology (PCR/Molecular Diagnostics/Serology): virology@gov.mb.ca

545 University Crescent
Winnipeg, Manitoba R3T 5S6

Phone: 204-945-8220
Email: vetlab@gov.mb.ca
Web: manitoba.ca/agriculture/vds

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References for Dr. Shpyrka's article:

1.Shen, H, Zhang, J, Gauger, PC, et al. Genetic characterization of porcine sapoviruses identified from pigs during a diarrhoea outbreak in Iowa, 2019. Transbound Emerg Dis. 2022; 69: 1246–1255.
2.Larsson J, Lindberg R, Aspán A, Grandon R, Westergren E, Jacobson M. Neonatal piglet diarrhoea associated with enteroadherent Enterococcus hirae. J Comp Pathol. 2014 Aug-Oct;151(2-3):137-47

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