MANITOBA AGRICULTURE, ANIMAL HEALTH & WELFARE BRANCH

Veterinary Diagnostic Services Lab Notes

July 2025 Volume 3, Issue 2

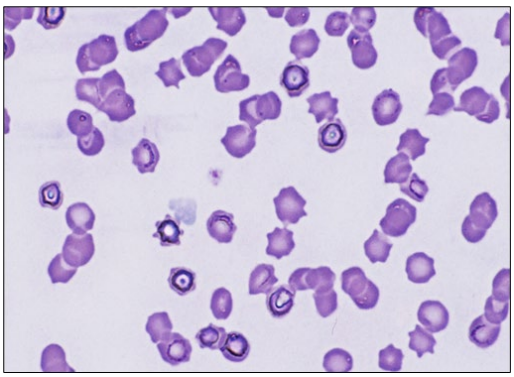
Quick Tips from VDS Clinical Pathology

Dr. Karlyn Bland, MSc, DVM, DVSc, VDS Clinical Pathologist

Making Blood Smears in the Summer

Summer in southern Manitoba can be humid and many veterinary clinics cannot adequately handle humidity which can affect the quality of the hematology smears. A humid environment will result in smear drying artifacts due to a delay in drying, as well as smearing artifacts. Two minor changes in sample and equipment handling can help mitigate artifact changes.

The changes seen in slides that dry slowly prior to staining often resemble inclusions, refractile bodies and crenation, and may result in inaccurate interpretation. In addition, stain debris will adhere more to the smear in a humid environment. Insufficient drying or prolonged drying times can be improved by using a small 7-12cm table fan 8-10cm above the freshly made smears to speed drying (see below).



Moisture artifact on feline blood smear resembling inclusions.

Another way to decrease humidity artifact is to start with clean dry slides. Ensure slides are of good quality, have a beveled edge and are precleaned. If slides are of inferior quality, they may contain dust, fiber fragments, oil or fingerprints which will result in decreased ability to adequately smear blood, fluids or other samples. In humid weather, slides will develop moisture condensation, which will affect cells. Condensation can be decreased significantly by storing the slides in a homemade dehumidification chamber which can be assembled using a thick-walled food container with a well-fitting lid and a desiccant (see below on right). In the laboratory, we seal the box of slides in the container with a purchased desiccant disc that can be replaced or reactivated when moisture levels are reached (see below on left). It is important that the container is properly closed when slides are being stored, ensuring that the desiccant can work properly.

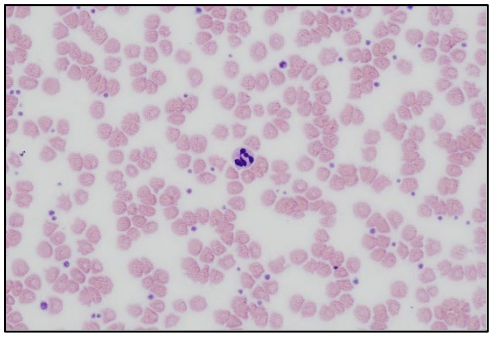
Holiday Closures

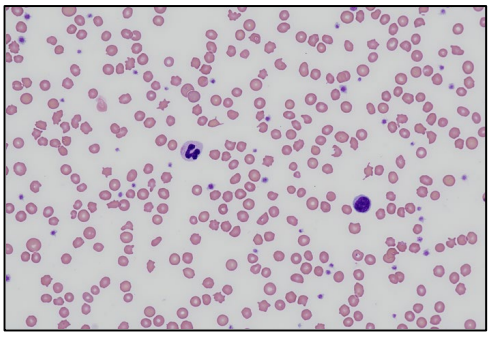
VDS will be closed on:
Terry Fox Day – August 4, 2025
Labour Day – September 1, 2025

VDS Team

Dr. Glen Duizer – Chief Veterinary Officer
Dr. Lisa Joachim – Acting Provincial Veterinarian – Animal Welfare
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 – Diagnostic 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

Slide quality is vastly improved, see the below slide submitted on a hot, humid summer day from a clinic (left) and the same sample using a slide from the above chamber (right).





Cat with nonregenerative anemia. Note the uneven and fuzzy erythrocyte outline and 'punched out' regions of the erythrocytes on the left. Wright Stain 40x.

Cytology and Blood Smear Labels

Cytology and CBC slides are often submitted to the laboratory unlabelled or with illegible writing. Slides must be labelled appropriately in pencil; tape labels should not be used. The **client name, animal name and site (if cytology)** are all that is required.
The date, species and age of patient are not needed, as they should be on the submission form.
If you are submitting different methods of collection, e.g. impression and fine needle aspirates, that label needs to be added. Otherwise, collection method is not needed on the slide, as it should be on the submission form.
Patient identification cannot be assumed on unlabelled smears due to lack of quality assurance and samples **may be rejected**.
Submit fresh, air-dried, unstained smears or clinic-stained smears.
Keep all slides at room temperature and protected from moisture, contamination, formalin fumes and extreme temperatures.
For further information on slide preparation see the VDS Clinical Pathology Laboratory Manual.

Pet Spotlight: Benny Blacktail

This is Benny Blacktail (AKA Bitey Benny). He is a 3 ½ month old Labrador Retriever mix and keeps growing! His favorite things are his two little boys, Hank and Jesse, eating raspberries off the branch, chewing, biting, and chewing and biting on his best friend, a cat named Beef. His not so favorite things are when his boys leave for school and the granny cat, Meatloaf, who is much too spicy for him. He is so sweet and goofy and a wonderful addition to our family!

We love sharing photos!

We encourage VDS clients and Animal Health and 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."

Avian Metapneumovirus A, B and C Testing at VDS

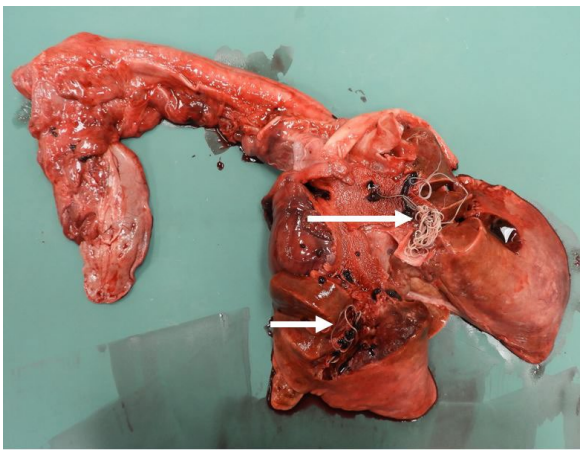
VDS is pleased to have expanded their poultry diagnostics and is now offering real-time polymerase chain reaction (RT-PCR) testing for Avian Metapneumovirus (aMPV) A, B and C. The test has been validated and clients can find additional testing information in the VDS Virology and Molecular Diagnostics Laboratory Manual.

A Case of Canine Heartworm

Dr. Vasyl Shpyrka, DVM, MSc, DACVP, VDS Anatomic Pathologist

A five-year-old, intact male dog was taken into custody due to medical distress. The dog was emaciated, having a severely distended and firm abdomen. Radiographs revealed a complete loss of serosal detail in the abdomen and pleural effusion in the thorax. An AFAST (Abdominal Focused Assessment with Sonography) ultrasound scan showed significant ascites, marked pericardial and pleural effusion, cardiomegaly, increased diameter of the pulmonary arteries and pulmonary trunk, right ventricular enlargement, diffuse densification, a reticular interstitial pattern in the diaphragmatic lung lobes and micronodular markings. The dog tested strongly positive on heartworm test and was euthanized due to the severity of the disease.

The abdominal cavity was markedly distended and contained approximately 4 L of red-tinged, watery fluid. There was moderate subcutaneous edema of the dependent areas. The liver was markedly enlarged and patchily tan-coloured, while also having rounded edges and small amounts of fibrin covering its outer surface. On cut section, an enhanced reticular pattern was evident, somewhat resembling a 'nutmeg liver'. The pleural cavity contained approximately 1 L of free serosanguineous fluid. Diffusely, the cranial portions of the lung lobes exhibited a yellow tinge.



Presence of live heartworms in the pulmonary vessels (arrows). Live worms prevent pulmonary blood flow.

Approximately 15-20 mL of dark red fluid was found in the pericardial sac. The right ventricle was markedly enlarged, with a wall that was white, patchy and thinned. There were approximately 10-15 intertwined roundworms, 15-25 cm in length and around 1-3 mm in diameter, in the lumen of the left pulmonary artery and extending into the caudal lobar pulmonary arteries, as noted in the image above. Approximately 5-8 similar roundworms were residing in the lumen of the right pulmonary artery and extended into the caudal pulmonary arteries. The intima of the main pulmonary artery and the right and left pulmonary arteries had a roughened appearance, as seen in the image below.

VDS Dashboard

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

Did You Know?

Manitoba has 156 registered layer flocks and two hatcheries in Manitoba, producing approximately 72.3 million dozen eggs per year.

Veterinary Diagnostic Services Contact Information

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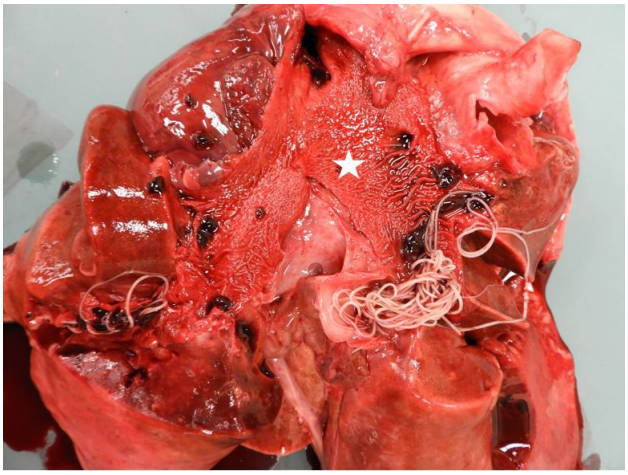

Note proliferation of pulmonary arterial endothelial lining (star).

The final diagnoses included pulmonary dirofilariasis, chronic right-sided heart failure, proliferative verminous endarteritis and severe emaciation.

As the clinician suspected, this dog had heartworm disease (dirofilariasis). Live, adult heartworms caused direct mechanical trauma; evidence of vessel intima damage and proliferative endarteritis. Numerous parasites found on autopsy obstructed blood flow in the pulmonary arteries, causing pulmonary hypertension and eventually led to advanced right-sided heart failure (manifesting as passive hepatic congestion) and the marked ascites evident grossly.

Dirofilaria immitis commonly causes clinical disease in dogs but can infect other mammals, including cats, wild felids, wild canids and, rarely, humans. Mosquitoes play the primary role in the heartworm life cycle. In dogs, the most common clinical presentation is chronic congestive right-sided heart failure with more than 30 adult worms and it is usually seen in dogs over 5 years of age with continuous or multiple infections.

Year-round administration of a macrocyclic lactone preventive is the only way to reliably prevent heartworm infection. Although resistance to macrocyclic lactones is an important concern, its immediate threat is limited and localized.