



# AHL Newsletter

AHL Newsletter, Volume 30, Number 1

March 2026

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## AHL Newsletter

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# AHL New Tests Developed in 2025

Helen Oliver

Animal Health Laboratory, University of Guelph, Guelph, ON.

AHL Newsletter 2025;29(4):2.

TEST NAME METHOD	CODE	SPECIES
Avian metapneumovirus A glycoprotein G sequencing	ampvase	Avian, Chicken, Turkey
Avian metapneumovirus B glycoprotein G sequencing	ampvbse	Avian, Chicken, Turkey
Avian metapneumovirus C glycoprotein G sequencing	ampvcse	Avian, Chicken, Turkey
Bacterial culture, fecal, food animal (small ruminant)	cultffe	Caprine, Ovine
Bovine leukemia virus - PCR	blvpcr	Bovine
Equid gammaherpesvirus 2, 5 Typing - PCR	ehv25typ	Equine
IBRV/BoHV-1-Ab ELISA	ibre	Bovine
ITS DNA gel-based PCR Screening - for screening only (no identification)	itsscrn	Avian, Bovine, Canine, Caprine, Chicken, Equine, Feline, Ovine, Porcine, Turkey, Other
Mastitis, environmental culture	macule	Bovine, Caprine, Ovine
Metagenomic testing by AAC Genomics Facility, University of Guelph	emetag	Avian, Bovine, Canine, Caprine, Chicken, Equine, Feline, Ovine, Porcine, Turkey, Other
Slide scan, 20x, per slide	sc20x	Avian, Bovine, Canine, Caprine, Chicken, Equine, Feline, Ovine, Porcine, Turkey, Other
Slide scan, 40x, per slide	sc40x	Avian, Bovine, Canine, Caprine, Chicken, Feline, Ovine, Porcine, Turkey, Other
<i>Theileria</i> spp. - PCR	thspcr	Bovine

## Update from the Director



*The view from the Director's office*

Snow, snow, snow. It has been a classic Canadian winter this year. However, there are hints that spring may be just around the corner. At the AHL, we have noted increased submissions of abortion/perinatal mortalities in multiple species, in addition to non-viable foals. Spring is a very busy time for laboratory testing, and we are primed and ready to meet the increased demand over the next few months.

Our March newsletter contains our valuable report on selected zoonotic pathogens and diseases from Ontario identified at the AHL in 2025. As integral partners of the 'One Health' perspective, we are pleased to be able to provide some data regarding important zoonotic diseases. AHL has recently developed multiple dashboards that track a variety of zoonotic diseases, including influenza A virus, *Salmonella enterica*, *Coxiella burnetii*, *Leptospira* spp., and neurological diseases of horses. Dashboards are built with input from practicing veterinarians and government animal health experts to address needs in clinical decision making, client education, and regulatory strategy. Free dashboard accounts are available to veterinarians in Ontario and government agencies in Canada, and at a nominal (cost-recovery) fee to commercial entities and research laboratories working in animal or public health. If you are interested in examining the dashboards, check out this link: <https://iapd.lsd.uoguelph.ca/>

So whether you embrace all the activities that winter provides, or practice hygge (as I do), I hope that you enjoy the remaining winter season and are looking forward to spring renewal.

*Maria Spinato, Director*

*Animal Health Laboratory, University of Guelph, Guelph, ON.*

## Specimen reception update - Sending out samples for testing

*Tim Pasma, Jennifer Zoethout*

*Animal Health Laboratory, University of Guelph, Guelph, ON.*

AHL Newsletter 2025;29(4):4.

While AHL offers a wide variety of diagnostic tests (approximately 1000), there are occasions when samples are sent to other laboratories for testing. One scenario occurs when AHL is temporarily unable to conduct a test for which it is accredited. In this situation, the AHL locates a laboratory accredited by the AAVLD (American Association of Veterinary Laboratory Diagnosticians) for testing. The AHL obtains proof of competency from the referral lab and assumes the responsibility to our clients for tests that we subcontract.

The other scenario occurs when a client requests that a test be run at another lab; in these situations the samples are sent to the external laboratory; however, AHL does not assume responsibility for the quality control of external testing.

Sending tests to Canadian laboratories is straightforward; samples are properly packaged and sent by courier to the external laboratory.

Sending samples to laboratories located in the United States or Europe is more complicated. A permit, issued by the national veterinary authority (e.g., USDA) to the external laboratory is required to ship samples across the border. The permit specifies the species of animal and sample types that are allowed to be shipped, and a copy of the permit must accompany the package. Recently, shipping to the United States has become more challenging due to changes related to tariff policy that necessitated increased scrutiny of packages crossing the border. This has required our staff to provide more information and paperwork with each shipment.

External tests are not always listed in our fee schedule; please contact the lab if you are looking for a test that is not published in our catalog.



# OAHN Update – March 2026

*Mike Deane, Tanya Rossi*

*Animal Health Laboratory, University of Guelph, Guelph, ON.*

It has been a busy winter for the Ontario Animal Health Network, with the OAHN networks publishing many new species-specific resources, reports, and research projects. We anticipate a busy spring, with our OAHN AGM happening at the end of April, and the completion of multiple research projects.

## **Updated Anti-parasitics Tables for Cats and Dogs**

These tables break down the different anti-parasitics for dogs and cats, outlining what species they are used for and what type of parasite they treat. The OAHN Companion Animal Network has released the updated version for 2026. There are two versions – one for pet owners (linked below), and one with more details intended for veterinarians. The vet version can be accessed from the below link, but you must be registered and logged in with OAHN to view. Please view it here: [Anti-Parasitics Table for Cats and Dogs 2026](#)

## **2025 OAHN Public Health Update**

The annual update was published at the end of December and was created specifically for public health professionals in Ontario, to highlight pertinent topics from the last 12 months from the OAHN companion animal and other species networks, to help strengthen the link and communication between animal health and public health networks. Please view it here: [Ontario Animal Health Network \(OAHN\) Public Health Update 2025](#)

## **Webinar: Tackling CAEV by Dr. Fauna Smith (UC Davis) and Dr. Davor Ojkic (AHL)**

The OAHN Small Ruminant network organized an informative webinar on tackling CAEV. Learn about the pathogenesis of the disease, risk factors for transmission, diagnostic testing methodologies and options in Ontario, and eradication/ control decisions. The recording is available here: [Tackling CAEV Webinar](#)

## **Completed Projects and Resources**

Below, please find a recently completed research project from the equine network, and a new resource from the bovine network.

- [OAHN Equine Project: Serum selenium concentrations in Ontario broodmares and their foals](#)
- [Factsheet: Bovine theileriosis \(\*Theileria orientalis\* genotype Ikeda\)](#)

## **New Reports**

These are the most recent reports published by OAHN. We publish regularly, so be sure to check back in between newsletters to see what's new. To view any of the veterinary reports below, please click on the link for each report, or go to [OAHN.ca](http://OAHN.ca) and navigate to the species in which you are interested.

### **Swine Network – [Q4 2025 Vet Report](#)**

- Porcine Epidemic Diarrhea virus (PEDV) and Porcine Deltacoronavirus (PDCoV) Ontario Update
- Senecavirus A (SVA) Ontario Update
- OAHN veterinary clinical impression survey veterinary comments
- Animal Health Laboratory immediately notifiable disease review
- Laboratory diagnostic reports
- Ontario slaughter statistics
- CanSpotASF surveillance update
- OAHN projects- Now accepting samples!
- International disease topics of interest summary

### **Small Ruminant Network - [Apr-Dec 2025 Vet Report](#)**

- Animal Health Laboratory (AHL) data summary April – Oct 2025
- Provincial abattoir slaughter and condemnation data
- Small ruminant trace mineral analysis 2020-2025 by AHL
- Case report: Malignant catarrhal fever in Icelandic sheep
- International disease topics of concern
- Research highlights

### **Bovine Network - [Aug-Oct 2025 Vet Report](#)**

- Surveillance update
- Q3 Bovine data from AHL
- Project summary: *Mycoplasma wenyonii* and *Candidatus Mycoplasma haemobos* in Ontario
- Tips for testing for *Mycoplasma wenyonii* and *Candidatus Mycoplasma haemobos*

### **Equine Network - [Q4 2025 Vet Report](#)**

- Bits N Snips – Pancreatitis in horses
- Network member reports
- Syndromic and lab surveillance dashboard
- Equine research
- Ontario equine disease surveillance summary

### **Companion Animal Network - [Sep-Dec 2025 Veterinary Need-2-Know Update](#)**

- OAHN winter survey and lab data: Key results
- Rabies update: “Bat” news, good news
- H5N1 influenza: Spike in wild birds, dog in AB

- CAPCvet graphs: Lyme & Anaplasma serotrends
- Alert: Melarsomine
- Resource reminders

## Staff highlights



Dr. Dominique (Niki) Comeau joined the Guelph anatomic pathology team as of January 1, 2026. She is originally from Calgary, Alberta, and completed her veterinary degree at University College Dublin in Ireland in 2019. After this she returned to Canada to complete her DVSc program in Anatomic Pathology at the University of Guelph. As part of the program, her research focused on the role of bovine astrovirus as a cause of encephalitis in Ontario cattle. She achieved board certification through the American College of Veterinary Pathologists in 2022 and graduated from the DVSc program in 2023. Outside of the lab, she enjoys spending time with her retired racehorse, Clyde.

Welcome Niki!

# Selected zoonotic pathogens and diseases from Ontario identified at the AHL in 2025.

Tanya Rossi

Animal Health Laboratory, University of Guelph, Guelph, ON

AHL Newsletter 2025;30(1):9.

The term ‘One Health’, an integrated, unifying approach to balance and optimize the health of people, animals and the environment” is a relatively new one in medicine: however the contribution of veterinarians to public health dates back 100s of years. This contribution has taken many forms, including using comparative physiology and anatomy to further human health, informing policies involving food safety and ecosystem health, and detection of zoonotic pathogens, among others. AHL participates in many of these initiatives, but our primary contribution is in the surveillance and annual reporting of zoonotic pathogens identified at our laboratory (**Tables 1, 2, 3**).

Case numbers for most zoonotic pathogens isolated or identified by the AHL in 2025 are relatively unchanged from the previous year; however, a few changes were identified (**Tables 1, 2**). Avian West Nile virus positives have increased again this year, rising from 11 in 2021 to 76 in 2024 and 81 in 2025. Case counts of equine West Nile virus and eastern equine encephalitis stayed stable this year after rising in 2023 and 2024. There was a moderate increase in positive serology submissions for *Borrelia burgdorferi* in equines from 2023 to 2025. These changes in vector-borne disease may reflect changes in vector populations and distribution that should be investigated further.

After seeing an almost 4-fold increase in isolations of *Salmonella enterica* in chickens in 2023, case counts have decreased in both 2024 and 2025. Case numbers of equine *Parascaris equorum* (ascarids) have increased from 5 in 2023 to 16 in 2025.

There was an increase in influenza A PCR positives and H5 PCR positives in wildlife species from 2024 to 2025. Case counts of influenza A in swine and domestic poultry remained stable from the previous year.

The percentage of animals identified as positive for leptospirosis was increased in 2025 in all tested species (**Table 3**). Submissions in canines decreased slightly from 193 in 2024 to 156 in 2025, however, percent positivity increased from 66% to 99%. Testing numbers in equines and swine were low which limits interpretation of changes in percent positivity in these species. These data are potentially subject to submission biases to the diagnostic laboratory and cannot be regarded as population prevalence estimates. They do not take into account vaccination status, as all except horses may be routinely vaccinated for leptospirosis.

**Table 1.** Number of cases\* for selected zoonotic pathogens in non-food producing species isolated and/or identified at the AHL in 2025.

AGENT	Canine	Equine	Feline	Other**	2025	2024
Ascarids (incl <i>T. canis</i> , <i>T. cati</i> , <i>T. leonina</i> , <i>Baylisascaris</i> sp.)	4	16	8	4	<b>32</b>	24
<i>Blastomyces dermatitidis</i>	4				<b>4</b>	3
<i>Bordetella bronchiseptica</i>	2	6		1	<b>9</b>	15
<i>Borrelia burgdorferi</i> (Lyme disease), serology	19	26	1		<b>46</b>	49
<i>Brucella</i> sp. (non-abortus)					<b>0</b>	0
<i>Campylobacter coli/jejuni/fetus</i> subsp. <i>fetus</i>				2	<b>2</b>	4
<i>Chlamydia</i> sp.					<b>0</b>	3
<i>Clostridium difficile</i>		0			<b>0</b>	2
<i>Coxiella burnetii</i> (Q fever)					<b>0</b>	1
<i>Cryptococcus</i> sp.	1				<b>1</b>	3
<i>Cryptosporidium</i> sp.				5	<b>5</b>	5
Eastern equine encephalitis virus		7			<b>7</b>	15
<i>Echinococcus multilocularis</i>	17		1	3	<b>21</b>	32
<i>Giardia</i> sp.	7		4		<b>11</b>	10
<i>Influenza A</i>		2		172	<b>174</b>	83
<i>Influenza A H5</i>				170	<b>170</b>	69
<i>Influenza A H7</i>				6	<b>6</b>	5
<i>Listeria monocytogenes</i>		1		2	<b>3</b>	5

Methicillin-resistant <i>Staph aureus</i> (MRSA)	3	2	1		<b>6</b>	3
Methicillin-resistant <i>S. pseudintermedius</i> (MRSP)	60	1	1	1	<b>63</b>	77
Rabies virus				2	<b>2</b>	0
<i>Salmonella enterica</i>				11	<b>11</b>	12
<i>Streptococcus suis</i>				2	<b>2</b>	3
<i>Streptococcus equisimilis</i>		12		1	<b>13</b>	14
<i>Streptococcus zooepidemicus</i>		126			<b>126</b>	171
<i>Toxoplasma</i> sp.			1		<b>1</b>	3
Verotoxigenic <i>E.coli</i> (VTEC)					<b>0</b>	0
West Nile virus		6		75	<b>81</b>	76
<i>Yersinia enterocolitica</i>					<b>0</b>	0
Total	117	205	17	457	<b>796</b>	687

\*Cases may include research submissions

\*\*Other species include wild avian species, and other domesticated and wild species.

**Table 2.** Number of cases\* for selected zoonotic pathogens in food producing species isolated and/or identified at the AHL, 2025.

AGENT	Bovine	Caprine	Chicken	Ovine	Swine	Turkey	2025	2024
Ascarids (incl <i>T. canis</i> , <i>T. cati</i> , <i>T. leonina</i> , <i>Baylisascaris</i> sp.)			52		11		<b>63</b>	76
<i>Bordetella bronchiseptica</i>					4	1	<b>5</b>	36
<i>Brucella</i> sp. (non-abortus)							<b>0</b>	0
<i>Campylobacter coli/jejuni/fetus</i> subsp. <i>fetus</i>				5			<b>5</b>	13

<i>Chlamydia</i> sp.		6		3			<b>9</b>	21
<i>Clostridium difficile</i>	1				5		<b>6</b>	1
<i>Coxiella burnetii</i> (Q fever)	18	12		11			<b>41</b>	40
<i>Cryptococcus</i> sp.							<b>0</b>	0
<i>Cryptosporidium</i> sp.	156	9		2			<b>167</b>	176
<i>Giardia</i> sp.	7	1					<b>8</b>	11
<i>Influenza A</i>			2		175	18	<b>195</b>	201
<i>Influenza A H5</i>			2			13	<b>15</b>	7
<i>Influenza A H7</i>							<b>0</b>	0
<i>Listeria monocytogenes</i>	11	5	1	1			<b>18</b>	19
Methicillin-resistant <i>Staph aureus</i> (MRSA)					1		<b>1</b>	1
Methicillin-resistant <i>S. pseudintermedius</i> (MRSP)							<b>0</b>	0
Rabies virus							<b>0</b>	0
<i>Salmonella enterica</i>			9				<b>9</b>	15
<i>Streptococcus suis</i>	3		3		69	1	<b>76</b>	94
<i>Streptococcus equisimilis</i>	1				39		<b>40</b>	48
<i>Streptococcus zooepidemicus</i>	4				1		<b>5</b>	5
<i>Toxoplasma</i> sp.		2		5			<b>7</b>	5
Verotoxigenic <i>E.coli</i> (VTEC)	4						<b>4</b>	4
West Nile virus							<b>0</b>	0
<i>Yersinia enterocolitica</i>	2		1		1		<b>4</b>	0
Total	207	35	70	27	306	33	<b>678</b>	773

\*Cases may include research submissions

**Table 3.** *Leptospira* spp. seropositive, IHC-positive, or PCR-positive cases identified at the AHL, 2025

<i>Leptospira</i> spp. serovar	Bovine	Canine	Equine	Swine	Other
<i>L. autumnalis</i>	17	154	32	0	0
<i>L. bratislava</i>	25	85	29	0	1
<i>L. canicola</i>	19	103	14	0	0
<i>L. grippityphosa</i>	5	89	13	0	0
<i>L. hardjo</i>	31	59	25	1	0
<i>L. icterohaemorrhagiae</i>	26	139	29	0	1
<i>L. pomona</i>	22	92	18	0	1
IHC or PCR-positive	3	2	0	0	0
<b>Positive/tested cases</b>	<b>43/105</b>	<b>191/193</b>	<b>41/41</b>	<b>1/1</b>	<b>1/1</b>
<b>% pos</b>	<b>41.0%</b>	<b>99.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
% pos, 2025/2024	41/22%	99/66%	100/61%	100/6%	100/33%

#### References

1. One Health High-Level Expert Panel (OHHLEP), Adisasmito WB, Almuhairei S, Behravesh CB, Bilivogui P, Bukachi SA, et al. One Health: A new definition for a sustainable and healthy future. PLoS Pathog. 2022;18(6): e1010537.
2. Levy S. Northern Trek: The Spread of Ixodes scapularis into Canada. Environ Health Perspect 2017;24;125(7):074002.
3. Paz S. Climate change impacts on West Nile virus transmission in a global context. Phil. Trans. R. Soc B. 2015;370:1665.

# RUMINANTS

## Streptococcal arthritis in an adult goat

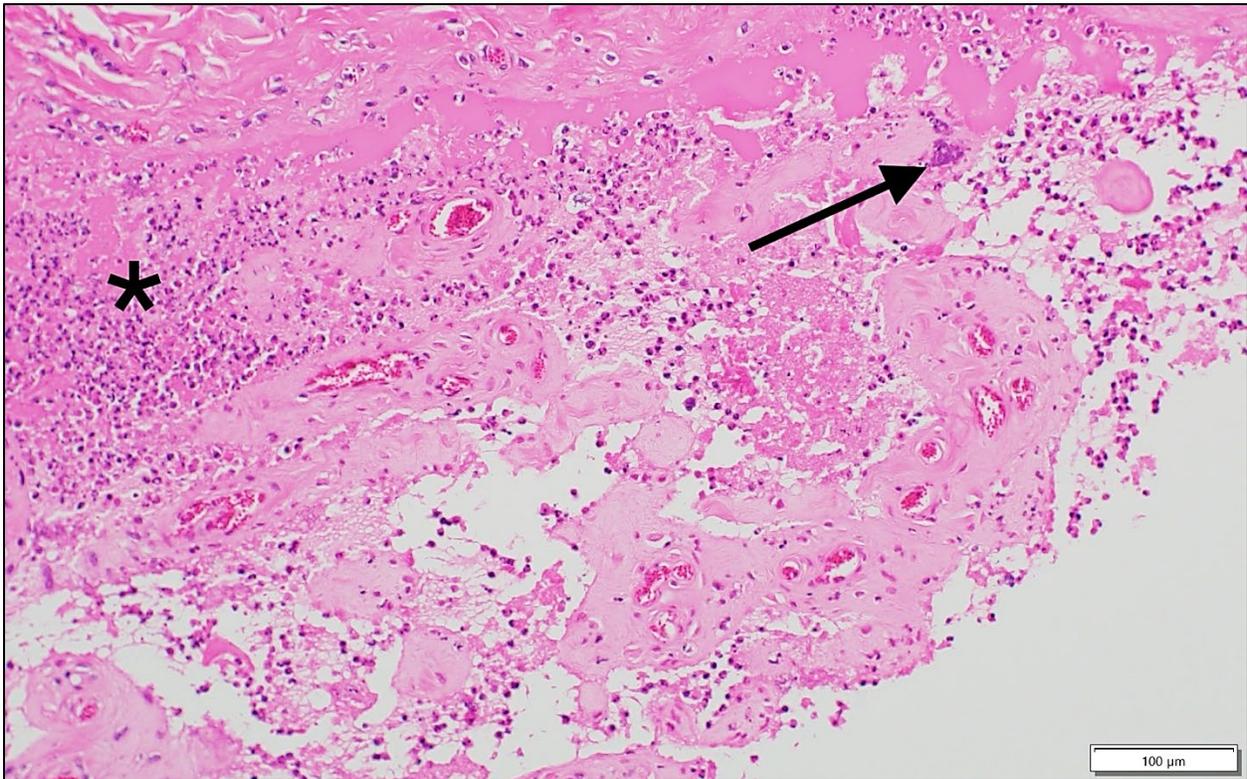
Meegan Larsen

Animal Health Laboratory, University of Guelph, Guelph, ON.

AHL Newsletter 2025;30(1):14.

Three adult Saanen goats in a herd of four hundred suddenly came up forelimb lame. No hoof problems were appreciated clinically. The lameness progressed to three-legged lame, and the goats were eventually euthanized. The left and right front limbs from one of the affected goats, a 3-year-old female, were submitted to the AHL for post-mortem examination. Prior to euthanasia, lameness was noted to be more severe in the left than the right forelimb in this goat. Serum ELISA (antibody) tests for Caprine Arthritis and Encephalitis Virus (CAEV) had been positive in a couple of animals from the herd on the last test. Clinical differential diagnoses at the time of submission included infectious arthritis caused by CAEV or mycoplasma and traumatic injury. Grossly, there was severe fibrinous and suppurative arthritis affecting the left carpus, right elbow and right fetlock; no evidence of trauma was appreciated. Histologic examination confirmed the gross diagnosis, revealing severe suppurative and fibrinous inflammation of the synovium with occasional intralesional clusters of bacteria (**Fig. 1**). Chronic ongoing inflammation extended into the periarticular connective tissue and skin around the left carpus, the most severely affected limb both clinically and grossly. The histologic findings were not consistent with a diagnosis of CAEV, and CAEV antigen was not detected in the histologic sections using immunohistochemistry. No mycoplasma organisms were isolated on mycoplasma culture. Bacterial culture yielded large numbers of *Streptococcus dysgalactiae* subsp. *dysgalactiae* from the left carpus and fewer organisms from the right elbow and fetlock joints. Progressive lameness in this adult goat was therefore attributed to joint infection with *S. dysgalactiae* subsp. *dysgalactiae*.

Streptococcal infections can manifest as arthritis in many veterinary species including pigs, dogs, horses, cows, sheep and goats. In small ruminants, *S. dysgalactiae* subsp. *dysgalactiae* is a relatively well-known cause of septic arthritis (“joint ill”) in young animals; however, it has also been reported to cause polyarthritis in adult goats of the Saanen breed, and this breed may be more susceptible than others. The bacterium acts as an opportunistic and environmental pathogen in goats with reservoirs in the skin, mucus membranes, oral cavity, reproductive tract, mammary gland and housing/bedding and additional factors likely predispose to clinical disease. *S. dysgalactiae* subsp. *dysgalactiae* is generally sensitive to beta-lactam antibiotics such as penicillin. Bacterial culture of joint fluid, in addition to mycoplasma culture and serology for CAEV, are relevant clinical diagnostic tests in cases of polyarthritis in adult goats.



**Figure 1.** The synovial surface forms papillary projections covered with fibrin and neutrophils (\*) mixed with occasional small clusters of bacteria (arrow). H&E stain.

#### Reference

1. Blanchard PC, Fiser KM. *Streptococcus dysgalactiae* polyarthritis in dairy goats. JAVMA 1994;205(5):739-741.

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## Disseminated blastomycosis in a llama

*Dominique Comeau*

*Animal Health Laboratory, University of Guelph, Guelph, ON.*

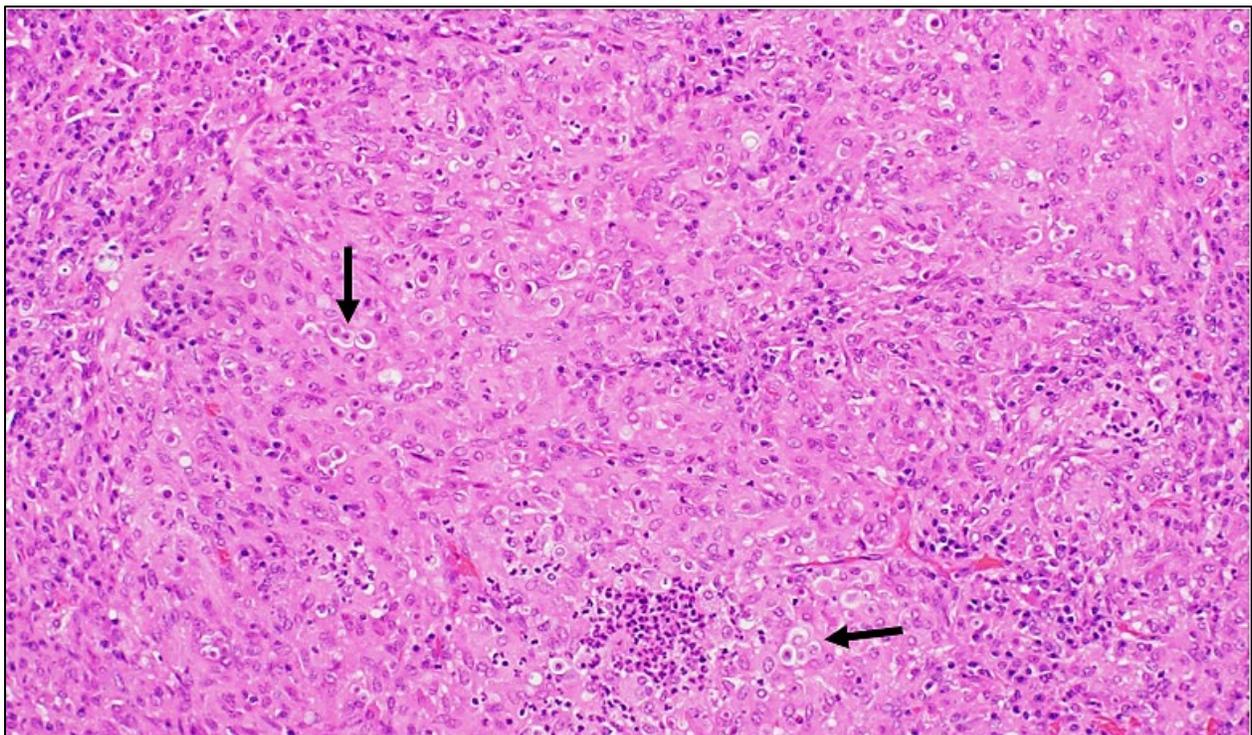
AHL Newsletter 2025;30(1):15

A nine-year-old llama with a history of chronic weight loss and poor condition was euthanized, and an on-farm postmortem examination revealed a large mass between the kidneys and numerous nodules throughout the lungs. Formalin-fixed tissue samples were submitted to the Animal Health Laboratory to investigate a possible metastatic adrenal neoplasm. Histologically, the mass in the abdomen was composed nearly entirely of variably mature fibrous tissue with abundant inflammation made up of macrophages, neutrophils, eosinophils, cellular debris, and fibrin. The nodules in the lung were a similar mixture of inflammation encapsulated within fibrous tissue. Within all of these masses there were

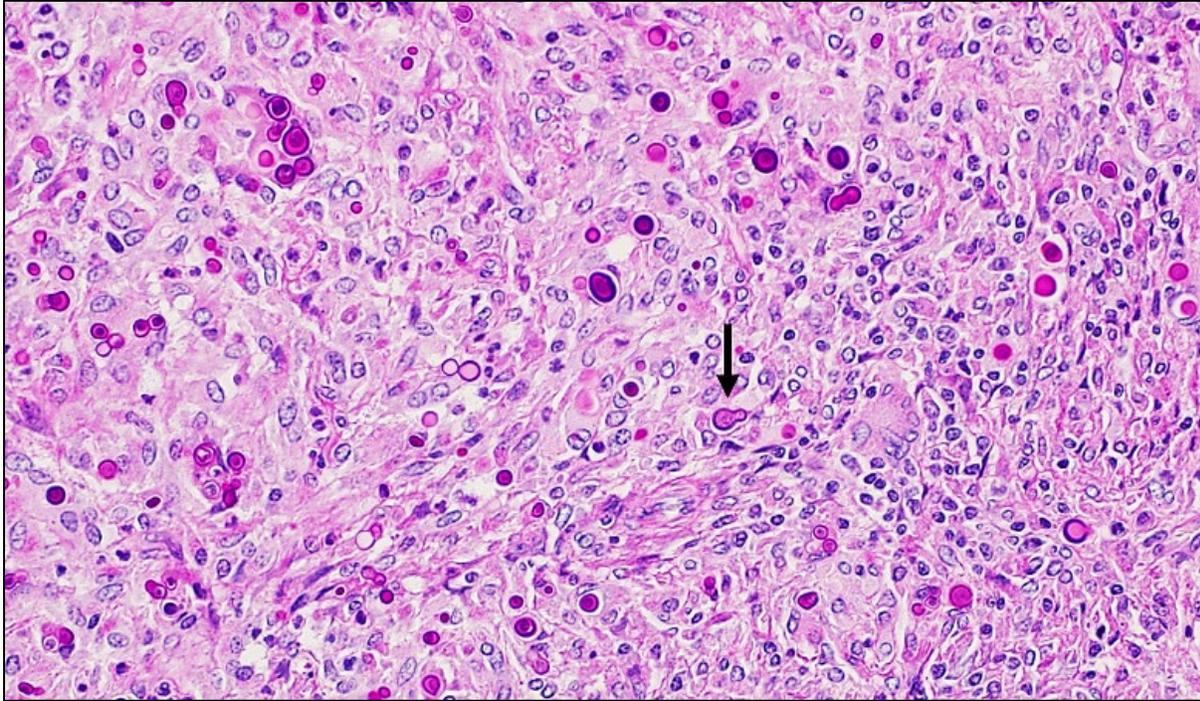
innumerable extracellular, round, 10-to-20-micron diameter yeasts with a thick, double contoured wall and large basophilic nucleus (**Fig. 1**). On occasion, broad-based budding could be seen, which was highlighted by a Periodic acid-Schiff stain (**Fig. 2**). This morphology was considered diagnostic for blastomycosis.

*Blastomycoses dermatitis* is a thermally dimorphic fungus which is endemic in the areas surrounding the Great Lakes and the Saint Lawrence riverway. The most commonly-affected species include dogs and humans; direct transmission between animals or between animals and people is not reported. The organism exists as a mold at environmental temperatures. When the mold is disturbed, such as by disruption of the soil, conidia can be inhaled. Once exposed to body temperature, this fungus transforms to its yeast form and causes a pyogranulomatous pneumonia. The disease can remain contained to this initial site or can spread systemically through the lymphatics. The skin is a common site for dissemination, as well as being a potential site of primary infection. Spread to the lymph nodes, eye, brain, and bones is reported relatively commonly. In this llama, a primary pulmonary infection with spread to the abdominal lymph node(s) was considered the most likely pathogenesis. There was insufficient unaffected tissue in the abdominal mass to confirm if it had been a lymph node.

Blastomycosis is rarely reported in camelids; pneumonia has been reported in a llama and disseminated disease in an alpaca. In the alpaca case the lung, liver, spleen, kidney, colon, stomach, lymph nodes, brain, and skull were affected. Blastomycosis is an unusual but important differential diagnosis for pneumonia or systemic disease presentations in camelids in endemic regions, including Ontario. Care should be taken when performing postmortem examinations on camelids with pulmonary nodules, as direct inoculation of the skin is a described pathogenesis for infection in humans.



**Figure 1.** Pyogranuloma in the lung containing numerous fungal organisms (arrows). Hematoxylin and eosin stain, 400X magnification.



**Figure 2.** Multiple yeast organisms surrounded by pyogranulomatous inflammation and fibrous tissue making up the intra-abdominal mass. Broad-based budding is captured in section (arrow). PAS stain, 400X magnification.

#### References

1. Jankovsky JM, Donnell, RL. *Blastomyces dermatitidis* pneumonia in a llama. *Journal of Veterinary Diagnostic Investigation*. <https://doi.org/10.1177/1040638717753496>
2. Imai, DM, et al. Disseminated *Blastomyces dermatitidis*, Genetic Group 2, infection in an alpaca (Vicugna Pacos). *Journal of Veterinary Diagnostic Investigation*. 2014;26(3):442–447. <https://doi.org/10.1177/1040638714523773>.

# SWINE

## Two swine OAHN Projects are currently accepting samples

*Rebecca Egan*

*Animal Health Laboratory, University of Guelph, Guelph, ON.*

AHL Newsletter 2025;30(1):18

Project #1- This project aims to assess **Porcine Circovirus type 2 (PCV2) prevalence** in the Ontario herd, specifically with respect to various **PCV2 subtypes**. PCV2 PCR-positive samples submitted to AHL are eligible and will be sequenced to determine subtype, which will allow for better understanding of the distribution of different PCV2 subtypes within the province. The **subtype sequencing cost will be covered** by this project. In order to be eligible for inclusion in the project, completion of a short survey by the submitting veterinarian is required to provide insight regarding the clinical picture for each case.

Project #2- The project is investigating the **role of sapovirus in neonatal diarrhea complex**. Eligible cases will be those with piglets **less than 20 days of age** presenting with a **clinical scour**. This project will evaluate these cases by testing for a wide range of pathogens, including porcine bacteriology enteric panel, rotavirus PCR, sapovirus PCR, coronavirus triplex PCR, fecal flotation, and histopathology. This project aims to provide a better understanding of how sapovirus contributes to neonatal diarrhea cases, especially amongst other common pathogens. **For eligible cases, testing costs as outlined will be covered by this project**, and a completion of a short survey by the submitting veterinarian is required to provide insight regarding the clinical picture for each case.

Please consider both when completing herd visits and/or performing PM exams. **Both projects will be running until June 2026 or until sample quotas are met, so practitioners are encouraged to participate when they have eligible cases**. Any questions can be directed to Dr. Rebecca Egan [eganr@uoguelph.ca](mailto:eganr@uoguelph.ca). A link to the required project surveys and sapovirus project submission forms can be found at <https://www.oahn.ca/resources/oahn-swine-project-sapovirus-and-pvc-2-testing-information/>.

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## Branching out to the suburbs - Hepatobiliary ascariasis in a Kunekune piglet

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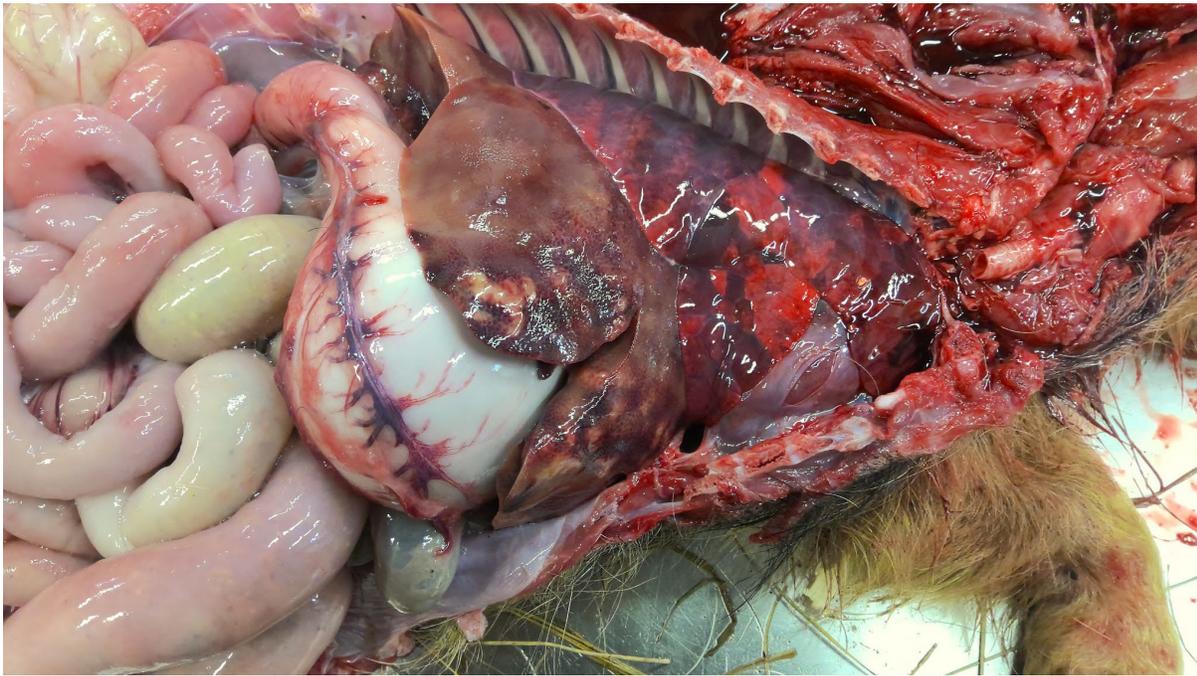
AHL Newsletter 2025;30(1):18.

A 3-month-old, intact male, Kunekune piglet was found dead and submitted for postmortem evaluation and diagnostic testing at the Animal Health Laboratory. The piglet originated from a small-scale backyard pig herd where it was noted that the current crop of weaners was exhibiting poor appetite with perceived slower than expected growth. All piglets are vaccinated with tetanus at birth and received iron injections as standard new-born piglet management. Piglets are housed inside in group pens and fed dry hay and commercial mash with occasional table scraps. Apart from a single unexpected mortality of a one piglet from a separate litter ~ 2 weeks prior, all piglets appeared otherwise normal without any obvious clinical symptoms.

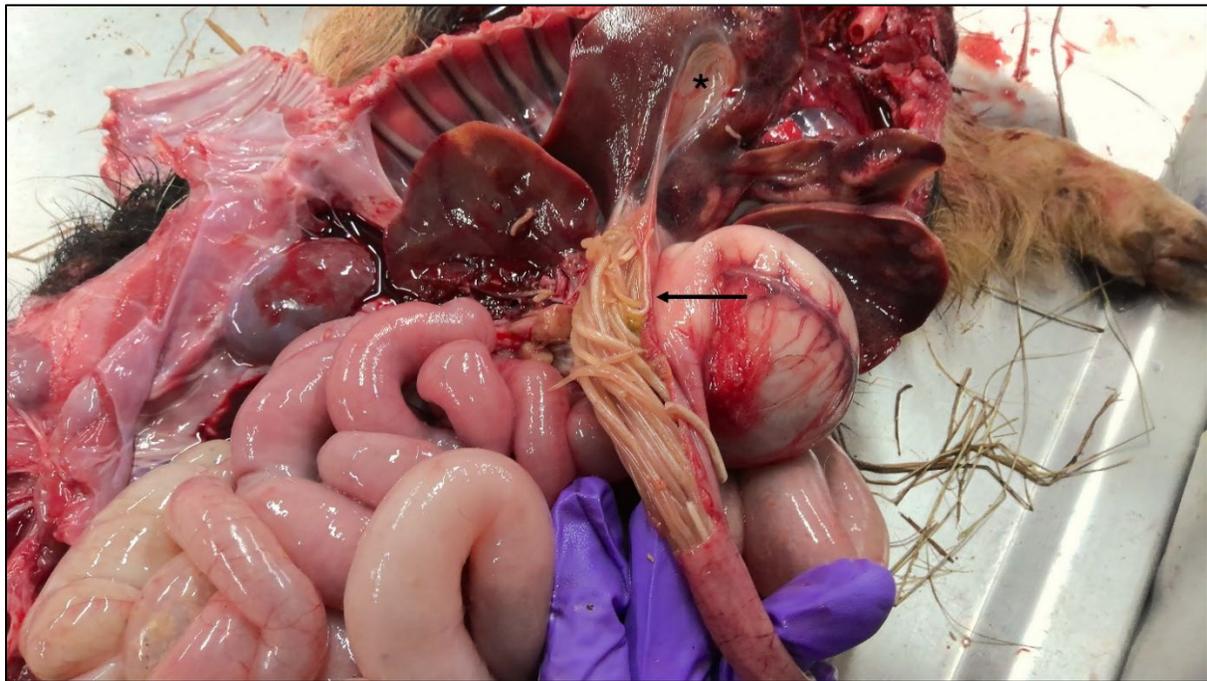
On postmortem examination the piglet was dehydrated with decreased subcuticular and visceral fat stores. The proximal small intestinal loops were segmentally dilated and firm on palpation and the liver lobes contained numerous individual and often coalescing, tan-white, firm pseudo-cystic nodules that often protruded a short distance above the capsular surface (**Fig. 1**). The proximal duodenum was incised, and its lumen and the trailing common bile duct were distended by abundant numbers of densely packed adult ascarid nematodes (**Fig. 2**). The nematodes extended throughout the hepatic biliary tree, dilating the ductular network throughout all hepatic lobes and forming irregular, 0.5-1.9 cm diameter, pseudo-cystic nematode-filled pockets that corresponded to the raised hepatic parenchymal nodules (**Fig. 3**).

On histological examination, there was widespread biliary dilation with ductular profiles ranging from ~ 2.1-11.3 mm diameter wide, and with the luminal spaces being filled with and dilated by innumerable cross, tangential, and longitudinal sections of adult nematode parasites (**Fig. 4 & 5**). Nematodes ranged from 0.7-2.5 mm diameter and contained a smooth thick outer cuticle with a thick band of coelomyarian musculature, large butterfly-shaped lateral cords, and pseudocoelom with central prominent tall columnar uninucleated cell lined intestinal tract, and occasional mature ovaries (**Fig. 5**). These features were consistent with that of an ascarid nematode. The biliary mucosal lining was often circumferentially ulcerated with surrounding 0.3-1.1 mm wide bands of peri-biliary fibrosis and with luminal and mural mixed neutrophilic, eosinophilic, histiocytic, and lymphocytic inflammatory infiltrates suggesting secondary ascending bacterial infection.

Ascariasis is the most common parasite infection in pigs worldwide and is usually associated with *Ascaris suum*. Infections are typically enteric in nature with hepatic involvement usually being restricted to early phases of the life cycle with hepatic-pulmonary migration of the L3 larval stages resulting in visceral larval migrans and the more familiar “milk spot liver”. The intra-hepatic localization of adult ascarid nematodes is considered particularly unusual and there are only a few reports of adult ascarid migration along the hepatobiliary tree in pigs - one almost 75 years ago and another recent similar presenting commercial pig from a slaughterhouse in Italy. Extension of adult ascarid nematodes along the biliary tree has also only rarely been reported in other animal species, *Toxocara vitulorum* in a buffalo and *Parascaris* sp. in a foal. Although a rare event, biliary ascariasis caused by *Ascaris lumbricoides* in humans is a well-documented complication and is recognized as the cause for a significant proportion of biliary and pancreatic diseases in endemic areas of the world. It is presumed that migration up the biliary tract may be a function of particularly heavy parasitic burdens, with worms simply trying to find a piece of real estate in which to reside after the intestinal luminal space is no longer freely available. Although such heavy burdens are far more likely to result in other catastrophic gastrointestinal complications, e.g., obstruction, torsions/volvulus and/or rupture, hepatobiliary obstructions should also be considered as a possible sequelae in ascarid infections in pigs.



**Figure 1.** Postmortem findings in a Kunekune piglet. The proximal duodenum is distended and firm and the liver contains numerous tan-white, firm pseudo-cystic nodules that protrude above the capsular surface.



**Figure 2.** Postmortem findings in a Kunekune piglet. Abundant numbers of adult ascarid nematodes are present within the proximal duodenum with extension along the common bile duct (arrow). The gall bladder is collapsed and empty (asteriks).



**Figure 3.** Formalin-fixed samples from the affected liver lobes in a Kunekune piglet. Nematodes extend throughout the biliary tree forming dilated pseudo-cystic nematode packed pockets.



**Figure 4.** Histological findings in a Kunekune piglet with hepatobiliary ascariasis. There is widespread biliary ductular dilation with luminal spaces filled with innumerable cross, tangential, and longitudinal sections of adult nematode parasites. H&E stain.



**Figure 5.** Histological findings in a Kunekune piglet with hepatobiliary ascariasis. Nematodes contain morphological features consistent with an ascarid nematode, and are associated with both luminal debris/exudate and mural inflammation. H&E stain.

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# AVIAN/FUR/EXOTIC

## Chick Fung-EYE: You never know where it will go!

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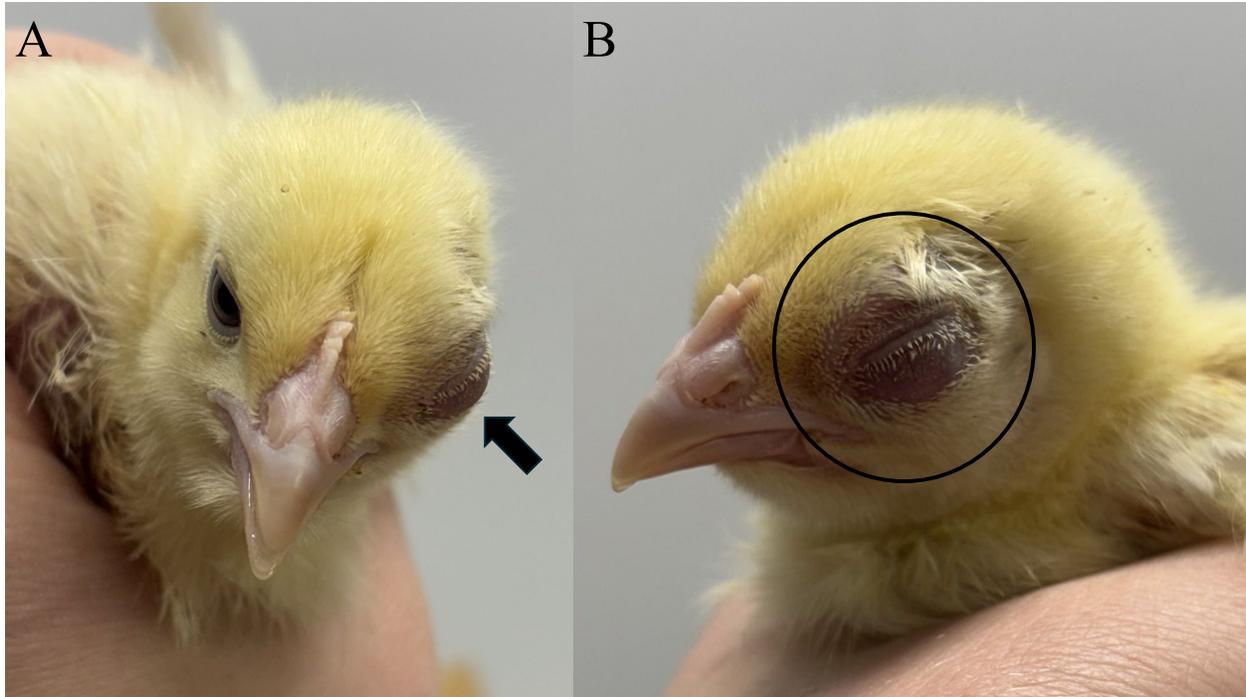
A commercial chicken broiler flock had an ongoing history of wet litter shortly after placement due to leaking water lines. The referring veterinarian had evaluated various flocks on this farm over time and had identified occasional air sac plaques suspicious for fungal growth. These lesions were identified in birds from 3-4 days of age up to 2 weeks of age and the lesions were considered incidental. The bedding material consists of long straw.

The current flock was 15 days of age at the time of examination. Due to a mechanical problem, the temperature in the barn was below set point for the previous 24-48 hours and was considered cold for this age of bird. Mortality at the time of examination was within expected limits for a flock of this age (1.35%), and first week mortality was considered very good (0.41%).

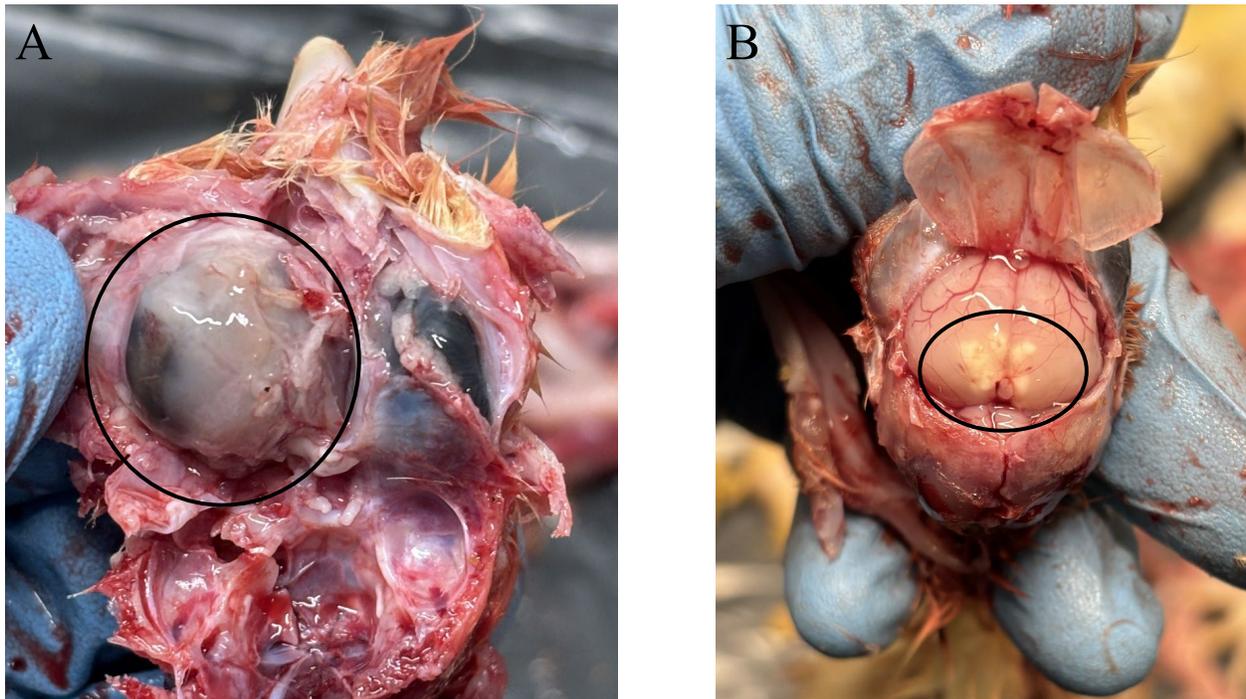
Six birds were submitted to the practice for postmortem examination. The birds were notably variable in size. One bird was behaviourally normal but had pronounced unilateral periorbital swelling (**Fig. 1**). On postmortem examination, the left eye was markedly enlarged compared to the right. During dissection, discolouration of the brain was noted through the calvarium and involved both cerebral lobes (**Fig. 2**). Otherwise, the birds examined had mild bacterial lesions, and 2 birds had 1-2 plaques within the air sacs.

Tissue samples were submitted to the AHL for histopathology. Examination of multiple tissues revealed mycotic encephalitis, airsacculitis and panuveitis (**Fig. 3**). The areas of necrosis in the brain corresponded with the pale-yellow areas noted on postmortem examination while the enlarged eye had fungal organisms throughout the circumference of the transverse section. Due to the distribution of these lesions, further identification of the fungus was attempted using ITS sequencing on wax scrolls as fresh tissue was unavailable. The DNA sequence had 100% sequence similarity (558/558 bp) to the ITS region of *Aspergillus fumigatus*, the most common cause of aspergillosis in poultry.

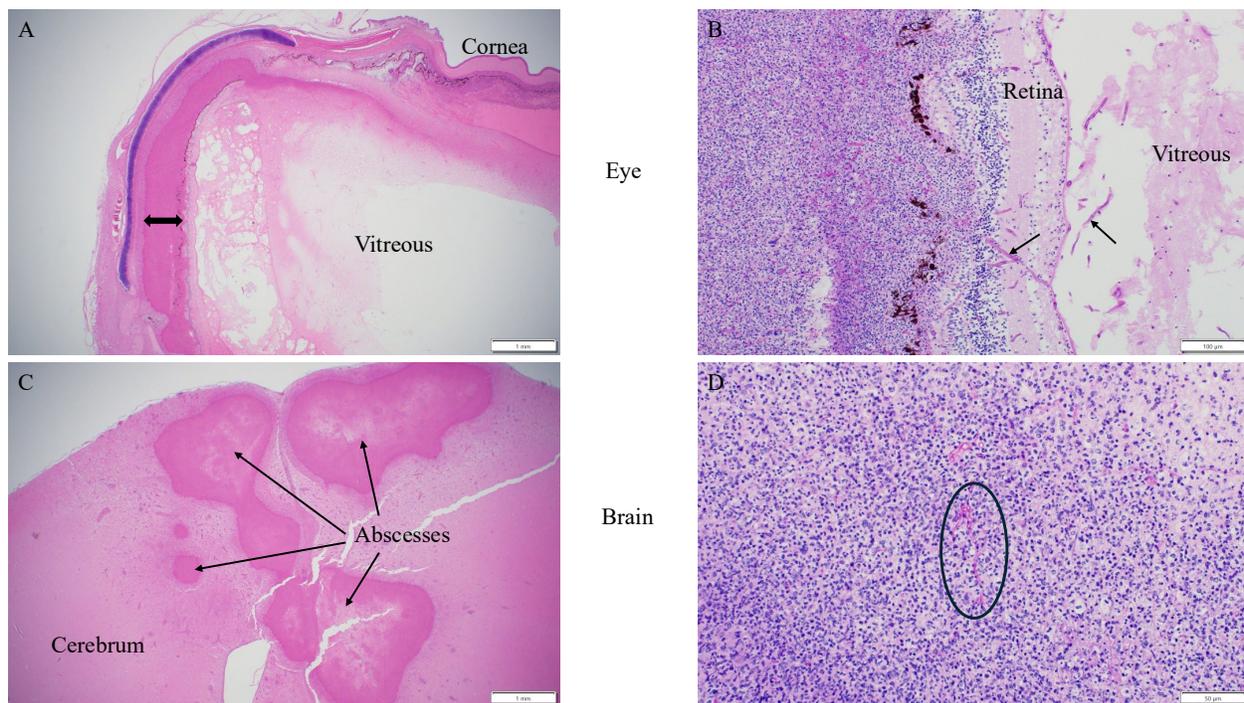
In this case, the likely source of fungal organisms is the wet long straw bedding material. *Aspergillus* within the straw will multiply in wet conditions and when litter dries the fungal spores can become aerosolized and subsequently inhaled. *Aspergillus fumigatus* spores are small and easily inhaled, allowing deep penetration of the respiratory system. These birds were also stressed due to cold temperatures in the barn, likely resulting in immunosuppression and hematogenous spread of organisms infiltrating the vasculature. Considering the relatively mild respiratory lesions, spread from the upper respiratory system would be another potential source of organisms although upper respiratory lesions were not identified in this case. While brain lesions can often be identified in cases of young birds with aspergillosis, the extensive eye lesions identified in this case are an unusual distribution.



**Figure 1.** Ocular swelling and protrusion of the left eye. (Photos: Dr. Hillary Schramm).



**Figure 2.** Postmortem lesions: A. Enlarged left eye. B. Bilateral yellow discoloration in the cerebrum. (Photos: Dr. Hillary Schramm).



**Figure 3.** Histologic lesions: A. Eye. Double headed arrow shows thick layer of inflammation between the sclera and cornea (H&E stain, 2X). B. Eye. Arrows indicate fungal organisms (PAS stain, 20X). C. Brain. Yellow lesions on gross examination are multiple abscesses within the cerebral lobes (H&E stain 2X). D. Brain. Oval surrounds fungal organisms within a cerebral abscess (PAS stain, 40X) (Photos: Dr. Emily Martin).

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## Hemorrhagic pneumonia in mink due to *Pseudomonas aeruginosa*

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AHL Newsletter 2025;30(1):25.

This winter, the AHL received two submissions of farmed mink for postmortem examination. The submissions involved different premises but shared a similar history of increased mortality, sudden death, and bleeding from the nose and mouth. The age of the affected animals ranged from 7-12 months of age.

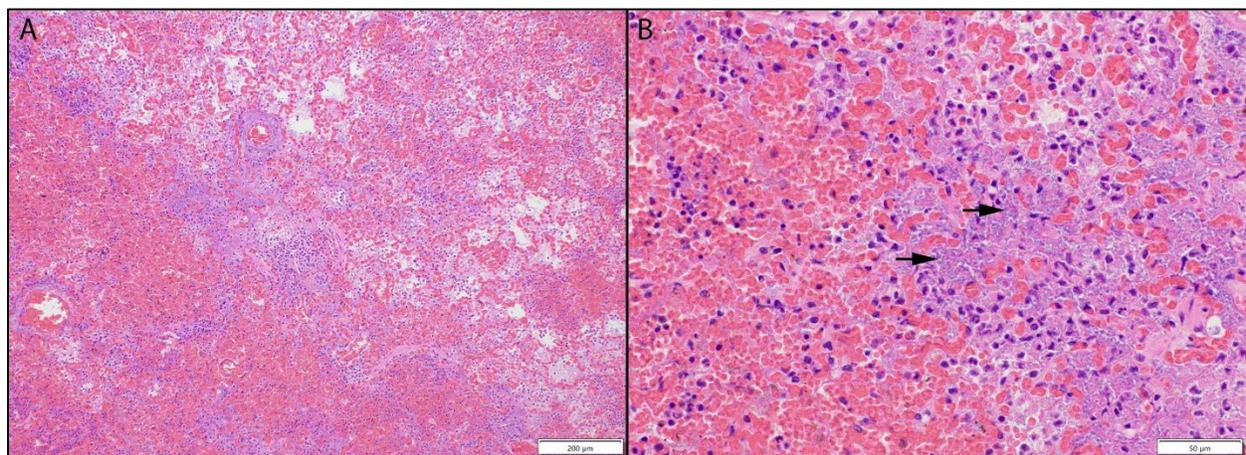
At postmortem examination, the findings in the mink were similar. The lungs exhibited red discoloration, consistent with congestion and hemorrhage, and a rubbery to firm texture. Approximately 25-100% of the lung tissue was affected. Upon cutting the lungs, bloody fluid and froth oozed from the parenchyma and

from the airways. The tracheal mucosa was congested and some of the lung lobes sank in the formalin. There was also congestion of the mediastinal tissue and spleen, and some livers had orange-brown discoloration. No other significant gross lesions were noted.

Histologically, there was marked pulmonary congestion and hemorrhage which was accompanied by numerous bacterial bacilli within the pulmonary interstitium and airways. Some areas of lung had confluent regions of acute pneumonia with infiltrates of neutrophils, necrosis, hemorrhage, fibrin and bacteria (**Fig. 1**).

Bacterial culture of the affected lung tissue isolated large numbers of *Pseudomonas aeruginosa* from all animals; in one animal there were also lower numbers of *Streptococcus canis*. The *Pseudomonas* isolates were resistant to a broad range of antibiotics. PCR tests for influenza A virus (performed on 1 submission) and mink Aleutian disease virus were negative. The gross and histopathological lesions along with the isolation of *Pseudomonas aeruginosa* confirmed the diagnosis of hemorrhagic pneumonia.

Hemorrhagic pneumonia in farmed mink is most often due to *Pseudomonas aeruginosa* although similar lesions have been associated with hemolytic *E. coli*. Hemorrhagic pneumonia is a major cause of mortality in mink. Outbreaks tend to occur in the fall and winter months, and all ages may be affected. Mink with hemorrhagic pneumonia may exhibit a bloody discharge from the nose or mouth or they may die suddenly with minimal clinical signs. At postmortem examination, severe hemorrhagic pneumonia is the characteristic lesion, and the diagnosis is confirmed by bacterial culture. In response to an outbreak of hemorrhagic pneumonia, control measures may include vaccination and thorough cleaning and disinfection of the premises. For one of these submissions to the AHL, the isolates of *P. aeruginosa* were used to prepare an autogenous vaccine.



**Figure 1.** A. Acute severe hemorrhagic pneumonia in mink due to *Pseudomonas aeruginosa*. B. Note the widespread hemorrhage in the lung tissue and numerous bacteria (arrows). H&E stain.

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<https://www.merckvetmanual.com/exotic-and-laboratory-animals/mink/bacterial-diseases-of-mink>

# HORSES

## *Streptococcus equi* testing at AHL

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AHL Newsletter 2025;29(4):27.

The AHL has had a qPCR for the diagnosis of strangles caused by *Streptococcus equi* subspecies *equi* (*Streptococcus equi*) in place for over a decade. The PCR test is highly sensitive but cannot differentiate between live or dead bacteria. The alternate test, bacterial culture, has a lower sensitivity and a longer turnaround time.

Occasionally, positive PCR tests may occur in horses without clinical signs or with a negative bacterial culture. This can occur if the horse was exposed to or is carrying a low level of bacteria, is in an early stage of infection or has clinical signs that were missed in the early stage of infection or was previously vaccinated. Contamination of equipment or samples may also cause a false positive PCR test.

Testing for *S. equi* can be optimized by:

- taking samples for PCR (sensitivity) and culture (viability)
- testing at weekly intervals if an infection is suspected
- sampling both the nasopharynx and guttural pouch by lavage
- ensuring that the endoscope and other equipment is thoroughly cleaned and disinfected between uses.

If you obtain results that are not expected based on clinical findings and history, please contact AHL to review the result and possible options.

The AHL strives to provide same-day *S. equi* testing for samples received before 11AM. Our quality program is at the core of what we do, and occasionally a test will fail its quality control check and may need to be repeated the next day. Please indicate on the submission form if you would like rush testing or if you are requesting same day results so that the lab is aware of your needs.

# COMPANION ANIMALS

## *Uveodermatologic syndrome (Vogt-Koyanagi-Harada-like syndrome) in a young Samoyed*

Amanda Mansz

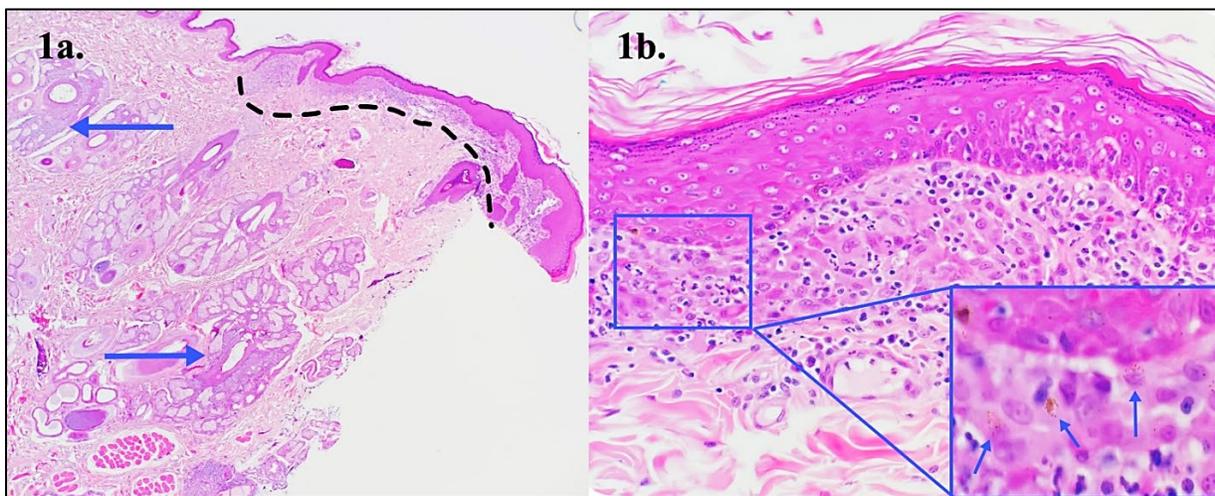
Animal Health Laboratory, University of Guelph, Guelph, ON

AHL Newsletter 2025;30(1):28.

Biopsies from a 3-year-old male neutered Samoyed with a one-month history of depigmentation of the lips, nasal planum and periocular skin were submitted to the AHL for histopathology. Additional history provided that the dog was starting to lose vision and had cloudy eyes.

Microscopic examination highlighted an interface dermatitis (**Fig. 1a**) with inflammation composed of dense clusters of plump histiocytes with fewer small lymphocytes and plasma cells. Histiocytes formed small clusters within the epithelium and extended to surround sebaceous glands and hair follicles. Many superficial dermal histiocytes contained fine melanin granules (“melanin dusting”) (**Fig. 1b**). Changes to the skin were considered consistent with a diagnosis of *uveodermatologic syndrome or Vogt-Koyanagi-Harada-like syndrome*.

*Uveodermatologic syndrome or Vogt-Koyanagi-Harada-like syndrome* is a rare depigmenting condition only seen in dogs and humans and is characterized by concurrent acute onset of bilateral panuveitis and depigmentation of the nose, lips, eyelids, and occasionally footpads and anus/vulva/scrotum. Leukoderma as well as leukotrichia are observed. The uveitis often precedes the skin lesions. Breed predispositions include Arctic Breeds (Akita Inus, Siberian huskies, Samoyeds and Alaskan malamutes) but this syndrome has also been reported in various other breeds. The cause of the disorder is currently unknown, but a cell-mediated hypersensitivity to melanin has been postulated.



**Figure 1.** *Uveodermatologic syndrome or Vogt-Koyanagi-Harada-like syndrome:* Periocular skin. H&E stains. **a.** Distinctive interface dermatitis characterized by a subepithelial basophilic band of inflammation (dashed line) and perifollicular involvement (blue arrows) 4x. **b.** Interface dermatitis composed of a dense band of histiocytes with fewer lymphocytes and plasma cells (2x). Insert: Histiocytes containing a fine dusting of melanin granules (blue arrows) (40x).

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