Virginia Animal Diagnostics

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and the Virginia Tech Animal Laboratory Services

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Dr. Joseph P. Garvin

On Sunday, June 14, 2020, we lost a good friend, a kind and compassionate man, and an important diagnostic veterinarian with the Virginia Department of Agriculture and Consumer Services. Dr. Joe Garvin, program manager of the Office of Laboratory Services, died at home, surrounded by family, following a brief illness.

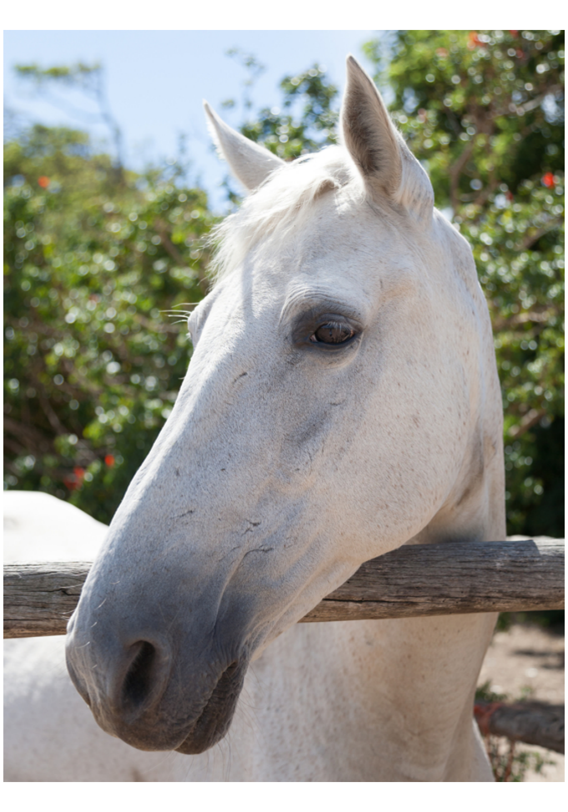
Dr. Garvin received a B.S. from the College of William and Mary and was awarded a DVM from the Virginia-Maryland College of Veterinary Medicine in 1987. He dedicated his career to science and public service. He was employed by the Virginia Department of Agriculture and Consumer Services (VDACS) for 32 years. He joined VDACS in 1988 as a veterinarian in Meat and Poultry Services. In 1990, he was promoted to veterinary diagnostician for the Office of Laboratory Services (OLS), and in June 2003, he was promoted to the position of program manager for OLS. As program manager, he managed Virginia's four state animal health laboratories and was actively involved in many state and national committees and projects. Over the past six years, Dr. Garvin worked hard to increase collaborations between the VDACS animal health laboratories and Virginia Tech Animal Laboratory Services. Much of his effort went towards establishing this newsletter and encouraging VDACS participation in veterinary student training.

Dr. Garvin's record of public service to the commonwealth was commendable, but it is his admirable leadership qualities, generous nature, driven work ethic, and kind personality that will be missed most. He was a great friend to many, a talented veterinarian, a supportive mentor, and an instrumental leader of the Virginia Department of Agriculture's animal health diagnostic laboratories. He will be missed greatly, and this issue of the Virginia Animal Diagnostics Newsletter is dedicated in his memory.

Charles C. Broaddus, DVM, PhD, Dip. ACT
State Veterinarian
Director, Division of Animal and Food Industry Services
Virginia Department of Agriculture and Consumer Services

Tanya LeRoith, DVM, PhD, Dip. ACVP
Director, Virginia Tech Animal Laboratory Services

Equine



Potomac horse fever

Potomac horse fever was the diagnosis in a horse submitted to the Wytheville Regional Laboratory. The 3-year-old quarter horse gelding died after a four-day course of pyrexia, anorexia, and diarrhea that did not respond to medical therapy. Post-mortem examination revealed gross lesions in the cecum and colon, with green fluid contents. Histopathology confirmed necrotizing typhlocolitis with secondary embolic fungal pneumonia and DIC. Special histopathological stains (Steiners) demonstrated the presence of clusters of argyrophilic bacterial organisms in macrophages. Molecular testing (PCR) of antemortem EDTA blood was positive for *Neorickettsia risticii*, the agent of Potomac horse fever.

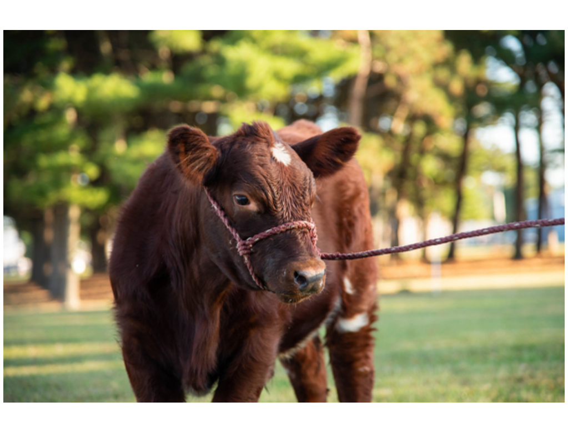
Christopher Halsey, DVM
RAHL Wytheville

Bovine

Histophylosis in a calf

A 6-month-old steer calf was presented for necropsy. Several in a herd of a few hundred had shown clinical signs of brain disease and a few had died. The brain had multiple scattered regions of hemorrhage. Histologically, these were necrotic and hemorrhagic regions associated with fibrin thrombi in arteries, along with severe infiltration with neutrophils. Bacteriologic culture yielded *Histophilus somni*, and this is a case of thrombotic meningoencephalitis.

Phillip Sponenberg, DVM, PhD
Virginia Tech



Cardiac congenital malformations in a calf

An Angus heifer calf was seen by a veterinarian less than 24 hours after birth with an elevated respiratory rate, increased lung sounds, and dehydration. The calf did not improve following one week of hospitalization with fluids, antibiotics, colostrum, and oxygen, and was euthanized. Necropsy revealed peritoneal effusion, a patent ductus arteriosus and pulmonic stenosis with right ventricular hypertrophy, and aspiration pneumonia with fibrinous pleuritis. The congenital cardiac abnormalities were considered to be clinically significant and correlated with the clinical signs at birth.

Thomas Cecere, DVM, PhD, DACVP
Virginia Tech

Small ruminants

Listeriosis in a sheep

An 11-month old Dorset sheep with history of intermittent circling, ataxia, and left ear droop was euthanized and submitted for necropsy. No significant findings were identified during necropsy. Histologically, neutrophilic and lymphohistiocytic meningoencephalomyelitis with multiple micro abscesses centered on the brain stem and proximal spinal cord were noted. An aerobic culture of the brainstem yielded moderate numbers of *Listeria monocytogenes*, in pure culture. Most commonly, the disease is seen after feeding moldy or spoiled hay or silage in large ruminants. In small ruminants, environmental and fecal contamination are common sources of the disease. Other diseases that were ruled out were rabies, enterotoxemia, and small ruminant lentivirus infection.

Francisco Carvallo, DVM, DSc, DACVP
Virginia Tech

Caseous lymphadenitis in a ram

A 9-year-old Suffolk ram with a history of internal parasitism was found dead with no premonitory signs and was submitted for necropsy. Multiple abscesses were present in the kidneys, abdominal cavity, lung, and pituitary gland; and *Corynebacterium pseudotuberculosis*, the causative agent of caseous lymphadenitis, was isolated on microbial culture. Caseous lymphadenitis is a worldwide disease of sheep and goats that presents with abscesses in lymph nodes and visceral organs. The causative organism is transmitted via skin wounds or direct contact with infected material.

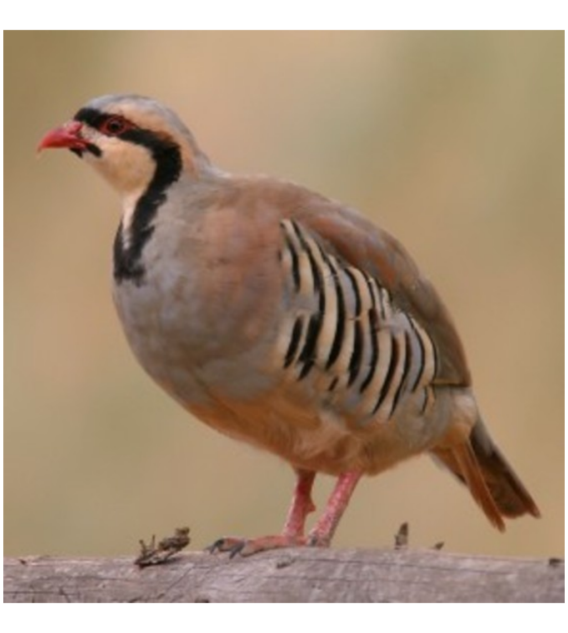
Thomas Cecere, DVM, PhD, DACVP
Virginia Tech

Avian

Infectious bronchitis in chickens

Two 12-week-old chickens were submitted for necropsy by different owners, but it was later discovered that both chickens originated from the same breeder. Both chickens had a history of sudden death with no prior clinical disease. One of the chickens had evidence of dehydration and decreased body condition on gross examination, while the other chicken had no significant gross lesions. Microscopically, there was lymphoplasmacytic and histiocytic tubulointerstitial nephritis, visceral gout, and lymphoid depletion of the bursa of Fabricius. The renal lesions were consistent with infectious bronchitis virus (IBV), and although IBV was not diagnosed in this case, this may have been the cause of death of these chickens. Infectious bronchitis virus is a highly contagious disease caused by a coronavirus. IBV is more well known for respiratory disease, but there is also a nephrogenic strain that infects the kidneys without significant damage to the tracheal epithelium, like in these cases. The lymphoid depletion was thought to be secondary to concurrent illness.

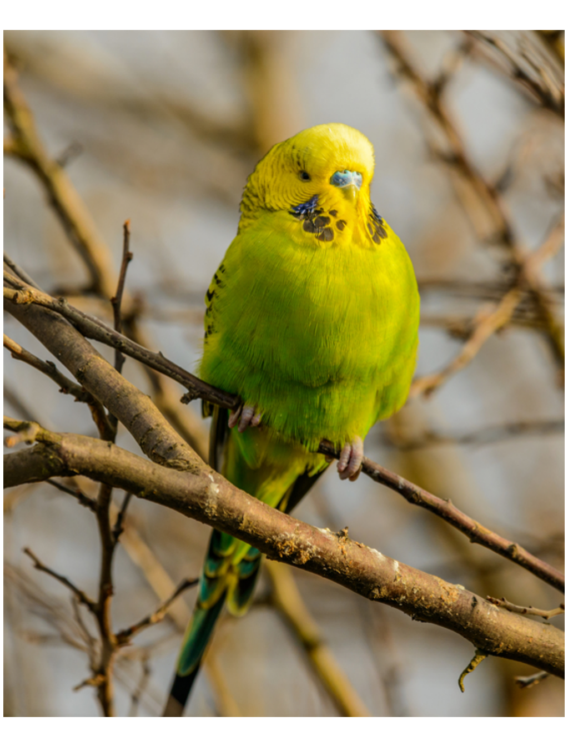
Jaime Weisman, DVM, MSc
RAHL Warrenton



Fungal pneumonia in young Chukar

Six 4-week old Chukars were presented for necropsy with a history of increased mortality. Treatment with antibiotics was ineffective in the flock. Gross necropsy revealed mild to moderate dehydration with tacky organ surfaces and concentrated urates in ureters. Intestines were thin-walled with thickened cecal cores. Wet prep gut scrape revealed a moderate coccidial load. Multifocal fungal plaques ranging from 1 mm to 3 mm in diameter were noted in three or six birds. One bird had a fungal plaque adhered to the costochondral junction. Lungs were grossly congested. Other organs were grossly normal. Histopathology showed a lymphocytic enteritis with moderate to large numbers of intraepithelial and intrahistiocytic apicomplexan parasites (coccidiosis). In the lungs, heterophilic and necrotizing pneumonia with intralesional fungal hyphae with morphology compatible with *Aspergillus* spp was noted. Further discussion with the owner revealed that the coops in which the Chukars were housed contained a weathered switchgrass bedding. Aspergillosis causing fungal pneumonia is often seen with cases of improperly stored bedding material and can result in high mortality, especially in young birds. Changing to a treated, dry-stored bedding is crucial for recovery. Coccidial infections can be seen in many species of poultr, and can cause clinical signs ranging from weight loss and diarrhea to death. Treatment with an anti-coccidial is effective.

Jessica Walters, DVM, PhD, DACPV
RAHL Harrisonburg

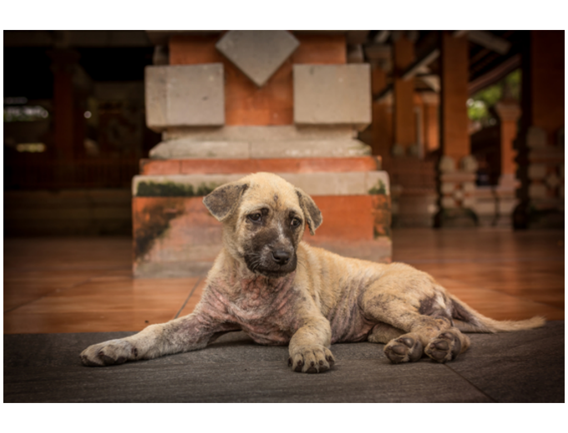


Proventricular adenocarcinoma and septicemia in a budgerigar

A male budgerigar had a prolonged history of moderate diarrhea and was treated long-term with Amphotericin-B for suspected Avian Gastrointestinal Yeast infection. The bird died spontaneously. Gross necropsy was unrewarding, with a moderate diminishment of pectoral muscle being the only finding. Histologic examination revealed atypical glands infiltrating the wall of the proventriculus. These were often distended with mucus. The lumen contained numerous plump bacilli. The liver had scattered regions of coagulative necrosis with no inflammation. The results are consistent with a mucinous adenocarcinoma of the proventriculus, with bacterial overgrowth and peracute septicemia immediately pre-terminal.

Phillip Sponenberg, DVM, PhD
Virginia Tech

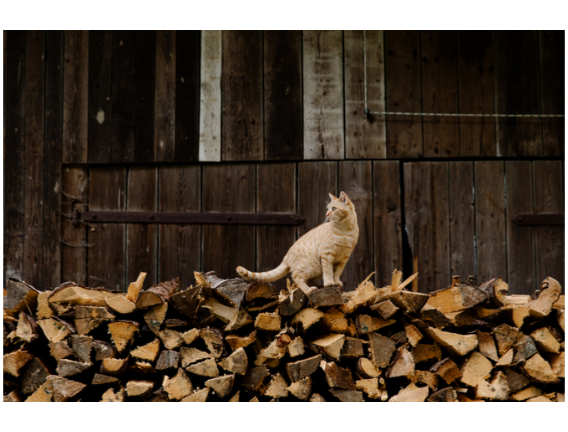
Companion animals



Canine herpesvirus in a puppy

A 2-week-old puppy was presented for necropsy after being treated at an emergency clinic for respiratory distress with steroids, oxygen, and an antibiotic. Another puppy from the same litter also died around the same time. There was a small amount of mucoid discharge from the nose and a prominent interstitial pattern in the lungs. A subacute infarct was visible on the surface of the heart and multiple infarcts in the liver. The textbook appearance of the kidneys with multifocal to coalescing cortical hemorrhages was highly characteristic of Canine Herpesvirus-1 (CHV-1). Histopathology also supported this diagnosis with findings of necrotizing hepatitis, nephritis, and bronco-interstitial pneumonia, all with intranuclear eosinophilic inclusion bodies. The CHV-1 FA tests on lung and liver were negative, though that did not rule out the disease given the other supporting evidence. CHV-1 is a common canine infection and is spread by sexual contact as well as nose-to-nose contact. Problems classically occur when an uninfected female becomes infected during pregnancy. Females infected long before pregnancy usually do not cause infections in their litters. CHV-1 typically causes symptoms in utero or in newborn puppies and they usually do not survive infection.

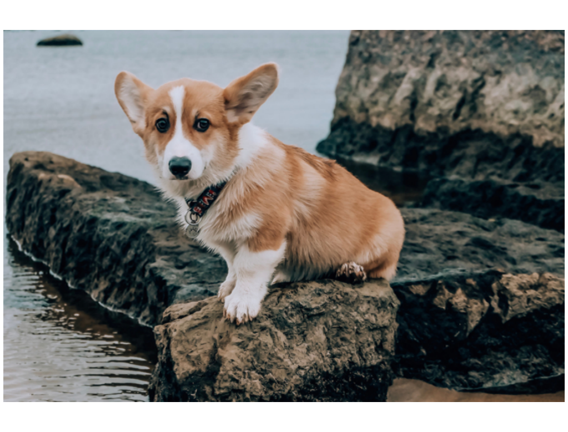
Chelsea Crawford, DVM
RAHL Lynchburg



Feline Ischemic Encephalopathy

A 3-year-old outdoor cat appeared normal when the owner locked her in the barn with two other cats for the night. At 7 a.m. the next morning, the owner found her disoriented and ataxic and rushed her to the vet. The veterinarian administered activated charcoal, after which the cat vomited, seized, and died. Necropsy showed a healthy cat with no significant lesions until the cranial cavity was opened. Within the rostral subdural space was a hematoma which contained a single *Cuterebra* larvae. Histopathology showed eosinophilic meningitis. Abnormal migration of *Cuterebra* (bot fly) larvae can occur when cats or dogs pick up rodent or rabbit bot fly eggs in the environment. Most of the time when this occurs, the larvae will migrate to a spot under the skin and create a swelling where the larvae will develop before it exits the host's body. In rare cases, as in this case, the larvae can migrate up the nasal passages into the brain.

Chelsea Crawford, DVM
RAHL Lynchburg



Chemodectoma and pheochromocytoma in a dog

A 10-year-old male Corgi dog was received for routine necropsy. Grossly, a tumor at the base of the heart and another extending from the adrenal medulla into the vena cava were seen. Diagnosis of a chemodectoma at the base of the heart and a pheochromocytoma infiltrating into the vena cava was made with histology. Both of these neuroendocrine tumors contributed to hypertension and thoracic effusion.

Valentina Stevenson, DVM
Virginia Tech

Laboratory News

Carrie Umberger is the new microbiologist supervisor at the RAHL Wytheville. Carrie earned a B.S. in biology at Virginia Tech and then an M.T. at the Carilion School of Clinical Laboratory Sciences. For seven years, she worked in research and development for Novozymes Biologicals. In 2009, she started working at Wythe County Community Hospital as a generalist and soon became the microbiology supervisor, a position she held for eight years.

Dr. Roger Ramirez-Barrios joined the ViTALS team last June as the new clinical parasitologist. Original from Venezuela, Dr. Ramirez-Barrios completed a Ph.D. at the University of Cordoba, Spain, and postdoc training at the University of Minnesota Duluth. He has broad experience in gastrointestinal parasites and vector-borne diseases.

Laboratory Locations

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