

# rDVM Quarterly

VETERINARY COMMUNITY NEWS FROM AMC | WINTER 2019/2020



## AMC

Animal Medical Center

SINCE 1910

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Caspary Research Institute | The Cancer Institute  
Emilia Saint-Amant Krimendahl Institute for Trauma Care | Ann and Charles Johnson One Health Institute  
Usdan Institute for Animal Health Education

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## A Letter From Our CEO



**Kathryn Coyne**  
Chief Executive Officer  
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212-329-8601

To Our Valued Partners in Care,

2019 has been an exciting year at AMC, and I'm pleased to share key updates with you as we continue to build towards the future and deliver superior care and service to our clients and referring veterinarian community.

We recently announced the public phase of our transformational *Gift of Love* capital campaign. By adding more than 11,000 square feet of new construction and renovating more than 26,000 square feet of existing space, this campaign will ensure that AMC continues to deliver world-class patient care, drive groundbreaking research, and pioneer new discoveries that are making a difference in both animal and human medicine. You can read more about the campaign in this issue, and I look forward to sharing updates with you as the campaign progresses.

In September, we announced the appointment of our new Chief Administrative Officer, Neil M. McCarthy. Neil previously served as a member of AMC's Board of Trustees for over 25 years, most recently as Chairman of the Executive Committee, and he brings more than 35 years of experience in the investment management industry to our administrative team. I'm confident that Neil's experience, management expertise, and in-depth knowledge of our organization will ensure AMC's legacy as a leader in veterinary medicine and partner to our referring veterinarians.

We've also expanded our popular Referral Coordinator program, as you'll read about later in this issue. This essential program is here to be a point of contact for our rDVM community, ensuring a coordinated patient care and communication experience before, during, and after all consultation appointments and procedures. We are very proud of the work they are doing, and we hope that you've found them useful in your own practice.

We're also very proud of our new website, which launched over the summer. This state-of-the-art site allows us to better serve our clients, referring veterinarians, and donors through an engaging combination of modern design and user-friendly navigation. Take a look and let us know what you think at [www.amcny.org](http://www.amcny.org)!

As always, we thank you for your continued trust in AMC. We deeply value our relationship with our referring veterinarians and appreciate your support.

Sincerely,

Kate

## A Letter From Our CMO



**Katherine Quesenberry**  
Chief Medical Officer  
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Dear Colleagues,

I'm pleased to greet you as AMC's new Chief Medical Officer, and I look forward to strengthening AMC's relationships with our referring veterinarians in the years to come. Throughout my 35-plus years at AMC, I have seen how important these relationships are, and I truly appreciate your continued support.

In just my first six months as CMO, I have some exciting news to report! We've hired four new, board certified Staff Doctors to better serve the expanding needs of our patients and referring veterinarian community. As you'll read about later in this issue, we've added two new team members to our Avian and Exotic Pet Service: Dr. La'Toya Latney, DVM, Dipl ECZM, Dipl ACBVP (Reptile and Amphibian) and Dr. Robert Moore, DVM, Dipl ABVP (Avian). Before joining AMC, Dr. Latney served as an Assistant Professor and Service Head of Exotic Companion Animal Medicine and Surgery at the University of Pennsylvania School of Veterinary Medicine. Dr. Moore joins AMC on a part-time basis while serving concurrently as a Senior Clinical Veterinarian at the Wildlife Conservation Society. It is my pleasure to welcome them both to the AMC family. These highly-skilled individuals bring a depth of knowledge in avian and exotic animal medicine, demonstrating AMC's continued commitment to providing high quality patient care for this unique pet population.

We've also expanded our Internal Medicine and Community Practice Services with the additions of Dr. Jennifer Slovak, DVM, MS, Dipl ACVIM, and Robert Dyke, DVM, Dipl ABVP, respectively. Dr. Slovak joins AMC after serving as an Assistant Professor of Small Animal Internal Medicine at Washington State University College of Veterinary Medicine, where she worked in clinical medicine and as a clinical instructor as well as actively participating in clinical research. Dr. Dyke most recently taught as a Clinical Assistant Professor in Community Practice at Washington State University Veterinary Teaching Hospital. I'm pleased to welcome them both to AMC. They each bring strong clinical and research skills that will reinforce AMC's goal of providing the highest standard of quality and compassionate patient care.

I thank you again for your tremendous and continued support of AMC. As always, feel free to contact me with any concerns. I look forward to hearing from you!

Katherine Quesenberry, DVM, MPH

# AMC's *Gift of Love* Campaign



On October 22nd, AMC launched the public phase of its \$70 million *Gift of Love* capital campaign, the largest campaign in the institution's 110-year history. The dual focus of the campaign is to dramatically transform and renovate the 60-year-old building by updating more than 26,000 square feet of existing clinical and client space, while expanding the hospital by more than 11,000 square feet. These improvements will enable AMC to meet the increased demand for patient care, enhance its postgraduate veterinary education program, and strengthen its cutting-edge research on naturally occurring diseases.

## Funds secured through the *Gift of Love* campaign will invest in:

- A new Emergency Room, which will nearly triple its footprint, adding needed equipment, exam tables, and cages
- A new Intensive Care Unit, which will more than double in size, and be reconfigured to improve patient outcomes and promote a better healing environment
- A new and expanded Special Care Unit, allowing AMC to care for more patients in need of inpatient care
- A new outdoor dog run and park
- A new peri-operative suite, which will triple in size, and accommodate the most advanced medical technologies
- New space for educational programs and integrative health services

Groundbreaking is scheduled in Spring 2020, with complete construction by the end of 2022. For more information about the *Gift of Love* capital campaign, please visit: [www.amcny.org/capital-campaign](http://www.amcny.org/capital-campaign).



# Expansion of AMC's Avian and Exotic Pet Service



The Avian and Exotic Pet Service at the Animal Medical Center has recently expanded with the addition of two new board certified specialists – Drs. La'Toya Latney and Robert Moore – to provide 7-day per week appointments for birds, small mammals, and reptiles. We are proud to offer innovative and advanced medicine and surgery options for these unique species in the tri-state area. Our experienced team of specialists works collaboratively with all other AMC specialty services to provide an integrative approach to serve the unique needs of avian, small mammal, and reptile pets and their owners.

Treatment options are tailored to meet the individual needs of the patient by offering targeted diagnostic services, advanced imaging options, dentistry, surgery, physical therapy, alternative medicine, endoscopy, and other specialty service consultations. As one of the most celebrated training facilities for exotic specialists worldwide, AMC's Avian and Exotic Pet Service is proud to continue to meet the increasing needs and demand for specialty services for this diverse patient population.

We're here for you and your patients with progressive and compassionate care.

## HELPFUL HINTS FOR AVIAN AND EXOTIC PET REFERRALS

The AMC Avian and Exotic Pet Service is committed to excellence in patient care and is here to provide assistance to our referral community. When making a referral, please follow the instructions below:

- Referring Veterinarians: Please contact us prior to referral at [ExoticsTeam@amcny.org](mailto:ExoticsTeam@amcny.org) or 212-838-8100 and ask to speak to a member of our team.
- Clients can make an appointment by calling 212-838-8100 or 212-838-7053.
- Forward all medical records to [Client.Services@amcny.org](mailto:Client.Services@amcny.org) and [ExoticsTeam@amcny.org](mailto:ExoticsTeam@amcny.org) or fax to 212-752-2592.

### Other referral considerations:

- We strive to accommodate same day referrals, however, appointments scheduled after 2pm on weekdays limits same day imaging and some diagnostic availability.
- Computed tomography has limited availability on weekends.
- If multiple diagnostic procedures, surgery, or advanced imaging procedures are needed, please contact the Exotics Team as soon as possible to expedite care for the patient.
- AMC provides 24-hour emergency service for all species, including exotic pets. Emergency patients are triaged and stabilized by our exceptional emergency staff, and hospitalized patients are transferred to the Avian and Exotic Pet Service for targeted care.

For more information about AMC's compassionate and collaborative care, visit [www.amcny.org](http://www.amcny.org).

## MEET OUR TEAM OF DOCTORS

**Katherine Quesenberry, DVM, MPH, DABVP (Avian), Chief Medical Officer**  
[Katherine.Quesenberry@amcny.org](mailto:Katherine.Quesenberry@amcny.org), 212-329-8622

Dr. Katherine Quesenberry has been practicing avian and exotic pet medicine exclusively for over 35 years and she established the Avian and Exotic Pet Service at AMC in 1984. She is recognized both nationally and internationally as a leader in this field of veterinary medicine. Dr. Quesenberry has trained more than 20 specialty interns and residents in avian and exotic pet medicine, most of whom are now board certified and are leaders in the field throughout the country. Dr. Quesenberry has co-edited several books, including *Ferrets, Rabbits and Rodents: Clinical Medicine and Surgery*, which is a best-selling veterinary textbook, and *Avian Medicine and Surgery*, and she served for 25 years as the Scientific Editor for the *Journal of Avian Medicine and Surgery*. She has lectured extensively throughout the United States and Europe about veterinary care of birds, small mammals, and other exotic pets.



## MEET OUR TEAM OF DOCTORS



**Cyndi Brown, DVM**

*Cyndi.Brown@amcny.org, 212-329-8683*

Dr. Brown has more than 20 years of experience in avian and exotic medicine, including an internship and residency at the Animal Medical Center and staff positions at Red Bank Veterinary Hospital, Ocean State Veterinary Specialists, and the Center for Avian and Exotic Medicine, before returning to AMC in 2015. She has lectured widely and published numerous journal articles and book chapters on avian and exotic medicine. Passionate about education, Dr. Brown takes great pride in training AMC's interns and residents, as well as educating school-aged children about responsible pet ownership. She has a house full of rescue parrots – including an African Grey, Mexican Red Headed Amazon, Mealy Amazon, Quaker Parrot, and a Scarlet Macaw – in addition to a clan of Chihuahuas.



**Robert Moore, DVM, DABVP (Avian)**

*Robert.Moore@amcny.org, 212-329-8073*

Dr. Moore joins AMC part-time while serving as a Senior Clinical Veterinarian at the Wildlife Conservation Society. In this capacity, he is responsible for providing medical, surgical, and preventive healthcare for the living collections at the Bronx Zoo, New York Aquarium, Central Park Zoo, Prospect Park Zoo, and the Queens Zoo, in addition to other conservation and education projects and programs. Previously, Dr. Moore served as a Staff Veterinarian at Bond Animal Hospital and AMC. He completed his internship at the Ontario Veterinary College and his residency at Texas A&M University. Dr. Moore has experience in international veterinary work and has authored numerous medical journal articles.



**La'Toya Latney, DVM, DECZM (Zoo Health Management), DABVP (Reptile & Amphibian)**

*Latoya.Latney@amcny.org*

Dr. Latney is the newest member of the Avian and Exotics team, joining AMC from the University of Pennsylvania Veterinary Teaching Hospital after 11 years, where she continues to teach senior veterinary students clinical avian, small mammal, and reptile medicine courses as an adjunct professor of Clinical Zoo and Exotic Animal Medicine. Dr. Latney tackles patient care using an integrated evidence-based approach for all species. As a progressive patient advocate, she brings a contagious enthusiasm for celebrating the physiology, anatomy, and medicine of exotic and zoo animals. Her special interests include reptile infectious diseases, comparative critical care and adapted emergency response for exotics, translational medicine, innovative surgical techniques for all species, and reptile husbandry and nutrition. She is a board member for the Association of Reptile & Amphibian Veterinarians and publishes review articles, studies, and case reports in several veterinary journals. She is proud to bring advanced reptile medicine options to AMC!

## MEET OUR TEAM OF DOCTORS

**Melissa Witherell, DVM – Specialty Intern**

*Melissa.Witherell@amcny.org, 212-329-8052*

Dr. Witherell recently finished a Small Animal Medicine and Surgery Rotating Internship at Red Bank Veterinary Hospital in New Jersey. She is an Iowa State Veterinary School graduate of 2018. She has special interests in Cardiology, Ophthalmology, Dermatology, and Neurology. She plans on pursuing a board certification in ACZM (American College of Zoological Medicine).



**Melissa Ortiz, LVT**

*Melissa.Ortiz@amcny.org*

Melissa has been a part of AMC's Avian and Exotic Pet Medicine Service since 2004. She recently rejoined the team after working at the Wildlife Conservation Society's Queens Zoo for the past 9 years, where she continues to serve as president of the Association of Zoo Veterinary Technicians. She has spent the last 15 years focusing on exotic animals in both the companion animal and zoo animal fields. She has special interest in progressive, multimodal pain management options and behavior and wellness programs for different species. She is preparing to certify as a VTS with a subspecialty in exotic companion animal medicine. Melissa continues to be actively engaged in her community by lecturing for her peers (Social Workers Advancing the Human Animal Bond, American Association of Zoo Keepers Regional Symposium, Auburn University College of Veterinary Medicine), by serving as a mentor for AMC's Veterinary Technician Intern program, and by serving as a board member for the LaGuardia Community College's Veterinary Technician Program. She received the "Vet Tech of the Year" and "Aspiring Leader" awards given by the New York State Veterinary Technician Association in recent years, which heralds the strong impact she brings to patient care for exotic animals.



**Megan Kenna, LVT**

*Megan.Kenna@amcny.org*

Megan is a Licensed Veterinary Technologist, having graduated with a B.S. in Veterinary Technology from Mercy College in 2016. After tech school, Megan spent a year abroad at Ross University's Veterinary School. While in school, she realized her love of veterinary nursing and decided to return to New York to focus on her Vet Tech career. Megan is currently pursuing a VTS (Veterinary Technician Specialty) in exotic companion animal clinical practice. She has special interests in anesthesia as well husbandry and enrichment for avian, reptile, and small mammal species.



# Meet AMC's Referral Coordinators



**Liana Everaert**  
Executive Director of  
Client Relations  
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212-329-8820

Due to the great success of the program over the last year, the Animal Medical Center has expanded the Referral Coordinator program so it now covers all Surgery services, Internal Medicine, and Emergency and Critical Care. There are currently seven dedicated Referral Coordinators (RC) and two more will be joining the team by the end of 2019.

The RCs work directly with each service and each referring veterinarian office to ensure coordinated patient care and communication before, during, and after all consultation appointments and procedures. The RC acts as a point of contact for the rDVM community, helping them and their clients seamlessly access AMC services. The RC is an integral part of each service's team, trained to follow their specific workflow and procedures while also acting as a practice liaison for the rDVM community. The RC communicates urgent medical information between doctors who may not be immediately available by phone and sends patient visit reports and results to rDVMs while facilitating communication between clients and AMC staff doctors. The RC also schedules appointments, collects medical records, presents estimates, arranges discharges, and answers client and rDVM questions.

Please find the contact information for each of the Referral Coordinators on the opposite page. The team looks forward to assisting you and your clients!



Internal Medicine:  
**Jennifer Perez**  
[IMCoordinators@amcny.org](mailto:IMCoordinators@amcny.org)  
212-329-8175

Surgery Service 2:  
**Katherine Faugno**  
[SurgicalCoordinators@amcny.org](mailto:SurgicalCoordinators@amcny.org)  
212-329-8744

Surgery Service 3:  
**Kayla Jermansky**  
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Surgery Service 4:  
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212-329-8741

Surgical Oncology:  
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212-329-8730

Emergency Critical Care:  
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**Ashley Bliss**  
[ERCoordinators@amcny.org](mailto:ERCoordinators@amcny.org)  
212-329-8025

Ophthalmology and Dentistry:  
**Monique Gonzalez**  
[EyeTeamCoordinator@amcny.org](mailto:EyeTeamCoordinator@amcny.org)  
[DentistryCoordinator@amcny.org](mailto:DentistryCoordinator@amcny.org)  
212-329-8090

# New Fast Track Service Improves Emergency Department Case Flow



**Joel Weltman**  
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212-329-8581

The patient population of many high volume emergency departments (EDs) presents with the gamut of problems, from ear infections to severe sepsis. At the time of arrival, a brief triage assessment allows the staff of the ED to determine which individuals are most severely compromised, allowing clinicians to expediate the care of those in dire need. Several years ago, AMC instituted a priority assessment at the time of triage for all cases presenting to our ED (Table, on page 14). The ED staff were trained to assign all cases a priority assessment to estimate the expected wait time. When this program was established, the emergency clinicians managed cases solely by level of acuity, regardless of time of arrival.

In April 2018, with the hire of one additional staff doctor, AMC launched a pilot program to expediate the care of lower acuity patients as a means of improving case flow through the ED. On select days we assigned one clinician on service to fast track (FT) cases of low acuity, based on triage assessment. In human hospitals, FT has been shown to improve the difference between arrival time to diagnostic evaluation by a doctor (wait time [WT]) and frequency of cases where the patient left before being seen by an ED clinician (leave-without-being-seen [LWBS]). Given the new availability of FT at AMC, we sought to determine if FT demonstrates similar improvement in case flow for high volume veterinary EDs.

To investigate this question, we compared characteristics of ED case flow on days FT was available to the corresponding days of April 2017, prior to FT. We found that with FT both yellow and green priority cases experienced significantly shorter WT, demonstrating a reduction of approximately 27% and 16% respectively. To our surprise, this reduction in WT for green priority cases was despite a 40% increase in caseload between study periods. Further, we demonstrated a reduction in the overall frequency of LWBS. The likelihood of LWBS was independently associated with WT and not with the number of clinicians working or the number of cases presenting contemporaneously. While one might think that an additional clinician seeing low acuity cases would inherently lead to reduced WT, in fact the clinician concentration was only correlated with WT in yellow priority cases, despite FT clinicians focusing on the less sick patients. One possibility for this specific finding is that doctors who were seeing the less ill animals in 2017 were “freed up” by the FT doctor to focus on sicker animals in 2018.

Emergency department overcrowding is pervasive in both human and veterinary hospitals and leads to suboptimal patient care, longer WT, and more LWBS patients. Currently our field is experiencing a national shortage in both ED technicians and veterinarians. In fact, a task force was recently created by the Veterinary Emergency and Critical Care Society and American College of Veterinary Emergency and Critical Care to address this problem. Incorporation of FT into high volume EDs may provide a means of combating both understaffing and expanding ED caseloads. Based on our experiences, FT improves case flow as well as satisfaction of hospital staff and clients. In fact, based upon the favorable results of this study, our ED has expanded the FT service to 7 days per week. Future studies investigating measures to predict the benefit of FT, such as daily case volume, fraction of low acuity case presentations, or overall case density, are warranted to help distinguish hospitals the service may benefit. While we did not assess the influence FT has on quality of ED clinician work-life balance, our experiences suggest that incorporating FT in a busy ED alleviates stresses related to the severity and volume of cases presented to emergency veterinarians. Assessment into how FT influences the experiences of ED clinicians may incentivize future veterinarians to pursue careers in emergency medicine.

# Guidelines When Referring to AMC's Emergency and Critical Care Service

ESTIMATED WAIT TIME BASED ON URGENCY			
COLOR	NUMBER	LEVEL	ESTIMATED WAIT TIME
RED	1	IMMEDIATE	IMMEDIATE
ORANGE	2	VERY URGENT	<15 MINUTES
YELLOW	3	URGENT	<1.0 HOUR
GREEN	4	STANDARD	<1.5 HOURS
BLUE	5	NON-URGENT	<2.0 HOURS

TABLE Estimated wait times for patients presenting to the AMC Emergency Room. Wait times are based on illness severity as determined by patient triage assessment.

The Emergency and Critical Care Service at the Animal Medical Center (AMC) deeply values our long-standing relationship with partnering primary care veterinarians. We work to ensure a smooth referral process to the Emergency Room (ER), both for our referring veterinarians and mutual clients. The following guidelines offer some helpful tips for ensuring an optimal outcome for both patients and owners sent to AMC's ER.

### Prior to the Patient's Arrival at AMC

- **Call ahead to discuss ANY potential case transfers with the ER Staff Doctors. They can be reached at 212-329-8616.** We are always happy to discuss cases. In addition to providing AMC staff with important case details, Staff Doctors can discuss availability of diagnostics, likely case progression following ER assessment, and a general estimate of costs for both the ER assessment and potential hospitalization to prepare the client.
- **Send all medical records to AMC prior to patient arrival. Records should be sent to Client Services via fax at 212-752-2592 or email at Client.Services@amcn.org.** Please also send all diagnostic imaging studies to both Client Services at Client.Services@amcn.org and AMC's Diagnostic Imaging Service at Radiology.Dept@amcn.org.

### Managing Client Expectations

When a client's animal is referred to AMC's ER, they may be anxious, frightened, and nervous. Preparing clients for what to expect when they arrive at AMC will help put clients at ease and manage their expectations; our initial ER evaluation process is as follows:

- The client and their pet will be directed to an examination room for triage examination.
- An ER nurse will meet with the client and patient to obtain a brief history and perform a triage examination to determine patient stability.
- The patient will be assigned a triage color (Table, on page 14) and estimated wait time based on illness severity.
  - › Clients with stable pets will be directed to wait in the waiting area with their pet. While the ER doctors make every effort to attend to each case as quickly as possible, these clients must be prepared to wait to be seen in accordance with the estimated wait time.



**Ann Marie Zollo**  
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- › Unstable patients will be immediately brought to the ER treatment area for doctor evaluation. The triage nurse will obtain permission to begin initial diagnostics and therapies, such as intravenous catheter placement, point-of-care bloodwork, blood pressure measurement, EKG, triage ultrasound, and administration of fluids, pain medications, or other emergency drugs.
- › Clients will be updated every 30-60 minutes throughout their pet's time in the ER.
- An ER doctor will obtain a complete medical history from the client. Thorough physical examinations are performed by BOTH the primary and supervising ER doctors. The client will then be presented with a diagnostic and treatment plan by the primary doctor.
- Once all diagnostics and treatments have been completed, patients will either be discharged or admitted to the hospital for further care.
  - › Clients should understand that they may not be able to speak to doctors from other specialty services while their pet is in the ER.
- If clients need to reach their pet's ER doctor following their pet's visit, they can be reached at the email address that is provided at the bottom of every discharge statement. They can also email the ER coordinators at ERcoordinators@amcnyc.org.

Thank you again for your continued referrals! We look forward to working as a team to provide the best care for our mutual patients and clients!

If you have any questions or concerns, please contact the ER team at 212-329-8616 or via the ER coordinators at ERcoordinators@amcnyc.org.

## Not all MRI are Created Equal: Magnetic Resonance Imaging and the Veterinary Patient

*This issue of rDVM Quarterly continues a multi-part series highlighting the expertise of the Animal Medical Center's Neurology Service. Led by three board certified neurologists with a combined 30 years of clinical experience, our neurologists are available for appointments seven days a week and have access to all 17 specialties within the hospital, ensuring comprehensive, collaborative care.*

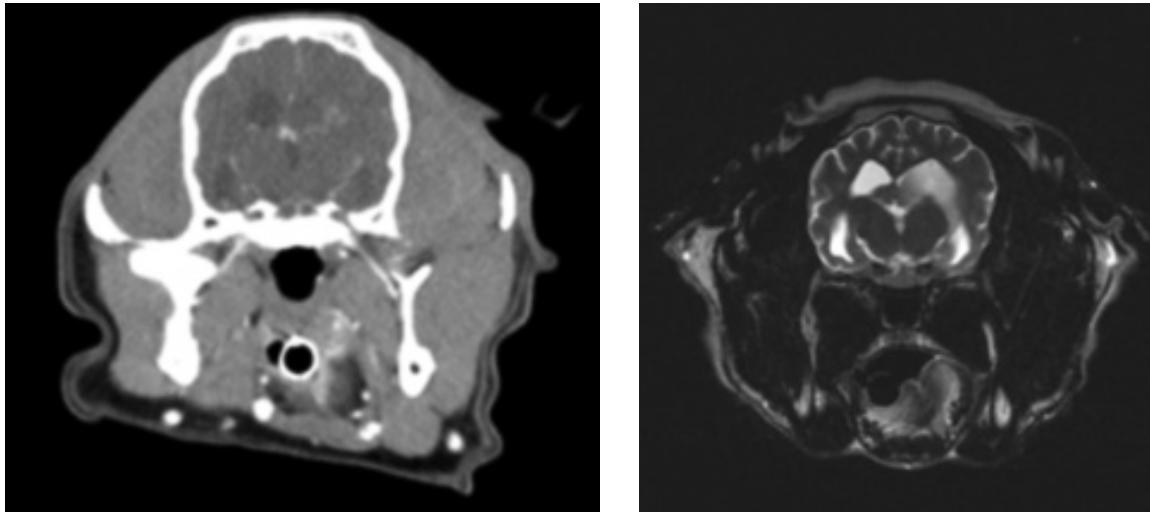
The increased availability of magnetic resonance imaging (MRI) has revolutionized the diagnosis of disease in the nervous system. MRI, like computed tomography (CT), transcends the limitations of superimposition of structures seen with standard plain radiographs. Unlike CT scans, MRI can acquire images in any plane and avoids the limitations of imaging through bone which can increase artifacts and distort tissues surrounded by bone (i.e. the central nervous system).

Unlike more familiar imaging modalities of radiographs and CT, MRI does not use ionizing radiation to generate an image. Instead, a magnetic field is used to exploit the differences inherent in tissues to generate contrast. Similar to CT and radiographs, the images generated are represented by a spectrum of grey. However, unlike CT, the grey scale is not fixed to the tissue density but can be manipulated (e.g. by T1 and T2 "weighting") to enhance inherent tissue characteristics such as fat, fluid, or blood. This translates into greater contrast resolution, especially of soft tissues in areas surrounded by bone, like the central nervous system. This ability to generate precise anatomical images with excellent resolution, in any plane desired, without exposure to radiation makes MRI the superior modality to investigate diseases of the central nervous system (see Figure 1).

Not all MRI units are created equal. The MRI units used in most veterinary settings employ either permanent (also known as "fixed") magnets or superconducting magnets. Permanent magnets consist of large discs of ferromagnetic materials with fixed field strength. Field strength is measured in Tesla (T) units. For reference, consider a common refrigerator magnet which has a magnetic field strength of 0.005 Tesla. While permanent magnets have the benefit of low maintenance costs and low power consumption, they are limited in the strength and homogeneity of the magnetic field generated. Many such magnets only have field strengths up to about 0.3T. An example of a commercial system marketed to veterinarians is the VetMR Grande (Esoate, Fishers, IN USA). In comparison, MRI systems used in human medicine employ units with field strength of 1.5-3T.



**John McCue**  
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**FIGURE 1**  
**CT VERSUS MRI (1.5T)**

The image to the left shows a post-contrast CT scan of a dog presented to the AMC for seizures. The lateral ventricles are clearly enlarged. CT was performed at another institution. There is a distortion of contrast uptake of the choroid plexus of the left lateral ventricle but the cause of these changes is not apparent. MRI performed at AMC of the same patient better demonstrates the enlarged lateral ventricles and clearly shows a mass within the lateral ventricle. This MR image is T2W image taken before contrast administration. This patient received radiotherapy with resolution of the mass documented at 6m post-RT.

Superconducting magnets are made up of superconducting metal coils cooled by liquid helium. This allows for more powerful and homogenous field strengths, which translate into higher signal to noise ratio and enhanced resolution. The benefit being higher image quality, enhanced identification of disease, and faster acquisition times. This is especially important when imaging smaller patients. The benefit of increased signal with high-field MRI allows for accurate characterization of neurologic disease in the smallest of patients. The majority of scanners used in human medical imaging these days are 1.5T. These constitute the standard of imaging in the medical field.

MRI is more than just magnetic field strength. MRI utilizes the favorable magnetic properties and large distribution of hydrogen protons in the body. When placed in a strong magnetic field, the protons align. Radiofrequency pulses are applied to disrupt this alignment. The change in angle of magnetization is sensed by receiving coils around the patient and translated into an electrical signal. Timed radiofrequency pulses and smaller magnetic gradients are applied to modify the magnetic interactions of these protons. The information received is translated by a computer into a final image. Manipulation of these parameters adjusts the T1, T2, and T2\* weighting of acquired information to enhance tissue characteristics – the latter being pronounced “T2 star” weighting. The ability to generate clear images rapidly is directly related to a strong magnetic field supplied by superconducting magnets.

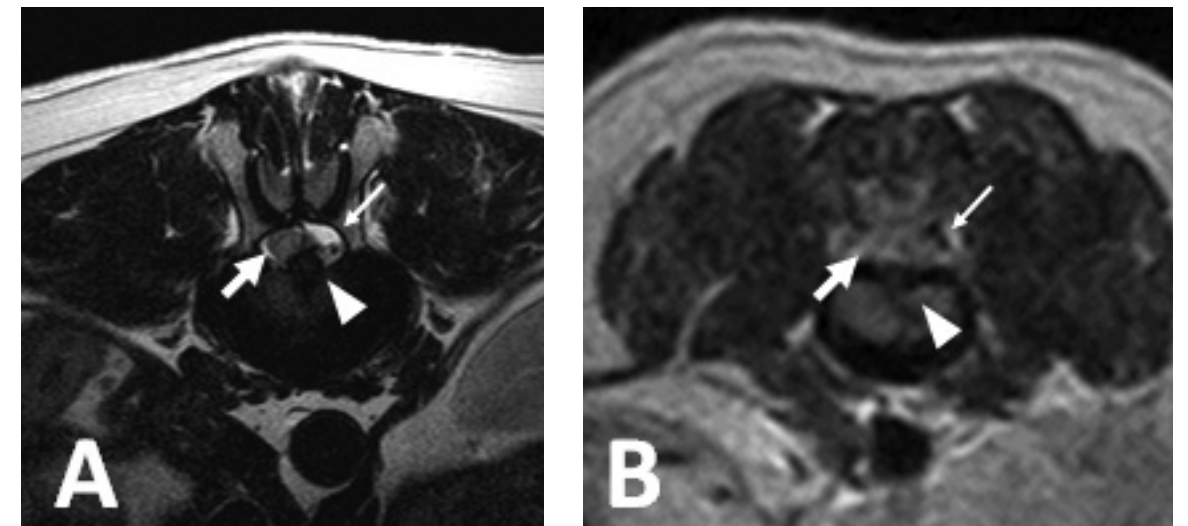
This level of detail translates into real-time information that affects patient management on a day-to-day basis. A common presentation to a veterinarian is the acutely non-ambulatory dog. This often represents a critical injury to the spinal cord and can require emergent surgical therapy. In such a patient it is crucial to obtain an accurate diagnosis in a timely manner. High-field MRI can provide invaluable information about the location of injury (e.g. left or right sided intervertebral disc extrusion), the degree and length of compression along the spinal cord (i.e. multiple intervertebral levels), and the integrity of the spinal cord. MRI can also inform as to what the compressive material is comprised. Is it disc material or hemorrhage? And how might this influence

therapy? This important information informs the attending veterinarian as to what the disease is, where to perform surgery, and if surgery is even indicated in such a case (see Figure 2).

These imaging qualities involve more than just the neural tissues. Diseases affecting bone, ligaments, muscles, and organ systems are all better elucidated by modern MR imaging. With high-field MRI we can now image muscle in great detail, allowing accurate localization of soft tissue injury. The ability of MRI to differentiate the inherent characteristics of tissue changes and to distinguish inflammation from edema or fibrosis offers a powerful tool in the diagnosis of soft tissue diseases. Subtle trauma to ligaments and tendons can likewise be identified, allowing diagnosis and guiding therapy.

High-field MRI also allows for specialized sequences not possible with lower field units. Advanced imaging techniques, such as diffusion and perfusion weighted imaging and fat suppression techniques, allow for early detection of vascular injury and more reliable imaging-based diagnoses. Using functional MRI changes in blood flow and energy utilization can be seen in real time. This can translate into important patient care decisions and valuable prognostic information. Enhanced lesion conspicuity and characterization without added patient morbidity is the ultimate goal of veterinary MRI.

*The Animal Medical Center currently uses a Philips Achieva 1.5T MRI unit.*



**FIGURE 2**  
**1.5T VERSUS 0.3T**  
This figure shows transverse T2 weighted images obtained with a 1.5T unit (A) and with a 0.3T unit (B) at approximately the L1-L2 disc space in similar sized patients. The spinal cord (large arrow) is laterally displaced by extruded intervertebral disc material (arrowhead) and hemorrhage (thin arrow). A tear can be seen in the dorsal annulus. The contrast resolution afforded by high-field MRI imaging provides a clear picture of the laterality and severity of spinal compression. There is excellent anatomical detail of the bony and soft tissues surrounding the spinal canal.

# Feline Non-Regenerative Anemia: Diagnostic and Treatment Recommendations



**Ann Hohenhaus**  
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One of the requirements for board certification by the American College of Veterinary Internal Medicine, Specialty of Internal Medicine is a peer reviewed publication. The July 2019 issue of the *Journal of Feline Medicine and Surgery* features the most recent AMC resident publication: “Feline non-regenerative anemia: diagnostic and treatment recommendations,” authored by Dr. Sarah Winzelberg Olson and her mentor, AMC Staff Doctor Dr. Ann Hohenhaus.

The publisher of the *Journal of Feline Medicine and Surgery*, Sage, has generously allowed rDVM Quarterly to reproduce the diagnostic algorithm and some key points from the article below. Sage has also provided readers of rDVM Quarterly with free access to the article for one month from the publication date of this rDVM Quarterly issue. You can access the article at <http://bit.ly/nonregenerativeanemia>.

Non-regenerative anemia, or anemia with reticulocytopenia, is frequently encountered in feline practice. Chronic diseases such as kidney disease and lymphoma are common causes. Infectious diseases, especially retroviral infections, are another frequent cause of non-regenerative anemia in the cat. Bone marrow disorders, such as pure red cell aplasia and non-regenerative immune-mediated hemolytic anemia, cause ineffective erythropoiesis resulting in non-regenerative anemia. A significant proportion of cases of pure red cell aplasia and non-regenerative immune mediated hemolytic anemia respond to glucocorticoid monotherapy.



**Sarah Winzelberg**  
VMD, DACVIM (SAIM)

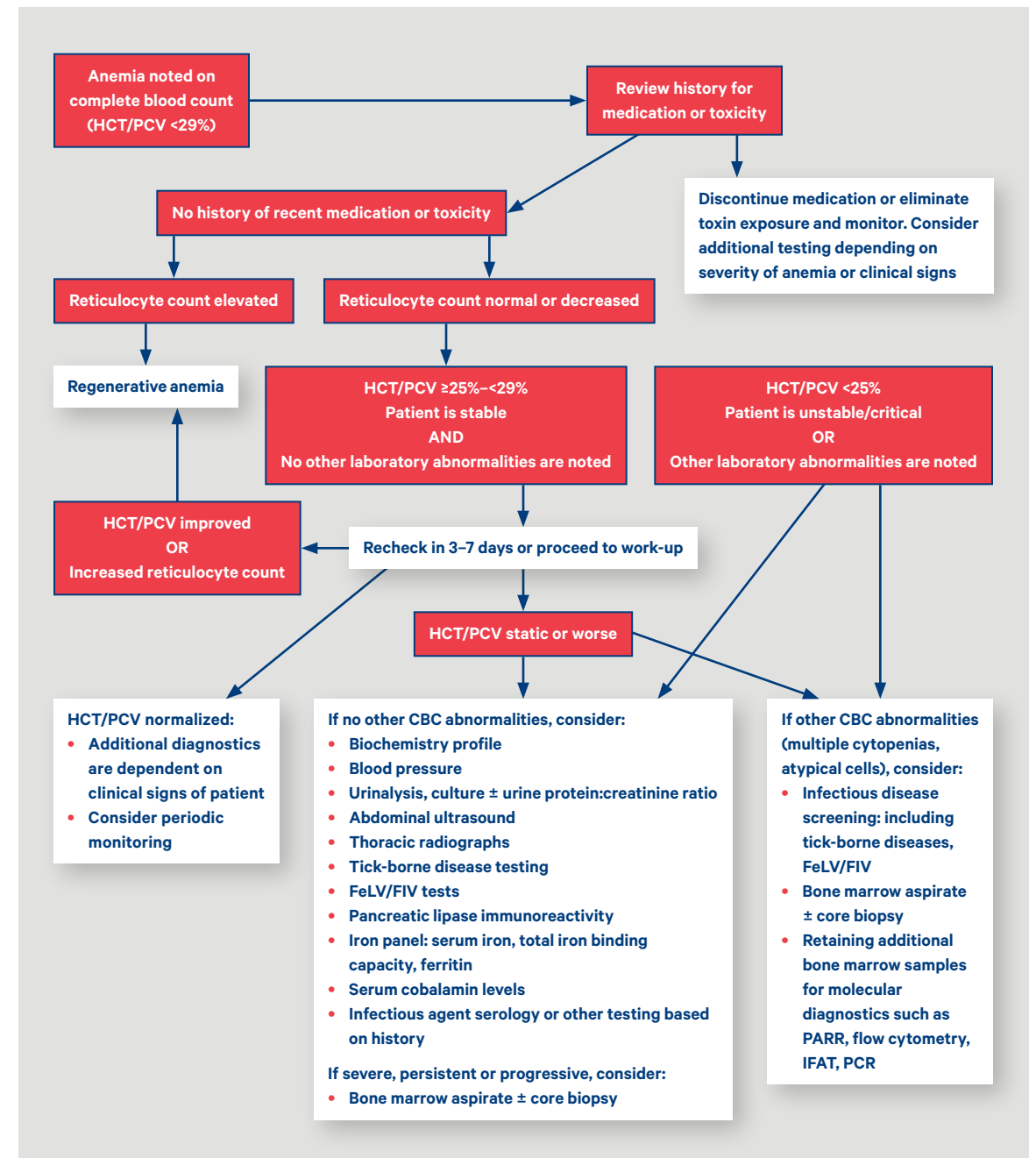
The diagnosis of one specific type of non-regenerative anemia, iron deficiency anemia, has been challenging in the past due to a lack of sensitive and specific diagnostic tests. Recently, some commercial laboratories have begun to offer reticulocyte indices as part of a routine CBC. Reticulocyte hemoglobin appears to be a more sensitive marker of iron deficiency than measurement of transferrin, ferritin, and serum iron. Low levels of reticulocyte hemoglobin indicate iron deficiency and can be useful in directing iron supplementation.

Because a wide variety of diseases result in non-regenerative anemia, use of an algorithm to guide diagnostic recommendations will help to minimize unnecessary testing and maximize the chances of obtaining a diagnosis (see Figure).

One diagnostic test often overlooked, and yet crucial in determining the cause of non-regenerative anemia, is evaluation of a blood smear by a clinical

pathologist. Their highly trained eyes identify cellular abnormalities that automated hematology analyzers miss. Identification of blood parasites, Heinz bodies, or neoplastic cells on a blood smear help to focus the diagnostic evaluation of an anemic cat and facilitate an early diagnosis.

**FIGURE** Algorithm for the identification and evaluation of a cat with non-regenerative anemia. HCT = hematocrit; PCV = packed cell volume; CBC = complete blood count; FeLV = feline leukemia virus; FIV = feline immunodeficiency virus; PARR = PCR for antigen receptor rearrangement; IFAT = immunofluorescence antibody test. Adapted from Ettinger SJ, Feldman EC and Cote E. *Textbook of Veterinary Internal Medicine, Expert Consult, 8th ed, 2017 with permission of Elsevier*



# Oncologists at AMC's Cancer Institute Treat a 6,000-year-old Tumor



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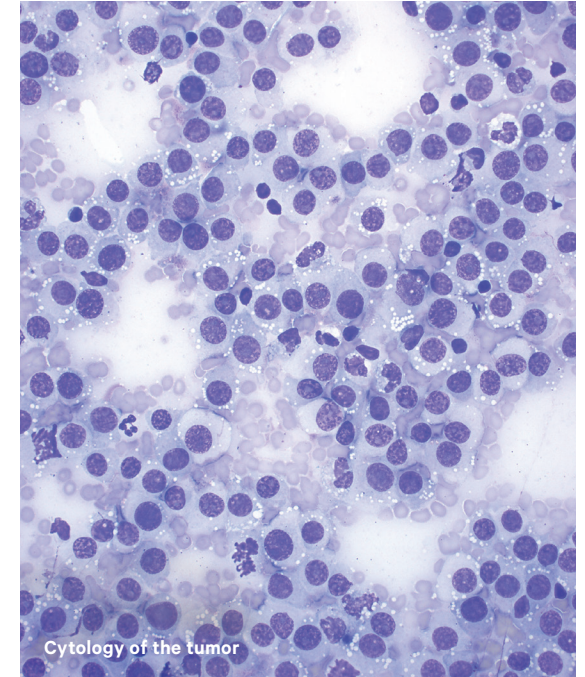
Jeter is a rescue dog currently being fostered through Ruff House Rescue until he finds a forever home. Placement into a new home has been delayed by a diagnosis of canine transmissible venereal tumor or CTVT. Oncologists at AMC's Cancer Institute expect Jeter to make a full recovery following treatment with weekly vincristine chemotherapy. Jeter's treatment is being funded through the AMC to the Rescue fund, which subsidizes specialty care to animals currently cared for by rescue groups, whose health has become an obstacle to their adoption.<sup>1</sup>

## 6,000-year-old Tumor

Based on genome analysis of hundreds of CTVTs worldwide,<sup>2</sup> this tumor most likely arose from a tissue macrophage about 6,000 years ago. The genetic analysis leads researchers to conclude the founder dog came from Asia and as dogs migrated with humans, CTVT migrated with them. Over the millennia, the genetic diversity of CTVT remains quite stable and the tumor is genetically very similar in all geographic locations studied.

## Transmissible Venereal Tumor

Transmissible venereal tumor is a unique tumor. Cancer typically arises from the cells of the person or animal afflicted with the tumor. Cells in a CTVT are those of the founder dog who first had this tumor thousands of years ago. Most of us know cancer is not contagious, but horizontal transmission of CTVT and the Tasmanian devil facial tumor<sup>3</sup> between members of the same species are specific to these two animal cancers. Another unique feature of CTVT is its ability to evade the immune system. CTVT is essentially a tissue transplant from an unrelated dog. Normally, the immune system would reject tissue from an unrelated dog, similar to what happens in an organ transplant. CTVT lacks MHC molecules which are the trigger for the rejection response. Thus, once transplanted, CTVT's growth remains unchecked by the immune system.



## AMC to the Rescue

Jeter is the second dog with CTVT accepted into the AMC to the Rescue Program. Both dogs with CTVT came from Texas where CTVT is more common than in New York City. The first dog, Melinda, was a female dog with a vulvar TVT. She responded well to treatment and now has a forever home with two delighted little girls and their parents. Jeter is a very mellow dog and we hope he will be as fortunate as Melinda was in finding a forever home. Jeter and Melinda are just two of over 350 lucky patients accepted into the program since its creation in 2013.

## Reference:

1. Learn more at [amcny.org/amc-to-the-rescue/](http://amcny.org/amc-to-the-rescue/)
2. Baez-Ortega A, Gori K, Strakova A, et al. Somatic evolution and global expansion of an ancient transmissible cancer lineage. *Science* 2019 Aug 2. DOI: 10.1126/science.aau9923
3. Hohenhaus, A. Tasmanian Devils Threatened by Strange Cancer. *VetStreet*. <http://www.vetstreet.com/our-pet-experts/tasmanian-devils-threatened-by-strange-cancer>. Published March 19, 2014. Accessed October 3, 2019.

Cytology image courtesy of Andrea Siegel, DVM, DACVP, Idexx Laboratories.

# Gross Pathology: What's Your Morphologic Diagnosis?



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**Signalment:** 4-year-old, female, cockatiel (*Nymphicus hollandicus*).

**History:** A 4-year-old, female cockatiel was managed by the Animal Medical Center's Avian and Exotic Pet Medicine Service over the course of one year for progressive osteolytic lesions. The patient was originally seen in the fall of 2017 for a right ulnar fracture. At that time, radiographs confirmed the ulnar fracture; in addition, mild lytic lesions were noted in multiple other bones. The animal returned in Spring of 2018. At this time, full body radiographs revealed multiple areas of bony lysis, and whole body CT confirmed widespread osteolysis. Her owners elected euthanasia given the poor prognosis.

**Imaging:**

**Whole body radiographs (Figure 1):** There are multiple radiolucent expansile lesions associated with most of the long bones, with partial destruction of the adjacent cortex. These are suspected to explain the previously observed distal right ulna fracture, which currently appears mildly displaced, with new bone formation partially bridging it. A minimally displaced fracture of the proximal left ulna is also observed. Minimal soft-tissue swelling is associated with the punctiform lesions of the distal left metacarpophalangeal bones.



**Computed tomographic images (Figure 2):** The axial skeletal structures are normal. By contrast, multifocal lesions affect the appendicular skeleton (left proximal and distal ulna, left metacarpal bone III and proximal phalanx, right distal ulna, right metacarpal bone III and proximal phalanx, left distal femur, left distal tarsometatarsus, essentially the entire right femur, right proximal and distal tibiotarsus, right proximal and distal tarsometatarsus, questionably right pelvic limb phalanges): these are characterized by a thin and moth-eaten appearance of the cortices with mild irregular expansion of the bony margins. Irregularity of the bone margins is again present in the right distal ulna and left proximal ulna, and the site of the previously described pathologic fractures. Medullary enostosis is not detected. Soft tissue swelling is minimal around these lesions.

**Imaging Diagnosis**

1. Severe polyostotic aggressive osteolytic lesions of the appendicular skeleton with at least two pathological fractures.

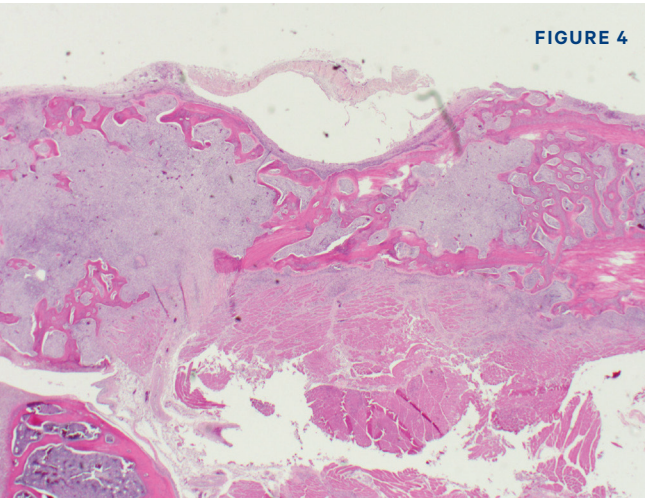
*Report courtesy of Drs. Alexandre Le Roux, DVM, MS, DECVDI, DACVR, and Alison Tarbell, DVM, of the Animal Medical Center's radiology department.*

**Necropsy Findings (Figure 3):** Multiple, often coalescing segments of the long bones are variably expanded with a rough cortical surface. These bones fracture with minimal manipulation. After formalin fixation and decalcification, cross sections of multiple bones reveal irregularity and thinning of the bone cortices with expansion of the medullary cavity by a soft, friable bone tissue. The surrounding skeletal muscle and soft tissues are mottled light and dark brown.

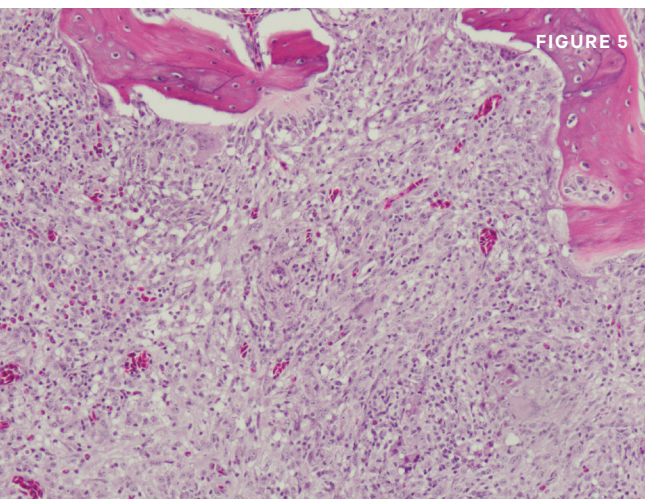
Please formulate differential diagnoses based upon the history, clinical findings, and images before turning the page.

**Histology:**

**Long Bones (multiple sites):** The medullary cavity is variably replaced and expanded by a dense inflammatory cell infiltrate, comprised of macrophages and multinucleated giant cells mixed with heterophils, necrotic cellular debris, and lesser lymphocytes and plasma cells (Figures 4-5). Inflammation surrounds islands of woven bone or irregular, resorbing cortical bone. The cortical bone is irregular and multifocally discontinuous where it is invaded by large numbers of inflammatory cells. The endosteal surface is scalloped and bordered by increased numbers of osteoclasts within Howship's lacunae. The outer cortical surface is irregular with prominent scalloping and the periosteum is expanded by a similar inflammatory population and small numbers of pleomorphic fibroblasts. Where present, the subchondral bone is often irregular, thinned, and infiltrated by a similar inflammatory cell population and the joint capsule is variably infiltrated. The surrounding and intra-articular adipose tissue contains small hemorrhages and islands of a similar inflammatory infiltrate. Surrounding myofibers are variably degenerate and invaded by inflammation.



**FIGURE 4**



**FIGURE 5**

Fite-Faraco stain confirms small numbers of acid-fast positive, intra-histiocytic bacilli (Figure 6). In addition, the liver and small intestine have few, small granulomas.

**Morphologic Diagnosis:**

**Cortical bone with joints, right and left wings, and legs:**

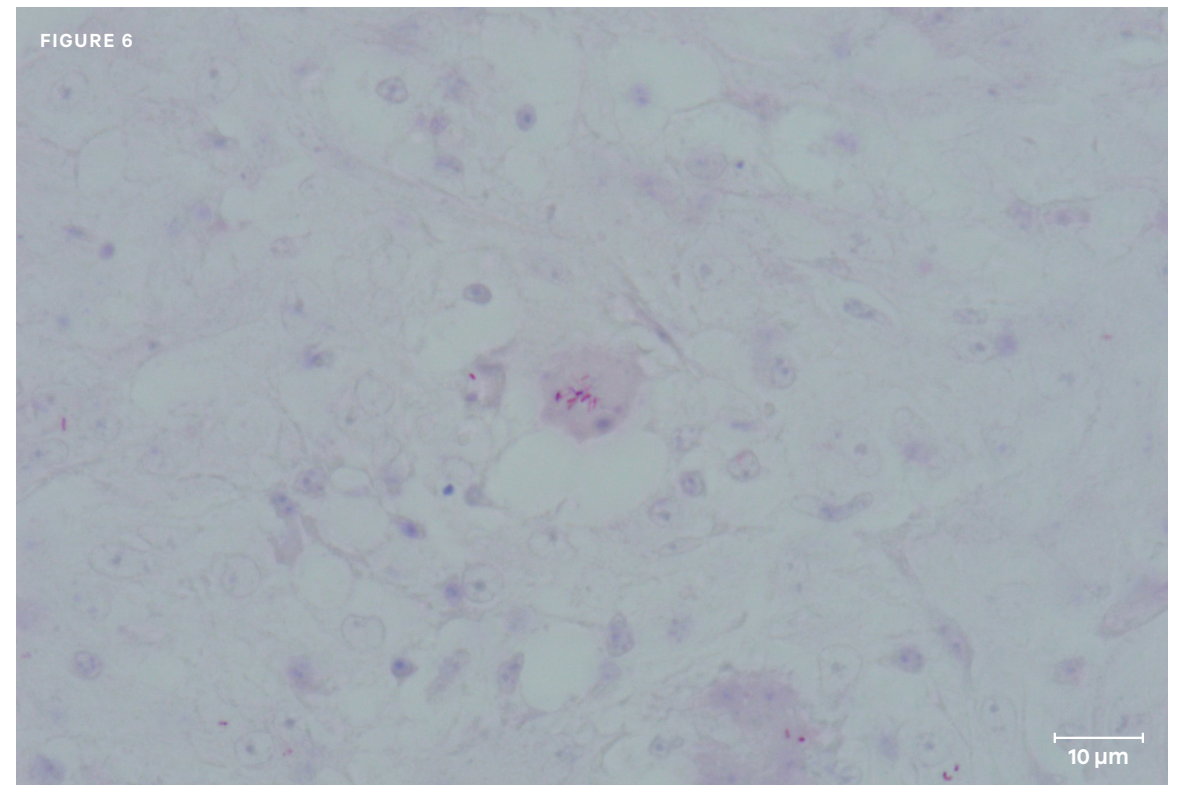
Osteomyelitis, periostitis, and synovitis, granulomatous, heterophilic, chronic, multifocal to locally extensive, severe with few intralesional, intrahistiocytic acid-fast positive, intrahistiocytic bacilli (consistent with mycobacterial infection), bone resorption and remodeling, and periosteal fibroplasia

**Skeletal muscle, right and left wings, and legs:**

1. Myositis, granulomatous, heterophilic, chronic, multifocal, mild to moderate
2. Myofiber degeneration, chronic, multifocal moderate with mild, multifocal myofiber regeneration and multifocal hemorrhages

**Comments:**

Clinical presentation, as well as the gross and histologic findings, supported a chronic osteomyelitis and the presence of acid-fast positive bacilli was highly suggestive of avian mycobacteriosis, although this was not confirmed with culture or molecular testing. In birds, differentials for osteomyelitis are vast and include trauma, neoplasia, lymphoproliferative disease, and infectious etiologies.<sup>10-12</sup> Reported neoplasms in the bones of birds include osteosarcoma,



**FIGURE 6**

10 µm

giant cell tumor of bone, air sac carcinoma, fibrosarcoma, and hemangiosarcoma, as well as metastatic disease.<sup>10-12</sup> Infectious osteomyelitis can be caused by aerobic and anaerobic bacteria (e.g., *Mycobacterium* spp., *Staphylococcus aureus*, *E. coli*, *Salmonella* spp., *Pasteurella multocida*, *Streptococcus* spp., *Enterococcus* spp., *Pseudomonas* spp., and *Aeromonas* spp.)<sup>1</sup> and fungi (e.g., aspergillosis, candidiasis, cryptococcosis, and histoplasmosis).<sup>11</sup> In this case, the presence of few acid-fast positive, intrahistiocytic bacilli was consistent with a paucibacillary mycobacterial osteomyelitis. Mycobacteriosis in birds commonly involves the bone, and in one report 93% of cases had bone involvement.<sup>1-11</sup> As in this case, skeletal mycobacteriosis commonly presents as soft tissue swellings and bone irregularity.<sup>11</sup> Infection is clinically characterized by osteolysis (as in this case), sclerosis, and/or bone cysts in the metaphysis of long bones, ribs, and/or sternum with or without pathologic fractures.<sup>1-12</sup> Bacterial toxins and localized ischemia can lead to bone necrosis with potential sequestra formation.<sup>1</sup>

Mycobacterial infections are a significant cause of morbidity and mortality in numerous species, including humans.<sup>6</sup> This diverse group of bacteria contains organisms that range from environmental saprophytes and opportunistic pathogens to obligate pathogens.<sup>14</sup> Obligate pathogens include the tuberculosis group (*M. tuberculosis* and *M. bovis*) and the leprosy group (*M. leprae* and *M. lepromurium*). Opportunistic pathogens include the saprophytes (*M. fortuitum*, *M. smegmatis*, *M. chelonae*, *M. abscessus*, and *M. thermoresistibile*) and the slow-growing (atypical)<sup>8</sup> organisms (*M. avium-intracellulare* complex, *M. kansasii*, and *M. ulcerans*).<sup>1-16</sup> By convention, tuberculosis refers to infections with

organisms in the tuberculosis complex, while mycobacteriosis refers to those caused by atypical or opportunistic forms.<sup>6,15</sup> Differentiation of mycobacterial species requires a combination of bacterial culture, biochemical tests, molecular techniques (PCR with subsequent DNA sequencing or Interferon-Gamma Release Assays (IGRAs)), and pigment production.<sup>6,12,13</sup>

Mycobacteria are weakly gram-positive, acid-fast positive bacilli.<sup>1-16</sup> Mycobacteria's lipid-rich walls make them hydrophobic, which allows them to survive in adverse environmental conditions.<sup>10,11,14,16</sup> Modes of transmission include the skin (typically at areas of skin barrier breakdown), inhalation, and ingestion.<sup>4,10</sup> Infections in most species tend to be protracted and associated with a chronic wasting syndrome, with macrophage-heavy inflammation.<sup>11,14-16</sup> Granulomatous inflammation is a distinct form of chronic inflammation that is typically the result of a poorly degradable and persistent antigen, specific host responses, and the interaction of various pro- and anti-inflammatory mediators.<sup>15</sup> Mycobacterium species employ multiple mechanisms to ensure survival and typically do so by entering and persisting within tissue macrophages.<sup>14,15</sup> In general, mycobacterial species can suppress the ability of macrophages to be activated by cytokines, especially IFN-gamma.<sup>15</sup> These infections are characterized by a strong cell mediated response, where macrophage recruitment and proliferation accelerates under the influence of cytokines produced by T-lymphocytes.<sup>14,15</sup> The chronic presentation of these cases and resulting tissue destruction are due to a combination of organism persistence and cell-mediated and other host responses.<sup>12,15</sup> The clustering of infections in Bassett hounds, Miniature Schnauzer, Siamese cats, Somali cats, and Abyssinian cats suggest a genetic predisposition in these breeds.<sup>4,8</sup> The cause for this predisposition is unclear but may be related to a cell-mediated immunodeficiency in either T-cells or macrophages.<sup>4</sup>

The type of pathology and clinical disease depends on the infecting mycobacterial species, host's immune response, host's genetic susceptibility, dose of infection, mode of transmission, and infection stage.<sup>11</sup> This can manifest as diffuse visceral enlargement and/or discrete granulomas.<sup>1-15</sup> Affected macrophages can have a large amount of amphophilic cytoplasm with a fine cytoplasmic granularity but acid-fast stains are required for confirmation of intracellular bacilli.<sup>11</sup> The number of bacteria can vary considerably and ranges from paucibacillary to abundant/florid.<sup>11,12,15</sup> Mycobacteriosis is common in various bird species, including domestic fowl, as well as pet and exotic birds and wildlife.<sup>12</sup> Although all species are susceptible, captive waterfowl,

collection birds, tropical and ring-necked doves, Amazon parrots, brotogerids, pionus parrots, finches, and canaries are commonly reported.<sup>11</sup> Oral transmission appears to be the primary means of infection in birds, with lesions typically involving the gastrointestinal tract and/or liver.<sup>11,12</sup> Airborne and cutaneous infections can be seen to a lesser degree.<sup>12</sup> In birds, dissemination occurs rapidly due to lack of lymph nodes; thus, infection is typified by chronic, disseminated granulomatous disease in semi-mature to mature birds, although localized disease can occur (i.e. dermal or intestinal mycobacteriosis).<sup>11,12</sup> The two most common mycobacterial species to affect birds are *Mycobacterium avium-intracellulare* complex and *Mycobacterium genavense*, but multiple other species have been reported.<sup>9,10,11,12,16</sup> The lesions created by these species are indistinguishable from one another and co-infection can occur; thus definitive diagnosis requires culture and/or molecular testing.<sup>9,16</sup>

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AMC is pleased to welcome the following Staff Doctors.

#### Avian and Exotic Pet Medicine



#### La'Toya Latney

DVM, ECZM, DACBVP  
(Reptile and Amphibian)  
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#### Board Certifications

- Diplomate, European College of Zoological Medicine (Zoo Health Management)
- Diplomate, American Board of Veterinary Practitioners (Reptile & Amphibian)

#### Education

- DVM, Ross University School of Veterinary Medicine
- MS, Clinical Epidemiology & Biostatistics Training, University of Pennsylvania School of Medicine
- BS, Biological Sciences, Cornell University

#### Postgraduate Education

- Residency in Special Species Medicine and Surgery, University of Pennsylvania School of Veterinary Medicine
- Internship in Exotic Animal Medicine and Surgery, Island Exotic Veterinary Care



#### Robert Moore

PE, DVM, DABVP (Avian)  
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#### Board Certifications

- Diplomate, American Board of Veterinary Practitioners (Avian)

#### Education

- DVM, Michigan State University
- BS, Civil and Environmental Engineering, Michigan State University

#### Postgraduate Education

- Internship in Small Animal Medicine and Surgery, Ontario Veterinary College
- Residency in Avian, Exotic, & Zoological Animal Medicine, Texas A&M University

#### Internal Medicine



#### Jennifer Slovak

DVM, MS, DACVIM  
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#### Board Certifications

- Diplomate, American College of Veterinary Internal Medicine

#### Education

- DVM, Iowa State University
- BS, Pre-Veterinary Medicine and Biology, The University of Findlay

#### Postgraduate Education

- Residency in Small Animal Internal Medicine, Iowa State University
- Internship in Small Animal Medicine, Iowa State University

#### Community Practice



#### Robert Dyke

DVM, DABVP  
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#### Board Certifications

- Diplomate, American Board of Veterinary Practitioners

#### Education

- DVM, Iowa State University
- BS, Animal Science, Iowa State University

#### Postgraduate Education

- Residency in Veterinary Practice, Iowa State University

To help stay abreast of and contribute to advances in medicine, AMC offers cutting-edge continuing education programs to the veterinary community. In addition, AMC's veterinarians are involved in numerous scientific research studies intended to improve quality of life and reduce illness. Clinical research contributes to new knowledge that improves our understanding of disease, expands and improves diagnostic testing, advances new therapies, and discovers better ways to diagnose illness. Much of this work is published in peer-reviewed scientific journals and/or presented at scientific meetings and conferences.

#### Edited by Philip Fox

DVM, DACVIM/DECVIM-CA, DACVECC  
Head of Cardiology

#### CONTINUING EDUCATION

##### Continuing Education Lectures

AMC is committed to sharing new and updated information presented through our continuing education lectures and conferences. These are open to all area veterinarians and technicians FREE of charge.

##### AMC's Partners In Practice (PIP) Comprehensive Clinical Seminars

- Free and RACE/NYSED accredited
  - Provides several hours of comprehensive review and updates of important and contemporary topics
  - Register at [amcny.org/pipseminars](http://amcny.org/pipseminars)
- ##### House Staff Lectures
- 8–9 am most mornings
  - No registration required
  - Visit [amcny.org/celectures](http://amcny.org/celectures) or email [education@amcny.org](mailto:education@amcny.org) for up-to-date information

##### Presentations at International Veterinary Meetings

**Dr. Ann Hohenhaus** and **Dr. Philip Fox** lectured on oncology and cardiology, respectively, at the Federation of Asian Small Animal Veterinary Associations (Tokyo, Japan) and Latin American Veterinary Medicine

Conference (Lima, Peru). **Dr. Fox** lectured at the American College of Veterinary Internal Medicine Cardiology Specialty in Phoenix. **Drs. Allyson Berent** and **Chick Weisse** lectured on interventional radiology at the ACVIM meeting in Phoenix, at the International Veterinary Radiology Conference (Canary Islands), and at VIREX (Nevada).

#### RESEARCH HIGHLIGHTS

##### Current Clinical Trials Recruiting Patients

(For more detailed information, visit [amcny.org/clinicaltrials](http://amcny.org/clinicaltrials))

##### Cardiology

- Evaluation of oral nitrate medication combined with conventional therapy to treat congestive heart failure in dogs
- Assessment of new metrics to identify diuretic resistance in heart failure patients

##### Emergency and Critical Care

- Evaluation of the diagnostic accuracy of point of care analysis using urine and plasma in marijuana toxicosis

##### Internal Medicine

- Evaluation of regular insulin administered by constant rate infusion compared to



intermittent intramuscular administration to treat cats with diabetes

**Interventional Radiology  
& Interventional Endoscopy**

- Evaluation of artificial neobladder placement for dogs with resectable lower urinary tract tumors
- Comparison of extrahepatic biliary duct obstruction (EHBDO) management in dogs and cats using endoscopic retrograde cholangiopancreatography (ERCP) with biliary stent placement, or, using a rescue subcutaneous intestinal biliary bypass device (SIBB)

**Oncology**

- Evaluation of efficacy and safety of feline interleukin-2 immunomodulator following surgical excision of feline fibrosarcoma
- Comparison of combination chemotherapy and immunotherapy to treat dogs with splenic hemangiosarcoma

**Rehabilitative Medicine**

- Field safety and efficacy of an experimental drug compared to placebo to manage pain associated with osteoarthritis in cats
- Pilot studies to evaluate thermographic imaging and

manual muscle testing to assess hindlimb stress in dogs

- Investigation of a device (Toe Grips®) applied to nails to reduce lameness in dogs recovering from knee surgery

**New Clinical Trial**

**Title:**

Pilot study of resiniferatoxin administered into the bladder to manage lower urinary tract discomfort in dogs with bladder transitional cell carcinoma

**Purpose:**

Transitional cell carcinoma is a serious form of cancer that develops in the bladder of dogs. Despite standard therapies, many dogs do not respond well and experience discomfort from this tumor.

The overall goal of this clinical investigation is to determine whether this experimental treatment protocol is more effective and safer than other standard therapies.

**Eligibility:**

Dogs with transitional cell bladder cancer with lower urinary tract discomfort.

**Contact:**

Dr. Nicole Liebman at 212-329-8740 or nicole.leibman@amcnyc.org.

**RESEARCH STUDIES  
IN PRINT**

AMC's veterinarians contributed to a number of research publications during this recent quarter. These contributions to the scientific literature report new clinical findings in companion animals and exotic patients (AMC doctors are in bold).

Topics included epidemiology of dilated cardiomyopathy in Irish wolfhound dogs, new ACVIM consensus guidelines to diagnose and treat myxomatous valve disease in dogs, utility of lactate variables to assess patients in shock, pharmacokinetics of mycophenolic acid in cats, interventional techniques for endoscopic nephrolithotomy, intravenous administration of chemotherapy, cystourethroscopy, non-regenerative anemia in cats, risk-factor assessment for metastasis of dogs and humans with osteosarcoma, radiographic insights in CT for penguins, and comparison of laser versus bipolar vessel device for treating brachycephalic obstructive airway syndrome in dogs.

**Cardiology**

Vollmar C, Vollmar A, Keene B, **Fox PR**, Reese S, Kohn B. Irish wolfhounds with subclinical atrial fibrillation: progression of

disease and causes of death. *J Vet Cardiol.* 2019 Aug;24:48-57.

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Keene BW, Atkins CE, Bonagura JD, **Fox PR**, Häggström J, Fuentes VL, Oyama MA, Rush JE, Stepien R, Uechi M. ACVIM consensus guidelines for the diagnosis and treatment of myxomatous mitral valve disease in dogs. *J Vet Intern Med.* 2019;33:1127-1140.

**Fox PR**, Keene BW, Kamb K, et al. Long-term incidence/risk of noncardiovascular and all-cause mortality in apparently healthy and preclinical hypertrophic cardiomyopathy cats. 2019 *ACVIM Forum Scientific Abstract C69.*

**Emergency and Clinical Care**

**Zollo AM**, Ayoub AL, **Prittie JE**, Jepson RD, Lamb KE, **Fox PR**. Utility of admission lactate concentration, lactate variables, and shock index in outcome assessment in dogs diagnosed with shock. *J Vet Emerg Crit Care* (San

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**Internal Medicine**

**Slovak JE**, Hwang JK, Rivera SM, Villarino NF. Pharmacokinetics of mycophenolic acid and its effect on CD4+ and CD8+ T cells after oral administration of mycophenolate mofetil to healthy cats. *J Vet Intern Med.* 2019 Aug 19. doi: 10.1111/jvim.15585.

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**Interventional Radiology**

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#### AWARDS

AMC is pleased to announce that **Dr. Philip Fox** and **Dr. Ann Hohenhaus** are the recipients of the 2019 Veterinary Medical Association of New York City's Outstanding Service to Veterinary Medicine award. This award recognizes individuals who, through their efforts in education, research, practice, or veterinary-related

activity, significantly contribute to the advancement and improvement of veterinary medicine in New York State.

AMC congratulates **Dr. Carmella Britt** who was chosen as the winner of a prestigious national award from the American Association of Rehabilitation Veterinarians for her research grant proposal "Effects of a novel muscle supplement, Fortetropin®, on serum myostatin in healthy dogs."

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