

rDVM QUARTERLY

VETERINARY COMMUNITY NEWS FROM AMC

SUMMER 2016





Richard E. Goldstein
DVM, DACVIM, DECVIM-CA
 richard.goldstein@amcn.org
 office 212-329-8824
 cell 347-733-7338

Dear Colleagues,

It is with great pleasure that we welcome you to our new rDVM Quarterly newsletter. The thought behind this new direction — including the volume, the kind of content that is featured and an easy-to-read format — was to provide more in-depth, pertinent information on important trends and developments in veterinary medicine. The newsletter will now be distributed to both our referring veterinary community as well as AMC alumni, and will serve as an important vehicle to share the most current news. We encourage your feedback and participation, so please let me know your thoughts about the redesign via email, phone or when we meet around the city. It is truly amazing how much there is to highlight — so much so, that it was hard to choose what to include in this first edition. We chose cardiology and our very unique capabilities in minimally invasive procedures, our expanded dentistry service that now offers both Drs. Riback and Martel working full time, our brand new dentistry suite (opening in June 2016), as well as oncology, radiation oncology, surgery, medical oncology, integrative medicine, and internal medicine.

We are already hard at work on the next issue, much of which will be devoted to our One Health program and our next annual conference that will be held on November 5th. Very exciting! In addition to these quarterly newsletters, we will continue to send out monthly updates regarding our in-house CE, including Partners In Practice.

A special note to AMC alumni: please take a moment to send me an email, so we can update all of your information. We are diligently working on new programming that is solely dedicated to our alumni, but first we have to get everyone on the list! We will be announcing some of these new programs at our alumni reception at the ACVIM Forum in June of this year. Invitations have been sent and we hope to see you there.

As always, feel free to contact me with any comments, questions or concerns about AMC. I look forward to hearing from you.

Richard

To Our Valued Partners In Care,

We are thrilled to share our newly redesigned quarterly newsletter with you, and hope that you will find the change in content and design to be both informative and engaging.

I like to think of the newsletter as an opportunity to express our appreciation for the trust and confidence that you have in AMC, allowing us to form a partnership with you and your practice. Additionally, the newsletter is designed to provide you with information regarding ongoing clinical trials, the most current research conducted by our staff, as well as other happenings at AMC.

Our continued commitment to the One Health movement remains a key focus for us, as many of our research and clinical trials are often conducted in collaboration with our human physician partners. This year marks AMC's sponsorship of the second annual One Health Conference on November 5th – *Connecting Human and Veterinary Medicine, A Comparative Approach to Endocrine Disease*. We will once again bring leading experts across human and veterinary medicine together, in order to share case information and explore a collaborative approach to help advance treatment, prevention and care for patients with diseases/disorders of the endocrine system. Please mark your calendars, as I hope you will be able to join us. We will share more details with you in the coming months.

Again, thank you for your support of AMC.

Sincerely,

Kate



Kathryn Coyne
CEO
 kathryn.coyne@amcn.org
 212-329-8601



Dennis Trafny
DVM, DACVIM
Cardiology
dennis.trafny@amcn.org
212-329-8839

Interventional Cardiology: A New Approach to Small Dog PDA Thoracotomies

One week apart, two puppies were presented to AMC's Cardiology Service for evaluation of previously diagnosed patent ductus arteriosus (PDA) defects. Echocardiograms on these puppies, a Yorkshire Terrier and a "Morkie," revealed large left-to-right PDAs with large volumes of blood shunting from the aorta into the main pulmonary artery. As a result, there was severe cardiomegaly and both puppies were on the brink of congestive heart failure and, ultimately, an untimely death. Closure of the PDA defect was recommended as soon as possible. The owners were told previously that due to the dogs' small size (1.5 kg), surgical ligation via thoracotomy was the only option. However, that is no longer the case.

The classic dog PDA is occluded non-invasively with an Amplatzer Canine Ductal Occluder (ACDO) device. A catheter is placed into the femoral artery and, through the aorta, enters the PDA defect. The ACDO device collapses down to fit through the catheter, only to retake its shape once it is exposed in the PDA defect, completely occluding the shunt. There is a short incision on the medial aspect of the thigh and the dog is able to go home the next day.

However, if the dog is too small (<4 kg), their femoral arteries are too small for the catheter that is required to deliver the ACDO device. In these very small dogs, surgical ligation has historically been recommended. However, this approach has a much higher rate of morbidity in small breed dogs, it requires a thoracotomy, chest tube placement, two days in the intensive care unit, and carries a higher risk of fatal hemorrhage and higher pain scores.

With the progression of interventional cardiology at AMC, we were able to offer a new non-invasive approach to PDA closure. With a new low profile coil, we were able to occlude the PDAs of both puppies with a detachable coil

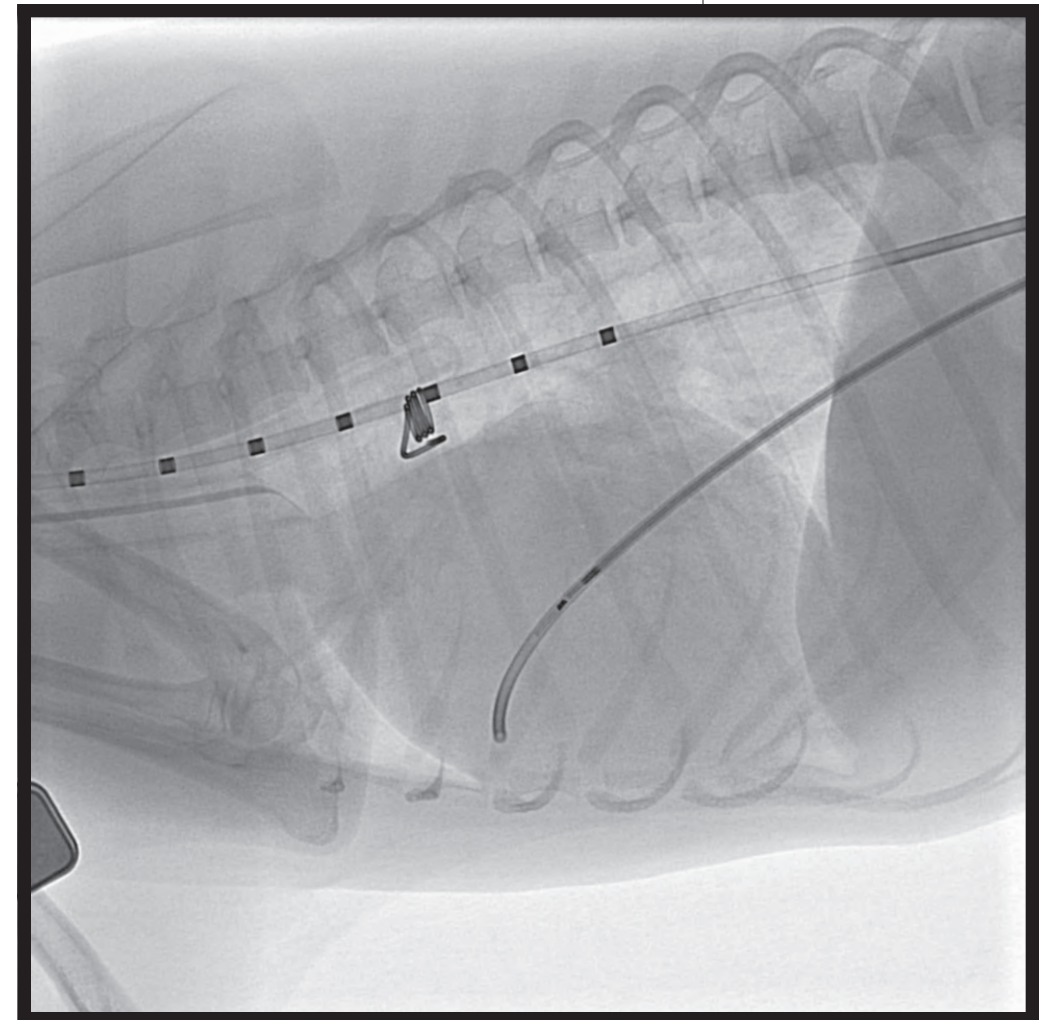


Mia and Autumn,
post-surgery

through the femoral vein. The femoral vein is slightly larger than the femoral artery and more pliable to accept a catheter. A smaller catheter was able to pass via the femoral vein into the pulmonary artery and enter the PDA through this "backdoor approach." Once the catheter was in the PDA defect via the pulmonary artery, the coil traveled through the catheter and was precisely placed within that defect. When proper placement was verified with fluoroscopy, the coil was detached and had completely occluded the shunt on each puppy. Both of the puppies' hearts decreased in size over the course of the next few weeks, and now have a normal life expectancy moving forward.

Given the overwhelming amount of apartment dwellers in New York City, our caseload is rife with small breed dogs. AMC's Cardiology Service has adapted to this unique patient population, and we are excited to offer this new interventional procedure with a simple goal in mind – providing clients with the option of a non-invasive surgery to close a PDA in small breed dogs, instead of taking the risk on a traditional thoracotomy.

Fluoroscopy image of the Yorkie puppy that shows the coil positioned within the ampulla of the PDA. Cardiomegaly is present as well as a delivery catheter positioned through the caudal vena cava into the right ventricle.





Dan Carmichael
DVM, DAVDC
Dentistry
dan.carmichael@amcnny.org
212-329-8773



Django Martel
DVM
Dentistry
django.martel@amcnny.org
212-329-8814

Evaluating Treatment Options for Dogs with Advanced Periodontal Disease

Dental disease is a very common problem in both dogs and cats. In fact, by the age of three, a majority of dogs have significant periodontal disease that requires professional treatment. Left untreated, the consequences of dental problems go way beyond bad breath. Painful oral infections, tooth loss, and even spread of bacteria to distant body organs are just some of the potential sequela of untreated dental disease. This all leads to a diminished quality of life. The good news is that, for the most part, periodontal disease is preventable. The cornerstones of preventative dentistry for dogs include daily tooth brushing and regular professional dental treatment – exactly the same things that humans do to prevent dental problems. If teeth start to exhibit the early stages of periodontal disease—e.g, mild bone loss—there are several treatment options for improving the chances of saving these teeth. Our current research investigates these various options with the goal of finding which treatment works best.

As Dr. Django Martel, the lead investigator for this project states, “The basis of canine periodontal disease is accumulation of plaque under the gum line that leads to inflammation and progressive erosion of normal periodontal structures, including the gums, tooth root and supporting facial bones.” An essential step in the evolution of gum disease is development of a periodontal pocket between the gum line and tooth margin that traps food and bacteria, and promotes continued destruction of these supporting structures. Normally, the depth of the periodontal space measures less than 2 mm. With disease, this space becomes larger. Deep pockets may promote serious health consequences. Detection of mild pockets (measuring 3–5 mm) signifies an early and crucial indication that substantial dental disease is present and progressing. A treatment technique called root planing can slow this process, but the benefit is quite variable. Therefore, practitioners have come to consider use of local antibiotic gel therapy placed into the pockets after root planing under the assumption that they retard plaque regrowth and potentially reduce pocket depth. However, this benefit has not been clearly demonstrated in the dog.

In this study, researchers will identify which commonly used treatment actually improves gum disease and is the most effective means to manage the early stages of periodontal disease.

To be eligible for this study, dogs must have early gum disease determined by a simple examination conducted during routine dental cleaning.

For more information about this study and to inquire about eligibility and potential study benefits, please contact Dr. Django Martel at 212-329-8814.

The Integrative Examination: Interpreting Traditional Chinese Medicine for Conventional Practitioners

The first step in excellent patient care starts with a thorough history and physical examination. It has often been said that the best two diagnostic tools a veterinarian possesses are their hands – I am of the same mind.

Veterinarians that can integrate conventional and complementary medicine may be better prepared to identify and understand the relationship between patient symptoms and their underlying pathology. However, when working closely with specialists and conventional referring practitioners, the integrative practitioners must also be able to effectively communicate holistic findings into conventional scientific terminology. The following content is a step-by-step walk-through of a thorough integrative physical examination, with tips on how to integrate the conventional and holistic physical examinations, and how to communicate effectively to both the conventional practitioner and veterinary specialist alike.

The first part of the integrative physical examination is observation. Before touching the patient, the practitioner observes how the patient moves, breathes and interacts with his/her environment. We watch for clues about Traditional Chinese Medicine (TCM) constitution, signs of lameness, appropriate mentation, overall musculature, quality of hair coat, and patient symmetry – e.g., a simple observation of head carriage can clue the practitioner in on a chiropractic malalignment of the atlas. Clients are always impressed with the insightful questions asked about their pet before the integrative practitioner even sets their hands on a patient. For example, one may ask, “Is your dog an avid ball chaser?” as the suggestive head carriage of an occipital malalignment is noted potentially from crashing into stationary objects to obtain a beloved ball.

The physical examination continues with inspection of the eyes, ears, nose and mouth which will include evaluation of the cranial nerves. Those trained in TCM may pay extra close attention to the patient’s tongue. A tongue with a white coat could indicate the presence of phlegm or inflammation in the body. Explaining that this TCM finding is often indicative of inflammation will make more sense to a conventional colleague than the description of “TCM Phlegm.” Conjunctival hyperemia may indicate allergic conjunctivitis or glaucoma, but the eyes can also provide subtle clues about the patient’s “Shen” or emotional well-being. Conjunctival hyperemia may be due to TCM Liver Heat Rising, informing the integrative practitioner to pay more attention to the musculoskeletal examination and the liver enzymes on the patient’s blood work. Liver Heat Rising is a challenging TCM pattern to communicate, but requesting baseline laboratory tests and bile acids is gold standard conventional medicine that all veterinary practitioners understand.

Moving into the cervical region, the integrative practitioner palpates for pain, range of motion, cervical hyper- or hypomobility as well as the hyoid apparatus, thyroid, and jugular fill. The author has palpated early evidence of a ventral



Danielle Conway
DVM, CVA, VSMT, CCRP
Integrative & Rehabilitative Medicine
danielle.conway@amcnny.org
212-329-8894

cervical mass before clinical manifestation by noting the hypermobility of the hyoid apparatus. The patient was later diagnosed with a cervical access on CT scan. Although this was not a typical finding, the internist on call was told that the hyoid apparatus did not appear to palpate or move normally; it seemed like there was some tissue restriction in the cervical region. This type of palpation may not be usual, but applying it to basic anatomy allows colleagues to understand and appreciate the palpation skills of the integrative practitioner.

Lymph nodes, integument, muscle and body condition are evaluated next. A dry, flaky hair coat means blood deficiency and/or stagnation to the TCM practitioner. Conventional muscle condition scoring should be a quick and essential part of every physical examination. Muscle condition scoring (MCS) is based on a scale of 3 (3/3 indicates perfect musculature, 0/3 indicates muscle wasting or sarcopenia). The best locations to evaluate muscle condition scoring

are over boney prominences of the scapula, head, spine, and pelvis. These areas include the temporalis, epaxials, and hind-end (gluteals, quadriceps and hamstrings) muscles.

The patient can be assigned two different muscle condition scores. For example, a patient recovering from a cruciate injury might be assigned a 3/3 overall, but 2/3 locally over the hamstring and quadriceps muscles on the right. Discovery of muscle wasting or sarcopenia should always garner the attention of the clinician and prompt a more thorough workup and referral to a rehabilitation practitioner.

Body condition score (BCS) is another essential part of the physical examination. The 9 point scoring system is preferred, with 5 out of 9 being the ideal score. For accurate and consistent record keeping, keep a reference chart in every exam room.

After auscultation of the cardiopulmonary system and palpation of the abdomen, the TCM practitioner will assess the patient's pulses for the various TCM characteristics. A "wiry" or "guitar string-like" pulse on the patient with the hyperemic conjunctiva may further prompt the practitioner to consider TCM Liver, and the necessity to request a bile acids test.

The practitioner with advanced training in rehabilitation will perform full orthopedic and neurologic examinations on every patient. Accurate knowledge of anatomy, and careful palpation of the shoulder tendons and their insertion and origin, can help to identify a supraspinatus or biceps tendinopathy in an athletic dog, while careful digit palpation identifying thickening or crepitus of the metacarpal phalangeal joints may be contributing to a geriatric patient's discomfort. Most importantly, demonstrating how to gently work out compensatory myofascial trigger points to a devoted owner in order to provide pain relief for their companion will further enhance the human-animal bond between them.

Learn how to assign muscle condition scores by palpating your own facial muscling while smiling:

- *3 out of 3 MCS* – corresponds to the 'apples' of your cheeks while smiling
- *2 out of 3 MCS* – corresponds with the chin
- *1 out of 3 MCS* – corresponds to the furrowed brow between the eyes
- *0 out of 3 MCS* – corresponds to the boney bridge of the nose



Dr. Conway checks for soft tissue restrictions in the shoulder

The complete and thorough conventional physical examination always ends with a recorded temperature to be included in the traditional TPR, as well as a rectal examination. The chief complaint of arthritis in a geriatric patient quickly becomes secondary when a fever is noted or a recto-anal mass is detected.

Integrating the results of both a conventional and holistic multimodal physical examination defines the excellent veterinary diagnostician. Using the integrative physical examination to then combine conventional treatment plans with holistic principles is what can be interpreted as the "science and art" of integrative medicine. Using this approach, it is clear that there is no one 'fit for all' treatment for Boney Bi or hip dysplasia or Damp Heat in the Lower Jiao or chronic urolithiasis. Effective communication and collaboration between conventional veterinarians, specialists and integrative practitioners results in optimal care for all patients. These concepts embrace best practice veterinary medicine, and the patient centered or "pet-centric" health care embraced at Animal Medical Center.



Elizabeth Appleman
VMD, DACVIM
Head of Internal Medicine
elizabeth.appleman@amcnyc.org
212-329-8882



Melissa Clark
DVM, PhD, DACVCP
Resident, Internal Medicine
melissa.clark@amcnyc.org
212-329-8709

Study Update: Comparison of CRI and IM Insulin in Cats with DK/DKA

If you have a feline patient with a diagnosis of diabetic ketosis or ketoacidosis, he or she may be eligible for inclusion in a prospective, randomized study of insulin therapy in cats with DK/DKA. Currently, data describing the outcomes of treatment with different insulin protocols in cats with DK/DKA is sparse. The goal of this study is to compare treatment outcomes between intermittent IM and CRI delivery of regular insulin in cats with this disorder. To be considered for enrollment, cats must have the following symptoms:

- Clinical signs consistent with DK/DKA (i.e., lethargy, anorexia, weight loss, or vomiting)
- Blood glucose >250 and positive serum ketones
- No requirement for concurrent corticosteroid administration, or receipt of corticosteroids within the past 24 hours (for prednisolone), 72 hours (for dexamethasone), or 1–2 months (for intermediate to long-acting preparations)
- No prior insulin treatment on the day of presentation (other than what has been administered at home by the owner)

Both newly diagnosed diabetics and cats with a historical diagnosis of diabetes may be enrolled. All cats considered for enrollment will undergo screening diagnostics as part of the routine workup for DK/DKA (e.g. CBC, chemistry, T4, fPL, urinalysis with urine culture, and abdominal ultrasound and thoracic radiographs as deemed necessary; labwork can be completed by the referring practice). Cats may be excluded if severe underlying disease (oliguric acute renal failure, congestive heart failure, fulminant liver failure or if any obstructive disease (urinary, GI, or hepatobiliary) is identified during the diagnostic workup. However, if none of these conditions are identified, and if an enrolled cat receives regular insulin therapy for at least 12 hours and does not require transfer before treatment for DK/DKA is complete, the owner will receive a credit of \$1,000 off of their final bill.

Six cats have been enrolled in the study thus far, and enrollment is ongoing. If you have a patient that you think may be eligible for this study, or if you are interested in learning more, please contact Dr. Melissa Clark (melissa.clark@amcnyc.org) or Dr. Elizabeth Appleman (elizabeth.appleman@amcnyc.org).

Study Update: Feline Injection Site Sarcoma

Fibrosarcoma is the most common injection site sarcoma that has been reported, and despite conventional therapies, we are faced with the challenge of dealing with this disease with unconventional methods. Because we know that injection site sarcomas have a high rate of recurrence despite aggressive surgical excision and currently available perioperative options, we currently have a clinical trial at the Animal Medical Center for the treatment of fibrosarcoma in cats. In this study, we propose to test the hypothesis that the cytokine, feline interleukin-2 (IL-2), expressed by the ALVAC canarypox vector (vCP1338) can, when injected at the site of tumor excision, decrease the rate of tumor recurrence compared to that observed with the current standard of surgery. A previous safety study in conventional cats and clinical efficacy and safety trials at Merial in Lyon, France, have raised no safety concerns and support a reasonable expectation of efficacy.

We are currently enrolling cats with suspect fibrosarcomas into the above trial. Cats do not qualify if the tumor is located on the head, tail or distal limbs. The cat must have a measureable tumor. The purpose of the study is to evaluate the efficacy of feline interleukin-2 immunomodulator as an adjunct treatment for feline fibrosarcoma following surgical excision. Screening for enrollment and surgery is fully funded.

The development of soft tissue sarcoma at sites of vaccine administration is believed to be as high as 1/1000. Time to tumor development has been reported to be one month to 10 years and is always associated with a marked inflammatory reaction around the tumor. The theory that inflammation precedes tumor development is supported by histologic transition zones from inflammation to sarcoma. This is generally seen in areas of granulomatous inflammation. Studies have shown a strong association between administration of inactivated feline vaccines such as FeLV and rabies, and development of soft tissue sarcoma in the cat.

Vaccine associated sarcomas have features consistent with a more aggressive behavior than those tumors that are not vaccine associated. These tumors commonly demonstrate marked nuclear and cellular pleomorphism, increased tumor necrosis, high mitotic activity, and presence of lymphocyte and macrophage infiltrate. Injection site sarcomas are histologically similar to those tumors arising secondary to trauma in the eyes of cats.

The diagnostic recommendation when attempting to diagnose these tumors is to always biopsy the tumor in the middle of the mass lesion, as to not compromise later definitive surgery. A CT scan is recommended to fully understand the extent of the tumor. The volume of the tumor revealed on CT is twice that measured with calipers. These tumors are extraordinarily invasive and infiltrate between tissue planes. A CT aids in staging local and metastatic disease as well as future planning for surgery and radiation therapy.

The Vaccine-Associated Feline Sarcoma Task Force recommends that lesions at previous vaccination sites be addressed if the mass is still present three or



Nicole Leibman
DVM, MS, DACVIM
Chief of Oncology,
The Cancer Institute at AMC
nicole.leibman@amcnyc.org
212-329-8696

more months after vaccination, is greater than 2 cm in diameter, or is increasing in size more than four weeks after vaccine administration.

The Task Force has recommended surgical resection with a minimum of 2 cm margins both lateral and deep to the tumor. Although, recent data recommends 5 cm in each direction and 2 tissue planes deep, especially if radiation is not an option. Marginal resection or excisional biopsy should not be attempted.

There is a high rate of local recurrence of these tumors even with aggressive resection, therefore full course radiation therapy is indicated in addition to surgery. The timing of surgery and radiation is controversial and often depends on the specific patient.

The role of chemotherapy in the treatment of vaccine associated sarcomas remains to be elucidated. It is common practice to recommend trimodality therapy with surgery, radiation and chemotherapy to yield the best results with the longest survival times.

The Cancer Institute at AMC is currently enrolling eligible subjects in the following clinical trial: Evaluation of efficacy and safety of feline interleukin-2 immunomodulator following surgical excision of feline fibrosarcoma. For more information about this study and to inquire about eligibility and potential study benefits, please contact Dr. Nicole Leibman at 212-329-8696 or 212-329-8740 or nicole.leibman@amcny.org.



1. This sagittal reformatted post-contrast CT image of a feline thorax exhibits the irregular rim enhancement around a large mass dorsal to the spinous processes at the level of the shoulders. Wisps of fluid are cranial to the large mass - areas thought to represent additional regions of neoplastic cells that extend beyond the limits of the pseudocapsule.
2. Transverse post-contrast CT image of a cat at the level of the shoulders. The mass is dorsal to the scapulae. The thin focus of soft tissue extending to the left of the large mass represents adhesions to regional musculature. The dorsal-most aspect of the mass contacts the skin's surface (to the right of midline). Wisps of fluid density are again noted around the mass in the regional subcutaneous fat.



Study Update: SBRT: Fractionated/Definitive Protocol Use For Treatment of Canine Nasal Tumors

Bella, a 3 year old female, spayed Pit Bull who presented with a recently diagnosed nasal chondrosarcoma was referred to the Animal Medical Center for radiation therapy treatment.

One week prior to admission to AMC, she had presented to her regular veterinarian for mild congestion and a two day history of epistaxis. The veterinarian performed full blood work, including a coagulation panel, which proved normal. Bella was next referred to a local internist who performed a blood pressure measurement, mucosal bleeding time, and thoracic radiographs, all of which also proved normal. A CT of the nasal cavity was performed as well, which showed a mass occupying the left side of the nasal cavity extending into the left frontal sinus. The septum and cribriform plate were intact, and there was no breakthrough beyond the left side of the nasal cavity.

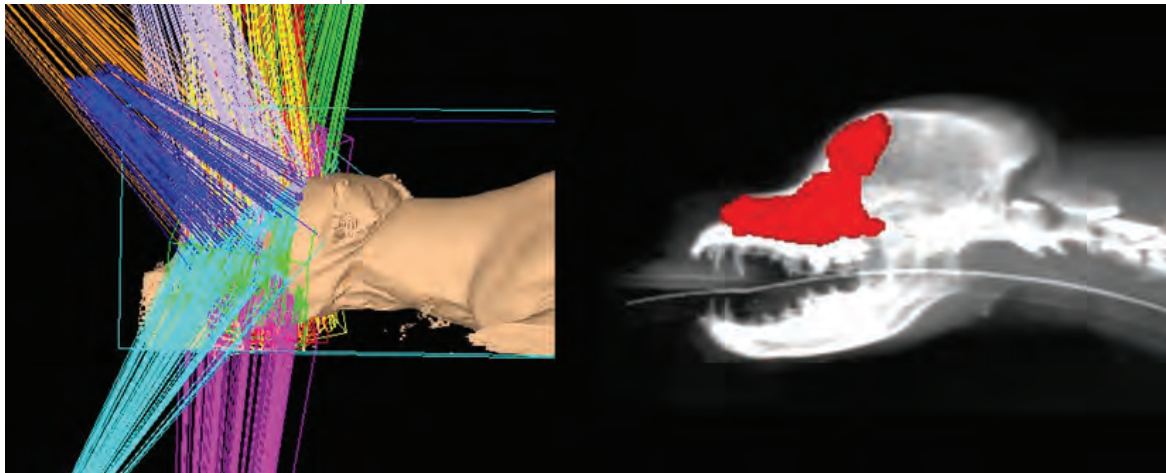
During her consultation at AMC, all of the available options for radiation therapy were discussed in detail with the owners. This included hypofractionated conventional therapy (often referred as palliative radiation therapy), as well as fractionated radiation therapy (often referred to as definitive radiation therapy). Hypofractionated protocols typically require anywhere from one to six treatments. Definitive fractionated protocols typically require anywhere from 10 to 20 treatments, an equal number of anesthetic sessions and a much larger time commitment on the owner's part. Given the age of this patient and her good prognosis, a conventional hypofractionated palliative protocol would not usually be recommended as a treatment of choice because of the likelihood of her potentially living long enough to develop late term side effects to the adjacent normal tissues as a result of these high fraction doses. In addition, tumor control time is often significantly shorter with these conventional hypofractionated protocols. Fractionated/definitive protocols allow better sparing of the surrounding normal structures, while maintaining superior tumor control due to a higher administered total cumulative dose.

Both of these options (definitive versus palliative) can be computer planned with either conformal radiation therapy (3DCRT) or intensity modulated radiation therapy (IMRT). The advantage of IMRT over 3DCRT is that it employs more advanced technology, which can achieve better sculpting of the dose distribution into the tissues so that optimal high doses can be administered to the tumor while greatly limiting doses to the surrounding tissues included in the treatment area. The acute side effects of radiation (such as alopecia, mucositis and moist desquamation) could be limited by the advanced techniques employed in IMRT. The risk of later effects such as cataracts and the potential late effects to the brain can also be greatly reduced. As a result, the quality of life of the patient is often superior to those treated with 3DCRT.

Survival times in the literature for all nasal tumors receiving palliative radiation range from 6-121, 2 months, where as progression free survival time (PFS)



Rachel St-Vincent
DVM, MVSc, DACVR (RO)
Radiation Oncology
rachel.stvincent@amcny.org
212-329-8821



Bella's beam arrangement for SBRT and tumor volume (red).

Holly (L) and Bella (R) relaxing after a long day of playing. The white hair on her head is the only sign that she received treatment.

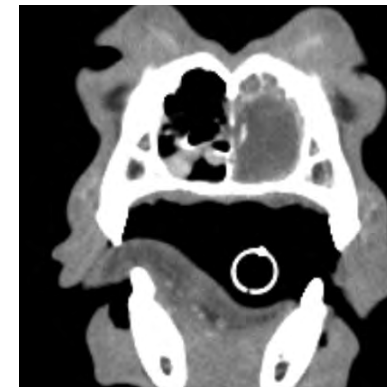
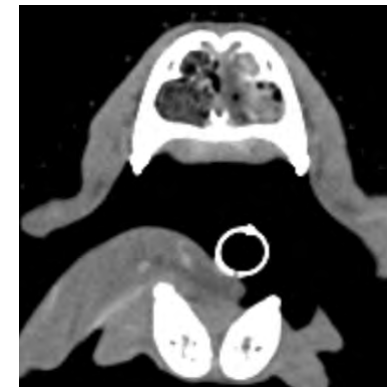


for definitive radiation ranges from 9–183, 4, 5, 6 months. It has also been reported that nasal sarcomas and chondrosarcomas treated with radiation achieved a PFS of four months for palliative and 15.5 months for definitive protocols.

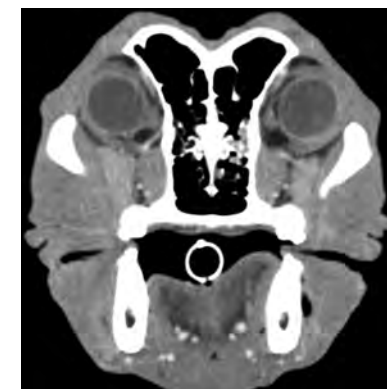
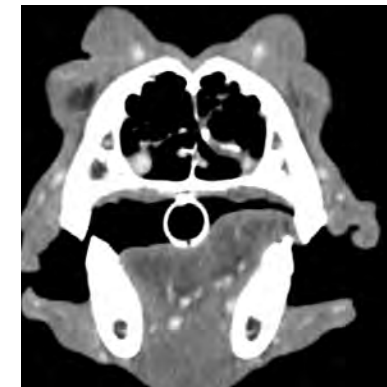
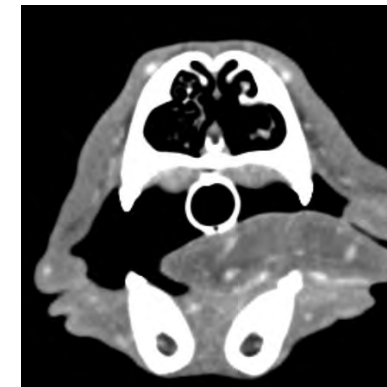
The owners of Bella were not interested in options involving protracted treatment courses because of the distance to the hospital and their work schedules. They were also apprehensive of acute side effects and therefore preferred a protocol with the least likelihood of discomfort for Bella. However, they were still hoping for longer tumor control time than what we typically achieve with conventional palliative radiation. They were most interested in a treatment that could give Bella a significant chance of a good quality of life during her remission time. Stereotactic body radiation therapy (SBRT, also known as stereotactic ablative body radiation or SABR) was therefore elected.

SBRT is occasionally mislabeled as radiosurgery, SRS (stereotactic radiosurgery) or SRT (stereotactic radiation therapy), which are terms reserved for treatments of lesions in the CNS. SBRT is the correct term for when this high dose stereotactic technology is used for treatments of tumors that occur outside of the CNS. This is a protocol that administers very large doses of radiation to the tumor bed without targeting margins of adjacent normal looking tissues. These high doses are administered over a very short timeframe (usually 1–5 fractions total given daily, or every other day for more critical situations). Such high doses concentrated over such a short period of time could cause serious damage and necrosis to the normal adjacent tissues. Therefore, this requires sub-millimeter accuracy due to the strict dose constraints to the surrounding normal structures. Critical structures that achieve better sparing with this technology, in the case of nasal tumors, typically include the skin, lens, brain, and oral cavity/mucosa. The survival times for SBRT treatments of tumors are not as well established as conventional hypofractionated and standard fractionated protocols. The data that currently exists for all nasal tumors grouped together states a 8–14 months survival time. The downsides of

Bella's set up CT, one week pre SBRT (3/15)



Bella, asymptomatic at six months post SBRT



References:

1. Henry CJ, Brewer WG Jr, Tyler JW, et al. Survival in dogs with nasal adenocarcinoma: 64 cases (1981–1995). *J Vet Intern Med Am Coll Vet Intern Med* 1998;12:436–439
2. Tan Coleman, Birgitte, et al. "Prospective evaluation of a 5x4 Gy prescription for palliation of canine nasal tumors." *Veterinary Radiology & Ultrasound* 54.1 (2013): 89–92
3. Bommarito DA, Kent MS, Selting KA, Henry CJ, Lattimer JC. Reirradiation of recurrent canine nasal tumors. *Vet Radiol Ultrasound Off J Am Coll Vet Radiol Int Vet Radiol Assoc* 2011;52:207–212
4. Sones E, Smith A, Schleis S, et al. Survival times for canine intranasal sarcomas treated with radiation therapy: 86 cases (1996–2011)
5. Buchholz J, Hagen R, Leo C, et al. 3D conformal radiation therapy for palliative treatment of canine nasal tumors. *Vet Radiol Ultrasound* 2009;50:679–683
6. Hunley DW, Mauldin GN, Shiomitsu K, Mauldin GE. Clinical outcome in dogs with nasal tumors treated with intensity-modulated radiation therapy. *Can Vet J Rev Vet Can* 2010;51:293–300
7. Kubicek, Lyndsay, et al. "OUTCOMES AND PROGNOSTIC FACTORS ASSOCIATED WITH CANINE SINONASAL TUMORS TREATED WITH CURATIVE INTENT CONE-BASED STEREOTACTIC RADIOSURGERY (1999–2013)." *Veterinary radiology & ultrasound* (2016)
8. Glasser, Seth A., et al. "Use of an image-guided robotic radiosurgery system for the treatment of canine nonlymphomatous nasal tumors." *Journal of the American Animal Hospital Association* 50.2 (2014): 96–104



the current literature regarding SBRT for nasal tumors are that these studies are all retrospective, protocols included in these studies differ from one dog to the next, and that mixed types of nasal tumors are compared and grouped together.

Due to the precision required for Bella's SBRT treatment, a planning CT with custom bite block and immobilization bed was needed. Bella was rescheduled the following day for the CT set up with the intent of starting radiation the following Monday.

Bella underwent SBRT Monday, Tuesday and Wednesday with no complications. By Wednesday, the epistaxis with which she initially presented had stopped and she quickly returned to her normal quality of life. At her one week and three week follow-up exams, Bella had not developed any of the acute side effects often associated with fractionated radiation protocols. At her six month recheck, she had merely developed leukotrichia in the treatment site — no other side effects were evident. At our request, she had a repeat CT scan to monitor for any disease progression, six months post SBRT. She remained asymptomatic throughout this length of time. The CT showed almost complete resolution of the nasal mass. Bella is now one year out and has only had one episode of rhinitis that resolved with

a short course of antibiotics. Since her SBRT treatment, the owners adopted a second Pit Bull to accompany Bella. She now plays with her new baby sister and is leading a carefree life.

At AMC, we are currently accepting patients for enrollment in a prospective SBRT study for canine nasal adenocarcinoma. This includes 50% off of all radiation related charges (including the set up CT and recheck imaging), resulting in an average treatment cost of approximately \$4,000, including the CT for SBRT planning, treatment and two follow up CTs at six months and one year.

The requirements for enrollment in the study include:

- 1) A confirmed diagnosis of nasal adenocarcinoma by histopathology
- 2) Patient must test negative for metastatic disease
- 3) Patient must be otherwise healthy with an expected survival time of at least one year

The purpose of this study is to compare side effects and survival times specific to canine adenocarcinoma treated by SBRT with side effects and survival times of patients treated by conventional fractionated protocols. If you are interested in any more information, please contact our Radiation Oncology Service at radiation.oncology@amcnyc.org, call us at 212-329-8753 or on our dedicated line for veterinarians only at 212-329-8821.

Case Study: Adult Mesenchymal Stem Cells: A Possible Alternative to Epidural Steroid Injections for Chronic Pain in Dogs

Jake is an 11 year old mixed breed dog, previously treated with autologous stem cells for severe elbow osteoarthritis in 2013 — this treatment significantly helped to relieve his pain levels. He was then diagnosed with lumbosacral disease one year ago, and was treated at the time with medical management. Jake was doing well until only recently when his clinical signs returned. Because he was on a number of medications and supplements for both chronic osteoarthritis and LS disease, there were not many alternatives that could be used to treat Jake's pain without complication. The next logical option considered was to administer an epidural to treat his pain.

Epidural steroid injections are commonly used in people to relieve lower back pain. This is a minimally invasive procedure that helps relieve pain caused by inflamed spinal nerves. Epidurals are commonly used in veterinary medicine, but most commonly as an adjunct for perioperative pain control associated with surgical procedures, however, there is very little published regarding the use of corticosteroid injections in dogs. Since Jake previously had stem cells harvested for his elbow treatment, he had several doses of banked cells available for treatment — the banked cells coupled with the fact that he was already on a non-steroidal anti-inflammatory, led us to determine that the use of stem cells was a much better option for the epidural than the traditional use of steroids.

Jake received a stem cell epidural as well as two IV treatments, one week apart. The procedure involved heavy sedation and placement of a spinal needle into the lumbosacral space. Once the position of the needle was confirmed, the stem cells were injected through a filter into the epidural space. Jake was then positioned with his left leg down, as this helps the epidural injection distribute to this side, which was most painful for him.

Jake was seen one month after his stem cell epidural injection. His pelvic limb lameness had improved since his treatment, and his owner reports that he is more energetic and happy at home.

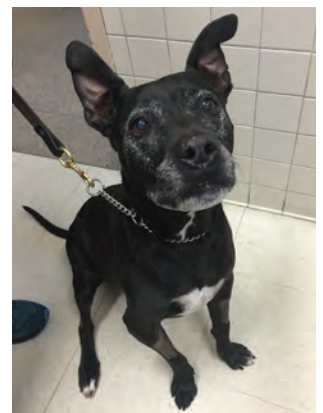
Since Jake has had multiple treatments, most of his banked doses of stem cells have been used. However, if Jake does need future stem cell treatments, his remaining banked cells can be grown, affording us an endless supply of his cells if needed.

Stem cell therapy is most commonly used to treat conditions such as arthritis, however, it can be used to treat many conditions, including soft tissue injuries, kidney disease, liver disease, and stomatitis to name a few. Although the total effects and prognosis associated with stem cell epidural treatment have not been published, it has been used to treat cases anecdotally. The expected results would be a reduction of pain and inflammation, less scar tissue formation, and a potential reduction in the amount of pain medications administered.

For more information about this procedure, or if you have a viable candidate for stem cell treatment, please contact Dr. Pam Schwartz at pamela.schwartz@amcnyc.org.



Pamela Schwartz
DVM, DACVS, CCRP
Chair, Surgery Service
pamela.schwartz@amcnyc.org
212-329-8867



Jake, feeling good after stem cell epidural treatment

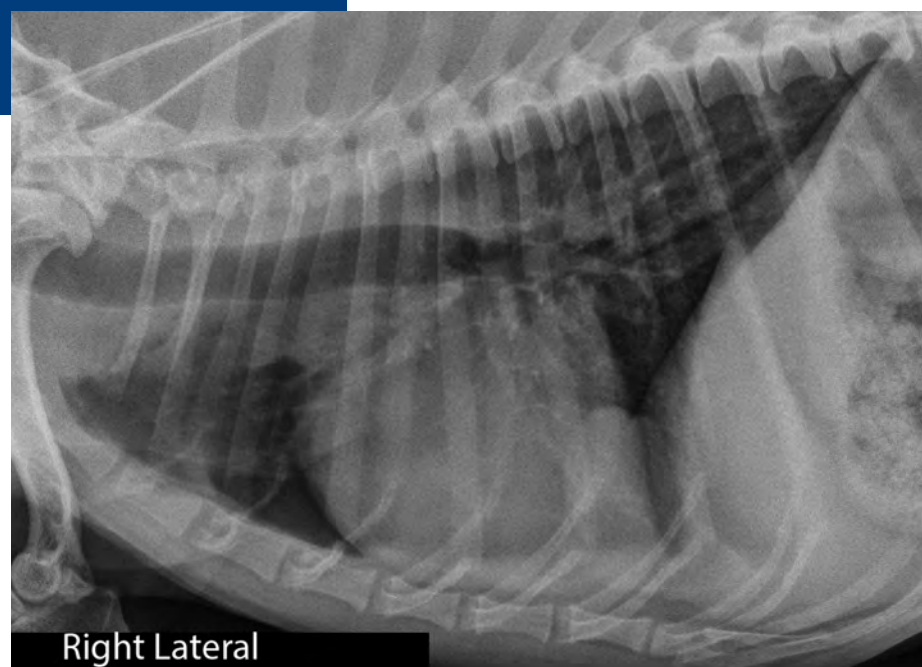
What's your diagnosis?

Test your radiographic interpretation skills with the following quiz

A 7 year old female, spayed Wheaten Terrier was examined by the AMC's Diagnostic Imaging Service for pre-dental radiographs of the thorax. The dog has been healthy, with the exception of progressive dental disease and halitosis. Radiographs were made to assess the heart and lungs prior to anesthesia.

What's Your Diagnosis?

Turn to page 22 for the diagnosis and case discussion.



WHAT'S NEW

CARDIOLOGY

The Cardiology Service now offers same-day outpatient echocardiograms for your patients with suspected, congenital or acquired cardiac disease. With two new echocardiography systems onsite, paired with board certified cardiologists and an expanded support staff, we can now serve your needs for high-quality, diagnostic echocardiograms from 9am to 4pm, 365 days a year. Call AMC's dedicated cardiology line (reserved for veterinarians only), at 212-329-8701 or fill out the online request form at amcny.org/echo-form. One of our board certified cardiologists will be available to perform your client's echo that same day. Should you have any questions or need additional information, please feel free to reach out directly to Dr. Dennis Trafny at 212-329-8839 or by email at dennis.trafny@amcny.org.

ONE HEALTH

Please join us on November 5th for AMC's second annual One Health Conference: *Connecting Human and Veterinary Medicine, A Comparative Approach to Endocrine Disease*. Leading experts across human and veterinary medicine will share case information and explore a collaborative approach to diseases and disorders of the endocrine system, in order to help advance treatment, prevention and patient care. There is no cost for registration and RACE credits will be awarded to veterinary professionals. For updated information, visit amcny.org/onehealth.

ALUMNI NEWS

ACVIM Forum

The ACVIM Forum is the veterinary profession's premier internal medicine continuing education event. Attracting the best and the brightest in the veterinary industry, leading practitioners and educators from all over the world to ensure leading-edge veterinary internal medicine, strong education programming and unparalleled networking opportunities. Join AMC staff doctors and alumni at a reception to discuss current events and future alumni programming. To RSVP, visit: amcny.org/acvimreception.

Thursday, June 9, 2016

Capital 3 Ballroom, Level 4

Hyatt Regency Hotel

Denver, Colorado

7pm - 9pm

Cocktails and hors d'oeuvres will be served

STAFF UPDATES

INTEGRATIVE MEDICINE

The Animal Medical Center is proud to announce that Leilani Alvarez, DVM, CVA, CCRT, CVCHM has recently obtained diplomate status in the American College of Veterinary Sports Medicine and Rehabilitation. Please join us in congratulating her on this most outstanding achievement.



Leilani Alvarez
DVM, DACVSMR, CVA,
CCRT, CVCHM

Head, Integrative and
Rehabilitative Medicine Service
leilani.alvarez@amcny.org

NEW STAFF

AMC welcomes Dr. Cyndi Brown, Dr. Danielle Conway, Dr. Berit Fischer, Dr. Abbie Lebowitz, Dr. Dennis Slade and Dr. Dan Spector to our team:



Cyndi Brown
DVM, DABVP (Avian)

Exotics

cyndi.brown@amcny.org

Board Certifications

Diplomate, American Board of
Veterinary Practitioners,
Avian Specialty,

Education

- BS
University of Connecticut,
Storrs, CT
- DVM
Kansas State University,
Manhattan, KS

Postgraduate Education

- Internship
The Animal Medical Center,
New York, NY
- Residency
The Animal Medical Center,
New York, NY



Danielle Conway
DVM, CVA, VSMT, CCRP

Integrative &
Rehabilitative Medicine
danielle.conway@amcny.org

Education

- BS in Microbiology
University of New Hampshire,
Durham, NH

- **DVM**
University of Wisconsin,
Madison, WI

Postgraduate Education

- *Internship in Small Animal Medicine, with a focus on Nutrition*
North Carolina State University,
Raleigh, NC
- *Fellowship in Integrative Veterinary Medicine*
University of Tennessee,
Knoxville, TN
- *Certified Canine Rehabilitation Practitioner*



Berit Fischer
DVM, DACVAA, CCRP
Head, Anesthesia and Pain Management
berit.fischer@amcny.org

Board Certifications

- *Diplomate*
American College of Veterinary Anesthesia and Analgesia
- *Certified Canine Rehabilitation Practitioner*

Education

- **DVM**
University of Wisconsin,
Madison, WI

Postgraduate Education

- *Internship in Large Animal Medicine and Surgery*
University of Georgia
Veterinary Teaching Hospital,
Athens, GA
- *Residency in Anesthesia*
Cornell University
Hospital for Animals,
Ithaca, NY



Abbie Lebowitz
DVM, DACVIM
Neurology
abbie.lebowitz@amcny.org

Board Certifications

- *Diplomate*
American College of Veterinary Internal Medicine (Neurology)

Education

- *BS in Environmental Science*
University of Rochester,
Rochester, NY
- **DVM**
The Ohio State University,
Columbus, OH
- *Internship in Small Animal Medicine and Surgery*
The Animal Medical Center,
New York, NY
- *Residency in Neurology/Neurosurgery*
The Animal Medical Center,
New York, NY



Dennis Slade
DVM, DACVIM
Internal Medicine
dennis.slade@amcny.org

Board Certifications

- *Diplomate*
American College of Veterinary Internal Medicine

Education

- *BA in Biology*
Muhlenberg College,
Allentown, PA
(Summa Cum Laude)

- **DVM**
Cornell University,
Ithaca, NY

Postgraduate Training

- *Internship in Small Animal Medicine and Surgery*
Long Island
Veterinary Specialists,
Plainview, NY
- *Residency in Small Animal Internal Medicine*
University of Pennsylvania
School of Veterinary Medicine,
Philadelphia, PA



Dan Spector
DVM, DACVS
Surgery
daniel.spector@amcny.org

Board Certifications

- *Diplomate*
American College of Veterinary Surgeons

Education

- *BS in Biology*
Bates College,
Lewiston, ME
- **DVM**
Tufts University,
Grafton, MA

CLINICAL TRIALS/ CURRENT STUDIES

Cardiology

Assessment of safety and effectiveness of Lasix administered by IV bolus compared with constant rate infusion to treat dogs with first time congestive heart failure

Dentistry

Comparison of treating early canine periodontal disease with closed root planing alone versus

concurrent use of doxycycline hyclate gel or clindamycin hydrochloride hydrogel

Internal Medicine

Comparison of constant rate intravenous infusion and intermittent intramuscular administration of regular insulin in cats with diabetic ketoacidosis

Interventional Radiology & Interventional Endoscopy

Allogeneic stem cell delivery for cats with chronic kidney disease. Phase I: Safety

Autogenous stem cell delivery for chronic kidney disease. Phase II: Efficacy

Treatment of extrahepatic biliary duct obstruction (EHBD) in dogs and cats by endoscopic retrograde cholangiopancreatography (ERCP) with biliary stent placement or the use of a rescue Subcutaneous Intestinal Biliary Bypass Device (SIBB)

Drug-eluting bead chemoembolization for non-resectable hepatocellular carcinoma (HCC) in dogs

Oncology

Evaluation of efficacy and safety of feline interleukin-2 immunomodulator following surgical excision of feline fibrosarcoma

Combination chemotherapy and immunotherapy for dogs with splenic hemangiosarcoma

Leukocytes infiltrating feline and canine solid tumors may harbor oncogenic mutations

Surgery

Evaluation of preoperative CT imaging to predict surgical resection of liver tumors in dogs and cats

For additional details and contact information for these studies, please visit amcny.org/clinicaltrials.

CONTINUING EDUCATION LECTURE SERIES

The AMC events listed below are open to all area veterinarians and technicians and are FREE of charge. CE credits are only provided for Partners In Practice (PIP) events (registration required). All lectures are held in the 6th floor conference room at AMC, unless otherwise noted. AMC lecture topics are subject to change. Please visit amcny.org/celectures or email education@amcny.org for up-to-date information. You may also sign up to receive email updates. All Partners In Practice lectures are free, but require registration. Visit our Partners In Practice page to register today at amcny.org/pipseminars, as these events fill up quickly.

Upcoming Lectures:

May 20, 2016

Mammary Gland Tumors
8:00 am – 9:00 am

May 23, 2016

Environmental Emergencies, Part 2
8:00 am – 9:00 am

May 24, 2016

Calcium Disorders
8:00 am – 9:00 am

May 26, 2016

Radiology Rounds
8:00 am – 9:00 am

June 2, 2016

NYCVMA Lecture: Human-Animal Bond
8:00 am – 9:00 am

PIP COMPREHENSIVE CLINICAL CONFERENCES

Partners In Practice Comprehensive Clinical Conferences are intended to provide several

hours of comprehensive review and updates of important and contemporary topics in veterinary medicine. Upon completion, participants should gain enhanced knowledge of the selected topic. Conferences are held at AMC on Sundays from 9:00am – 3:00pm and are both RACE and NYSED approved.

Sunday, September 18

Infectious Disease

PIP PRACTICAL CLINICAL WORKSHOPS

Partners In Practice Practical Clinical Workshops are designed to promote sound diagnosis and effective therapies. Participants are encouraged to bring and share case materials, if they wish. Participate in our time honored teaching rounds and small group, interactive workshops. Space is limited to 15 participants, so register today. These PIP Workshops are held at AMC on Tuesday evenings from 7:00–8:30 pm and are NYSED approved.

May 24, 2016

Kidney Disease
Presented by Dr. Carly Bloom

June 7, 2016

Radiology Reading Session
Presented by
Dr. Alexandre Le Roux

September 13, 2016

Neurology
Presented by Dr. JP McCue

October 11, 2016

Cardiology Cases
Presented by Dr. Dennis Trafny

November 8, 2016

GI Disease
Presented by Dr. Doug Palma

December 6, 2016

Anemia
Presented by Dr. Beth Appleman

PIP VETERINARY
TECHNICIAN LECTURES

We also offer free New York State accredited CE for veterinary technicians as part of our Partners In Practice program. This CE is open to all local LVTs. Lectures will be held the week of the VMA of NYC meeting on either a Monday, Tuesday or Thursday, and will run from 6:00–7:00pm. These lectures are NYSED approved.

September 6, 2016

Internal Medicine Lecture

Presented by
Dr. Beth Appleman

October 6, 2016

Internal Medicine Lecture

Presented by Dr. Doug Palma

December 6, 2016

Introduction to

Interventional Radiology

Presented by Dr. Chick Weisse

If you need additional information or have questions about our PIP lectures, please contact Dr. Phil Fox at philip.fox@amcny.org or call 212-329-8606.

ABOUT THIS NEWSLETTER

This newsletter is distributed quarterly to AMC's network of referring veterinarians and others who opt-in to receive this publication. If you have questions regarding this newsletter or would like to sign up to be included in our distribution, please email info@amcny.org.

To receive our current staff directory, email info@amcny.org

For access to the AMC Patient Referral Form, visit amcny.org/referralform

Cover photo courtesy of
Corey Towers

Designed by Anthony Coombs

AMC Dedicated Phone Numbers
for Referring Veterinarians

AVIAN & EXOTICS

Dr. Kathy
Quesenberry
Dr. Cyndi Brown
212-329-8888
Monday – Saturday
9 am – 5 pm

CARDIOLOGY

Dr. Philip Fox
Dr. Betsy Bond
Dr. Dennis Trafny
212-329-8701
Monday – Sunday
9 am – 5 pm

DENTISTRY

Dr. Dan Carmichael
Dr. Stephen Riback
Dr. Django Martel
212-329-8678
Monday – Friday
9 am – 5 pm

DERMATOLOGY

Dr. Mark Macina
212-329-8777
Tuesday – Saturday
9 am – 5 pm

INTERNAL
MEDICINE A

Dr. Beth Appleman
Dr. Carly Bloom
212-329-8619
Monday – Sunday
9 am – 5 pm

INTERNAL
MEDICINE B

Dr. Douglas Palma
Dr. Dennis Slade
212-329-8675
Monday – Sunday
9 am – 5 pm

INTERVENTIONAL
RADIOLOGY &
INTERVENTIONAL
ENDOSCOPY

Dr. Chick Weisse
Dr. Allyson Berent
212-329-8700
Monday – Friday
9 am – 5 pm

NEUROLOGY

Dr. Chad West
Dr. John McCue
Dr. Abbie Lebowitz
212-329-8770
Monday – Sunday
9 am – 5 pm

ONCOLOGY

Dr. Nicole Leibman
Dr. Ann Hohenhaus
Dr. Maria Camps
212-329-8797
Monday – Saturday
9 am – 5 pm

OPHTHALMOLOGY

Dr. Alexandra
van der Woerd
212-329-8813
Monday 10 am – 6 pm
Tuesday 10 am – 5 pm
Thursday 2 pm – 9 pm
Friday 9 am – 3 pm

RADIATION
ONCOLOGY

Dr. Rachel
St-Vincent
212-329-8821
Monday – Friday
9 am – 5 pm

REHABILITATION &
INTEGRATIVE
MEDICINE

Dr. Leilani Alvarez
Dr. Danielle Conway
212-329-8860
Monday – Saturday
9 am – 5 pm

SURGERY
SERVICE 2

Dr. Dan Spector
212-329-8863
Wednesday – Saturday
9 am – 5 pm

SURGERY
SERVICE 3

Dr. Pamela Schwartz
212-329-8867
Monday – Friday
9 am – 5 pm

SURGERY
SERVICE 4

Dr. Rob Hart
212-329-8674
Monday – Friday
9 am – 5 pm

A.M.C. PORTAL
amcny.org/
referral-portal-login

DR. RICHARD
GOLDSTEIN, CMO
347-733-7338
richard.goldstein
@amcny.org

PRIORITY
EMERGENCY/
CRITICAL CARE
HOTLINE
212-329-8616 or
646-556-6411 (fax)

What's your diagnosis?

Case Discussion:

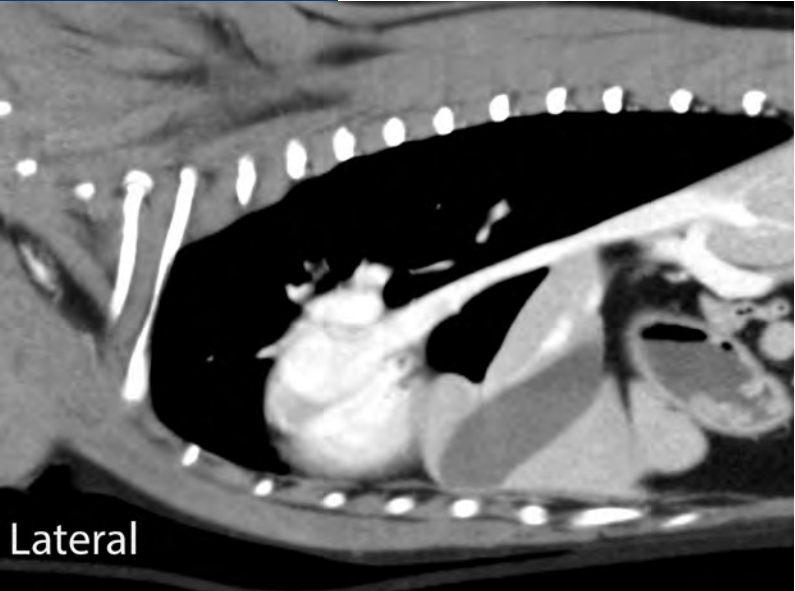
Two views (lateral and VD projections) of the thorax are provided. A soft tissue mass of the caudoventral and right thorax summates with the ventral cardiac silhouette on the lateral view. The mass is to the right of midline on the VD view, superimposed over the area of the caudal vena cava. The cranial margin of the mass is rounded and discrete, surrounded by gas in the lungs. The caudal margin is indistinct.

Based on these findings, the differential diagnosis includes lung mass (primary lung tumor, lung metastasis, or pulmonary granuloma). The indistinct caudal border of the mass raises some suspicion for a mass arising from the diaphragm or caudal to the diaphragm. This could include pleural neoplasia or diaphragmatic hernia.

A CT exam was performed to confirm that the mass was indeed an incidental diaphragmatic hernia. On the CT images (additional images), a portion of the liver and the gallbladder are herniated cranially, beyond the limits of the diaphragm.

Outcome: This was considered incidental, not associated with malignancy. The dog underwent dental prophylaxis after this CT exam without any complication.

Take-Home Point: CT examinations are superior to radiographs because they have improved contrast resolution. Notice how we can see the difference between the fluid filled gallbladder and liver lobes making up the “mass.” With radiography, fluid and soft tissue are the same opacity, hindering differentiation of organs like the gallbladder and liver. Also, CT removes superimposed tissues like the ribs, lungs or skin by making one of the dimensions very thin.



510 East 62nd Street
New York, NY 10065

