



May-June 2019

Update for Veterinarians



VMC's Cardiology and Interventional Medicine Service Offers Consults, Advanced Care

When referring veterinarians seek a consult or referral for advanced heart care, they need a service that can provide state-of-the-art diagnostic tools, specialized therapies and a full range of minimally invasive treatment options.

The Cardiology and Interventional Medicine Service at the Veterinary Medical Center (VMC) offers these capabilities, including a comprehensive set of cardiac diagnostic tests, such as ECGs, echocardiography and computed tomography angiography (CTA). Interventional medicine therapies entail minimally invasive procedures such as cardiac pacemaker implantations, balloon dilation of stenotic valves and coil embolizations of arteries and various tumors.

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From the Director



In this issue of *Update for Veterinarians*, we focus on our Cardiology and Interventional Medicine service and highlight the state-of-the-art diagnostic evaluation and therapies available for your patients who may need specialized care.

Section head **Dr. Karsten Schober**, and team members **Dr. Jaylyn Rhinehart** and **Dr. Samantha Kochie**, discuss minimally invasive procedures that eliminate the need for surgery, help reduce pain and speed recovery.

Dr. Schober and Dr. Rhinehart are just two of the three board-certified cardiologists within the service, with the third being Dr. Randolph Winter, along with two residents and two cardiology technicians who stand ready to assist you, whether through consult or a visit.

We welcome your continued feedback on our services and thank you for choosing the VMC each time you refer a patient in need of advanced care.

Karin Zuckerman, MHSA, MBA
VMC Director

Cardiology and Interventional Medicine *continued from page 1*



Dr. Karsten Schober supervising veterinary students performing an echocardiogram.

Degenerative mitral valve disease is the most common heart disorder the cardiology team sees, particularly in small breed dogs. In the United States, however, treatment is limited to medications and some dietary regimens, to delay the onset of congestive heart failure. Studies are currently exploring non-invasive procedures, says Dr. Rhinehart.

The service also provides state-of-the-art treatments for dogs with tracheal and bronchial collapse, says **Dr. Karsten Schober**, cardiology professor and service head. “These therapies include tracheal stent placement for dogs with severe tracheal collapse, and bronchial stenting in dogs with severe bronchial collapse.”

A new VMC clinical trial involving a sedated thoracic CT study of dogs with and without pulmonary hypertension aims to add to the body of knowledge on mitral valve disease, adds Dr. Rhinehart. “It’s exciting because we are using the new CT machine, which makes the study quick and safe for heart patients, as only sedation is needed. We’re looking to see if changes in the lungs explain why some dogs with mitral valve disease get pulmonary hypertension and others don’t.”

Alicia Byrd, cardiology service coordinator, manages the interventional suite, ordering supplies and ensuring that equipment is up-to-date, and assists the team with clinical support and client education. The cardiology team sees between 8 to 10 appointments per day and is one of the most heavily consulted VMC services.

An ongoing collaboration with cardiologists at Nationwide Children’s Hospital has helped the team address more complex cases, Dr. Rhinehart adds, including those involving atrial septal defects, congenital heart anomaly, as well as stenting procedures.

Dr. Samantha Kochie, a second-year cardiology resident, notes that the collaboration with referring veterinarians is an important one.

“We receive frequent consultations from primary care veterinarians. In some cases, if a client can’t afford to refer, we help them with options to perform at their clinic.”

For more information and emergency/after hours contact **614-292-3551** or visit vet.osu.edu/vmc.

According to **Dr. Jaylyn Rhinehart**, assistant professor of Cardiology and Interventional Medicine, among the more common minimally invasive procedures performed is closure of a patent ductus arteriosus (PDA), a congenital heart defect, that involves the insertion of a small catheter in a leg artery to close an abnormally-opened blood vessel with a catheter-delivered device.

“We’re able to do PDA closures in very small dogs,” she says. “Before, those dogs would have gone to open-chest surgery, but with our new catheters and devices, we can eliminate the need for surgery, reduce pain and complications, and help patients recover more quickly.”

Another minimally invasive procedure involves percutaneous transvenous coil embolization to treat intrahepatic portosystemic shunt closure, a vessel defect within the liver. The treatment involves insertion of thrombogenic coils through a neck vein to reach the liver for placement in the shunt.

“With the coil embolization we can improve the animal’s quality of life and hopefully get them off medications.”

Heart Disease Signs: What to Look For

- **Dogs** – coughing, hard or fast breathing, collapsing
- **Cats** – hiding, dragging legs, fast breathing, fainting

Cardiology and Interventional Medicine Case Study

DCM – a Complex Heart Disorder

Dilated cardiomyopathy (DCM), a disease of the heart muscle, weakens contractions and the heart's ability to pump. Signs of the disease, which is prevalent in large breed dogs such as Great Danes, may seem to develop quickly, but the underlying abnormalities and progression to overt heart failure may take months to years to become evident.

While some dogs with DCM may live for one to three years, others may succumb to the disease more quickly. Because there is no cure for primary DCM, veterinarians must manage the clinical signs with medications and diet.

A recent case illustrates the complexities of this disease, as well as how the VMC Cardiology and Interventional Medicine service worked closely with the referring veterinarian to address the signs of DCM.

In early March 2019, Bullet, a five-year-old Great Dane, presented to the VMC cardiology team for evaluation of atrial fibrillation and an enlarged heart. The referring veterinarian, **Dr. Brandy Morgan CVM '01**, who operates the Ohio Valley Animal Care Center in Moundsville, West Virginia, had called in advance to let the team know she had done a complete evaluation of Bullet and suspected he had atrial fibrillation, says **Dr. Samantha Kochie**, a second-year cardiology resident.

"She said the ECG showed his heart rate as high, about 270, and that she had done blood work, taken his blood pressure, which was normal, and taken chest x-rays—and that his heart looked enlarged," says Dr. Kochie, who recommended that Bullet be seen at the VMC immediately.

Owner Sheila Nelson-Hensley noted that two weeks prior Bullet seemed lethargic, was short of breath and had decreased appetite.

"We have been seeing Dr. Morgan for several years and trust her wholeheartedly," says Sheila. "When she told us we needed to take Bullet to Ohio State, we didn't hesitate. Knowing that she and Dr. Kochie were communicating frequently about our case made it easier for us, knowing that the collaboration of these two doctors would lead to the best possible treatment for our Bullet."

Dr. Kochie and the cardiology team placed an IV catheter in Bullet upon his arrival and gave him an injection to slow his heart rate, which eventually came down to 140. They followed with diagnostic tests to understand what the underlying heart disease was.

The tests confirmed Dr. Morgan's findings: The electrocardiogram showed that Bullet was in atrial fibrillation and had a high heart rate; the echocardiogram confirmed an enlarged left atrium and ventricle that had significantly reduced pump function, as well as minimally thickened mitral valve leaflets; chest x-rays indicated congestive heart failure.



After an overnight stay in the ICU, Bullet's blood work was monitored to assess electrolytes and kidney response to diuretics, and re-check x-rays were taken. He was started on a number of medications to address a variety of concerns, including fluid accumulation in the lungs, blood vessel dilation and high heart rate.

"Our goal was to slow the heart rate down from 270/280 to the low 100s," says Dr. Kochie. Bullet was still lethargic but had some steady improvement in his attitude, respiratory rate and heart rate. Although there is no cure for DCM, medications are initiated in the hopes to manage and control the clinical signs of DCM and arrhythmias, but each patient responds differently, says Dr. Kochie.

Dr. Morgan adds that she has been consulting with and referring clients to the VMC for 18 years and appreciates that collaboration, especially in complex cases like these. "The referral coordinators and doctors have always been available and very helpful," she says.

Sheila was grateful for the VMC team's prompt response. "They understood our fears and concerns, and Dr. Kochie helped us get through the challenging first few days at home."

Blue Buffalo Veterinary Clinical Trials Office Seeks Participants

If you have a patient that might be eligible for any of the following trials, please contact our Blue Buffalo Veterinary Clinical Trials Office at: cvm-clinicaltrials@osu.edu or **614-247-8706**.

- Dogs with degenerative mitral valve disease
- Cats with heart disease (Hypertrophic cardiomyopathy)

Please visit vet.osu.edu/vmc/clinical-trials for a full list of current trials.

Faculty Spotlight



Dr. Jaylyn Rhinehart's interest in veterinary cardiology came during her undergraduate years at Purdue University, in a class for students applying to the school's veterinary program.

"During one of the lectures, a cardiologist at Purdue presented some cases and that's when I knew—that's what I want to do!" she recalls.

Dr. Rhinehart completed her veterinary degree at Purdue University and went on to do her internship at the University of Florida. Following her cardiology residency at Ohio State, and after passing her cardiology board exam in summer 2016, she was hired on as a VMC faculty member.

Today Dr. Rhinehart is assistant professor of Cardiology and Interventional Medicine, and one of three board-certified cardiologists in the VMC service. She enjoys the aspects of radiology and the various imaging methodologies as well as the ability to perform noninvasive procedures. "It's awesome what we can do with today's technology," she says.

A typical day ranges from the academic to clinical, teaching and class work with residents in the mornings, followed by rounds with students. The team then follows up with cases, doing consults and performing procedures.

In addition to teaching, one of the biggest rewards Dr. Rhinehart notes, is "the clients we work with and seeing how dedicated they are to their pet and helping them live longer and feel better."

Transitions and Departures

We welcome the following clinicians in their new roles:

Dr. James Howard, to assistant professor, small animal surgery and **Dr. Joe Lozier**, to assistant professor, farm animal medicine.

Dr. Karina Creighton, small animal emergency and critical care medicine, and **Dr. Austin Hinds**, farm animal medicine, have left the VMC.

Dr. John Bonagura, professor of cardiology and interventional medicine, has retired from Ohio State and will continue his career at North Carolina State University. We are grateful for his numerous contributions to the College of Veterinary Medicine, including his research in the areas of cardiac drugs, and the use of echocardiography and Doppler studies to assess cardiovascular function.



The complexity of cardiology is what initially drew Texas native **Dr. Randolph Winter** to the specialty. A graduate of the Texas A&M University College of Veterinary Medicine, Dr. Winter completed his small animal rotating internship at Colorado State and his cardiology residency at Texas A&M.

In December 2018, he joined the faculty of the VMC's

Cardiology and Interventional Medicine service as assistant professor of cardiology.

He wants referring veterinarians to know that the service team is experienced with minimally invasive procedures for congenital heart defects—occlusion of patent ductus arteriosus (PDA), balloon valvuloplasty for pulmonic stenosis and balloon dilation for subaortic stenosis.

"It's really rewarding when we place a device to occlude a PDA in a puppy with heart failure," he says. "This procedure provides that dog with essentially a normal lifespan, free of medications. We can also perform this in very large dogs and dogs as small as three pounds."

"I am always happy to chat about a case that we have seen or even just to provide advice."

Upcoming CE Events

College of Veterinary Medicine
Continuing Education

- May 8 Orthopedic and Rehabilitative Treatment Options, Dublin
- May 30 Arthrocentesis, Toledo
- August 16 2nd Annual Companion Animal Veterinary CE Conference, Ohio State Veterinary Medical Center

For more details, please visit:

vet.osu.edu/alumni/continuing-education

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