

## Critical Care and Emergency Medicine Specialist Joins MedVet



**Anna Pesillo-Crosby VMD**  
*Diplomate American College of Veterinary  
Emergency and Critical Care*

We are very pleased to introduce MedVet's new critical care/emergency medicine specialist, **Dr. Anna Pesillo-Crosby**. Dr. Pesillo-Crosby received her VMD degree from the University of Pennsylvania, and following graduation, stayed on to complete a small animal rotating internship. She then completed a residency in small animal emergency and critical care medicine at Tufts University. Her research interests included oxidative stress/antioxidant therapy and biological markers of disease. Upon

completing her residency, she was employed by Angell Memorial Animal hospital as a senior staff veterinarian and residency director for 4 years. Dr. Pesillo-Crosby is a Diplomate of the American College of Veterinary Emergency and Critical care.

Dr. Pesillo-Crosby's expertise will be applied to our ICU and emergency patients. She will manage those patients requiring ongoing critical care and will greatly enhance the care of all patients at MedVet.

## CRITICAL CARE AT MEDVET

Critical care is a relatively young but quickly growing veterinary specialty. A decade ago many veterinary schools did not have a criticalist on the faculty, and there were only a small handful of critical care residency programs in the country. Critical care medicine was often taught to students and house staff by various allied specialists, or wasn't taught at all. Today, almost every veterinary school has one or more criticalists on the faculty, and critical care medicine has been integrated into the veterinary student's curriculum. As private referral hospitals such as MedVet have grown, there is an increased need for criticalists at these multi-specialty institutions.

Critical care medicine, in humans and in our veterinary species, concerns

itself with the provision of life or organ support in patients who are severely ill and usually require intensive monitoring. Criticalists have been specially trained in the management of complex cases including those with multiple organ failure, sepsis, DIC, refractory shock, traumatic injuries, respiratory disease and post-operative complications. Mechanical ventilation is being utilized more frequently as a supportive measure in a specific sub-population of our patients, and criticalists have extensive experience in the specialized respiratory, hemodynamic and nursing care these patients require. As technological advances in human medicine have been made over the years, veterinary critical care has kept up closely, offering many of the same treatment and

monitoring modalities available to our MD counterparts.

Criticalists do not function alone, but work closely with internists, surgeons, and other specialists to optimize care for their hospitalized patients. Additionally, specially-trained ICU nurses play a vital function in the care of these critically ill animals. Referring veterinarians have an important role as well, in offering their clients referral for appropriate cases and providing follow-up care when necessary. To this end, communication between all parties is paramount and is a priority with our critical care service. As MedVet's critical care specialist, Dr. Crosby is looking forward to assisting veterinarians in the community on critical case referrals and questions.

# Management of Tracheal Collapse



**Shawn Kennedy DVM DACVS**

Tracheal collapse is a dynamic, progressive, degenerative condition of the tracheal cartilage rings. The disease occurs primarily in middle to older small and toy breed dogs. The effect of this process is a dynamic airway collapse during respiration. These rings become weakened and cannot maintain the normal C shaped configuration. The dorsal tracheal muscle becomes stretched, redundant and drawn into the tracheal lumen during expiration. The degeneration continues to involve the bronchi.

Clinical signs of tracheal collapse are chronic nonproductive cough that range from a mild, intermittent honking cough to severe dyspnea, collapse and syncope; often exacerbated by excitement and anxiety. Palpation of the trachea often demonstrates a flaccid to flattened trachea with a subsequent induced cough. Radiographs are not diagnostic but rather suggestive and

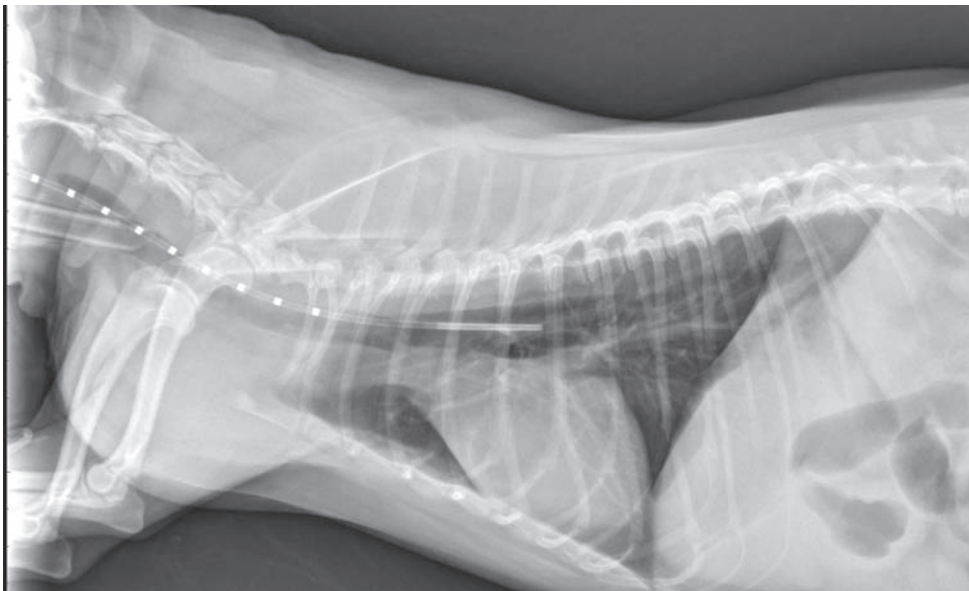
should be performed in both inspiration and expiration. Tracheoscopy is the gold standard because it is able to grade and determine the length at which it collapses. It has been shown in one retrospective study that up to 35% of tracheal collapse patients will have some degree of laryngeal dysfunction. Therefore, tracheoscopy will also be able to assess the larynx, trachea and bronchi.

Medical management is still the most common form of therapy. Medical management consists of weight loss, cough suppressants, bronchial dilators and sedation. Medical therapy does result in long-term palliation of clinical signs; however, other medical problems often affect the response (i.e., obesity, dental disease, heart disease). Most cases appear to be responsive to medical therapy; however, many others will progress to the point of needing surgical intervention for further palliative care.

Standard proven therapy is extraluminal prosthesis. Preferred polypropylene C shaped stents are commercially available of varying sizes. By using the stents and polypropylene suture, the tracheal rings are pulled outward relieving the collapse. We typically place rings every centimeter through the cervical trachea and as distal as the be-

ginning intrathoracic trachea. Placement of the rings onto the thoracic trachea is difficult and causes an excessive and unacceptable morbidity and mortality. The risks with extraluminal stents include tracheal blood supply interruption, recurrent laryngeal nerve damage, and continued clinical signs. With time, the trachea can collapse between the rings proximal and distal to the rings. Once bronchial collapse has occurred, surgery is not corrective. Extraluminal stents typically have a 75-85% overall success in reducing clinical signs. One study showed 5% of the patients died perioperatively, 11% developed laryngeal paralysis, 20% needed permanent tracheostomies, and overall 25% died from respiratory problems in a median survival of 25 months.

For numerous years certain groups around the country have been developing and mastering minimally invasive techniques to treat tracheal collapse to lessen surgical risks and treat as much of the trachea as possible. Intraluminal stents are designed metallic stents that have been classically used in humans for varying pathologic conditions of the tracheobronchial system. A number of human stents have been used and reported in dogs. Currently, In-finiti Medical has specifically produced self-expanding metal laser-cut nitinol knitted stents for the veterinary community. This company has made the use of these stents easier and more cost efficient for the veterinary community. Nitinol is an alloy of nickel-titanium that is considered a superelastic metal that resists compression once expanded. It is both biocompatible and corrosion resistant. This stent has massive flexibility superiority to other metals currently available. Various veterinary reports have shown 75-90% of patients treated with intraluminal stents have improved. Unfortunately, complications can still occur and there has been a reported 10% mortality rate with this procedure; however, this mortality rate is not agreed upon amongst leaders in this technology. Late term complica-



*Radiograph of a patient undergoing endotracheal stent placement. The catheter is in the esophagus as a means of measurement for the endotracheal stent diameter and length.*

tions such as stent shortening, excessive reactive tissue formation, progressive tracheal collapse and stent fracture have been reported.

This is a developing technology and unfortunately there is not an agreement for which procedure is recommended for all patients. Neither stenting nor surgery can cure this progressive disease. Either procedure when properly performed in the most appropriate patient can significantly improve each patient's quality of life after medications are no longer effective. Dr Chick Weise is the current authority on interventional radiology/tracheal stenting and has developed the following criteria.

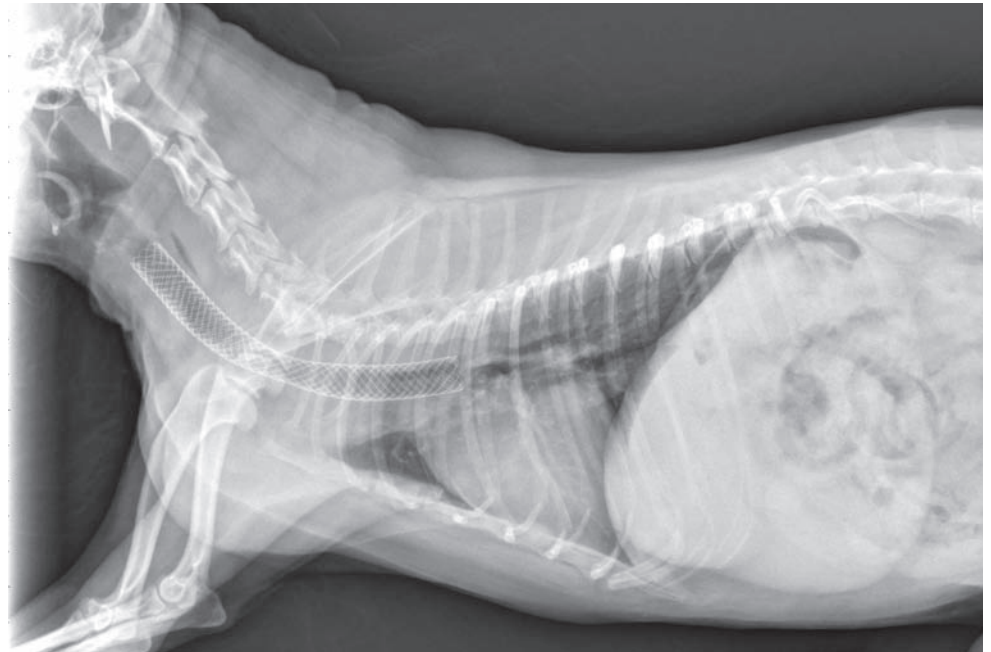
- 1) Concurrent diseases (cardiac/respiratory/dental/liver/obesity) must be addressed.
- 2) Aggressive medical management must be attempted and legitimately failed at providing a reasonable quality of life.
- 3) Significant intra-thoracic tracheal collapse should consider intraluminal stenting
- 4) Cervical collapse solely should consider extraluminal stenting.
- 5) Geriatric under anesthesia unable to extubate should consider intraluminal stenting.
- 6) Young animals should consider extraluminal stenting.

Owners must be aware of the risks and expectations. No procedure has been shown to stop the progression of tracheal collapse and definitive therapy is simply palliative. A good quality of life is the desired effect between any

of the therapies. Nearly every patient will have some degree of coughing and the vast majority of the patients will require further medical therapy post-operatively.

Interventional radiology is a developing science in veterinary medicine. MedVet has updated the clinic with a fluoroscopy unit to treat with interventional radiology in appropriate. It has not been determined what patients are truly the best candidates for intraluminal stenting. Initially the thoughts young dogs with tracheal collapse may cycle the stents allowing them to fail and fracture with time. However, recently thoughts of expanding the

entire trachea may be proving this to not be true. Continued coughing and stent movement may be the true cause of fractures with time. Once stents are deployed, they cannot be removed and need either restented to resection and anastomosis. These questions are left to be answered. This is an exciting treatment and should be developed more with time. MedVet is glad to be able to provide this therapy through either the surgery, cardiology or internal medicine services. If you have questions about this procedure or are interested in having a patient treated this way, please contact MedVet for assistance.



*Radiograph of the same patient with nitinol endotracheal stent after complete deployment of the stent expanding the majority of the trachea.*

## MedVet Radiation Oncology to Install Varian Clinac 2100C Linear Accelerator with Multileaf Collimator

The MedVet Radiation Oncology Center is replacing its radiation therapy unit (linear accelerator), originally installed in 2003, with a state-of-the-art Varian Clinac 2100C linear accelerator (see Figure 1). The new Clinac 2100C will continue to provide both photon (x-ray) and electron radiation beam capabilities, but also includes a multileaf collimator. Compared to the older collimators, the new multileaf collimators enable the radiation beam to be more precisely conformed to the shape of the tumor (see Figures 2 and 3). The

multileaf collimator is an important addition to MedVet's Radiation Oncology program, as it allows the radiation oncologist, Dr. Deborah Prescott, to provide enhanced shielding of surrounding normal tissues while delivering the prescribed radiation dose to the cancer cells. For patients with tumors near critical structures, such as the eyes, heart, lungs and other internal organs, a CT scan is used to define the extent of the tumor. Prior to the first treatment, the CT scan is uploaded to the 3-D ra-

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**Figure 1: Varian Clinac 2100C.** The gantry of the Varian Clinac 2100C linear accelerator can be rotated 360 degrees to deliver radiation from any angle.

# Notes from Hospital Directors

As many of you are already aware, Doug MacMillan left MedVet to pursue an opportunity in North Carolina. In his absence, the Hospital Directors have assumed many new additional roles and responsibilities and have stepped up to the plate in order to support the company during this transitional period. The group includes **Denise Badgley, Director of Finance, Heather Munsell, Director of Operations, Wendy Rezendes, Director of Human Resources and Stephanie Bahr, Director of Clinical Services.** The group will work together to provide updates and informational material for this column going forward.

Face Lifts! Many areas of the clinic are going or have already undergone construction for departmental expansion. Cardiology has expanded their echocardiogram services and now has a dedicated suite to offer this service. Internal Medicine has knocked down several walls to fully open up their

clinical services space. This allows for better communication and easier access of resources in their department.

Dermatology expanded into Internal Medicine's previous ultrasound room providing them with two additional workstations and a new microscope viewing area.

The pharmacy also received a massive overhaul and design. The design and effort to condense the overall space of the pharmacy was spearheaded by **Carolyn Conrad, RVT.** The new design has improved the efficiency and access to medications and other needed pharmacy items.

Construction will continue over the next several weeks and include a cre-



ating a larger Emergency Doctors work station, expansion of the ICU and Isolation Wards. We will update on the completion of those areas on the next edition.

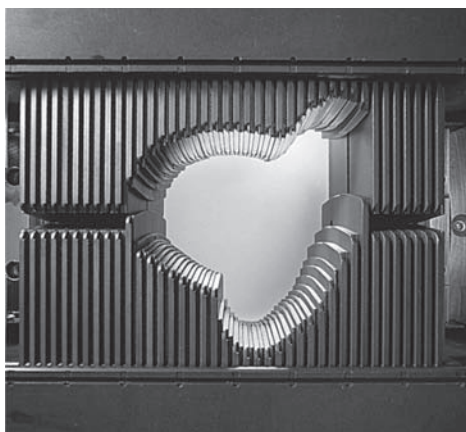
Other changes in the practice are the welcoming of our new Interns and Residents beginning in June. Joining us this year will be Rebecca Murray, Surgical Resident, Heather Lasher, Intern, Joanna Konerman, Intern, Julie Connolly, Intern, Kelsey Vespar Walker, Intern and Bethany Smother, Cardiology Intern. We look forward to the working with this new group and developing their skill sets and talents over the next year.

It is Softball season again and the Maulers have TWO teams this year! The group has been meeting to practice and getting ready for their upcoming games in May. We will follow their success and post updates of their victories in future Update letters!

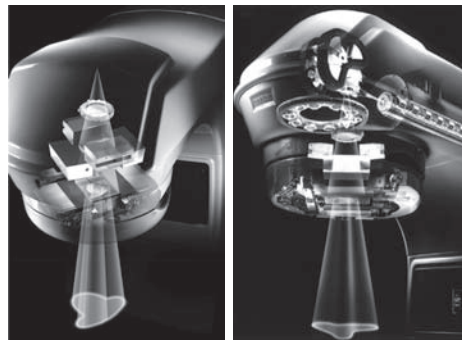
**Varian Clinac 2100C** from *previous page* radiation treatment planning system and the most effective radiation treatments are planned for each individual patient. As part of the 3-D treatment plan, Dr. Prescott determines the alignment of the multiple "leaves" of the multileaf collimator to establish the ideal shaping of the radiation field.

With the addition of the Varian Clinac 2100C and multileaf collima-

tor, MedVet continues to offer a team-oriented, comprehensive cancer therapy program, providing clients with the best possible radiation therapy, medical oncology, and surgery. The replacement and upgrade of the linear accelerator, to be completed in May, is part of MedVet's commitment to equip each of its specialty practices with state-of-the-art medical technologies. Please call Dr. Deborah Prescott at (614) 431-4403 with any questions about the capabilities of the Clinac 2100C or with any other questions regarding Radiation Therapy.



**Figure 2: Multileaf Collimator.** An up-close look at the multileaf collimator reveals the level of precision which may now be achieved in the custom design of a cancer patient's radiation-delivery field. (Prior generations of collimators utilized less-precise blocks to define the field.)



**Figures 3A and 3B: Schematic of Linear Accelerator with Multileaf Collimator.** These schematic representations show the shaping of the radiation-delivery field via the use of a multileaf collimator.

## Ophthalmic Surgery Wet Lab Offered June 29, 2008

Drs. Webb and Bras are offering a hands-on surgical wet lab for general practitioners on Sunday, June 29, 2008. The wet lab will feature lectures and how-to videos of routine ocular surgeries that can be performed by general practitioners. After the lecture, pig cadaver globes with adnexa will be used by attendees to practice the techniques. All proceeds from the lab will benefit the MedVet Charitable Foundation. Please email Dr. Terah Webb at [twebb@medvetohio.com](mailto:twebb@medvetohio.com) or leave your name on voicemail at (164) 846-5800 x2704 for more information.