

We encourage you to e-mail Angell's specialists with questions. We hope you will use Angell as a resource, and we look forward to working with you as we continue our legacy of providing compassion and care for animals.

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**Angell Animal Medical Center Referral
Contact Information**

Cardiology Service

Referral Liaison: Robin Grammer
Referral Line: 617 541-5038 Referral Fax: 617 989-1653
E-mail: cardiology@angell.org Web site: www.angell.org/cardiology

Dermatology Service

Referral Liaison: Rebecca Stlaske
Referral Line: 617 524-5733 Referral Fax: 617 989-1613
E-mail: dermatology@angell.org Web site: www.angell.org/dermatology

Emergency Service

Referral Line: 617 522-7282 press 1 Referral Fax: 617 989-1633
Web site: www.angell.org/emergency

Neurology Service

Referral Liaison: Lisa Canale
Referral Line: 617 541-5140 Referral Fax: 617 989-1666
E-mail: neurology@angell.org Web site: www.angell.org/neurology

Oncology Service

Referral Liaison: Gary Vanasse
Referral Line: 617 541-5136 Referral Fax: 617 541-5130
E-mail: oncology@angell.org Web site: www.angell.org/oncology

Pain Medicine Service

Referral Liaison: Lisa Canale
Referral Line: 617 541-5140 Referral Fax: 617 989-1666
E-mail: painmedicine@angell.org Web site: www.angell.org/painmedicine

**For all other referrals, please continue to contact
Eleanor Cousino, Angell Referral Coordinator,
at 617 522-5011, or by fax at 617 989-1635.**

**Is your client new to Angell? Send them to www.angell.org/directions
for detailed directions to our location.**



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PARTNERSINCARE

VOLUME THREE: NUMBER THREE

FALL 2009

DIAGNOSTIC LAPAROSCOPY

Diagnostic laparoscopy has been added to our expansive list of diagnostics offered at Angell Animal Medical Center. Maureen Carroll, DVM, DACVIM and Erika de Papp, DVM, DACVIM of Angell's Internal Medicine service, spear-headed the program two years ago which is now up and running with a steady flow of cases in cats and dogs of all sizes.

Laparoscopy involves exploring an abdomen through two or three small incisions. Through these incisions, telescopes and biopsy instruments are inserted to obtain samples from organs such as the liver, pancreas, kidney and even the small intestine. The benefits of this modality versus ultrasound are many.

First, we are able to examine the organ with the aid of a telescope and camera, allowing real-time visualization of the area of interest on high definition video. In contrast, ultrasound allows visualization of organs in shades of grey which places us at a disadvantage when precise localization of a lesion is our intent. Second, the sample sizes obtained via laparoscopy are very large, allowing us to gather samples for biopsy, culture, heavy metal analysis and PCR if necessary. Lastly, in the event bleeding is caused by biopsy sampling, with our instrumentation we can apply pressure, gel foam or even cautery to the area in attempts to avoid severe bleeding.

Many of our patients have benefited from laparoscopy. One is a 10 year-old black Labrador Retriever who presented with the history of an ultrasound-guided liver biopsy diagnosis of liver necrosis, most likely secondary to toxin exposure. As the dog did not respond to therapy as expected, we offered to perform a laparoscopic exploratory. Upon doing so, we discovered a lobe of liver that was invaded with abnormal tissue which was histologically proved to be a poorly differentiated carcinoma.

Other examples where laparoscopy is most beneficial include dogs with microhepatica, making ultrasound-guided liver biopsy impossible, and patients with poor healing potential where laparotomy would pose high risk (e.g., cushingoid, diabetic or hypoalbuminemic patients). Animals with ascites of unknown origin are also great cases for laparoscopy as we can explore the abdomen and take peritoneal biopsies.

Finally, the time it takes to perform a laparoscopy, which includes exploration of the abdomen and sample collection, is relatively short—in some cases taking as little as 25 minutes. Many of these patients can go home the same day which is not the case with most ultrasound-guided liver biopsies and exploratory surgeries.

In short, laparoscopy is an efficient, safe diagnostic modality to assess patients when ultrasound is less than

Maureen Carroll, DVM, DACVIM



Maureen Carroll, DVM, DACVIM



Dr. Carroll (left) looks on as Dr. de Papp uses a telescope to explore the abdomen.

sufficient and exploratory surgery is too invasive. Our diagnostic capabilities continue to expand and we look forward to helping you with your patients.

To learn more about laparoscopy and watch a video of a procedure, please visit www.angell.org/internalmedicine. To refer a client to Angell's Internal Medicine service, please contact Referral Coordinator Eleanor Cousino at 617 522-5011 or by fax at 617 989-1635.

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ANGELL'S GROWING OPHTHALMOLOGY SERVICE

The Ophthalmology service at Angell Animal Medical Center is uniquely qualified to provide extensive diagnosis and treatment of inherited, acquired or traumatic conditions involving the eyelids, cornea, iris, retina, optic nerve and orbit.

Daniel Biros, DVM, DACVO, has been heading the Angell Ophthalmology service since 2000. He and his staff of four technicians examine a wide

variety of species using direct and indirect ophthalmoscopy, slit-lamp biomicroscopy, Schirmer tear testing, topical fluorescein staining, tonometry, gonioscopy, ocular ultrasonography, MRI and electroretinography.

CASESTUDY

Stem Cell Therapy: Another Alternative Treatment of Canine Osteoarthritis

Sue Casale, DVM, DACVS

Osteoarthritis (OA) is one of the most common causes of chronic pain in dogs. Studies have shown that more than 20% of dogs suffer from OA with the most common signs being pain, stiffness and loss of mobility.

Medical management with non-steroidal anti-inflammatory drugs (NSAIDs) may not provide complete pain relief in many dogs. Other sought-after modalities to augment NSAID therapy include additional pain medications, dietary supplements, acupuncture and joint injections. A new and rapidly growing area of research in the treatment of OA involves the use of regenerative medicine. Regenerative medicine does not rely on a single pathway or target receptor to work. Instead, mesenchymal stem cells are delivered to an area of damaged tissue where they stimulate regeneration and aid in repair of the damaged tissue. The function of these cells is diverse and includes promotion of anti-inflammatory pathways, anti-apoptosis and trophic support through the secretion of cytokines and growth factors that support angiogenesis and tissue remodeling. In addition, mesenchymal stem cells are multipotent and have the ability to differentiate into many different cell types such as tendon, bone, ligament and cartilage, which may further help in the repair of damaged tissue.

The stem cells currently being used in veterinary medicine are autologous adult stem cells. Mesenchymal stem cells are derived from the animal's own adipose tissue and once isolated, can be injected intra-articularly to provide a large concentration of the cells to the area of injury. Because the injected cells are derived from the animal's own tissue and are minimally manipulated there is almost no risk of rejection or reaction. According to Vet-Stem, Inc., the company that isolates the stem cells, over 2,500 horses and 500 dogs have been treated with stem cell therapy in the past six years with less than 0.5% tissue reactions.

Stem cell therapy does not cure OA; the goal of stem cell therapy is to provide long-term anti-inflammatory effects, slow the progression of cartilage degeneration and initiate healing of the damaged tissue. This provides pain relief within a few days to a few weeks after the injection with further improvement as healing progresses. Additional injections may be required to maintain this improvement.

Stem cell therapy has been utilized in equine cases since 2003 but is just beginning to gain acceptance as a treatment for canine OA. There are currently two studies in veterinary literature that show significant improvement in lameness in dogs with hip and elbow OA following treatment with stem cells. Both studies were sponsored by Vet-Stem, Inc., and both studies have limited numbers of cases, however, the results are promising. Follow-up for dogs in both studies was six months or less, so duration of improvement is not known at this time.

Several patients have been injected with stem cells at Angell Animal Medical Center with subjective improvement seen. Treatment, including harvest of the adipose tissue, processing of the cells and injection of the joints, is usually around \$2,500. Surgical management such as joint replacement is still the preferred treatment for animals that have advanced OA or are no longer responsive to medical management. Stem cells provide an additional treatment modality for animals when joint replacement is not an option or if owners want to try a less invasive approach prior to pursuing major surgery.



Sue Casale, DVM, DACVS



Tissue samples are sent to Vet-Stem, Inc. where the stem cells are isolated.

Additional information is available on Vet Stem's website at www.Vet-Stem.com.

To refer a client to Angell's Surgery service, please call Referral Coordinator Eleanor Cousino at 617 522-5011 or visit www.angell.org/surgery.

References:

Black LL, Gaynor J, Gahring D, et al. Effect of intrarticular injection of autologous adipose-derived mesenchymal stem and regenerative cells on clinical signs of chronic osteoarthritis of the elbow joint in dogs. *Veterinary Therapeutics* 2008 9(3):192-200.

Black LL, Gaynor J, Gahring D, et al. Effect of adipose-derived mesenchymal stem and regenerative cells on lameness in dogs with chronic osteoarthritis of the coxofemoral joints: a randomized, double-blinded, multicenter, controlled trial. *Veterinary Therapeutics* 2007 8(4):272-284.

CLINICALSTUDY

Dermatology

Kathy Tater, DVM, DACVD



Kathy Tater, DVM, DACVD

Dear Fellow Doctors,

The Angell Dermatology service is working with the North Carolina State University Dermatology service to determine the genetic causes of allergies. We are recruiting non-allergic and allergic West Highland Terriers to participate in a nationwide study funded by the West Highland White Terrier Club of America. Study participation involves a blood sample and filling out a questionnaire. If you have a client who would be interested in participating and bringing their Westie to Angell for a blood sample, please have your client contact Angell Dermatology at 617 524-5733 to make a Dermatology Technician appointment. There is no charge to participate in the study. Unfortunately, we are unable to accept blood samples obtained at other hospitals.

Sincerely,

Kathy Tater, DVM, DACVD
Angell Dermatology service
Office hours: Tuesday-Friday · 7:30 a.m.-5:00 p.m.
Phone: 617 524-5733 · Fax: 617 989-1613
E-mail: dermatology@angell.org

For information on other clinical studies at Angell, please visit www.angell.org/studies.

ANGELL'S GROWING OPHTHALMOLOGY SERVICE

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This fall, a second board-certified ophthalmologist joined Dr. Biro's and the Ophthalmology team. Martin Coster, DVM, MS, DACVO is a graduate of Colorado State University. He completed an internship in Small Animal Medicine and Surgery at Purdue University, where he also completed a residency in Ophthalmology. While completing his residency, he received a Master of Science in Veterinary Clinical Sciences. Dr. Coster's areas of special interest include feline herpes virus treatment, exotic animal ophthalmology and cataract surgery.

Dr. Coster will work with the rest of the team, providing diagnostic, therapeutic and surgical services using advanced, state-of-the-art equipment. Cataract surgery with intraocular lens implantation, cryosurgery, glaucoma surgery (including laser cyclophotocoagulation), corneal surgery (including grafting) and eyelid surgery are all available to Angell patients. Patients also have access to the emergency and critical care service, which is available 24 hours a day, seven days a week. Specialists in internal medicine, radiology, cardiology and surgery are all available to help with in-depth case management.

Ophthalmology appointments are available Monday, Wednesday, Thursday and Friday from 7 a.m. to 4 p.m. and Tuesday from 7 a.m. to 6:30 p.m.



Daniel Biro, DVM, DACVO



Martin Coster, DVM, MS, DACVO

For more information about the Angell Ophthalmology service, please visit www.angell.org/ophthalmology. To refer a patient, please call Referral Coordinator Eleanor Cousino at 617 522-5011 or e-mail ophthalmology@angell.org.