



Kindness and Care for Animals®



Angell Referral Guide

■ 350 South Huntington Avenue, Boston, MA 02130 ■ 617-522-7282

■ 293 Second Avenue, Waltham, MA 02451 ■ 781-902-8400

■ Angell.org ■ Facebook.com/AngellReferringVeterinarians ■ Facebook.com/AngellAnimalMedical



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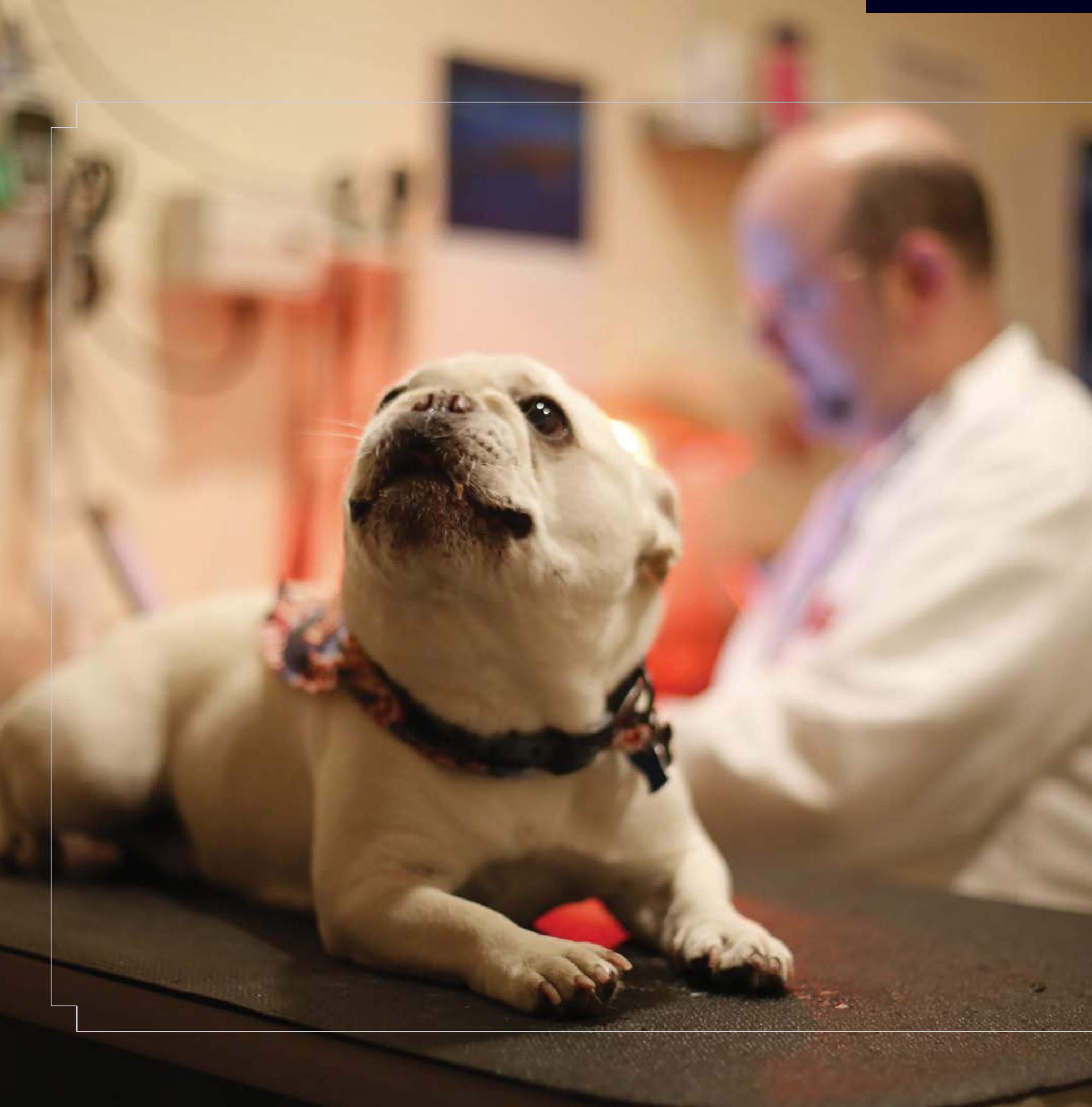
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■ Thank you to Topher Cox Photography for selected photos.



THANK YOU FOR THE TRUST YOU PLACE IN ANGELL

We value your feedback as our referring partner as well as our collaborative relationship with you in providing quality, comprehensive care for your patients and clients. We are pleased to offer our services with the convenience of two locations.

Enclosed is the Angell Animal Medical Center Referral Guide containing important information to ensure that both you and your clients have a positive experience while using the services at Angell in Boston and in Waltham. We strive to offer the best in specialized veterinary care while providing the one-on-one compassion and customer service that your clients and patients deserve. Angell's staff of more than 75 full-time veterinarians is committed to working with you to ensure the best overall health of your patient.

Please note that Angell is a full-service hospital on Veterans Day, Columbus Day, Presidents Day and Martin Luther King Jr. Day.

Thank you for your continued referrals to Angell Animal Medical Center. I hope you will use Angell as a resource, and I encourage you to call or email our specialists with questions when faced with a complex case, regardless of whether it is a referral.

If you have any questions, please feel free to contact me directly by phone at 617-541-5042, or via email at agreenleaf@angell.org.

Sincerely,

Ann Marie Greenleaf, DVM, DACVECC

Chief of Staff

Angell Animal Medical Center





Expertise, Compassion, and Care.

REFERRAL CONTACT INFORMATION

■ For additional referral assistance, please contact Eleanor Cousino by phone: 617-522-5011, or by fax: 617-989-1635

Phone numbers apply for both Boston and Waltham
(with the exception of Emergency & Critical Care)

24/7 EMERGENCY & CRITICAL CARE SERVICE (W/B)

Boston

Phone: 617-522-7282 Fax: 617-989-1633

Waltham

Phone: 781-902-8400 Fax: 781-622-1410

emergency@angell.org angell.org/emergency

ANESTHESIOLOGY

Phone: 617-541-5048 Fax: 617-989-1660

anesthesia@angell.org angell.org/anesthesia

AVIAN & EXOTIC MEDICINE (W/B)

Phone: 617-989-1561 Fax: 617-989-1668

avianexotic@angell.org angell.org/avianandexotic

BEHAVIOR (W/B)

Phone: 617-989-1520 Fax: 617-989-1627

behavior@angell.org angell.org/behavior

CARDIOLOGY (W/B)

Phone: 617-541-5038 Fax: 617-989-1653

cardiology@angell.org angell.org/cardiology

DENTISTRY

Phone: 617-524-5643 Fax: 617-989-1636

dentistry@angell.org angell.org/dentistry

DERMATOLOGY

Phone: 617-524-5733 Fax: 617-989-1613

dermatology@angell.org angell.org/dermatology

DIAGNOSTIC IMAGING*

Phone: 617-541-5139 Fax: 617-989-1617

diagnosticimaging@angell.org angell.org/diagnosticimaging

INTERNAL MEDICINE (W/B)

Phone: 617-541-5186 Fax: 617-989-1657

internalmedicine@angell.org angell.org/internalmedicine

NEUROLOGY (W/B)

Phone: 617-541-5140 Fax: 617-989-1657

neurology@angell.org angell.org/neurology

NUTRITION

Phone: 617-522-7282 Fax: 617-989-1635

nutrition@angell.org angell.org/nutrition

ONCOLOGY

Phone: 617-541-5136 Fax: 617-989-1668

oncology@angell.org angell.org/oncology

OPHTHALMOLOGY

Phone: 617-541-5095 Fax: 617-989-1647

ophthalmology@angell.org angell.org/eyes

PAIN MEDICINE

Phone: 617-541-5140 Fax: 617-989-1666

painmedicine@angell.org angell.org/painmedicine

PATHOLOGY (CLINICAL AND ANATOMIC)*

Phone: 617-541-5014 Fax: 617-522-7356

pathology@angell.org angell.org/lab

SURGERY (W/B)

Phone: 617-541-5048 Fax: 617-989-1660

surgery@angell.org angell.org/surgery

FOR ADDITIONAL REFERRAL ASSISTANCE

Boston

Phone: 617-522-5011 Fax: 617-989-1635

Waltham

Phone: 781-902-8400 Fax: 781-622-1410

CONTINUING EDUCATION SCHEDULE

angell.org/ce

(W/B) Services also available at our Waltham location
Behavior appointments are available in Waltham upon request

* Boston-based radiologists and pathologists serve both Boston and Waltham locations



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CONTACT SHEET

■ Chief of Staff: Ann Marie Greenleaf, DVM, DACVECC
agreenleaf@angell.org

24/7 EMERGENCY & CRITICAL CARE, BOSTON

angell.org/emergency
emergency@angell.org
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AVIAN & EXOTIC MEDICINE, BOSTON & WALTHAM

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BEHAVIOR, BOSTON & WALTHAM

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angell.org/behavior
behavior@angell.org
Phone: 617-989-1520, Fax: 617-989-1627

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CARDIOLOGY, BOSTON & WALTHAM

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DENTISTRY

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dentistry@angell.org
Phone: 617-524-5643 Fax: 617-989-1636

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DERMATOLOGY

angell.org/dermatology
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DIAGNOSTIC IMAGING

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internalmedicine@angell.org
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NEUROLOGY, BOSTON & WALTHAM

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NUTRITION

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nutrition@angell.org
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ONCOLOGY

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OPHTHALMOLOGY

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surgery@angell.org
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DACVS, ECVS
ntrout@angell.org

REFERRAL ASSISTANCE

Boston
Phone: 617-522-5011 Fax: 617-989-1635
Waltham
Phone: 781-902-8400 Fax: 781-622-1410

ANGELL IMAGE TRANSFER EXPRESS

Boston & Waltham
images@angell.org

APPOINTMENT TIMES

- angell.org/hours
Boston Main Number: 617-522-7282 Waltham Main Number: 781-902-8400

AVIAN & EXOTIC MEDICINE

617-989-1561 angell.org/avianandexotic
M 10a.m.-4:30p.m.
T 9a.m.-3p.m. (10a.m.-4p.m. Waltham)
W 2p.m.-3p.m. (10a.m.-4p.m. Waltham)
Th 9a.m.-3p.m.
F 9a.m.-3p.m.
Su 10a.m.-3:40p.m.

BEHAVIOR (ONE-HOUR APPOINTMENTS)

617-989-1520 angell.org/behavior
W 1p.m., 2:30p.m., 4p.m., 5:30p.m.
Th 4p.m., 5:30p.m.
Waltham appointments are available on request

CARDIOLOGY

617-541-5038 angell.org/cardiology
M 9a.m.-6p.m.
(Rotating M 9:30a.m.-3:30p.m. Waltham)
T 10a.m.-2p.m. (3p.m.-7p.m. Waltham)
W 10a.m.-1p.m.
(rotating W10a.m.-2:30p.m. Waltham)
Th 11a.m.-6:30p.m.
(9:30a.m.-3:30p.m. Waltham)
F 9a.m.-2p.m.
S 9a.m.-3p.m.
(One S a month 9:30a.m.-3:30p.m.
Waltham)

DENTISTRY

617-524-5643 angell.org/dentistry
M (surgery)
T (surgery)
W 8a.m.-12p.m.
Th (surgery)
F (surgery)

DERMATOLOGY

617-524-5733 angell.org/dermatology
M 7:30a.m.-4:30p.m.
T 8a.m.-4:30p.m.
W 7:30a.m.-4p.m.
Th 8a.m.-4p.m.

INTERNAL MEDICINE

617-541-5186 angell.org/internalmedicine
M 9a.m.-2p.m. (11a.m.-4p.m. Waltham)
T 8a.m.-8p.m. (9:30 a.m.-4:30 p.m. or
10a.m.-8p.m. every other T Waltham)
W 9a.m.-8p.m. (11a.m.-8p.m. Waltham)
Th 9a.m.-8p.m. (10a.m.-5:30p.m. Waltham)
(One Th a month 10a.m.-8p.m. Waltham)
F 9a.m.-5p.m. (10a.m.-5:30p.m. Waltham)
S 9a.m.-4p.m.
(9a.m.-4p.m. every other S Waltham)
Su 9a.m.-12:20p.m.

NEUROLOGY

617-541-5140 angell.org/neurology
T 1p.m.-4p.m., 4:30p.m.-5:30p.m.
W 9a.m.-5p.m.
Th (8a.m.-12p.m., 1p.m.-3p.m. Waltham)
(every other Th)
S On call for emergencies
Su 8a.m.-11a.m., 1p.m.-2p.m.
MRI services available seven days a week

NUTRITION

617-522-5011 angell.org/nutrition
Call for appointment.

ONCOLOGY

617-541-5136 angell.org/oncology
M 8:30a.m.-5p.m.
T 8:30a.m.-5p.m.
W 8:30a.m.-5p.m.
Th 8:30a.m.-5p.m.
F 9:30a.m.-4p.m.

OPHTHALMOLOGY

617-541-5095 angell.org/eyes
M 8a.m.-5p.m. (extended hrs on select M)
T 8a.m.-5p.m.
W 8a.m.-5p.m.
Th 8a.m.-5p.m. (extended hrs on select Th)
F 8a.m.-5p.m.
S 8a.m.-12p.m. (every other Sat)

PAIN MEDICINE

617-541-5140 angell.org/painmedicine
M 8a.m.-10a.m., 12:30p.m.-3p.m.
11a.m.-2p.m., 5p.m.-7:30p.m.
(every other M)
W 11a.m.-2p.m., 5p.m.-8p.m.

SURGERY

617-541-5048 angell.org/surgery
M 9a.m.-12p.m.
T 8a.m.-1p.m. (9a.m.-12:30p.m. Waltham)
Th 9a.m.-12:20p.m., 4p.m.-8p.m.
(9a.m.-11a.m. Waltham)
F 9:30a.m.-12:10p.m.
S 8:30a.m.-12:30p.m.

ADDITIONAL CONTACT INFORMATION

- Anesthesiology
617-541-5048
Diagnostic Imaging
617-541-5139
Emergency
617-522-5011 (Referrals)
617-522-7282 (Clients)
781-902-8400 (Waltham)
Pathology (Anatomic & Clinical)
617-541-5014
Pharmacy
617-524-5700
Eleanor Cousino, Referral Liaison
617-522-5011
Boston Main Number
617-522-7282
Waltham Main Number
781-902-8400



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REFERRAL FORM

■ Boston Phone: 617-522-7282 Boston Fax: 617-989-1635 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410

TODAY'S DATE: _____ BOSTON WALTHAM

REFERRING VETERINARIAN INFORMATION

REFERRING DOCTOR: _____ REFERRING PRACTICE: _____

REFERRING PRACTICE PHONE NUMBER: _____

ANGELL SERVICE TO WHICH YOU ARE REFERRING: _____

WOULD YOU LIKE US TO CALL YOUR CLIENT TO SCHEDULE AN APPOINTMENT? YES NO

SHOULD WE ADVISE YOUR CLIENT TO SEEK THE FIRST AVAILABLE APPOINTMENT, OR ARE YOU REFERRING TO A SPECIFIC DOCTOR?
 FIRST AVAILABLE ASK CLIENT FOR THEIR PREFERENCE SPECIFIC DR. _____

CLIENT INFORMATION

CLIENT NAME: _____

CLIENT CONTACT NUMBERS: CELL: _____ HOME/OTHER: _____

PATIENT NAME: _____ AGE: _____ BREED: _____

MEDICAL HISTORY

FOR WHAT PROBLEM IS THE PATIENT SPECIFICALLY BEING REFERRED TO ANGELL? _____

CLIENT CONCERNS/CHIEF COMPLAINT: _____

PERTINENT MEDICAL HISTORY: _____

RECENT VACCINE HISTORY: _____

CURRENT TREATMENT/MEDICATIONS: _____

ADDITIONAL COMMENTS/CONCERNS: _____

DERMATOLOGY SERVICE

■ Boston Phone: 617-524-5733 Boston Fax: 617-989-1613
dermatology@angell.org angell.org/dermatology

TODAY'S DATE: _____

REFERRING VETERINARIAN INFORMATION

VETERINARIAN'S NAME: _____ CLINIC: _____

ADDRESS: _____

PHONE: _____ FAX: _____

EMAIL (IF YOU WOULD LIKE THIS TO BE A METHOD FOR CONTACTING YOU): _____

CLIENT INFORMATION

NAME: _____ PHONE(S): _____

ADDRESS: _____

PATIENT INFORMATION

PET'S NAME: _____ BREED: _____ SEX: _____

DATE OF BIRTH: _____ WEIGHT: _____

REASON FOR REFERRAL: _____

SUMMARY OF DERMATOLOGIC HISTORY: _____

CURRENT MEDICATIONS: _____

OTHER MEDICAL OR SURGICAL PROBLEMS: _____

IN CASE A DIET CHANGE IS REQUIRED, WHICH DERMATOLOGIC PRESCRIPTION DIETS DOES YOUR CLINIC CARRY?

Please fax the medical history and lab work for your patient at least 24 hours prior to your patient's appointment with the Angell Dermatology Service. A visit summary will be faxed to your clinic within 24-48 hours of your patient's appointment.

If this is a referral of chronic pruritus for Intradermal Allergy Testing, please discontinue antihistamines for two weeks and oral glucocorticoids for four weeks prior to the appointment. A full listing of recommended drug withdrawal times prior to intradermal allergy testing can be found at angell.org/dermatology.

If this is a referral of chronic ear disease to the Angell Ear Clinic, topical or systemic glucocorticoid administration prior to the appointment may help minimize otic swelling during otoscopic exam. We ask that no ear medications or cleaners be used during the 24 hours prior to an Ear Clinic appointment.



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ONCOLOGY SERVICE

■ Oncology Phone: 617-541-5136 Oncology Fax: 617-989-1668
oncology@angell.org angell.org/oncology

TODAY'S DATE: _____

REFERRING VETERINARIAN INFORMATION

VETERINARIAN'S NAME: _____ CLINIC: _____

ADDRESS: _____

PHONE: _____ FAX: _____

EMAIL (IF YOU WOULD LIKE THIS TO BE A METHOD FOR CONTACTING YOU): _____

CLIENT INFORMATION

NAME: _____ ADDRESS: _____

HOME PHONE: _____ WORK PHONE: _____ CELL PHONE: _____

PATIENT INFORMATION

PET'S NAME: _____ BREED: _____ SEX: _____

DATE OF BIRTH: _____ WEIGHT: _____

VACCINATION HISTORY: _____

MEDICAL INFORMATION

ONCOLOGIC DIAGNOSIS: _____

DIAGNOSIS CONFIRMED WITH HISTOLOGY OR CYTOLOGY? YES OR NO: _____

SUMMARY OF CURRENT PROBLEM: _____

WERE RADIOGRAPHS TAKEN? YES OR NO: _____

CURRENT LAB WORK? YES OR NO: _____

PLEASE LIST OTHER DIAGNOSTICS PERFORMED: _____

CURRENT MEDICATIONS AND DOSAGES: _____

OTHER MEDICAL HISTORY OR SURGICAL PROBLEMS: _____

ADDITIONAL INFORMATION: _____

Please fax this referral form, laboratory results, biopsy or cytology results, and any other pertinent information to the oncology service at 617-989-1668 at least 24 hours prior to your patient's appointment with the Angell Oncology Service. Current radiographs may be sent

with the client or mailed to us prior to the appointment. They will be returned promptly.



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DIAGNOSTIC IMAGING

■ Boston Phone: 617-541-5139 Boston Fax: 617-989-1617
■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
angell.org/diagnosticimaging diagnosticimaging@angell.org



We are pleased to share that Angell offers outpatient abdominal ultrasound exams in Boston and Waltham for stable patients. Following is the information sheet outlining the service, as well as a referral form that you will need to complete before your client schedules an appointment. If you need additional forms, please visit www.angell.org/ultrasound or contact us at 617-541-5139 (Boston) or 781-902-8400 (Waltham), and we can send them via mail or fax.

This service is available to all of our referring hospitals Monday through Friday as well as every Saturday in Boston and every other Saturday at Angell-West. Many of you already use the services of traveling ultrasonographers; however, they may work on a periodic schedule that does not always serve the immediate needs of your client or patient. We hope to fill that niche for you.

I would like to emphasize that this service is not designed for patients sick enough to need hospital admission. Those patients should be referred directly to one of our direct patient care services. However, should we discover an urgent situation at the time of the ultrasound study, e.g., intestinal obstruction, free air, gallbladder mucocele, or suspected hemorrhagic effusion, we will consult with you and your client and expedite emergency admission if that is requested by the client.

Needle aspiration of masses or enlarged lymph nodes will only be done at our Boston facility if we feel it can be safely accomplished in an outpatient setting on a non-sedated animal. Fine needle aspirates are only available at our Waltham facility via Internal Medicine appointments. There will be additional charges associated with any aspiration procedure. If your examination of the pet makes you anticipate that sampling may be desired, it would be optimal if you prepared your client for that possibility in advance.

We look forward to providing this service to you and your clients. Please call us with any questions or concerns. To schedule an appointment, please provide your client's contact information on the completed, faxed form, and we will contact your client to arrange an appointment time. After faxing the form, you or your client can reach us at 617-541-5139 (Boston) or 781-902-8400 (Waltham) between 8 a.m. and 6 p.m. Monday through Friday to finalize appointment arrangements.

INTRODUCING: ANGELL IMAGE TRANSFER EXPRESS

Angell Image Transfer Express is now available for both Boston and Waltham locations. Referring veterinarians can email diagnostic images for any Angell service to images@angell.org which auto-uploads images into Angell's new image central repository. This repository makes images quickly and easily retrievable by all Angell clinicians, avoids confusion over where to send images, and prevents the need to resend images when multiple specialists collaborate on a case. Please use images@angell.org to send diagnostic images of referred cases (this is not for online imaging consultations/fee-based radiograph interpretation).

Submission guidelines for images@angell.org:

Please email images to images@angell.org and include in the email subject line (in this order):

- the PATIENT'S FIRST NAME (in all caps)
- the owner's first and last name
- a 1-3 word description of the case
- the Angell doctor's last name

EXAMPLE: "FIDO, Bob Smith, lung tumor, Martinez"

For more information, please contact a client liason at 617-522-7282.



As a service to our referring veterinarians, Angell offers outpatient abdominal ultrasound exams in Boston via direct appointment with the Imaging Department.

GUIDELINES FOR REFERRAL

- Noncritical patients only; those in need of urgent medical, surgical, or emergency care should be referred to one of those services directly.
- Please complete and fax the following form. Please fill this out completely, including sedation permission information. Once we receive the fax, we will contact the client to schedule an appointment. If the client prefers to call us at their convenience, please indicate this on the form. If you prefer, you may make the appointment for your client by calling 617-541-5139 (Boston) or 781-902-8400 (Waltham).

PROCEDURE DETAILS

Please discuss the following points with your client prior to their arrival.

- Patient should be fasted to allow for optimal evaluation of the cranial abdomen.
- The patient's abdomen will be shaved and a complete ultrasound performed.
- Should the ultrasound exam results warrant urgent intervention, at your discretion and in consultation with the client, you should prepare the client for possible admission to the hospital via the Emergency Service. We can facilitate this process if required. Additional fees will be incurred.
- Angell's radiologist (Boston) or internist (Waltham) will communicate findings to your office via fax. You can share the report with the client at that time.
- Clients will be encouraged to direct follow-up questions to you, their primary care doctor of record. The radiologist does not typically speak to the client at the completion of the study.
- The client will be escorted to the front desk for payment. The fee is \$360. There is a registration fee of \$11. Payment via credit card or cash is expected at the time of service.
- A pet will occasionally require sedation for this exam. Please discuss this with the client.
- Fine needle aspirates (FNAs) may be indicated during the exam. Please discuss this with the client in advance. FNAs can be performed on some outpatients in Boston, but are only available in Waltham via Internal Medicine appointments.

TO MAKE AN APPOINTMENT

Please provide your client's contact information on the completed, faxed form, and we will contact your client to arrange an appointment time. If you prefer, you may make the appointment for your client by calling 617-541-5139 (Boston) or 781-902-8400 (Waltham). Clients may call or email us at diagnosticimaging@angell.org.



RDVM ULTRASOUND REFERRAL

■ Boston Phone: 617-541-5139 Boston Fax: 617-989-1617 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
 ■ Alternate Fax: 617-522-7408 (7:30a.m.-4:30p.m. M-F only)

PRIMARY CARE DVM CONTACT INFORMATION BOSTON WALTHAM

REFERRING VETERINARY HOSPITAL: _____

TELEPHONE: _____ FAX: _____

CONTACT DOCTOR: _____ EMAIL: _____

PREFERRED CONTACT METHOD (PLEASE SELECT ONE): PHONE FAX EMAIL

REPORT WILL BE FAXED UNLESS OTHERWISE INDICATED.

CLIENT NAME: _____

CLIENT PHONE: _____

EMAIL: _____

CLIENT ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____

PET NAME: _____ SPECIES: _____ BREED: _____ AGE/DOB: _____

SEX: _____ WEIGHT: _____ COLOR: _____

DATE OF MOST RECENT RABIES VACCINATION (PATIENT MUST BE UP TO DATE ON RABIES VACCINE): _____ 1 YEAR
 _____ 3 YEAR

COMPLAINT/REASON FOR THIS ULTRASOUND (PLEASE INCLUDE ANY PERTINENT PRIOR HISTORY, LAB RESULTS, OTHER DIAGNOSTIC TESTS, ETC.): _____

WHAT ARE YOUR DIFFERENTIAL DIAGNOSES? _____

ABNORMAL DIAGNOSTIC RESULTS AT YOUR CLINIC: _____

DOES THIS PATIENT HAVE ANY MEDICAL REASON TO AVOID SEDATION AND/OR A FINE NEEDLE ASPIRATE IF INDICATED? YES ___ NO ___

HAVE YOU GONE OVER THE POSSIBILITY/OBTAINED CLIENT PERMISSION FOR SEDATION AND/OR FINE NEEDLE ASPIRATE IF INDICATED? YES ___ NO ___

PLEASE MAKE THE CLIENT AWARE THAT PATIENT'S ABDOMEN WILL BE SHAVED. PLEASE INFORM CLIENT TO FAST PET THE DAY OF THE EXAM (THEY MAY STILL OFFER WATER).

WERE RADIOGRAPHS TAKEN? YES ___ NO ___ IF YES, PLEASE SEND RADIOGRAPHS WITH THE CLIENT.

APPOINTMENT DATE AND TIME _____ CONFIRMED BY _____



ANGELL DIRECT CONNECT PROGRAM

■ Emergency Phone: 617-522-5272 Emergency Fax: 617-989-1633 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
 emergency@angell.org angell.org/emergency

AFTER-HOURS CALL SERVICE

We are pleased to offer our Angell Direct Connect after-hours call service to select referring partners. This free service expedites your clients' ability to reach a live operator during an emergency and promptly provides you with call information to keep you informed of your patients' needs. To sign up for this program, please call Mary Grace at 617-541-5181.

MECHANICS OF THE PROGRAM

As a referring hospital, one of your first steps will be to change your after-hours greeting message on your phone to say "if you have an emergency, press # and you will be connected to Angell Animal Medical Center." Information that Angell will collect and provide back to you includes:

- 🐾 Date and time of phone call
- 🐾 Client name and patient name
- 🐾 Client phone number
- 🐾 Reason for call
- 🐾 Resolution (advised immediate visit, status unclear and left decision to owner, or advised follow-up with primary care veterinarian when open)

BENEFITS OF THE PROGRAM

This program enables better service for both you and your clients in the following ways:

- 🐾 Client does not need to hang up the phone after receiving the voice message at your practice; instead, they can just press a number and connect to Angell.
- 🐾 Live person answers the phone to immediately assist your client.
- 🐾 The reporting information we provide to you, the referring doctor, allows you to preemptively reach out to your client the following day.
- 🐾 The information will provide you with statistics regarding after-hours call volume for your practice and demand for services.

OTHER REQUIREMENTS

- 🐾 You will need to request the call forwarding option via your phone carrier.
- 🐾 Please provide us with your operating hours so that we know when to record calls in the call log.
- 🐾 We will need your fax number to ensure prompt delivery of your daily call reports.

EMERGENCIES AT ANGELL ANIMAL MEDICAL CENTER

To help you and your clients identify when an animal is experiencing an emergency after hours, Angell has created the following guide. We welcome your calls if you have any questions or concerns.

CATS & DOGS

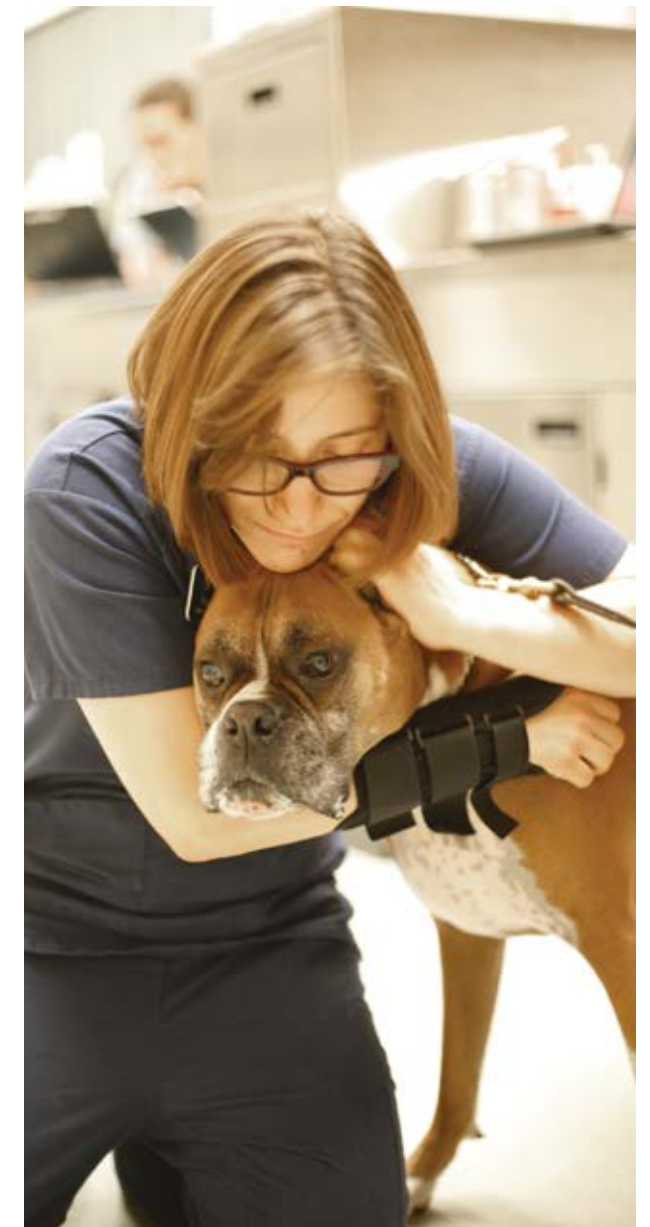
- 🐾 Trouble breathing or open mouth breathing in cat
- 🐾 Collapse or weakness
- 🐾 Choking, gagging, coughing, or excessive salivation
- 🐾 Severe vomiting/diarrhea or blood in vomit/diarrhea; black-colored feces or diarrhea
- 🐾 Difficulty urinating, no urination, or blood in urine
- 🐾 Seizure or other neurologic abnormalities
 - Wobbly, unable to walk
 - Head tilting to one side
 - If pet is being treated for known seizures, direct client to ER if more than three seizures in 24 hours or seizure lasting longer than 10 minutes
- 🐾 Known or suspected toxin exposure
- 🐾 Trauma or suspected trauma
 - Hit by car or other force
 - Fall from height



- 🐾 Eye problems/injury
 - Squinting or red eyes
 - Foreign body in or around eye
 - Sudden onset of blindness
 - Eye out of socket
 - Any bleeding from or around eye
- 🐾 Wounds (or acute skin problems including rashes), including bite wounds
- 🐾 Bleeding from anywhere
- 🐾 Acute-onset limping or concern for broken bone
- 🐾 Not eating
- 🐾 In labor and
 - Time between puppy/kitten births exceeds two hours
 - Time of active contractions with no puppy/kitten produced longer than 30-45 minutes
 - Pup or kitten stuck in canal
- 🐾 Shaking, whining, not acting right, or any time an owner is concerned enough to want their pet checked out through ER
- 🐾 Severe diarrhea
- 🐾 Black stool (indicative of GI bleeding)
- 🐾 Significant weakness/lethargy
- 🐾 Persistent vomiting
- 🐾 Known ingestion of any type of foreign material (Rabbits and rodents cannot vomit!)

AVIAN/EXOTICS

- 🐾 "Fluffed up" bird
- 🐾 Difficulty breathing
- 🐾 Uncontrolled bleeding
- 🐾 Collapse
- 🐾 Any bird that is egg-bound
- 🐾 Any bird sitting at bottom of cage
- 🐾 Seizure
- 🐾 Sudden inability to support a limb
- 🐾 Sudden onset of neurologic abnormalities
- 🐾 Severe wounds; lacerations, penetration of a body cavity
- 🐾 Eye damage
- 🐾 Deep skin ulceration
- 🐾 Not eating for 24+ hours
- 🐾 No defecation for 24 hours (rabbit)





SAMPLE CALL LOG FOR ACME ANIMAL HOSPITAL

■ From 9/15/2014 to 9/16/2014

CALL TIME	CLIENT LAST NAME	CLIENT FIRST NAME	PATIENT NAME	CONTACT #
9/15/2015 7:59	Johnson	Hannah	Lucy	(617) 555-0000

REASON FOR CALL

Lucy was hit by car moments before client called. Client was on way to Acme Animal Hospital and thought she had reached them.

his way to Acme Animal Hospital. Advised owner that Acme would be open at 8 a.m. (in one minute) and that they would take it from there.

ADVISED

Immediate ER visit. Client was in a panic. She said that her husband was on

RESULT

N/A: Following up with local vet.

CALL TIME	CLIENT LAST NAME	CLIENT FIRST NAME	PATIENT NAME	CONTACT #
9/15/2015 10:56	Smith	Peter	Buster	(617) 555-0000

REASON FOR CALL

States patient began limping after activity, will not put weight on hind leg.

will wait to see how she does throughout the day. Reiterated that based on the guidelines, patient should be seen, but owner chose to wait for patient to be seen by primary. Told owner that if symptoms worsen, he should definitely bring patient in to be seen.

ADVISED

Immediate ER visit. Informed owner that based on the Emergency Guidelines provided, patient should be seen through the ER. Owner stated that patient is not crying and/or whimpering so he does not believe patient has broken anything, but believes she may have a possible tear or strained muscle. States he is giving patient pain medication previously prescribed by vet at Acme and

RESULT

No Show at Angell ER.

CALL TIME	CLIENT LAST NAME	CLIENT FIRST NAME	PATIENT NAME	CONTACT #
9/15/2015 12:43	O'Connor	Janice	Rocky and Rufus	(617) 555-0000

REASON FOR CALL

Dogs ate a bag of flower bulbs.

RESULT

No Show at Angell ER.

ADVISED

Immediate ER visit. Advised that it was suspected toxin exposure and that client should call Animal Poison Control and come to Angell ER. Owner took Poison Control number and opted to monitor at home rather than visit ER.

CALL TIME	CLIENT LAST NAME	CLIENT FIRST NAME	PATIENT NAME	CONTACT #
9/15/2015 15:14	Bloom	Mike	Buster	(617) 555-0000

REASON FOR CALL

Friend's cat passed away; looking for cremation.

RESULT

N/A: Following up with local vet.

ADVISED

Situation Not Critical: Advised follow up with local vet when open. Advised that Angell does offer cremation services.



Healing Together

■ 350 South Huntington Avenue, Boston, MA 02130 ■ 617-522-7282

■ 293 Second Avenue, Waltham, MA 02451 ■ 781-902-8400

■ Angell.org ■ Facebook.com/AngellReferringVeterinarians ■ Facebook.com/AngellAnimalMedical

MSPCA-ANGELL WEST ANGELL'S NEW LOCATION IN WALTHAM, MA

■ Along with 24/7 Emergency & Critical Care service, our new Waltham facility also offers specialized service appointments with board-certified doctors Monday through Saturday.

■ 293 Second Avenue, Waltham, MA

■ Phone: 781-902-8400 Fax: 781-622-1410



Expertise, Compassion, and Care.

ABOUT MSPCA-ANGELL WEST

Angell Animal Medical Center is pleased to offer the convenience of our MSPCA-Angell West facility in Waltham, MA. Along with 24/7 Emergency & Critical Care service and a board-certified criticalist on staff, the new Waltham facility also offers specialized service appointments Monday through Saturday. If needed, a shuttle can transport animals to Boston for further specialized care and then take them back to Waltham. Whether in Boston or in Waltham, our specialists regularly collaborate and plan treatments tailored to your pet's emergency, surgical, and specialty needs. And even with all of our experience and advanced equipment, our specialty care is competitively priced. We offer a broad range of expertise and deliver this care with the one-on-one compassion that our clients and patients deserve.

WALTHAM TEAM & SERVICES

Visit angell.org/waltham for full biographies of all of our team.

24/7 EMERGENCY & CRITICAL CARE
PHONE: 781-902-8400 FAX: 781-622-1410

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Lauren Baker, DVM
lbaker@angell.org

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Diagnostic Imaging and Pathology services are provided in conjunction with Angell Boston



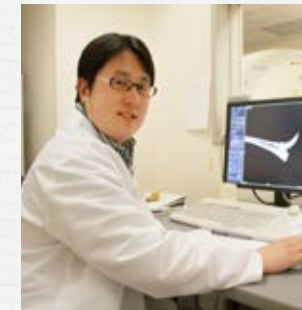
THE ROLE OF IMAGING IN DIAGNOSING PANCREATITIS

■ By Stephen Tsai, DVM, DACVR

angell.org/diagnosticimaging

diagnosticimaging@angell.org

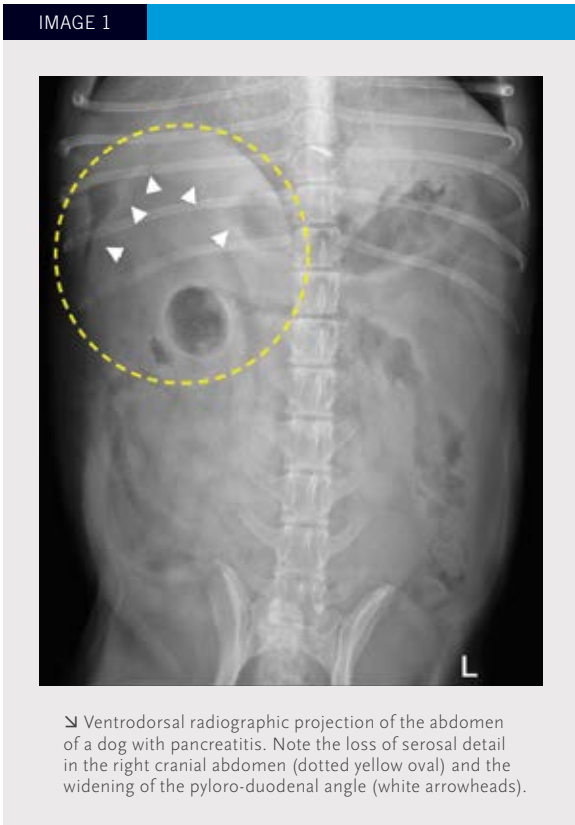
617-541-5139



Pancreatitis has traditionally been a very challenging diagnosis from both clinical and imaging standpoints, as signs are frequently vague and exhibit great overlap with other disorders. Although serum testing and advanced imaging developments in recent years have improved our ability to diagnose pancreatitis, definitive diagnosis remains elusive.

The pancreas is a primarily glandular organ with both exocrine and endocrine functions. Anatomically, the pancreas is typically divided into the right limb, body, and left limb. The right limb of the pancreas is located within the mesoduodenum, medial to the proximal descending duodenum and coursing parallel to the long axis of the intestinal segment. The body is located adjacent to the pyloric junction, and the left limb extends along the omentum just caudal to the greater curvature of the stomach. The exocrine function of the pancreas is the secretion of bicarbonate and enzymes responsible for the breakdown of proteins, carbohydrates, and lipids. The endocrine function of the pancreas is primarily related to control of blood glucose, through the secretion of insulin and glucagon. The primary pancreatic disorders for which imaging plays an important role in veterinary medicine are exocrine pancreatic inflammation (pancreatitis) and pancreatic neoplasia (especially adenocarcinoma and insulinoma).

Pancreatitis is the most common clinically encountered pancreatic disorder, and an important disease in both dogs and cats. The spectrum of outcome varies widely, from mild self-limiting signs to fatal systemic shock and DIC. While abdominal ultrasound has historically been considered the best test for pancreatitis, in truth the sensitivity and specificity of ultrasound as a test for pancreatitis varies greatly, and it is currently believed that pancreatic lipase immunoassays (Spec cPL, SNAP cPL, Spec fPL, SNAP fPL) are generally more reliable. Even so, the literature is somewhat mixed on the actual sensitivity and specificity of these tests, owing at least in part to the lack of a reliable gold standard for diagnosis of pancreatitis (even histopathology is imperfect, as a biopsy may miss an area of focal inflammation). The range of reported sensitivities in studies of quantitative cPLI is 21-78% while the range of specificities is 81-100%. The SNAP cPL reportedly



▶ Ventrodorsal radiographic projection of the abdomen of a dog with pancreatitis. Note the loss of serosal detail in the right cranial abdomen (dotted yellow oval) and the widening of the pyloro-duodenal angle (white arrowheads).

has a higher sensitivity (91-94%) but lower specificity (71-78%), thus making the snap test better as a screening tool and the quantitative better as a confirmatory test. In cats, the reported range of sensitivities for Spec fPL is 67-79% with specificities from 67-100%. The SNAP fPL studies have yet to be performed, although the manufacturer claims 82-92% agreement with the Spec fPL test.

IMAGE 2



Normal pancreas in a Bernese Mountain Dog. Note the similarity in echogenicity between the pancreas (white arrowheads) and surrounding fat.

IMAGE 3



Severe pancreatitis in a cat. Note the moderately hypoechoic pancreas (white arrowheads) and hyperechoic peripancreatic fat.

The most commonly performed imaging studies for pancreatitis are abdominal radiographs, ultrasound, and CT. Abdominal radiographs are generally considered to be non-useful in the diagnosis of pancreatitis, although they are still recommended as an initial imaging study due to the great degree of overlap in clinical signs between pancreatitis and other diseases such as gastrointestinal disease, hepatic disease, and neoplasia. Classic radiographic signs of pancreatitis include focal loss of serosal detail in the right cranial quadrant, widening of the pyloro-duodenal angle, a soft tissue mass effect in the right cranial quadrant, and/or gas in the duodenum (Image 1). In one study of dogs with fatal pancreatitis, fewer than a quarter of the cases had radiographic signs consistent with pancreatitis, underscoring the lack of usefulness of radiographs as a test for pancreatitis. Abdominal ultrasound is also an imperfect test for pancreatitis, due in part to the difficulty in visualizing the entire pancreas. Much of the pancreas is sandwiched between the stomach and colon, two organs which are typically gas-filled and obscure part or all of the pancreas. Ultrasound evaluation of the pancreas is also highly dependent on the skill of the sonographer as well as the quality of the ultrasound machine. In the 1980s and 1990s, during the rise in popularity of ultrasound as a medical imaging modality, it was thought that a normal pancreas was not visible on ultrasound. With the improvement of the equipment in the past two decades, a normal pancreas should always be visible, but its similarity in appearance to the surrounding fat still makes a normal pancreas very difficult to see (Image 2). Typical ultrasound findings in pancreatitis include thickening, a hypoechoic parenchyma, and hyperechoic peripancreatic fat (Image 3). Ultrasound sensitivity for pancreatitis in dogs is most commonly reported as 68%, although this is from a 1998 study, and ultrasound machines have advanced considerably since then. Ultrasound sensitivity for pancreatitis in cats ranges from 11-67%, with a recent study in cats reporting a sensitivity of 84% and specificity of 75% when using serum fPLI as gold standard. It is worth repeating that operator skill and equipment quality are paramount, and these studies are generally performed at academic institutions with top-of-the-line equipment and authored by imaging experts who by definition have a professional research interest in abdominal ultrasound. In the average clinical setting, one or both of these conditions may not be true, meaning the sensitivity and specificity can be expected to be lower than the published numbers (unlike serum PLI tests, which are not dependent on operator skill). In humans, abdominal CT is the preferred imaging test for pancreatitis. Previous studies in cats and dogs have shown mixed results with CT, although a recent pilot study of 3 phase angiographic CT in ten dogs with pancreatitis showed promising results.

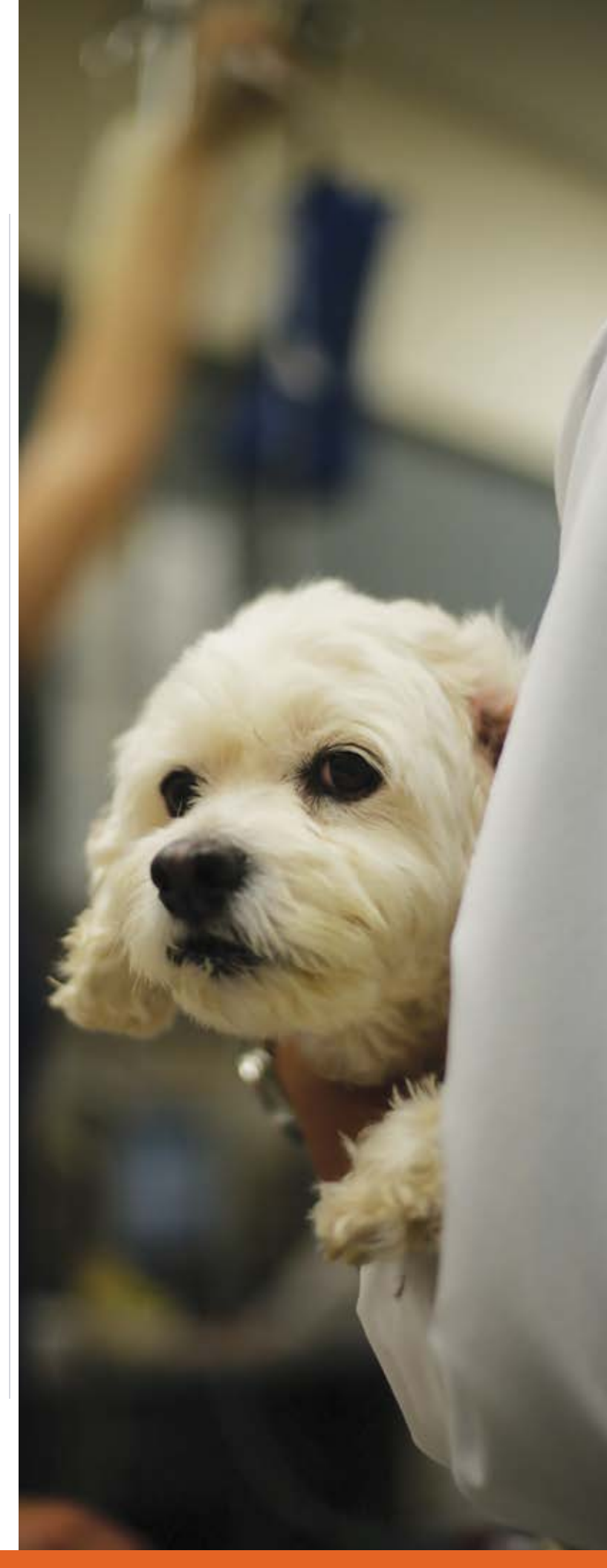
In clinical practice, the workup for suspected pancreatitis is even more confusing than the literature would suggest. While on paper the most accurate and reliable tests would seem to be the PLI, the reported sensitivities and specificities for all tests (including ultrasound) should be interpreted with caution due

to the lack of a gold standard. It should be stressed that a diagnosis of pancreatitis should never be made on the basis of a single test result alone. At Angell, most internal medicine clinicians prefer abdominal ultrasound, due to both the presumed high specificity for diagnosing pancreatic abnormalities and the ability to assess the remainder of the abdomen for other potential causes of inappetence, nausea, vomiting, lethargy, and/or pain. The most important criteria are signalment, history, and physical exam findings compatible with pancreatitis. The diagnostic workup strategy then becomes one of ruling out other conditions rather than ruling in pancreatitis.

For more information, please contact Dr. Tsai at stesai@angell.org or diagnosticimaging@angell.org, or call 617-541-5139.

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WOUND DRAINAGE OPTIONS IN VETERINARY SURGERY

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617-541-5048

OVERVIEW: CLOSED SUCTION (VACUUM) DRAINAGE SYSTEMS

Closed suction drainage devices are active drain systems that operate on the principle of creating a vacuum in a chamber that draws fluid from the body area through a fenestrated drain placed beneath the skin. Most chambers are collapsible plastic canisters containing a spring or expansile mechanism that pushes the reservoir walls outward, to create a vacuum. The better constructed devices have a dual “Y” port for the potential placement of two drains: an internal one-way (anti-reflux) valve prevents reflux of fluid from the chamber back to the wound. Markings on the canister allow the surgeon to determine the amount of fluid accumulated. A spout permits emptying of fluid accumulated in the vacuum chamber and the reservoir is collapsed and sealed with the attached plug to reinstitute this active drainage system (Fig. 1).

There are several vacuum drain designs in use in human surgery. One of the most economical systems used in veterinary medicine is the Jackson-Pratt (J-P) drain system, comprised of a fenestrated wound drain that connects to a silicone reservoir: the elastic walls create a vacuum chamber when activated. A 100ml J-P reservoir is ideal for most small animal surgical procedures (Fig. 1). They have the potential to be cleaned and re-sterilized in the autoclave for reuse. The best fenestrated drains are composed of silicone with multiple holes or recessed grooves to minimize obstruction from blood clots and tissue debris (Fig. 2). They enter the surgical space through a small stab wound created in the adjacent skin. A purse-string skin suture is used to prevent air from leaking at the stab incision, into the surgical site. The ends of the purse-string suture are looped around the drain and tied to prevent displacement of the drain using a “finger-trap knot”. Redundant external tubing is removed with scissors before attaching the end of the tube onto the entry port of the vacuum canister. Closed suction units can be used for several days with minimal risk of ascending infection. Owners record the daily fluid volume in the reservoir: this will help determine the optimal time to eventually remove the drain system. An Elizabethan collar is advisable to prevent disturbance of the drain system by the patient.

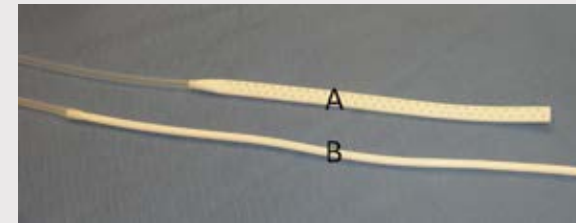
FIGURE 1



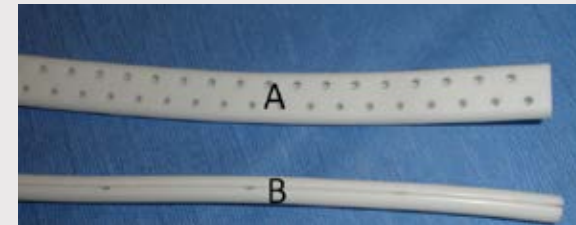
100cc Jackson-Pratt Drain Reservoir, with attached drain tubing (yellow arrow). The drain spout (red arrow) is opened by removing the attached plug (purple arrow). After removal of the plug, the volume of fluid is recorded using the milliliter (cc) scale marking on the reservoir. The fluid is emptied, the air squeezed from the reservoir, and the plug inserted to restore the vacuum.

Vacuum drainage systems are remarkably effective in removing fluid from large dead-space areas and deep pocket wounds postoperatively. Unlike Penrose drains (discussed below) the vacuum allows for drainage independent of gravity. Moreover, the vacuum effect draws adjacent tissues together, permitting fibrous connective tissue to link apposed tissue planes. Surgical hemostasis within the drain pocket is important since blood clots can obstruct the drain fenestrations. Additionally, air entering the wound will cause the canister to inflate, inactivating the vacuum required to remove fluid. In this situation, a few additional sutures or skin staples can be used to seal a gap in the incision. A thick layer of ointment applied along the incision can prevent air leakage until a fibrin seal forms along the incision within several hours after surgery. Alternatively, surgical cyanoacrylate glue can be used to seal a problematic area.

FIGURE 2



Examples of the 10mm wide flat drain (A) and 15Fr Jackson-Pratt Hemaduct round drain (B).



Close-up view of the 10mm wide flat drain (A), used for elbow hygroma management and the 15Fr round Jackson-Pratt drain (B) used in the management of large aural hematomas. This latter drain has four recessed channels for collecting fluid, ideal for the management of aural hematomas.

OVERVIEW: PENROSE DRAINS

The simplest and most economical of the passive drains employed in small animal surgery is the Penrose drain, a soft tubular strip of radiopaque latex that is sold in various widths. Penrose drains allow for the passage of fluids by capillary action over the outer surface of the drain. Fluid then gravitates downward and out of the dependently placed (lower) exit incision. The more proximal portion of the drain is secured to the skin with a trans-cutaneous skin suture; the exit (lower/dependent) end of the drain is sutured to the stab incision.

Penrose drains are adequate for the drainage of smaller dead-space areas, but are less than ideal for larger areas, especially when prolonged drainage is anticipated (Fig. 3). Penrose drains function poorly in body areas where gravitational drainage cannot be provided. Penrose drains are normally retained for 3 to 5 days depending upon the volume of fluid exiting the area. They can be removed as early as 48 hours after insertion if drainage is minimal. The longer the drain is retained, the greater the likelihood of ascending infection from contamination at the drain exit. When possible, a Penrose drain should be covered with a topical antimicrobial agent and a sterile dressing, although this is not easily accomplished in some body regions. Because drainage at the exit site often drip onto the adjacent skin, local skin irritation is possible, especially with their prolonged use. If the Penrose drain is left exposed, it is advisable to gently cleanse the exit area with sterile saline (with the addition of povidone iodine or chlorhexidene) followed by a topical antimicrobial agent, two or three times daily. Additionally, an Elizabethan collar is advisable to prevent the patient from chewing or removing the drain. If the patient removes a portion of the drain,

FIGURE 3



Facial reconstruction after major loss of skin overlying the left facial area (secondary to a skunk bite). Note the 1/4 inch Penrose drain used to control the surgical dead-space created by elevation of the lower facial/cervical skin and transfer of a transposition flap from the lateral cervical area.

radiographs may be necessary to assure that no drain fragment is retained in the body (Penrose drains are radiopaque). Retained portions of a Penrose drain will elicit a foreign body reaction and promote infection (draining tracts) until its removal.

It is important to remember that air can enter the body through the exit end of the Penrose drain: they are best avoided for thoracic wounds in which pneumothorax may occur through a chest wall opening. Penrose drains employed in the flank area in particular can result in a “sucking wound;” as the patient walks, air may be pulled into dead space by the vacuum formed, resulting in subcutaneous emphysema.

VACUUM DRAINS VERSUS PENROSE DRAINS

Vacuum drains have multiple advantages over the use of Penrose drains in small animal surgery, including:

- Draining surgical areas without the need for their dependent placement (they do not depend on gravity)
- Containing the fluid collected and allowing its visual assessment
- Quantifying the volume of fluid collected on a daily basis to help determine the optimal time to remove the drain
- Ideally suited for large dead space areas and problematic areas
- They do not allow air to enter the wound cavity, a potentially serious issue when used for traumatic thoracic wall wounds secondary to trauma
- Low risk of ascending infection even with long term usage
- Simple to insert, economical to use
- Can be re-sterilized for additional use, if so desired

- Easy for owners to maintain at home
- Minimal nursing care
- Potentially reusable (autoclave sterilization) silicone drain tubing and reservoir

By contrast, Penrose drains have the following advantages over the use of vacuum drain systems.

- Very inexpensive
- May be more suitable for small tissue pockets requiring drainage
- Wounds in which drainage is required for only a few days
- Unlike vacuum drains, air entering the surgical space will not inactivate Penrose drain function

New Uses for Vacuum Drain Systems

More recently, the author has used vacuum drains for two special conditions in dogs:

- Elbow Hygromas
- Aural Hematomas

These two techniques have recently been published in the Journal of Small Animal Practice and the Journal of the American Veterinary Medical Association (see references). Each of these uses will be discussed separately.

ELBOW HYGROMAS

Elbow hygromas are the result of prolonged or repeated compressive trauma of the skin and subcutaneous tissues overlying the olecranon. This is usually the result of large, heavy dogs reclining on hard surfaces. It is my experience that elbow hygromas are relatively uncommon today, compared to the number of cases noted in the 1970's and 1980's. This could be the result of changes in the popularity of giant breed dogs or regional breed variations. It may also involve a positive change in the "lifestyle" of giant breed dogs including soft bedding provided for the pet to recline on in the home. Better informed owners of large breed dogs are aware of the risk of elbow hygromas and understand that padded protection of the olecranon area is critical to preventing their formation.

Most large hygromas require prolonged drainage to resolve. Penrose drains (often used over a three week period) have been used effectively to resolve hygromas. Unfortunately this technique requires the prolonged maintenance of a heavily padded, compressive bandage that requires periodic changes as fluid accumulates into the absorbent cotton (secondary bandage layer). It is also difficult to maintain the bandage in its proper position as the materials slowly stretch and loosen secondary to the motion of the patient.

Recently, I reported on a simpler method using a vacuum drain to resolve a large hygroma in a St. Bernard dog (Fig. 4).

FIGURE 4



Elbow hygroma (yellow arrow), St. Bernard.



Intraoperative placement of the 10mm flat drain.



Postoperative view of the hygroma. Note the non-fenestrated portion of the Jackson-Pratt Hemaduct drain exiting dorsal to the hygroma. The drain is secured to the skin with a purse-string knot and finger trap knot (yellow arrow). Note the lower access incision closed with interrupted skin sutures (red arrow).

A vacuum drain system was inserted into the hygroma pocket and maintained over a three week period without the need for a protective bandage. Soft bedding was provided to the patient to help prevent its recurrence after drain removal. This simple and more economical surgical technique resolved this patient's large hygroma when followed over an 18 month period.

AURAL HEMATOMAS

There are a variety of techniques used to manage aural hematomas in dogs, most of which involve some form of drainage. From my experience, the most effective surgical drainage technique for large aural hematomas, with a low

FIGURE 5



Aural Hematoma, Vizsla. Arrows denote the magnitude of the hematoma pocket within the delaminated pinnal cartilage.



Note the silhouette of the Jackson-Pratt Hemaduct drain (arrows) after insertion and activation of the vacuum reservoir.



Patient prior to removal of the vacuum drain system. Note the Jackson-Pratt reservoir attached to the patient's collar (yellow arrow). An Elizabethan collar is used to protect the ear and drain system from patients attempting to scratch at the area.

incidence of recurrence, was incisional drainage over the medial (concave) surface of the pinna. Other techniques using passive drainage (Penrose drain, teat cannulas, etc) have variable results. The use of Vacutainer Tubes (glass vacuum tubes) and modified butterfly catheters has been reported but their use also can be problematic. With few exceptions, these drainage techniques require the use of a protective bandage during the healing process. During the course of management, the bandages frequently require positional adjustment and periodic changes depending on the amount of drainage present.

Scarring and deformation of the pinna is most notable in chronic aural hematomas. Incisional drainage also contributes significantly to scarring/ wrinkling of the pinna. There is pain associated with

incisional drainage/suturing; analgesics are important to keeping the patient comfortable postoperatively. [Deformity of the ear can be potentially minimized by early drainage intervention and minimal surgical trauma, as noted in this study.]

To date, all approaches to the aural hematoma involve the comparatively hairless, medial (concave) aspect of the pinna. While it may seem counterintuitive to drain hematomas from the lateral (convex) surface of the pinna, it is an ideal location to place a vacuum drain (Fig. 5). An Elizabethan collar is used to protect the vacuum drain system during the course of treatment. No bandage is required, but the patient can be checked weekly to assure the vacuum drain system is functioning effectively. Drains are removed in 18-21 days with the skin sutures. In this study, 4 patients had long term resolution of their aural hematoma; the treated ears were comparable cosmetically to the normal ear. One dog had slight wrinkling of the pinna secondary to assymetrical stretching of the delaminated pinnal cartilage. All patients tolerated the vacuum drain system and were comfortable during its use.

FINAL COMMENT:

Readers are welcome to contact me at mpavletic@angell.org or surgery@angell.org, or by calling 617-541-5048 if they require any further advice on the use of vacuum drains for aural hematomas, elbow hygromas, or other general uses of this system.

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PAIN VS. DYSPHORIA

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One of the most frustrating clinical post-operative decisions to make can be differentiating between pain and dysphoria and deciding how to properly treat each of these. In human medicine the physician has the ability to ask the patient, “how are you feeling” or “what is your comfort level” and then to treat appropriately based on the answer. In veterinary medicine, our patients cannot talk or express to us what they are feeling, so they rely upon us to make the proper clinical decisions and implement the proper therapeutic technique. This article will attempt to differentiate between pain and dysphoria and briefly discuss the available treatment options for both.

Dysphoria is a profound state of unease or dissatisfaction accompanied by anxiety or agitation. Dysphoria can be very frustrating for the animal and the staff involved, and at times can be difficult to identify or treat. Clinical signs seen in a dysphoric animal include vocalization, panting, or struggling.¹ Dysphoria is commonly caused by the very treatment we are giving in attempts to remedy the pain an animal is experiencing. Opioids are commonly known to induce dysphoria in some animals and some species (cats more often than dogs). Opioid induced dysphoria is accompanied by an agitated animal that was recently treated for pain with opioids or an animal that does not respond to human contact. Dysphoria caused by opioids can often be reversed with a low dose of a reversal drug such as butorphanol (a full mu antagonist and kappa agonist) or naloxone. An animal that is dysphoric from opioids should not be withheld pain medications and should be treated with a different class of analgesic or a different class of opioids. Often sedatives can be helpful in dysphoric animals. It is important though when sedating an animal to first ensure that their pain is being managed appropriately.

Sedatives used to treat dysphoria include acepromazine, a phenothiazine, and dexmedetomidine, an alpha-2 agonist. These drugs both have different cardiovascular side effects and should be used carefully and in the correct patient. Acepromazine can be used in very small doses, such as 0.005-0.01 mg/kg IV, if given for sedation of a dysphoric patient post operatively. Acepromazine causes various effects including vasodilation and hypotension due to its antagonism of the alpha-1 receptors so should be used judiciously.² Acepromazine has no analgesic properties. Dexmedetomidine in very small doses, 0.5 mcg/kg (0.0005 mg/kg), can

also be used to treat dysphoria in post-operative or hospitalized patients. Again, dexmedetomidine should be used only in the appropriate patients as it can cause initial vasoconstriction and bradycardia followed by hypotension.³ A newer drug on the market used to treat anxious or dysphoric animals is Trazodone, a serotonin antagonist and reuptake inhibitor. Trazodone is an oral drug used at a dose of 3-10 mg/kg twice daily. The onset of Trazodone is relatively short, around 1-2 hours in most dogs. When starting Trazodone it is recommended to start low and increase the dose as you see the patient's response. Trazodone should be used at low doses if giving other serotonin reuptake inhibitors such as Tramadol or drugs that affect serotonin levels such as acepromazine. Trazodone has been used with much success in dogs needing post op confinement at home.⁴

Pain is defined as “an unpleasant sensory or emotional experience associated with actual or potential tissue damage”.⁵ Pain is a complex multi-dimensional experience and a very individual experience. Pain can be chronic in nature (arthritic pain or neuropathic pain) or can be acute (post-operative/ post traumatic pain). The many different options for treating pain are beyond the scope of this article and other resources should be used for a thorough discussion. Although pain is unpleasant it is a necessary sensation in that it protects animals against potentially harmful stimuli. Pain receptors, also known as nociceptors, are the free endings of sensory neurons. The pain pathway starts at these nociceptors, extends up the sensory nerve fibers into the spinal cord where signals are modulated and sent up to the brain. The brain then perceives these signals and also sends signals back down to the spinal cord where again signals are modulated. The different drugs used to treat pain all act on different parts of the pain pathway and several of the drug classes act on multiple parts of the pathway. The fact that the drugs act on different parts of the pain pathway illustrates the importance of using multi-modal analgesia.

Different types of pain exist (inflammatory, neuropathic, post-surgical, chronic pain) requiring different classes of drugs to

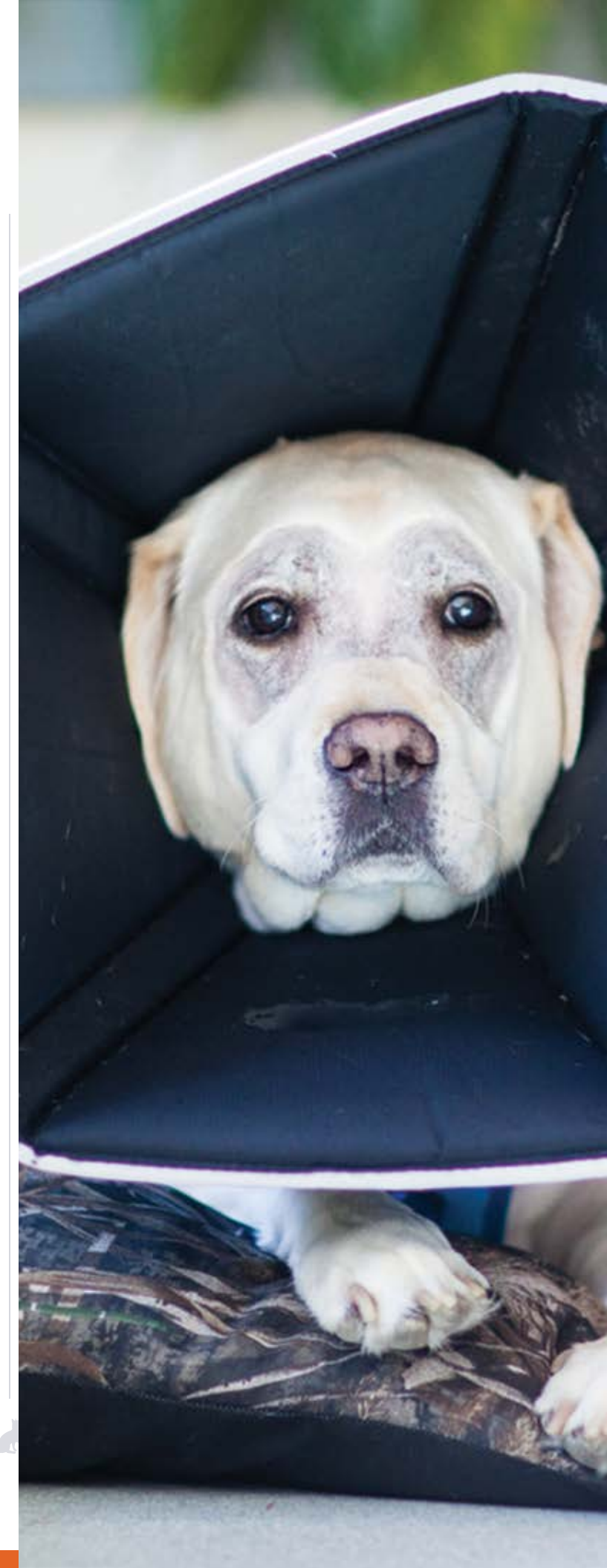
be used as treatment. The different types of drugs used to treat pain include opioids, NSAIDs, local anesthetics, alpha-2 agonists, drugs that affect serotonin or norepinephrine, NMDA antagonists, and gabapentin. Other modalities besides pharmacologic therapy can also be effective in treating different types of pain such as acupuncture, laser treatment, myofascial trigger point therapy, and rehab/physical therapy. It is important to treat the patient as an individual and adjust the dosages and classes of drugs used according to how that specific patient responds. Not all patients will respond the same way to the same treatment. It is also important to know the drug's side effects prior to using it and to educate the clients on what to look for at home and what sort of monitoring will be needed with each medication.

Recognizing the difference between pain and dysphoria can be difficult, but is possible. Treating each patient as an individual and recognizing responses to therapy play an important role. The clinical signs of pain in cats and dogs can be difficult to recognize and sometimes to distinguish from dysphoria or anxiety. Clinical signs of pain in dogs include panting, crying, increased aggression, decreased appetite, decreased activity, withdrawal from owner, and agitation. Clinical signs of pain in cats vary widely from patient to patient and range from vocalization, tachypnea, agitation, and hyperthermia to withdrawal from owner and normal environment, hiding, lack of grooming, anorexia, and inactivity. Remember cats are not small dogs and will react differently to various medications and to pain. When evaluating a patient, start from afar and then approach to palpate around the area of concern. Use the procedure type, the patient's pain level and temperament, and the environmental setting to choose a treatment plan. Lastly, do not forget to use a multimodal approach as all pain and dysphoria are not equal and should not be treated as such.

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WEAKNESS, THE “MOTOR UNIT,” AND RELATED TESTING

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The motor unit is the effector function of those components of the central nervous system responsible for initiating and sustaining movement. This functional ‘unit’ is made up of the lower motor neuron, the nerve rootlet and root, the nerve, neuromuscular junction and the muscle itself.

Dysfunction of the motor unit(s) in a particular limb often shows the hallmark ‘triad’ of clinical signs, namely hyporeflexia, muscle atrophy and hypotonia. The acronym, Neuro-‘RAT’, for Reflexes, Atrophy and Tone has been previously coined (Thomson, Hahn) to help make recognition and recall of such dysfunction easier at the time of a general physical examination.

Once these clinical signs are recognized, the locations of possible disease processes are identical to those of the motor unit, beginning with motor neuron diseases, radiculopathies, peripheral neuropathies, junctionopathies and myopathies.

Once the lower motor neuron system, either in an isolated area or in a generalized area, is identified as dysfunctional, the history, signalment, general physical examination findings and neurologic findings are considered collectively to select appropriate testing, in order to arrive at a diagnosis.

A minimum database (CBC, serum biochemistry and urinalysis) is always indicated in these patients to identify systemic diseases that could be the cause of neuromuscular weakness. Anemia, hypoglycemia, hypokalemia, and hypercalcemia are good examples of diseases that can readily be diagnosed with this testing.

The importance of creatine kinase (CK) testing in these patients cannot be overstated. In consideration of the functional sub-unit of muscle, the sarcomere, CK is an enzyme that acts as a gatekeeper of muscle energy, capable of generating high concentrations of much-needed ATP, when needed. When energy demand is low, this energy is stored as creatine phosphate and when demand increases, this enzyme allows for the rapid restoration of ATP, needed for muscular contraction. This enzyme, a specific marker for myofiber damage, is increased in necrotizing,

inflammatory and dystrophic myopathies. Anorexia in cats, along with venipuncture and prolonged recumbency, can also contribute towards elevations of this enzyme activity. Along the same lines, although aspartate aminotransferase (AST), alanine aminotransferase (ALT) and lactate dehydrogenase (LDH) may also be increased with myofiber damage, these enzymes lack the tissue specificity of CK.

Cardiac troponin I, myoglobinuria and lactate/pyruvate testing are often considered in the diagnostic test selection for patients with lower motor neuron disease. For example, cardiac muscle can be involved in a generalized myopathy (e.g. mitochondrial myopathy, necrotizing myopathy) and brown urine (myoglobin in the urine > 250 mcg / mL) often suggests myonecrosis.

Genetic testing has taken off over the past 5-10 years. When faced with generalized weakness in a young purebred dog, possibly involving dysphagia and/or megaesophagus, a quick search of the OFA database and/or Google search can be very helpful, in cases where such a query will suggest a genetic test that can be performed on a DNA sample that can be submitted by mail to the respective lab.

Thyroid function is critical in both energy and lipid metabolism and both hyperthyroidism (in cats) and hypothyroidism should be considered in cases of generalized weakness.

Specific testing, such as acetylcholine receptor antibody testing for Myasthenia Gravis, Type IIM fiber antibody testing in Masticatory Muscle Myositis and muscle/nerve biopsies can be selected at the time of initial testing, considering pattern recognition for these specific diseases. A nerve and/or muscle biopsy can often be instrumental in not only reaching a definitive diagnosis but also in identifying key features of particular disease processes that may have been overlooked at time of initial testing (consideration of mitochondrial and/or lipid storage myopathies).

Electrodiagnostic testing, a supplemental test to the physical and neurologic examination, can often be invaluable, as this is one of the few tests we have at our disposal (like an electroencephalogram, or EEG) that tests function rather than structure (radiographs, computed tomography and magnetic resonance imaging). Lower motor neuron dysfunction, in light of the signalment and history, can often be further explored using this diagnostic modality.

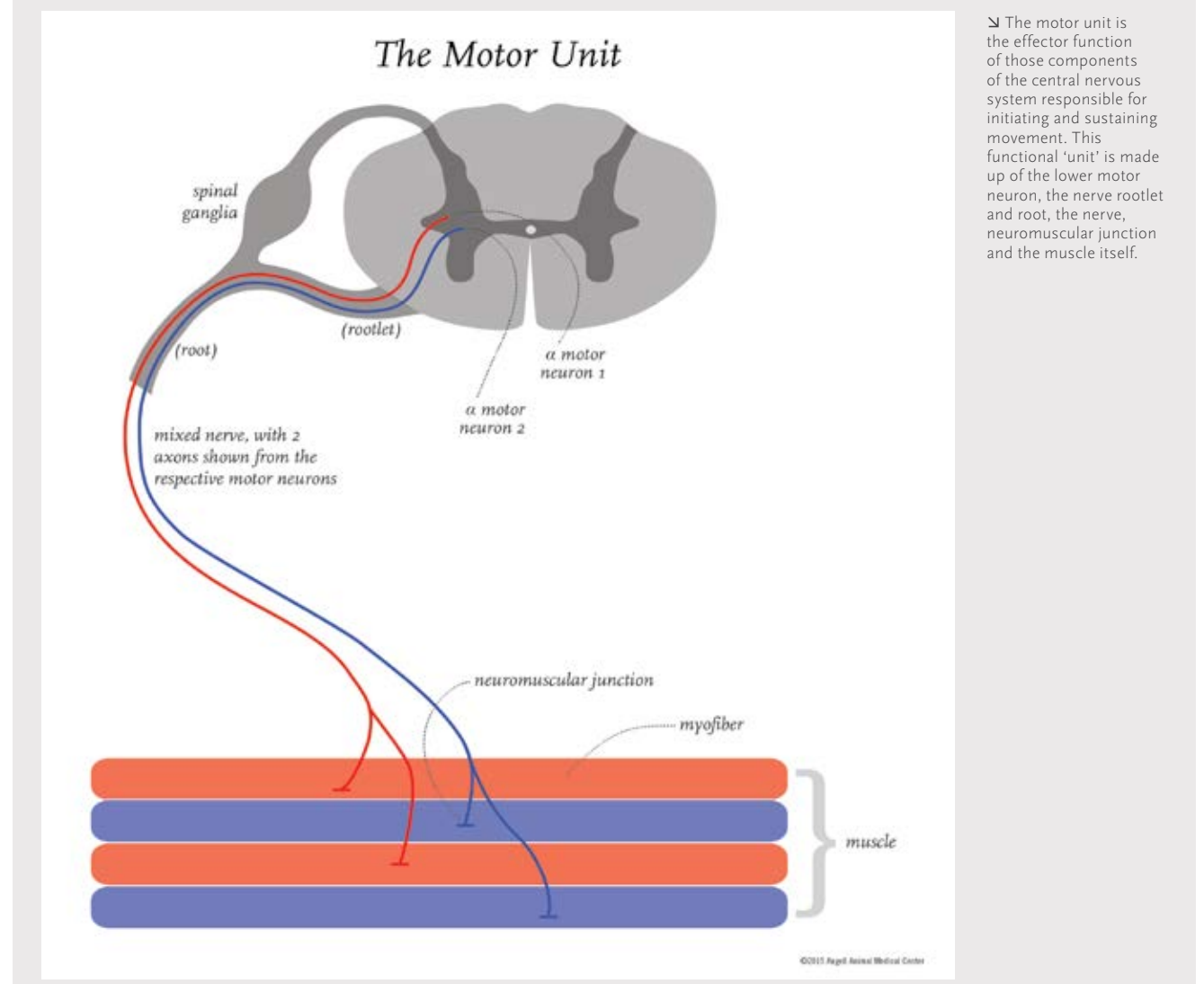
In summary, lower motor neuron disease can often be a challenging but rewarding to treat, depending on where in the disease course the animal presents, the time at which the diagnosis is made and the time at which appropriate therapy is started. Our Neurology service is here at Angell to aid in these challenging cases and may be able to offer further input in regards to diagnostic testing at your hospital.

For more information, please contact Dr. Daniel at rdaniel@angell.org or neurology@angell.org, or call 617-541-5041.

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FIGURE 1





CLOPIDOGREL (PLAVIX®) AND THE RESULTS OF THE FAT CAT TRIAL

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Arterial thromboembolism (ATE) remains one of the most devastating and frustrating complications of cardiac disease in our feline patients. Within the last decade, clopidogrel has widely entered use as a therapy to attempt to prevent ATE in at-risk cats. This article will review the mechanism of action of clopidogrel, appropriate dosing, possible adverse effects, and potential survival benefits for patients who have suffered from an ATE.

Clopidogrel bisulfate acts as a platelet aggregation inhibitor. It is metabolized to an active compound which binds selectively to ADP receptors on platelets, irreversibly altering the receptor and inhibiting ADP binding at this site. This mechanism of inhibition of platelet aggregation is different from that of aspirin (which is important to note, and may explain why the two drugs can work synergistically together). Aspirin acetylates and inactivates COX-1 in platelets, thereby preventing formation of thromboxane A₂. Both drugs have effects which are irreversible, lasting the life of the platelet (7-10 days).

The antiplatelet effects and pharmacodynamics of clopidogrel administration to cats was studied in 2004 by Hogan et al. In this study, the lowest dose studied was 18.75 mg (1/4 of a 75 mg tablet, chosen for practical purposes), and was determined to be as effective as higher doses in reducing platelet aggregation in cats. Maximal effects were seen after 3 days, and platelet function returned to normal 7 days after stopping therapy. This dose was then adopted as the typical dose for feline patients.

Clopidogrel use in cats appears to be well tolerated. Drug references cite that some cats may vomit or develop anorexia (which may be diminished by giving the medication with food), but in the author's experience this is rarely seen. In human patients, the primary adverse effects of clopidogrel therapy are bleeding related, yet this remains relatively uncommon (in a major pre-clinical study, major bleeding occurred in approximately 2% of human patients treated). Rashes and gastrointestinal effects (diarrhea) have been reported in people, and thrombotic thrombocytopenic purpura (TTP) is a rare adverse effect noted in human patients.

Although it is well tolerated, one of the challenges of clopidogrel therapy for veterinary patients can be difficulty in administration. The tablets have a bitter taste, which many cats intensely dislike (even cats who take other medications without protest). Putting the ¼ tablet in a gel cap or coated in canned food or another desirable food may help with administration. The medication can be prepared as a liquid suspension by a reputable compounding pharmacy, but many cats find the taste unacceptable even with additional flavoring added.

In 2013, long anticipated results of the FAT CAT (Feline Arterial Thromboembolism: Clopidogrel vs. Aspirin Trial) were presented at the ACVIM conference. This large scale multi-center prospective randomized trial sought to determine whether clopidogrel conferred any benefit in prevention of an arterial thromboembolism recurrence in cats compared to aspirin. Cats that experienced a cardiogenic arterial thromboembolism event (CATE) and survived one to three months afterwards were eligible for enrollment. Seventy-two cats were enrolled, and randomly assigned to receive either aspirin (81 mg PO every 3 days) or clopidogrel (18.75 mg PO daily) (36 cats in each group). Median survival times were compiled for the primary endpoint (recurrent CATE event), as well as for secondary endpoints of all-cause mortality, cardiac death, or study termination due to perceived adverse drug event.

For the initial 12 month study period, the median survival time to the primary endpoint (recurrent CATE event) was 192 days in the aspirin group, and >365 days for the clopidogrel group (the median survival to CATE recurrence for the total study period for cats in the clopidogrel group was 443 days). Median survival times for CATE or cardiac death combined were 128 days for the aspirin group, and 346 days for the clopidogrel group, and median survival times for all-cause mortality were 116 days in the aspirin group and 248 days in the clopidogrel group. One cat from each study group had perceived adverse drug events necessitating removal from the trial (demonstrating that the majority of cats tolerated the study drugs well).

The FAT CAT study results indicate that clopidogrel was associated with a significant improvement in survival compared to aspirin for both the one year and total study period. This is very exciting because it is the first prospective thromboprophylactic trial for CATE to demonstrate a significant survival benefit for any drug. Studies involving clopidogrel and aspirin use in human patients, have shown some benefit to combined therapy for prevention of thromboembolism, and this may be an area of future research in veterinary patients. Although it is important that clients have realistic expectations (cats receiving clopidogrel can and do have ATE events, but our goal is to prolong symptom free time and/or decrease severity of events), the adoption of the use of clopidogrel in veterinary medicine, and the results of the FAT CAT study, provides us with an inexpensive, well-tolerated, medication regimen to effectively prevent thromboembolic events in our feline cardiac patients.

For more information, please contact Dr. Rebecca Malakoff at rmalakoff@angell.org or cardiology@angell.org, or call 617-541-5038.

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OVERVIEW

The highly trained veterinarians who comprise the Emergency and Critical Care Service—the 24/7 pulse of the Angell care network—treat pets suffering from life-threatening trauma and disease. Referring veterinarians may alert the staff to an incoming case via our referral phone line, and the general public may use our walk-in emergency clinics any hour of the day, 365 days a year.

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ANESTHESIOLOGY SERVICE

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- 🐾 Point-of-care 24-hour monitoring capabilities include direct and indirect arterial blood pressure, coagulation parameters, blood chemistries and blood gases, lactate, and co-oximetry. Co-oximetry allows the staff to measure blood for methemoglobin and carboxyhemoglobin levels when acetaminophen or carbon monoxide poisonings are suspected. The staff can also monitor blood osmolality and colloid oncotic pressure. This enables the staff to further fine-tune fluid therapies and medication administration to individual patient needs

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- 🐾 A critical care team is in the Critical Care Unit every day, backing up the veterinarians, receiving emergencies, and helping to assess and monitor the patients. The team is made up of senior staff, residents, associate veterinarians, and nurses. The staff provides peritoneal dialysis; management of open abdomen; mechanical ventilation; and management of severe pancreatitis, diabetic ketoacidosis, sepsis, and poly-trauma, among other critical conditions. The use of enteral and parenteral nutrition techniques is a routine part of the practice



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OVERVIEW

Angell's first priority is the care and safety of our patients. Anesthesiologists Dr. Ashley Barton-Lamb and Dr. Stephanie Krein work with Angell's specialists to ensure that the safest and most effective anesthesia protocols are administered. In addition, our experienced, certified/licensed veterinary technicians monitor each patient during anesthesia using cutting-edge equipment to measure blood pressure, carbon dioxide, oxygen, and heart rate. Cases seen can range from providing routine sedation for radiographs to performing general anesthesia on patients undergoing brain or open-heart surgery.

The focus of Angell's Anesthesia Service is on making anesthesia and sedation safe and comfortable. Their interests include peripheral and regional nerve blockade, anesthetic management of polytrauma and critical care cases, and acupuncture and multimodal approaches to pain management.

ANESTHESIA SERVICES

Case Consultation and Continuing Education

Drs. Barton-Lamb and Krein are available for case planning and consultation to provide safe and effective anesthesia for all patients.

The Anesthesiology and Pain Medicine Services work cooperatively to provide individualized and optimal analgesia to patients during and after procedures. Clients and referring veterinarians are able to ask for specialized services for difficult or concerning problems related to anesthesia and pain management.

Continuing education is available on multiple topics related to pain management and anesthesia.

Locoregional Anesthesia

- 🐾 Epidural anesthesia/analgesia
- 🐾 Spinal analgesia/anesthesia
- 🐾 Specific nerve blocks (nerve stimulation and ultrasound guided localization)
- 🐾 Specific regional blocks
- 🐾 Intra-articular analgesia
- 🐾 Local catheter infusions

Multimodal Anesthesia

- 🐾 Total or partial intravenous anesthesia protocols
- 🐾 Continuous-rate analgesic infusions

Special Species Anesthesia

- 🐾 Consults or direct management
- 🐾 Avian, reptile, and small mammal anesthesia
- 🐾 Sedative and analgesic protocols

Specialized Airway/Ventilation Management

- 🐾 Difficult intubation solutions
- 🐾 Tracheostomy and pharyngostomy tube
- 🐾 Positive end expiratory pressure
- 🐾 Pressure and volume control and support ventilation

UNIQUE TO ANGELL

Drs. Barton-Lamb and Krein collaborate with Lisa Moses, VMD, DACVIM, CVMA, who leads our Pain Management Service, allowing us to deliver exceptional comfort, care, and safety for patients undergoing anesthesia or receiving treatment for both chronic and acute pain.



AVIAN & EXOTIC MEDICINE SERVICE

■ Avian & Exotic Phone: 617-989-1561 Avian & Exotic Fax: 617-989-1668 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
 avianexotic@angell.org angell.org/avianandexotic

BEHAVIOR SERVICE

■ Behavior Phone: 617-989-1520 Behavior Fax: 617-989-1627 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
 behavior@angell.org angell.org/behavior



Elisabeth Simone-Freilicher, DVM, DABVP (Avian Practice)
 esimonefreilicher@angell.org



Brendan Noonan, DVM, DABVP (Avian Practice)
 Boston & Waltham
 bnoonan@angell.org

OVERVIEW

Drs. Simone-Freilicher and Noonan are two of fewer than 140 doctors in the world who are board certified in avian medicine. Dr. Simone-Freilicher has also completed specialty training in exotic medicine, including rabbit and rodent dentistry, medical and surgical treatment of ferret diseases, and reptile medicine and surgery. Both Drs. Simone-Freilicher and Noonan provide wellness care and emergency and critical care for avian and exotic pets.

Optimal wellness care and emergency and critical care for avian, fish, small mammal, reptile, or other exotic pets requires experienced veterinary management, specialized diagnostic and treatment protocols, and state-of-the-art equipment and facilities designed for these special species. Angell provides this environment as well as the compassion these animals deserve.

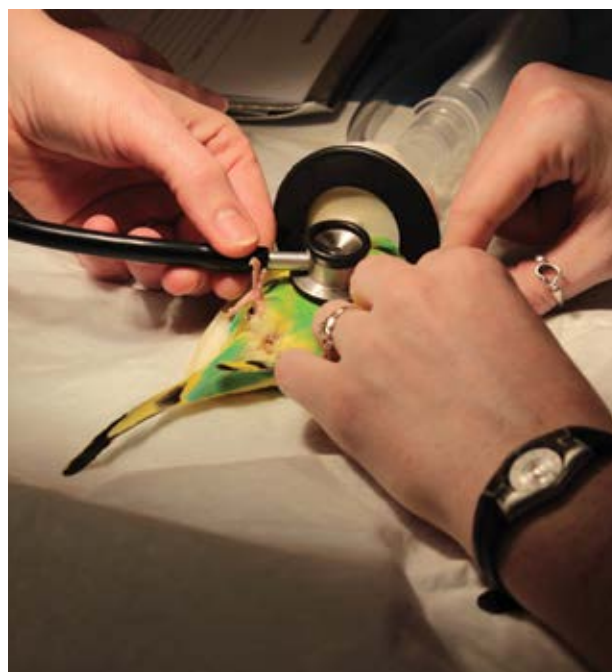
Our doctors are available by appointment for primary care as well as consultation or referral of avian and exotic cases.

AVIAN AND EXOTIC SERVICES

- 🐾 Emergency and critical care for avian and exotic pets available 24 hours, seven days a week through our Emergency and Critical Care Service
- 🐾 Wellness appointments available seven days a week
- 🐾 Board-certified veterinarians with years of experience treating numerous exotic species, including birds, rabbits, ferrets,

guinea pigs, small rodents, special small mammals (such as chinchillas or hedgehogs), reptiles, and amphibians

- 🐾 Specifically designed general and isolation wards for care of avian and exotic patients, including avian incubators and specialty reptile hospital caging
- 🐾 Veterinary care for individual fish or aquarium collections. Services include water quality evaluation and recommendations, physical examination, fin and gill biopsies, fecal examinations, radiographs, anesthesia and surgery, humane euthanasia, and necropsy
- 🐾 Specialists in surgery, radiology, dentistry, ophthalmology, and internal medicine assist in providing in-depth case management for special species
- 🐾 Services include endoscopy, radiology, ultrasonography, clinical pathology, avian and exotic animal surgery, and advanced diagnostics, including infectious disease testing



Terri Bright, Ph.D., BCBA-D, CAAB
 Boston & Waltham
 tbright@angell.org

OVERVIEW

Terri Bright, Ph.D., BCBA-D, CAAB, sees behavior appointments on Wednesday and Thursday afternoons at Angell. She earned her Master of Science degree and Ph.D. at Simmons College in Applied Behavior Analysis (ABA) with an animal specialty, and she is a Board-Certified Behavior Analyst (BCBA-D). She is a mentor for future BCBAs, and is an adjunct professor in the Behavior Analysis Department at Simmons College. Her dissertation research entailed developing a dog behavior assessment and analysis tool that will help to standardize how dog trainers evaluate why problem behaviors happen.

Dr. Bright has been training dogs as a hobby and professionally for many years, and her research on stimulus equivalence (matching-to-sample training) earned her a Marian Breland Bailey (MBB) Award from the Association of Applied Behavior Analysis International (ABAI). Dr. Bright won another MBB Award from ABAI for her research on the use of errorless teaching to train a shelter dog to sit at the sound of a bell ("Pavlov's Shelter") when she was not in the dog's sight. She uses evidence-based methods of training.

Dr. Bright launched the Training Department at the MSPCA-Angell Boston location in 2007 and has grown the program to over 30 classes a week. She helps to evaluate homeless dogs surrendered at the MSPCA-Angell for proper placement, and she designs training and enrichment programs for dogs at the MSPCA-Angell. She also designs and implements curriculum and teaching for staff and volunteers in the SAFEWALK program, which she created in 2009, and lectures locally and nationally on behavior analysis.

BEHAVIOR SERVICES

- 🐾 Behavior consultations for cats and dogs
- 🐾 Plan development: following consultation, clients receive a detailed plan for their pet to modify behavior, and each consultation includes six weeks of follow-up to see how their pet is doing after our consultation

🐾 Positive-based behavior modification treatment plans for issues such as:

- Aggression toward people and other animals
- Separation anxiety
- Noise phobias
- House soiling and marking
- Generalized anxiety
- Situational anxiety (car rides, slippery floors, vet visits)
- New baby acclimations
- Furniture scratching
- Excessive vocalization
- Cognitive dysfunction
- Compulsive behavior

To make an appointment, please call 617-989-1520.
 Waltham appointments are available on request.





CARDIOLOGY SERVICE

■ Cardiology Phone: 617-541-5038 Cardiology Fax: 617-989-1653 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
cardiology@angell.org angell.org/cardiology



Ashley Jones, DVM, DACVIM (Cardiology)
ajones@angell.org



Nancy Laste, DVM, DACVIM (Cardiology)
 Director of Medical Services
nlaste@angell.org



Rebecca Malakoff, DVM, DACVIM (Cardiology)
 Waltham
rmalakoff@angell.org



Rebecca Quinn, DVM, DACVIM (Cardiology and Internal Medicine)
rquinn@angell.org

OVERVIEW

Angell's Cardiology Service consists of four full-time board-certified veterinarians and two cardiology residents. Our size and expertise allow us to provide extensive outpatient hours as well as collaboration and subspecialization for excellence in all areas of cardiovascular medicine and interventional cardiology.

Angell's cardiology staff is focused on clinical excellence and optimal client service and animal care. We provide on-site availability of cardiologists six days per week, with consultation and emergency services through our Emergency Critical Care Service on Sundays, holidays, and overnight. The staff size

allows us to accommodate last-minute emergency referrals (by prior arrangement).

By emphasizing resident education (clinical and didactic), our cardiology training program provides intense continuing education opportunities for the staff cardiologists, allowing us to keep current on the latest techniques and clinical findings.

Echocardiograms are available in both Boston and Waltham.

CARDIOLOGY SERVICES

Outpatient and Inpatient Echocardiography

- 🐾 Three state-of-the-art echocardiography machines (GE Vivid E9 Color Flow Doppler and GE Vivid I Portable Echocardiogram with transesophageal capability)
- 🐾 Owners may remain with their pet during routine outpatient cardiology visits (including the echocardiogram)
- 🐾 Available in both Boston and Waltham

Outpatient and Inpatient Electrocardiography

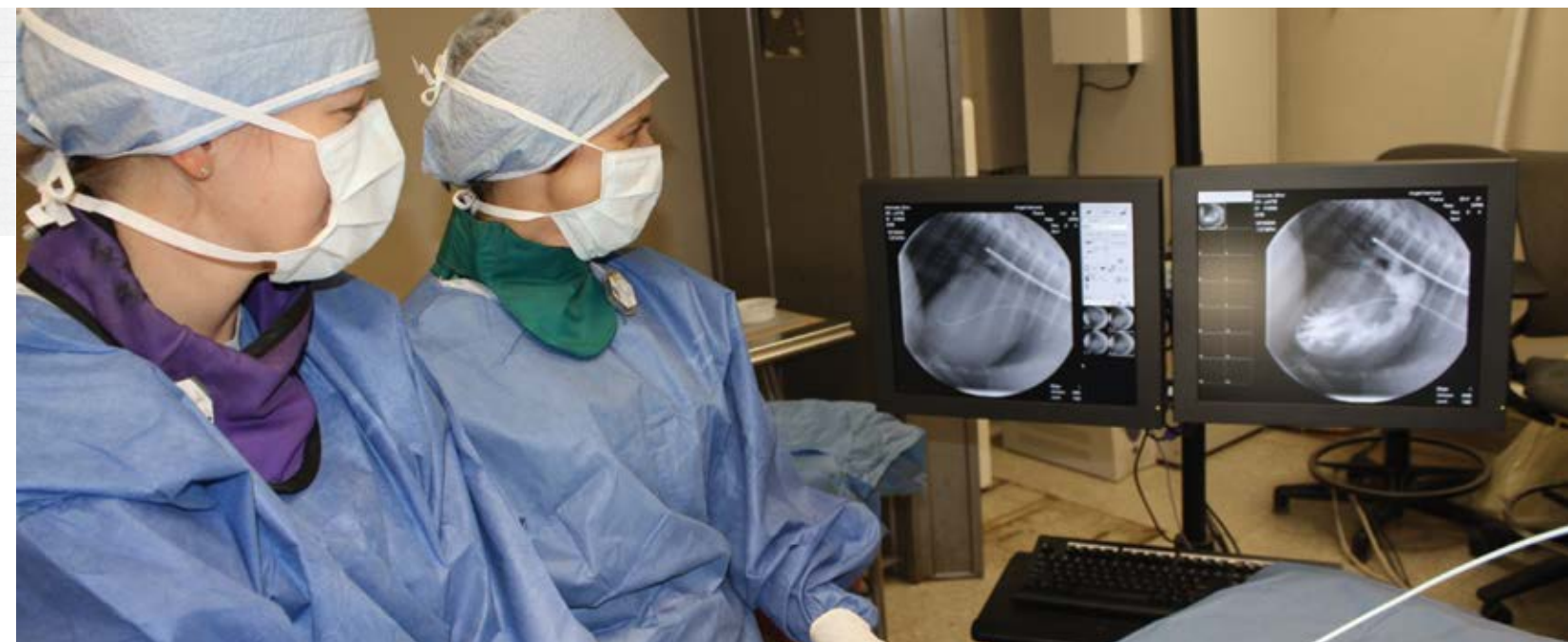
- 🐾 HP Pagemaster 300 machine
- 🐾 Dextrox digital ECG system

Outpatient and Inpatient Blood Pressure Determination

- 🐾 Parks Doppler, Dynamap, and Passport
- 🐾 Pet MAP

Outpatient Ambulatory ECG Diagnostic Services

- 🐾 24-hour Holter monitor evaluation (for animals with diagnosed or suspected paroxysmal arrhythmia)
- 🐾 Event monitoring (for recurrent syncopal activity)
- 🐾 Inpatient continuous telemetric ECG recording
- 🐾 Full-service cardiac catheterization laboratory



- 🐾 Balloon dilatation for pulmonic stenosis, aortic stenosis
- 🐾 Amplatz canine ductal occluder (ACDO) placement
- 🐾 Coil embolization for patent ductus arteriosus
- 🐾 Diagnostic cardiac catheterization and angiography

Full-Service Pacemaker Program

- 🐾 Transvenous pacemaker implantation (temporary, permanent)
- 🐾 Surgically placed epicardial pacemaker implantation

Cardiac Surgery Program (Run in Conjunction with the Angell Surgery Department)

- 🐾 Pericardiectomy
- 🐾 Surgical PDA ligation
- 🐾 Valvotomy for pulmonic stenosis
- 🐾 Epicardial pacemaker implantation

Minimally Invasive Thoracic Surgery Program — Thoracoscopy

- 🐾 Pericardial window for recurrent pericardial effusion
- 🐾 Exploratory thoracoscopy for idiopathic pleural effusion



DENTISTRY SERVICE

■ Dentistry Phone: 617-524-5643 Dentistry Fax: 617-989-1636
dentistry@angell.org angell.org/dentistry



William Rosenblad, DVM
wrosenblad@angell.org



Erin Abrahams, DVM
eabrahams@angell.org

OVERVIEW

The Dentistry Service at Angell Animal Medical Center has been proud to provide quality oral health care to pets and education to clients and veterinarians since 1998.

We are a dentistry-dedicated technical staff with experience treating high-anesthesia-risk patients.

Coordination and consultation with the specialty services at Angell help to provide optimal patient care. Some of the specialty services we work with include: Cardiology, Emergency and Critical Care, Internal Medicine, Oncology, and Surgery.

DENTISTRY SERVICES

Periodontal Treatment

- 🐾 Dental examination
- 🐾 Dental radiography
- 🐾 Dental scaling and polishing
- 🐾 Advanced periodontal pocket therapy
- 🐾 Surgical tooth extraction

Fractured Teeth

- 🐾 Dental radiography

- 🐾 Endodontics
- 🐾 Root canal treatments with Lightspeed

Endodontic System

- 🐾 Vital pulpotomy
- 🐾 Surgical tooth extraction

Malocclusion

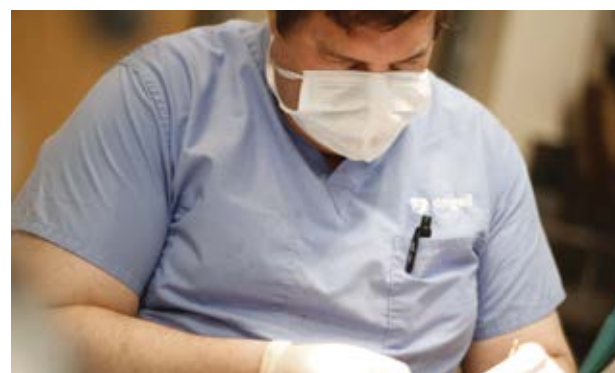
- 🐾 Deciduous/permanent tooth extractions
- 🐾 Orthodontic treatment

Oral Neoplasia

- 🐾 Dental radiography
- 🐾 Biopsy/histology
- 🐾 Maxillectomy/mandibulectomy
- 🐾 Coordination with Oncology Department for adjunctive therapy

Jaw Fractures

- 🐾 Dental radiography
- 🐾 Intraoral fixation
- 🐾 Coordination with Orthopedic Surgery staff for fracture fixation



DERMATOLOGY SERVICE

■ Dermatology Phone: 617-524-5733 Dermatology Fax: 617-989-1613
dermatology@angell.org angell.org/dermatology



Klaus Loft, DVM
keloft@angell.org

OVERVIEW

The Angell Dermatology Service offers a comprehensive approach to veterinary dermatology in a multispecialty hospital environment. This enables us to work closely with internal medicine, surgery, radiology, oncology, and pathology to diagnose and manage a wide variety of dermatologic and otic conditions.

The Angell Dermatology Service sees patients by appointment only. We offer extended appointment hours, with Wednesday evening appointments available until 8 p.m. Referring veterinarians, please fax a referral form along with the medical record to our dermatology communications coordinator at 617-989-1613 prior to the appointment.

DERMATOLOGY SPECIALTY SERVICES

Allergy Diagnosis and Management

- 🐾 Intradermal and serologic allergy testing
- 🐾 On-site, custom immunotherapy formulation
- 🐾 Diet recommendations for food allergies

Ear Clinic for the Diagnosis and Management of Chronic Ear Disease

- 🐾 Identification and management of underlying skin or systemic disorders affecting ear health
- 🐾 Ear cytology
- 🐾 Video otoscopic examination
- 🐾 Bulla CT with interpretation by the Angell Diagnostic Imaging Service

- 🐾 On-site aerobic and anaerobic bacterial ear culture
- 🐾 General anesthesia for deep ear cleanings
- 🐾 Ear biopsies and myringotomies
- 🐾 Otic surgical consultations and procedures with the Angell Surgery Service

General Dermatology

- 🐾 Cytologies, skin scrapes, trichograms
- 🐾 On-site bacterial cultures
- 🐾 On-site fungal cultures
- 🐾 Skin biopsies

Dermatopathology

- 🐾 Histopathologic evaluations of skin biopsies with the Angell Pathology Service





DIAGNOSTIC IMAGING SERVICE

■ Diagnostic Imaging Phone: 617-541-5139 Diagnostic Imaging Fax: 617-989-1617
 diagnosticimaging@angell.org angell.org/diagnosticimaging



Rebecca Manley, DVM, DACVR
 rmanley@angell.org



Joan Regan, VMD, DACVR
 jregan@angell.org



Steven Tsai, DVM, DACVR
 stsai@angell.org

OVERVIEW

The Diagnostic Imaging Service at Angell Animal Medical Center supports the specialty services of the hospital by providing comprehensive in-house diagnostic expertise and technology for both our Boston and Waltham locations, 7 days a week.

SERVICES

- Access to a full range of imaging technologies to evaluate the many and varied clinical problems that animals present
- In-house services include:
 - Radiology
 - Ultrasonography
 - Fluoroscopy
 - Multi-detector Computed Tomography (16-slice CT)
 - Magnetic Resonance Imaging (1.5 Tesla MRI)
 - Nuclear Scintigraphy
 - Iodine 131 Treatment for Feline Hyperthyroidism

- New 1.5 MRI installed in December of 2014 has improved our ability to image neurologic patients, orthopedic disease, as well as abdominal and vascular abnormalities
- The 16-slice CT is capable of image reconstruction in multiple planes, including 3-D reconstructions, for optimal surgical planning. Given the rapid acquisition time, many orthopedic patients, if they are good anesthetic candidates, can be scanned under heavy sedation alone
- Fine needle aspirates and biopsies are performed under ultrasonographic, fluoroscopic, and CT guidance
- Nuclear medicine procedures available include bone scans, real-time GFR analysis for evaluation of renal function prior to nephrectomy, and transplenic portosystemic shunt studies
- Reading and reporting on referral radiographs, MRI, and CT studies
- PennHIP and OFA hip and elbow exams



ONLINE IMAGING CONSULTATIONS

For more than a decade, Angell has provided consultative imaging services to our referring community. These services have been expanded to include online consultations for our referring veterinary hospitals. In this digital age of imaging, obtaining the opinion of a radiologist via Internet transmission enables faster diagnostic evaluations. Our experienced radiologist is partnering with fellow board-certified radiologists to provide timely interpretation of your digital images. As an additional benefit, if you choose to refer a case to Angell, our specialists will be able to easily access your patient's radiographs.

GETTING STARTED

Contact our Diagnostic Imaging Service at 617-541-5139 or via diagnosticimaging@angell.org to get started or for more information. We will arrange for DVMInsight support staff to contact you to set up the system over the phone. Angell will pay the full setup expense.

- DVMInsight support staff will guide you through the installation of the necessary software on your practice computer and assist you with procedures for transmission of images.
- Angell will bill you monthly for consults.
- No required contract to sign.

PROMPT TURNAROUND

Average response time for cases submitted between 8 a.m. and 4 p.m. Monday through Saturday is 24 hours.

- Guaranteed 24-hour turnaround on cases submitted Monday through Saturday (holidays excluded). An Angell radiologist is available Monday through Friday 9 a.m.-5 p.m., Saturday 9 a.m.-4 p.m.
- Night owl service is available after hours.
- STAT service available—receive results within two hours for an additional fee.
- Phone follow-up discussion is readily available.

FEE SCHEDULE

- Radiograph interpretation fee \$50
- Special studies (UGI, IVP, etc.) \$65
- CT interpretation fee \$125

- MRI interpretation fee \$125
- STAT fee: \$25 additional

FREQUENTLY ASKED QUESTIONS

How do I sign up?

Simply call us at 617-541-5139 and we will arrange to have DVMInsight support staff contact you.

Does it cost me anything?

No. Angell will pay the costs associated with software installation on your clinic computer.

Am I required to sign a contract with Angell?

No. No contract is required. Just as with our mail-in service, we let you know the fees for service and bill you directly on a monthly basis.

What type of images can I submit?

We are only able to accept images in DICOM file format. DVMInsight support staff can help you assess your system to ensure that you are able to transmit in this format.

Will you still accept my hard-copy radiographs?

Yes. This is an expansion of our services, and we will continue to accept hard-copy radiographs and images submitted on disk for consultation.

Do I need an Internet connection to submit?

Yes. Our procedure requires that your images be sent to a secure server at DVMInsight. Our team of radiologists downloads your images from that site. Your images are saved there and can be accessed by any of the doctors at Angell should you decide to refer the patient here.

Will my client receive a bill from Angell?

No. We will bill your practice, not your client.

Do I need an email address?

Yes. This email address will serve as your user ID. We will also use this email address to send you password information.

Can you provide remote backup of all my practice's images?

Yes. DVMInsight provides backup of all of your practice's images, but we will only interpret those you select for consultation.



INTERNAL MEDICINE SERVICE

■ Internal Medicine Phone: 617-541-5186 Fax: 617-989-1657 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
 internalmedicine@angell.org angell.org/internalmedicine



Daniela Ackley, DVM, DACVIM
 Waltham
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Jean Duddy, DVM
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Douglas Brum, DVM
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Kirstin Johnson, DVM, DACVIM
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Maureen Carroll, DVM, DACVIM
 mccarroll@angell.org



Shawn Kearns, DVM, DACVIM
 skearns@angell.org



Erika de Papp, DVM, DACVIM
 edepapp@angell.org



Cindy Talbot, DVM
 Waltham
 ctalbot@angell.org

OVERVIEW

The Internal Medicine Service at Angell Animal Medical Center offers specialized care and outpatient services for cats and dogs.

Angell's internal medicine group has decades of clinical experience and offers state-of-the-art diagnostics and therapeutic treatment options. The service provides expertise in many medical disciplines, including endocrinology, nephrology, hepatology, gastroenterology, immune disorders, hematology, and infectious diseases.

INTERNAL MEDICINE SERVICES

- 🐾 Appointments seven days a week in Boston.
- 🐾 24-hour continuous monitoring for hospitalized patients
- 🐾 Abdominal ultrasound available in Waltham and Boston
- 🐾 Complete capabilities for endoscopic diagnosis of gastrointestinal, respiratory, and urogenital disease. Multiple endoscopic services are available, including upper and lower gastrointestinal endoscopy (for diagnostic biopsies and foreign body retrieval), cystoscopy, rhinoscopy, and bronchoscopy



- 🐾 Advanced diagnostic imaging, including on-site CT and MRI. Angell's new MRI unit scans patients quickly, in about half the time as the previous version, thus reducing anesthesia time for the patient. The new system delivers even higher quality images, allowing our doctors to detect smaller and more subtle lesions to enable intervention at earlier stages in the disease process. The MRI unit is available seven days a week
- 🐾 Close collaboration with clinical pathology and radiology to obtain cytologic diagnoses through the least-invasive means possible
- 🐾 Full services available for transfusions of packed red blood cells, fresh frozen plasma, cryoprecipitate, and platelet-rich plasma
- 🐾 Fecal transplants
- 🐾 Laparoscopic liver biopsies for dogs and cats
- 🐾 Tracheal and urethral stenting
- 🐾 Laboratory and pathologic analyses of body fluids and tissues. Angell offers an advanced, full-service, on-site laboratory with clinical pathology and histopathology services. The Pathology Service is led by one double-board-certified clinical and anatomic pathologist and a board-certified anatomic pathologist
- 🐾 Feeding tube placement in compromised patients (PEG, esophagostomy, NE tube)
- 🐾 Bone marrow aspirates and core biopsies for evaluation of hematologic disorders and cancer staging

- 🐾 I-131 treatment for hyperthyroid cats (generally released three days post-treatment)
- 🐾 An integrated approach to medicine with full support of Critical Care, Cardiology, Ophthalmology, Neurology, Oncology, Radiology, and Surgery Services



I-131 TREATMENT PROGRAM

617-541-5186
 angell.org/i131 angell.org/internalmedicine internalmedicine@angell.org

WHAT IS FELINE HYPERTHYROIDISM?

Feline hyperthyroidism is caused by spontaneous thyroid masses, most of which are benign (adenoma) and some of which are malignant (carcinoma). Fortunately, both conditions can be treated by radioiodine (I-131); however, the doses and results may differ depending on the condition of the animal. The goal in treating the disease is to attain normal thyroid hormone levels, which lead to a normal, healthy weight. The overall success rate of this treatment is between 85 and 90 percent.

WHAT ARE SOME SYMPTOMS OF FELINE HYPERTHYROIDISM?

- 🐾 Significant weight loss
- 🐾 Loss of the normal hair coat
- 🐾 Increased appetite
- 🐾 Irritability and/or restlessness

HOW DOES I-131 WORK?

This treatment is radioactive, so once injected into the body it is absorbed by the thyroid gland. Once the abnormal thyroid tissue is destroyed by the radioiodine, the remaining tissue will once again perform normally.

WILL THE RADIATION HURT THE NORMAL THYROID TISSUE?

The normal tissue is relatively protected from the radiation because most of the hyperfunctional (abnormal) tissue takes in the radioiodine.

HOW LONG WILL THE TREATMENT AND RECOVERY TAKE?

Hospitalization varies from six days to about two weeks. Initially, the thyroid must be scanned to determine the necessity and proper dosage of I-131. Following the scan there is only a single injection; however, once injected, the cat cannot be released any earlier than three days after treatment under any circumstances, due to radiation safety concerns.

WHAT MAKES ANGELL'S I-131 PROGRAM UNIQUE?

- 🐾 We are the only thyroid treatment program that scans cats first. Some hyperthyroid cats do not need to be treated because they do not have thyroid tumors, despite an elevated T4 level. The scan identifies these cats and negates the need for treatment with I-131.

- 🐾 Our program has a doctor on the premises 24 hours a day.
- 🐾 We are the only facility that treats cats with major medical issues that could complicate I-131 treatment of hyperthyroidism.
- 🐾 Our license permits release after three days, but we also provide boarding for clients who do not want the responsibility of the radiation issues and handling concerns at home.

For more information on radioiodine treatment or to refer a client, please call 617-541-5186.



NEUROLOGY SERVICE

Neurology Phone: 617-541-5140 Neurology Fax: 617-989-1666 Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
 neurology@angell.org angell.org/neurology



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 Boston & Waltham
 rdaniel@angell.org



Allen Sisson, DVM, MS, DACVIM (Neurology)
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OVERVIEW

Angell Animal Medical Center offers diagnostic evaluation and treatment in the specialty of small animal neurology.

Our neurologists provide optimal care in the diagnosis and treatment of small animal neurological diseases, both medical and surgical, with state-of-the-art equipment and facilities.

Our services include diagnosis and treatment of seizure disorders, disc disease, granulomatous meningoencephalomyelitis (GME), infectious diseases of the nervous system, brain tumors, vertebral malformations/instability (Wobblers Syndrome), and numerous types of central and peripheral nervous system diseases.

NEUROLOGY SERVICES

- 🐾 Appointments Sunday-Friday
- 🐾 Staff doctors are available six days per week as well as for consultations for patients who are admitted to the hospital as emergencies. On Saturdays, the neurologist is available on call for emergencies
- 🐾 Diagnostic equipment includes radiography, ultrasonography, CSF analysis, electrodiagnostic capabilities, fluoroscopy, and myelography, all available Monday through Saturday. In addition, the MRI and CT units are available seven days a week

🐾 Angell's new in-house MRI unit scans patients quickly, in about half the time as the previous version, thus reducing anesthesia time for the patient. The new system delivers even higher quality images, allowing our doctors to detect smaller and more subtle lesions to enable intervention at earlier stages in the disease process. The MRI unit is available seven days a week

🐾 Neurosurgical procedures include laminectomies, craniotomies, and cervical vertebral stabilization with methyl methacrylate and locking plate implants

🐾 Facility includes veterinarians board certified in emergency and critical care, diagnostic imaging, cardiology, oncology, ophthalmology, internal medicine, and surgery for readily available consultation dictated by the case

🐾 Angell's Pain Medicine Service, led by Lisa Moses, VMD, DACVIM, CVMA, offers treatment for companion animals with discomfort that negatively affects their quality of life, regardless of their primary diagnosis. Dr. Moses is trained to work with patients with complex medical issues that complicate treatment for pain. She tailors individual pain treatment plans using novel drug therapy and non-drug modalities of treatment, including acupuncture and mobility exercises

🐾 24-hour Critical Care Unit includes a dedicated and experienced team of specialty technicians, as well as regular ward care

🐾 Laboratory and pathologic analyses of body fluids and tissues. Angell offers an advanced, full-service, on-site laboratory with clinical pathology and histopathology services. The Pathology Service is led by one double-board-certified clinical and anatomic pathologist and a board-certified anatomic pathologist



NUTRITION SERVICE

■ Nutrition Phone: 617-522-7282 Nutrition Fax: 617-989-1635
 nutrition@angell.org angell.org/nutrition



Dana Hutchinson, DVM, DACVN
 dhutchinson@angell.org

🐾 Client education on the pet food industry, products, supplements, and raw or fad diets. Information and guidance to help clarify the current hot-topic issues in canine and feline nutrition

OVERVIEW

Angell Animal Medical Center offers dietary and nutritional services to owners and veterinarians.

Dr. Dana Hutchinson, one of fewer than 75 board-certified nutritionists in the country, is able to provide in-hospital and outpatient services to pet owners and veterinarians on the dietary and nutritional management of companion animals. Recommendations, based on current scientific information, are available for healthy pets, overweight pets, and those with an illness.

NUTRITION SERVICES

- 🐾 Board-certified veterinary nutritionist experienced in the dietary and nutritional management of canine and feline diseases
- 🐾 Appointments or phone consultations with pet owners and veterinarians
- 🐾 Recommendations and management advice based on individual patient's needs regarding the numerous commercial therapeutic pet food products
- 🐾 Homemade diets checked and balanced based on individual owner and patient needs
- 🐾 Consultation to veterinarians regarding feeding tubes and practical feeding recommendations. Angell will supply unique, complete, and balanced dietary products overnight when needed
- 🐾 Consultation, instruction, and guidance to veterinarians concerning parenteral feedings (catheter type, placement, and management) and solution administration. Will supply a safe, economical, nutritionally balanced solution specifically formulated for your patient overnight when needed



ONCOLOGY SPECIALTY SERVICE

■ Oncology Phone: 617-541-5136 Oncology Fax: 617-989-1668
 oncology@angell.org angell.org/oncology



Lyndsay Kubicek, DVM, DACVR
(Radiation Oncology)
 lkubicek@angell.org



Ivan Martinez, DVM, DACVIM
(Oncology and Internal Medicine)
 imartinez@angell.org



Lee Talbott, DVM (Practice Limited to Medical Oncology)
 jtalbott@angell.org

ONCOLOGY SERVICES

- 🐾 Oncology-dedicated technicians and one radiation therapist to support our team of three Oncology Service doctors
- 🐾 Routine use of vascular access ports (VAP) for radiation patients, which eliminates the need for catheters and dramatically increases patient comfort
- 🐾 Four board-certified surgeons available for timely surgical intervention, including major tumor resections involving reconstructive surgery
- 🐾 Critical care team with board-certified criticalists. Twenty-four-hour service offered for oncologic emergencies, including state-of-the-art pain management
- 🐾 Close collaboration with the Angell Pain Medicine Service led by Lisa Moses, VMD, DACVIM, CVMA. The Pain Medicine Service offers treatment for companion animals with discomfort that negatively affects their quality of life, regardless of their primary diagnosis. Dr. Moses is trained to work with patients with complex medical issues that complicate treatment for pain. She tailors individual pain treatment plans using novel drug therapy and non-drug modalities of treatment, including acupuncture and mobility exercises
- 🐾 Laboratory and pathologic analyses of body fluids and tissues. Angell offers an advanced, full-service, on-site laboratory with clinical pathology and histopathology services. The Pathology Service is led by one double-board-certified clinical and anatomic pathologist and a board-certified anatomic pathologist

OVERVIEW

Angell Animal Medical Center offers an advanced, multidisciplinary approach to cancer diagnosis and treatment. We are committed to improving quality of life in an atmosphere of caring and compassion.

Optimal management of cancer results in improvement of quality of life and, in many cases, improved clinical outcome for veterinary patients. Accurate and timely diagnosis, staging, and thoughtful treatment protocols are required to achieve these goals.

Our team has expertise in cancer diagnostics, chemotherapy, radiation therapy, biological therapies, and immunotherapy.

Our specialists are active members of the Veterinary Cancer Society and Veterinary Oncology Cooperative Group. We participate in multi-institutional veterinary clinical trials and collaborate with medical professionals in the human arena, offering the ability to provide cutting-edge treatments to patients.





ANGELL'S UNIQUE TEAM APPROACH TO TREATING CANCER

■ Oncology Phone: 617-541-5136 Oncology Fax: 617-989-1668
 oncology@angell.org angell.org/oncology

At Angell Animal Medical Center we are a team of specialists dedicated to treating cancer in dogs and cats. Our team begins with the referring veterinarian, who arrives at the initial diagnosis and recommends further treatment for a pet. The team includes the concerned owner, who is seeking treatment for his or her pet. We strive to work in collaboration with the team, both inside and outside our hospital.

Our cancer care team within Angell Animal Medical Center includes:

- Oncologists
- Surgeons
- Radiologists
- Radiation oncologist and therapist
- Pathologists
- Pain management expert
- Anesthesiologists

Our team works within one facility in open collaboration to provide the highest level of care and comprehensive treatment possible.

TREATMENT BEGINS WITH COMMUNICATION

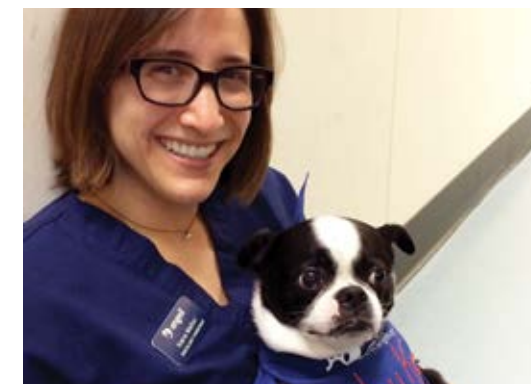
Before beginning treatment we discuss goals and offer a range of treatment options. Throughout treatment we provide both written and verbal reports to the primary care veterinarian and the pet owner. We believe providing more information to owners eases the decisions that an owner faces, which are often challenging and urgent. We are committed to open, clear communication to facilitate treatment decisions and create a community of support extending from our specialists to the primary care veterinarian and to the pet owners.

TREATMENT OPTIONS

Radiation therapy and chemotherapy have been available to veterinary patients for decades. Improvements have been made in the treatment protocols and the instrumentation to minimize side effects and prolong remission times. Our chemotherapy protocols are frequently updated and altered to provide cutting-edge treatments to improve patients' outcomes. Metronomic chemotherapy and radiation with curative or palliative intent are among available options.

MEDICAL ONCOLOGY

Dr. Ivan Martinez is a board-certified specialist in medical oncology and internal medicine. Dr. Lee Talbott is residency trained in medical oncology. Although a diagnosis is preferred, patients can be referred when a tumor is only suspected. Initiating treatment in a timely fashion is of the utmost importance.



RADIATION ONCOLOGY

Our radiation oncologist, Dr. Lyndsay Kubicek, provides radiation treatment planning for each radiation patient. In addition, Cherylann Sullivan is our on-site certified radiation therapist. She joined Angell after 20 years in human-based radiation oncology centers, where she worked with the most innovative and advanced technology in the field. Cherylann's compassion and kindness toward people is a great comfort to the clients who bring their pets to Angell to receive radiation therapy.

We use a Varian 2100 C/D linear accelerator, which is equipped with a multileaf collimator. Older units typically had only four leaves and could only form simple rectangles. In contrast, the multileaf collimator has 120 leaves that allow for creation of highly complex shapes that conform to the tumor outline while sparing normal tissue. The linear accelerator also has the capacity for generating an electron beam that can treat more superficial tumors while sparing radiation-sensitive underlying tissues such as the lungs, kidneys, or colon.

We routinely treat radiation therapy cases on an outpatient basis. Owners also have the option of dropping a pet off for the day if that is more convenient. Each patient is treated with the utmost care and compassion. Every effort is made to make sure patients feel safe and comfortable before, during, and after treatment.

🐾 Cutting-edge diagnostic imaging facilities, including helical computed tomography, MRI, ultrasound, and fluoroscopy. Angell's new MRI unit scans patients quickly, in about half the time as the previous version, thus reducing anesthesia time for the patient. The new system delivers even higher quality images, allowing our doctors to detect smaller and more subtle lesions to enable intervention at earlier stages in the disease process. The MRI unit is available seven days a week

🐾 Close access to a large team of specialists in radiology, internal medicine, cardiology, neurology, ophthalmology, nutrition, and dentistry to allow timely cancer patient case management

🐾 Sophisticated equipment for optimal radiation delivery, including a 6MV linear accelerator with electron capability and a computerized treatment planning system. Our Varian 2100 C/D linear accelerator is equipped with a 120-leaf, multi-leaf collimator, which allows us to block critical structures located near the tumor bed. This is particularly important, for example, to spare the eye and brain when treating nasal or skull tumors, the heart when treating tumors located within the thorax or abdomen, and the spinal cord when treating tumors close to it

🐾 Intensity-modulated radiation therapy (IMRT), a technique used by Angell to minimize side effects of radiation treatment by sculpting the beam to the exact size and dimensions of the tumor

🐾 Convenient outpatient radiation therapy and chemotherapy services

🐾 A multidisciplinary team approach to provide the best medical care, including involvement of the referring veterinarian and pet owner

↳ Pictured below: Lyndsay Kubicek, DVM, DACVIM (Radiation Oncology), routinely uses vascular access ports to dramatically improve patient comfort.



OPHTHALMOLOGY SERVICE

■ Ophthalmology Phone: 617-541-5095 Ophthalmology Fax: 617-989-1647
ophthalmology@angell.org angell.org/eyes



Daniel J. Biros, DVM, DACVO
dbiros@angell.org



Martin E. Coster, DVM, MS, DACVO
mcoster@angell.org

- 🐾 Urgent care appointments available, often the same day
- 🐾 Specialty services available include cataract surgery with intraocular lens implantation; ocular ultrasound; electroretinography; cryosurgery; glaucoma surgery, including laser cyclophotocoagulation; corneal surgery, including grafting; and eyelid surgery. CERF examinations are available for breeding dogs
- 🐾 Specialists in internal medicine, radiology, cardiology, dermatology, and surgery assist in providing in-depth case management
- 🐾 24-hour critical care unit for patients needing intensive ocular therapy
- 🐾 In-house MRI available seven days a week

OVERVIEW

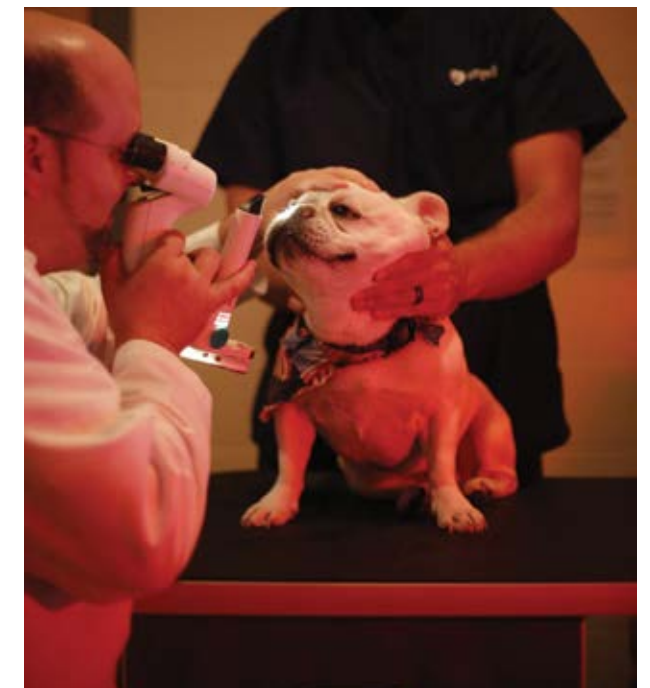
The Ophthalmology Service at Angell Animal Medical Center provides extensive diagnosis and treatment of inherited, acquired, or traumatic conditions involving the eyelids, cornea, iris, lens, retina, optic nerve, and orbit.

Examinations are provided on a wide variety of species using direct and indirect ophthalmoscopy, slit-lamp biomicroscopy, Schirmer tear testing, topical fluorescein staining, tonometry, gonioscopy, ocular ultrasonography, CT, MRI, and electroretinography (to detect retinal degeneration).

Cataract removal with lens implantation is available, as well as laser and cryotherapy for the treatment of glaucoma, iris tumors, and retinal detachment.

OPHTHALMOLOGY SERVICES

- 🐾 Diagnostic, therapeutic, and surgical services using advanced techniques, state-of-the-art equipment, up-to-date knowledge, and years of experience
- 🐾 Examinations include slit-lamp biomicroscopy, indirect ophthalmoscopy, and standard in-office diagnostic tests, including tonometry
- 🐾 Emergency and critical care services available 24 hours, seven days a week
- 🐾 Evening and early morning appointments available



↳ The Varian 2100 C/D linear accelerator is able to rotate. A rotating field facilitates precision during treatment.

Angell Anesthesiologists Drs. Ashley Barton-Lamb and Stephanie Krein, work to ensure that anesthesia and sedation are safe for our radiation and oncology surgery patients. We use advanced monitoring and support equipment including remote video monitors, electrocardiography, pulse oximetry, blood pressure monitors, and ventilators to support our patients.

EMERGENCY CARE

Our Oncology Service is supported by a 24-hour Emergency Service with a fully equipped critical care unit to support and treat any unforeseen complications.

SURGERY AND PATHOLOGY

Our Surgery Service offers extensive treatment for our patients, including reconstructive surgery to limit pain and allow for pleasing cosmetic results. Angell offers an in-house, full-service laboratory with clinical pathology and histopathology services. The Pathology Service is led by one double-board-certified clinical and anatomic pathologist and a board-certified anatomic pathologist.

ANESTHESIA AND PAIN MANAGEMENT

As part of that approach, the oncologists work closely with the Anesthesia and Pain Medicine Services. Compassion is at the core of our service, and it follows that pain control is integral to the caring process. Dr. Lisa Moses of our Pain Medicine Service, is certified in veterinary acupuncture and board certified in internal medicine. Dr. Moses is trained to work with patients with complex medical issues that complicate treatment for pain.



PAIN MEDICINE SERVICE

■ Pain Medicine Phone: 617-541-5140 Pain Medicine Fax: 617-989-1666
 painmedicine@angell.org angell.org/painmedicine



Lisa Moses, VMD, DACVIM, CVMA (Certified in Veterinary Medical Acupuncture)
 lmoses@angell.org

OVERVIEW

The Pain Medicine Service at Angell Animal Medical Center, led by Dr. Lisa Moses, is a focused clinic that offers treatment for companion animals with discomfort that negatively affects their quality of life, regardless of their primary diagnosis. Many of our patients have complex medical issues that complicate treatment for pain. Additionally, some types of pain are under-recognized and/or incompletely treated by traditional medical care. The Pain Medicine Service aims to serve patients whose owners wish to provide comprehensive care to address quality-of-life concerns.

Current evidence suggests that the most effective treatments for pain are derived from an interdisciplinary approach to the problem, since the pain can affect multiple body systems. Our service provides comprehensive diagnostic services for these patients, since the source of their pain is often poorly understood. We are uniquely qualified to provide this kind of care because of the additional specialties practiced at Angell. On-site specialists provide easy access to collaborative care. Pain is such an individual response that treatment plans must be tailored to each patient.

Treatment options include novel drug therapy and non-drug modalities of treatment, including acupuncture and mobility exercises.

Dr. Moses is board certified in internal medicine and certified in veterinary acupuncture. In addition to running the Pain Medicine Service, she has more than 15 years of experience working in emergency and critical care and was one of the original members of Angell's Emergency/Critical Care team.

PAIN MEDICINE SERVICES

- 🐾 Pain management consultation services for hospitalized patients and outpatients, as well as palliative and hospice-type care for outpatients
- 🐾 Treatments for acute pain, perioperative pain, and chronic pain
- 🐾 Treatment of any companion animal species, including avian and exotic patients
- 🐾 Analgesia and mobility consultations for surgical patients (i.e., those having dental surgery or orthopedic surgery)
- 🐾 High-risk anesthesia service available to all patients having procedures at Angell Animal Medical Center
- 🐾 Specialized diagnostic services to help uncover difficult-to-diagnose pain, like myofascial pain, organ pain, and neuropathic (nerve origin) pain
- 🐾 Consultation with other specialists as needed on a case-by-case basis
- 🐾 Multiple modalities of treatments, including newer drug therapies, nerve blocks and regional analgesia, myofascial treatments, and acupuncture
- 🐾 Follow-up of cases using scoring systems, photography, and video to help document progress
- 🐾 Medical acupuncture for acute or chronic pain and neurological problems
- 🐾 Limited acupuncture services for non-pain-related problems such as anxiety/behavior problems, dermatology problems, gastrointestinal problems, or other medical conditions inadequately treated with conventional medical therapy

PATHOLOGY SERVICE

■ Pathology Phone: 617-541-5014 Pathology Fax: 617-522-7356
 pathology@angell.org angell.org/lab



Patty Ewing, DVM, MS, DACVP (Clinical and Anatomic Pathology)
 Service Director
 pewing@angell.org



Pamela Mouser, DVM, MS, DACVP (Anatomic Pathology)
 pmouser@angell.org

OVERVIEW

The mission of the Pathology Service at Angell Animal Medical Center is to provide quality diagnostic services, promote education and professional development, and support the mission of the MSPCA-Angell. We are pleased to announce that our laboratory accepts mail-in submissions for cytology, histopathology, and clinical pathology testing. Courier pickup of samples will be available in some areas of eastern Massachusetts. Angell's Pathology Service serves both our Boston and Waltham facilities.

WHY SUBMIT TO ANGELL'S PATHOLOGY SERVICE?

Angell's Pathology staff takes pride in delivering rapid and accurate test results in order to contribute to the diagnosis, treatment, management, and/or prognosis of disease in our veterinary patients. We offer clinically oriented pathology services. We take an interest in individual cases, encourage clinical correlates and feedback, and welcome case consultations via phone or email. Our anatomic and clinical pathologists maintain high-quality service through detailed reports, practical case comments, and competitive turnaround time. When necessary, we consult other specialists with regard to the more challenging disease processes. Select cases are reviewed in biweekly pathology rounds, allowing open discussion among pathologists, general practitioners, veterinary specialists, residents, interns, and veterinary technicians.

ABOUT US

The Angell Pathology staff includes two board-certified veterinary pathologists (anatomic and clinical pathology), a

department manager, two supervisors, a lead technologist, two senior technicians, three clinical laboratory technicians, three histologists, and three pathology assistants. Our highly trained laboratory professionals include ASCP-certified medical technicians, medical laboratory technicians, histotechnicians, and a certified hematology specialist, as well as one certified veterinary technician and one foreign-certified medical technician. State-of-the-art clinical laboratory equipment includes automated hematology, clinical chemistry, coagulation, and urinalysis and microbiology analyzers. Our histology laboratory has recently been renovated and updated with new tissue-processing and slide-staining equipment.

SERVICES OFFERED

Stained and/or unstained glass slides from tissue aspirates, swabs, impression smears, fluids, bone marrow, joint taps, etc., are evaluated by our board-certified veterinary clinical pathologist. Fluid assessment, including automated cell count and cytologic examination of body cavity effusion or cerebrospinal fluid, is also offered. Surgical biopsies or tissue samples from necropsy cases submitted in 10 percent neutral buffered formalin are processed by our in-house histology laboratory and are evaluated by our board-certified veterinary anatomic pathologist. We perform several in-house histochemical stains, and, when necessary to achieve a diagnosis, special stains are applied to cases at no additional cost to the submitter.

In addition to cytology and histopathology, Angell Pathology offers hematology, clinical chemistry, coagulation, urinalysis, microbiology, and parasitology diagnostic services. For a complete list of available tests, submission forms, or sample requirements, please contact us at 617-541-5014 or visit our website at angell.org/lab.

TURNAROUND TIME

We understand that behind every sample submitted, there is a veterinary patient and its owner waiting in anticipation for test results. Therefore, for most routine tests, we strive to deliver high-quality, accurate results within 24 to 48 hours (excluding weekends) of the time we receive the sample. Turnaround times for items requiring additional processing—such as decalcification of bone for histopathology—are slightly longer. Visit our website at angell.org/lab for additional details.



PATTY EWING, DVM, MS, DACVP (CLINICAL & ANATOMIC PATHOLOGY)
Service Director

Dr. Patty Ewing provides medical direction for the Clinical Laboratory, consultation with veterinarians on interpretation of laboratory test results and diagnostic test selection, and evaluation of hematology and cytology samples. Dr. Ewing is board certified in both clinical and anatomic pathology, and has authored more than 30 publications and six book chapters in the field of veterinary medicine.

Education

Oklahoma State University, MS, Veterinary Pharmacology/
Toxicology 1992

Oklahoma State University, DVM 1988

Specialty Training

Oklahoma State University, Residency in Veterinary Clinical and
Anatomic Pathology 1989-1992

Certification

Diplomate, American College of Veterinary Pathology, Clinical
Pathology 2003

Diplomate, American College of Veterinary Pathology, Anatomic
Pathology 1992

PAMELA MOUSER, DVM, MS, DACVP (ANATOMIC PATHOLOGY)

Dr. Pam Mouser evaluates surgical biopsy specimens as well as histopathology samples collected from necropsy cases. Dr. Mouser's

special interests include ophthalmic and dermatologic pathology.

Education

Purdue University, MS, Comparative Pathobiology 2008

Colorado State University, DVM 2005

Colorado State University, MS, Anatomy 2001

Specialty Training

Purdue University, Residency in Veterinary Anatomic Pathology
2005-2008

Certification

Diplomate, American College of Veterinary Pathology,
Anatomic Pathology 2008

PATHOLOGY SERVICE: NECROPSY

The Pathology Service at Angell Animal Medical Center is pleased to offer necropsy services to primary care veterinarians and their clients.

WHY SUBMIT TO ANGELL'S NECROPSY SERVICE?

At Angell Pathology, we understand that sometimes questions remain unanswered at the time of a pet's death. A necropsy examination may provide answers to some of these questions. Goals of necropsy include determining the cause of death, evaluating the extent of disease, identifying underlying or concurrent disease processes that may have influenced a pet's clinical signs or response to treatment, and educating the individuals (clients, veterinarians, technical staff, and pathologists) involved in the pet's care. The detailed, comprehensive necropsy report includes an interpretive comment to address specific concerns posed by the submitter. Angell Pathology takes pride in treating each pet with care and respect, even after death. As with any pathology submission, select necropsy cases will be reviewed in monthly pathology rounds, allowing open discussion among pathologists, general practitioners, veterinary specialists, residents, interns, and veterinary technicians.

NECROPSY SERVICES OFFERED

Full necropsies can be performed on dogs, cats, and small exotic pets (such as rabbits, ferrets, reptiles, and birds) by a board-certified anatomic pathologist at Angell Animal Medical Center. The necropsy examination will include histopathology of collected tissue samples at the discretion of the pathologist. Ancillary tests (e.g., bacterial culture or immunohistochemistry) will result in an additional charge to the submitter. It is important to note that Angell Pathology requires all pets submitted for necropsy to be cremated following the procedure; ashes can be returned to the owner if requested at the time of submission.

TURNAROUND TIME AND ADDITIONAL INFORMATION

Necropsies can be performed Monday through Friday at Angell Pathology. Please contact the laboratory at 617-541-5014 to confirm pathologist availability prior to referring a case. Final results are reported within 7-14 days to allow time for additional processing (such as decalcification of bone) if necessary.

For a complete list of available tests, submission forms, or sample requirements, please contact us at 617-541-5014 or visit our website at angell.org/lab.

SUBMITTING A NECROPSY CASE

- 🐾 All necropsy submissions must be accompanied by a necropsy requisition form, which can be completed by the submitting veterinarian and is available on our website at angell.org/lab or by contacting us at 617-541-5014
- 🐾 If an owner brings a deceased pet to Angell for necropsy examination without a necropsy form completed and signed by his/her veterinarian, the owner will be seen by an Angell veterinarian through the emergency service. There is an additional fee for the visit with an Angell emergency veterinarian
- 🐾 Necropsy is most valuable when performed promptly following death (less than 12 hours), but may still yield relevant information if performed within 24-48 hours of death, depending on postmortem preservation. In the event that a pet cannot be brought to Angell immediately following death, it is recommended that the body be kept cool (refrigerated) but not frozen. Refrigeration will reduce, but will not eliminate, postmortem decomposition, whereas freezing can introduce significant artifact, often preventing a histopathologic diagnosis
- 🐾 The deceased pet should be transported to Angell by the client, veterinarian, or a representative of the veterinarian. This individual will be required to sign a necropsy release form at the time of submission
- 🐾 Please clearly indicate on the necropsy requisition form if an infectious disease is suspected, so appropriate precautions can be taken and testing can be performed, if indicated. Specific examples include but are not limited to rabies and other potentially zoonotic diseases

IMPORTANT POINTS ABOUT NECROPSY FOR THE VETERINARIAN AND PET OWNER

- 🐾 There is no guarantee that the cause of death will be determined in every case
- 🐾 Reduced sample quality, such as occurs with postmortem decomposition, can preclude a final diagnosis
- 🐾 The pet's body will not be released to the veterinarian/owner following necropsy; Angell Pathology requires cremation, with the option of the pet's ashes being returned to the owner
- 🐾 Ancillary tests, such as bacterial culture or toxicology testing, can result in additional charges to be paid by the submitter
- 🐾 Microscopic examination of tissues (histopathology) and collection of tissue samples for ancillary tests will occur at the pathologist's discretion
- 🐾 Necropsy samples, findings, and/or photographs may be used for teaching purposes, quality-control programs, or scientific publication



SURGERY SERVICE

■ Surgery Phone: 617-541-5048 Surgery Fax: 617-989-1660 ■ Waltham Phone: 781-902-8400 Waltham Fax: 781-622-1410
 surgery@angell.org angell.org/surgery



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Michael Pavletic, DVM, DACVS
 Soft Tissue
 Service Director
 mpavletic@angell.org

OVERVIEW

Members of the Angell Surgery staff are dedicated full time to surgery and have extensive surgical experience with a broad knowledge base in orthopedic and soft tissue surgery. We take pride in the large pool of dedicated doctors who work and collaborate together for the individual patient. The large, experienced veterinary staff at Angell work collaboratively on the diagnosis and management of sick and injured patients referred to our hospital.

Angell's Surgery Service is equipped with state-of-the-art equipment for a wide range of orthopedic and soft tissue procedures. Veterinarians are welcome to visit Angell, and a tour can be arranged with one of our surgical staff members. We are happy to provide complimentary telephone and email consultations to our referring partners.

SURGERY SERVICES

Orthopedic Surgery

- Cruciate Ligament Repair (TPLO, TTA, Extracapsular)
- Fracture Repair
- Arthroscopic Examination/Procedures

- Limb Prosthetics
- Total Hip Replacement
- Corrective Joint Surgery
- Acquired/Congenital Limb Deformity Repair
- Pulse-Vet Shock Wave Therapy—Muscle and Tendon Injuries

Surgical Oncology Services/Reconstructive Surgery

- Biopsy and Staging of Neoplasms
- In-Hospital Consultations with Oncology & Radiation Therapy Services
- Laser-Assisted Surgery
- Ligasure Surgical Unit
- Tumor Resection and Reconstruction:
- Skin and Subcutaneous Tissues
- Oral/Facial/Nasal
- Ear Canal/Pinna
- Cervical



- Thoracic/Abdominal Wall Reconstruction
- Paw/Digits/Metacarpal-Metatarsal Pads

Upper Respiratory Surgery

- Laryngeal Paralysis Tie-Back Procedure
- Soft Palate
- Stenotic Nares
- Tracheal Collapse
- Nasal Cavity Disease
- Nasal Planum Disease

Otic Surgery

- Ear Canal Ablation
- Lateral/Vertical Canal Resection
- Tumors/Trauma of the Pinna
- Bulla Osteotomy Procedures

Cervical Surgery

- Salivary Gland
- Laryngeal
- Tracheostomy Procedures
- Esophageal Procedures
- Thyroid Tumors
- Parathyroid Tumors

Thoracic Surgery

- Pulmonary
- Cardiovascular
- Thoracic Wall Reconstruction

Abdominal Surgery

- Gastric
- Small Intestine
- Large Intestine/Rectum
- Hepatic/Gallbladder
- Spleen, Pancreas, Adrenal
- Urinary Tract, Upper and Lower
- Thoracic Wall Reconstruction

Plastic and Reconstructive Surgery

- Skin Flaps
- Skin Grafts
- Muscle and Myocutaneous Flaps
- Foot Pad Flaps/Grafting Techniques
- Comprehensive Wound Management
- Problematic Wound Closure
- Esophageal Reconstruction
- Thoracic and Abdominal Wall Reconstruction

Neurosurgery

- Brain and Spinal Tumors
- Spinal Fractures
- Disc Disease
- Compressive Spinal Lesions

Dental/Oral Surgery

- Comprehensive Dental Care—Angell's Dentistry Service
- Maxillary and Mandibular Tumors
- Oronasal Fistulas
- Laser-Assisted Techniques

Minimally Invasive Surgery

- Laparoscopy (Ovariectomy, Gastropexy, Cryptorchid Testicles, Biopsy, etc.)
- Thoracoscopy (Biopsy, Pericardial Windows, etc.)
- Arthroscopy (Knee, Shoulder, etc.)

Laser Surgical Procedures

- Tumor Resection
- Oral—Nasal Surgery

HOW TO FIND US

■ 350 South Huntington Avenue, Boston, MA 02130 ■ 617-522-7282

■ 293 Second Avenue, Waltham, MA 02451 ■ 781-902-8400

■ Angell.org ■ Facebook.com/AngellReferringVeterinarians ■ Facebook.com/AngellAnimalMedical

DIRECTIONS TO THE BOSTON LOCATION

BY SUBWAY

- Take the Green Line's Arborway (E) trolley to Heath station.
- Go left on S. Huntington Avenue and walk 0.5 mile.
- Pass the Veterans Administration Hospital and a residential block.
- Angell is on the left, just before the traffic light.

FROM THE NORTH VIA INTERSTATE 93

- Take I-93 south to Storrow Drive exit.
- Head west on Storrow Drive, and take the Fenway/Kenmore Square exit.
- Bear left following Fenway/Route 1 signs. Then bear right following "Boylston Street OUTBOUND" signs.
- Follow Boylston Street to intersection of Brookline Avenue (Star Market on left). Continue straight/left across intersection onto Brookline Avenue.
- Follow to end (junction of Route 9/Brook House condo directly ahead). Take left, continue under stone overpass to first traffic light.
- Take right onto S. Huntington Avenue. Angell is approximately 0.25 mile on left.

FROM THE SOUTH VIA INTERSTATE 93

- From I-93, take exit 18 (Massachusetts Avenue) onto Melnea Cass Boulevard.
- Go about 1 mile to the Tremont Street intersection and turn left.
- Go about 2 miles, staying straight. Tremont Street becomes Columbus Avenue.
- At the traffic light — with the Orange Line Jackson Square station on your right — turn right onto Centre Street.
- Follow Centre Street for about 0.5 mile to the South Huntington Avenue intersection.
- Turn right at the light. Angell is the first entrance on your right.

FROM THE WEST VIA ROUTE 9 AND ROUTE 1A

- Take Mass Pike, Route 495, or Route 95 (128) to Route 9 east.
- In Brookline, pass the Brook House on the right.
- Go under the Jamaica way (Route 1A) overpass, and turn right at the next light.
- Follow the trolley tracks.
- Pass the Green Line Heath station and continue on South Huntington Avenue for 0.5 mile, passing the Veterans Administration Hospital and a residential area.
- Angell is on the left, just before the traffic light.

DIRECTIONS TO THE WALTHAM LOCATION

FROM THE SOUTH VIA I-95N

- Take exit 26 off of I-95N/Rt.-128N.
- Turn slight right onto US-20E/Weston St. after 0.2 mile.
- Turn left on Stow St. after 0.4 mile.
- Turn slight left onto Rt. 117/Main St. after 0.3 mile.
- Take first right on Bear Hill Rd.
- Bear Hill Rd. becomes Second Ave.
- Arrive at 293 Second Ave. after 0.86 mile.

FROM THE NORTH VIA I-95S

- From I-95S/Rt.-128S, take exit 27B, the Winter St. exit.
- Turn slight right onto Winter St. after 0.2 mile.
- Turn slight left toward I-95/Second Ave./Bear Hill Rd.
- Turn slight left onto Winter St. after 0.05 mile.
- Turn slight right onto Second Ave. after 0.08 mile.
- Turn right to stay on Second Ave.
- 293 Second Ave. is on the right after 0.7 mile.





Phone numbers apply for both Boston and Waltham.

24/7 EMERGENCY & CRITICAL CARE (W/B)

Boston Phone: 617-522-7282 | Boston Fax: 617-989-1633
Waltham Phone: 781-902-8400 | Waltham Fax: 781-622-1410
emergency@angell.org | angell.org/emergency

ANESTHESIOLOGY

Phone: 617-541-5048 | Fax: 617-989-1660
anesthesia@angell.org | angell.org/anesthesia

AVIAN AND EXOTIC MEDICINE (W/B)

Phone: 617-989-1561 | Fax: 617-989-1668
avianexotic@angell.org | angell.org/avianandexotic

BEHAVIOR (W/B)

Phone: 617-989-1520 | Fax: 617-989-1627
behavior@angell.org | angell.org/behavior

CARDIOLOGY (W/B)

Phone: 617-541-5038 | Fax: 617-989-1653
cardiology@angell.org | angell.org/cardiology

DENTISTRY

Phone: 617-524-5643 | Fax: 617-989-1636
dentistry@angell.org | angell.org/dentistry

DERMATOLOGY

Phone: 617-524-5733 | Fax: 617-989-1613
dermatology@angell.org | angell.org/dermatology

DIAGNOSTIC IMAGING*

Phone: 617-541-5139 | Fax: 617-989-1617
diagnosticimaging@angell.org | angell.org/diagnosticimaging

INTERNAL MEDICINE (W/B)

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NEUROLOGY (W/B)

Phone: 617-541-5140 | Fax: 617-989-1666
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NUTRITION

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ONCOLOGY

Phone: 617-541-5136 | Fax: 617-989-1668
oncology@angell.org | angell.org/oncology

OPHTHALMOLOGY

Phone: 617-541-5095 | Fax: 617-989-1647
ophthalmology@angell.org | angell.org/eyes

PAIN MEDICINE

Phone: 617-541-5140 | Fax: 617-989-1666
painmedicine@angell.org | angell.org/painmedicine

PATHOLOGY (CLINICAL AND ANATOMIC)*

Phone: 617-541-5014 | Fax: 617-522-7356
pathology@angell.org | angell.org/lab

SURGERY (W/B)

Phone: 617-541-5048 | Fax: 617-989-1660
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FOR ADDITIONAL REFERRAL ASSISTANCE

Boston Phone: 617-522-5011 | Boston Fax: 617-989-1635
Waltham Phone: 781-902-8400 | Waltham Fax: 781-622-1410

*(W/B) Services also available at our Waltham location
Behavior appointments are available in Waltham upon request*

** Boston-based radiologists and pathologists serve both Boston and Waltham locations*