



# Feline Health Topics

for veterinarians

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Summer 1991

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## New Diagnostic Test for Giardia

*Giardia* sp. is a flagellated protozoan found in animals throughout the world. Animals become infected by ingestion of a cyst that contains two trophozoites. The environment of the gastrointestinal tract allows for the release of the trophozoites from the cyst. The trophozoites are motile and adhere to the intestinal mucosa. The life cycle is completed when the trophozoites form cysts and they are excreted in the host's feces, usually between 5 to 10 days after initial infection.

This protozoan may be the cause of chronic intermittent or continuous diarrhea,

especially in kittens. Even when *Giardia* is strongly suspected as the cause of the diarrhea, the cysts are often not found on routine fecal examination. This may be due to intermittent shedding of the cysts, or to the small size and transparency of the cysts.

The Diagnostic Laboratory at the College of Veterinary Medicine, Cornell University offers a test for the rapid detection of *Giardia* antigen in the feces. The test is an enzyme immunoassay (ELISA) that detects *Giardia*-specific antigen shed by the protozoans in the intestine. This test will detect *Giardia* in animals in which cysts cannot be observed.

Fresh feces or feces preserved in 10% formalin may be submitted for this test. A zinc sulfate qualitative fecal flotation also is done for each sample to determine if cysts are being eliminated at the time of sample collection. The test fee is \$15. Depending on the number of requests, this test is usually done on Fridays. When filling out the laboratory order form, please be sure to request "*Giardia* ELISA". If there are any questions, please call 607-253-3900. ■

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## In the News

### Winn Foundation funds two feline health studies at Cornell

Dr. Fred Scott received a grant for \$14,720 to evaluate SmithKline Beecham's new vaccine for feline infectious peritonitis. This modified-live vaccine was recently licensed in the United States for intranasal use in healthy cats to prevent the disease. This study will independently evaluate the safety and efficacy of this vaccine using the manufacturer's recommended dose and age of vaccination.

Chronic renal disease is being diagnosed with increasing frequency in the cat. Drs. Yaphe, Center, Reimers and Kallfelz will use their \$6,300 grant to establish parameters which will aid in earlier detection and treatment of renal disease. The value of vitamin D supplementation as a treatment modality will also be explored in this study.

The Robert H. Winn Foundation was established by the Cat Fanciers Association (CFA) in 1968 to support health-related studies to benefit cats. Donations from CFA cat clubs and individuals fund the grants awarded to institutions.

### Good news about cat allergies

Clients who complain of allergies to cats may find some relief by washing their cats in distilled water. Researchers at Washington University School of Medicine in St. Louis,

report that a monthly 10-minute soaking proves to be sufficient. However, it may take several months before one's allergies to cats abate.

*Science News* reports that 30% of asthmatics are allergic to cats. The allergic response is triggered by proteins that are deposited on the cat's fur as it grooms itself. These proteins are secreted by the cat's salivary and sebaceous glands.

(Resource: *Cats Magazine*, June 1991)

## Feline Health Topics

*A publication for veterinary professionals*

The ultimate purpose of the Cornell Feline Health Center is to improve the health of cats everywhere, by developing methods to prevent or cure feline diseases, and by providing continuing education to veterinarians and cat owners. All contributions are tax-deductible.

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# Surgical Techniques for Liver and Kidney Biopsies

James A. Flanders, D.V.M.

*Editor's Note: The following is excerpted from a presentation given by Dr. Flanders at the 1990 Feline Seminar sponsored by the Feline Health Center and Office of Continuing Education at Cornell University.*

*The histologic examination of liver or kidney tissues can assist in the diagnosis of many diseases and disorders that affect those organs. This article briefly reviews the basic techniques used in obtaining liver and kidney biopsies.*

## Liver Biopsy

Various methods can be used to obtain percutaneous samples of liver parenchyma for histologic examination. Although percutaneous techniques offer some advantages over surgical biopsy, they do not provide the ability to visualize the entire liver and to obtain a biopsy from a visually selected site.

The three main types of surgical biopsies of the liver are: (1) the crush technique, (2) excisional biopsy, and (3) guillotine technique. The **crush technique** is best used when a large portion of liver parenchyma is to be removed. This is especially effective in removing a neoplasm or a mass that is located distally on a liver lobe. The hepatic parenchyma proximal to the mass is crushed bluntly with the fingers or with a scalpel

handle. As the parenchyma is crushed the small hepatic vessels will be visualized. These vessels are then ligated separately along the proximal edge of the hepatic parenchyma. It is important to identify these vessels prior to removal of the biopsy because the vessels will retract within the hepatic parenchyma and be difficult to isolate after removal of the biopsy sample.

A more appropriate technique to be used for small biopsies of the liver is the commonly described wedge or **excisional biopsy**. In this technique, a wedge or a pie-shaped piece of liver parenchyma is removed using scissors. The wedge should be approximately 5 to 10 mm in width at its widest point. There is no need to preplace ligature since bleeding is minimal. Once the pie-shaped piece of liver parenchyma is removed from the liver edge, the defect is closed using an absorbable suture material placed in a cruciate or horizontal mattress pattern. Hemostasis is achieved when the two edges of the defect are pulled together. When placing sutures in the liver do not use excessive force or the suture will cut through the friable liver parenchyma.

The third technique of surgical liver biopsy is the **guillotine technique**. This technique is faster than the wedge technique. A suitable portion of liver is isolated. The

biopsy site must be at the distal edge of the liver. Absorbable suture (2-0) should be used. A single throw is preplaced in the suture and the resultant loop of suture is passed around the distal edge of the liver lobe. As the two suture ends are pulled, the loop will constrict around the liver edge. The suture will cut through the liver parenchyma as the ends are pulled tighter and gather the biliary ductules and liver blood vessels together. The ligature is then tied snugly, constricting the vessels in the process. The liver biopsy is excised distal to the ligature. By using this technique, a single ligature encompasses all of the vessels leading to the biopsy. There is minimal hemorrhage with this rapid technique.

## Kidney Biopsy

Since the kidneys of the cat are easily palpable, a percutaneous biopsy can be done fairly easily. However, in many cases, it is advantageous to visualize the kidney prior to obtaining the biopsy.

Surgical kidney biopsies may be obtained through a flank or a ventral midline incision. The **ventral midline approach** allows visualization of both kidneys and exploration of the abdomen. The incision should be placed in the cranial half of the abdomen extending cranially to a point near the xiphoid cartilage. The right kidney is located close to the liver and is fairly cranial in the abdomen. The left kidney is slightly more caudal than the right side, but still requires a fairly cranial abdominal incision to achieve good visualization. The peritoneum and fascia over either kidney is removed by a combination of sharp and blunt dissection. The kidneys now can be mobilized to isolate the renal artery, renal vein and ureter. It is not necessary to remove the fat around these

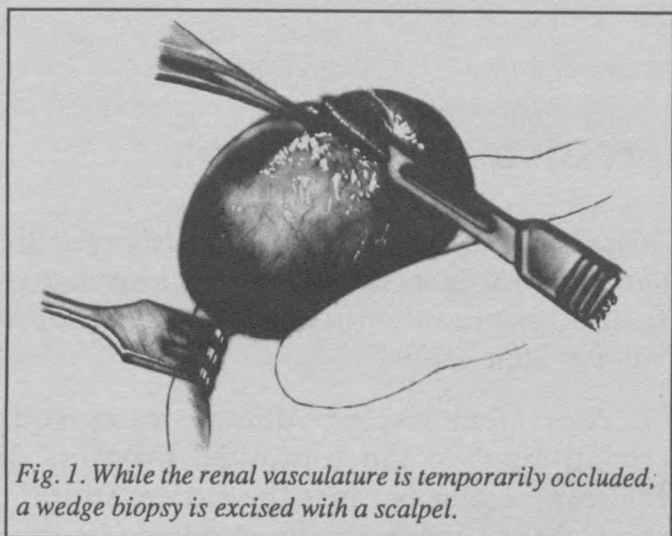
vessels. By compressing the renal pedicles, blood flow to the kidney is temporarily decreased.

A #10 scalpel blade is used to cut a wedge perpendicular to the long axis of the kidney (fig. 1). The thickness of the wedge at the cortex should be approximately 5 mm. The wedge should extend through the cortex, but does not need to extend into the renal medulla. Most histologic diagnoses can be made with a cortical section. The depth is approximately 7 mm in most cats. The biopsy site is then closed using 3-0 absorbable suture material on a taper needle. One or two horizontal mattress sutures are usually sufficient to close the biopsy site. Compression of the renal pedicle is released after the biopsy site is closed. If the biopsy requires a prolonged period of time, pressure on the renal pedicle should be relieved after 15 minutes to allow perfusion of the kidney. The pedicle may then be compressed for another 15 minutes if necessary. After closing the biopsy site, the kidney is allowed to return to its normal location. It is not necessary to close the peritoneum over the kidney.

The **flank approach** (fig. 2) is more rapid than the abdominal approach and is preferred when the patient is severely hypoproteinemic. The peritoneal cavity is not entered, and potential dehiscence of a ventral midline incision is avoided. The disadvantage is that only one kidney may be approached at a time.

A 5-cm-long vertical skin incision is made just caudal to the thirteenth rib. The dorsal aspect of the incision begins at the level of the transverse process of the first lumbar vertebra. The subcutaneous tissue and external and internal abdominal oblique





*Fig. 1. While the renal vasculature is temporarily occluded, a wedge biopsy is excised with a scalpel.*

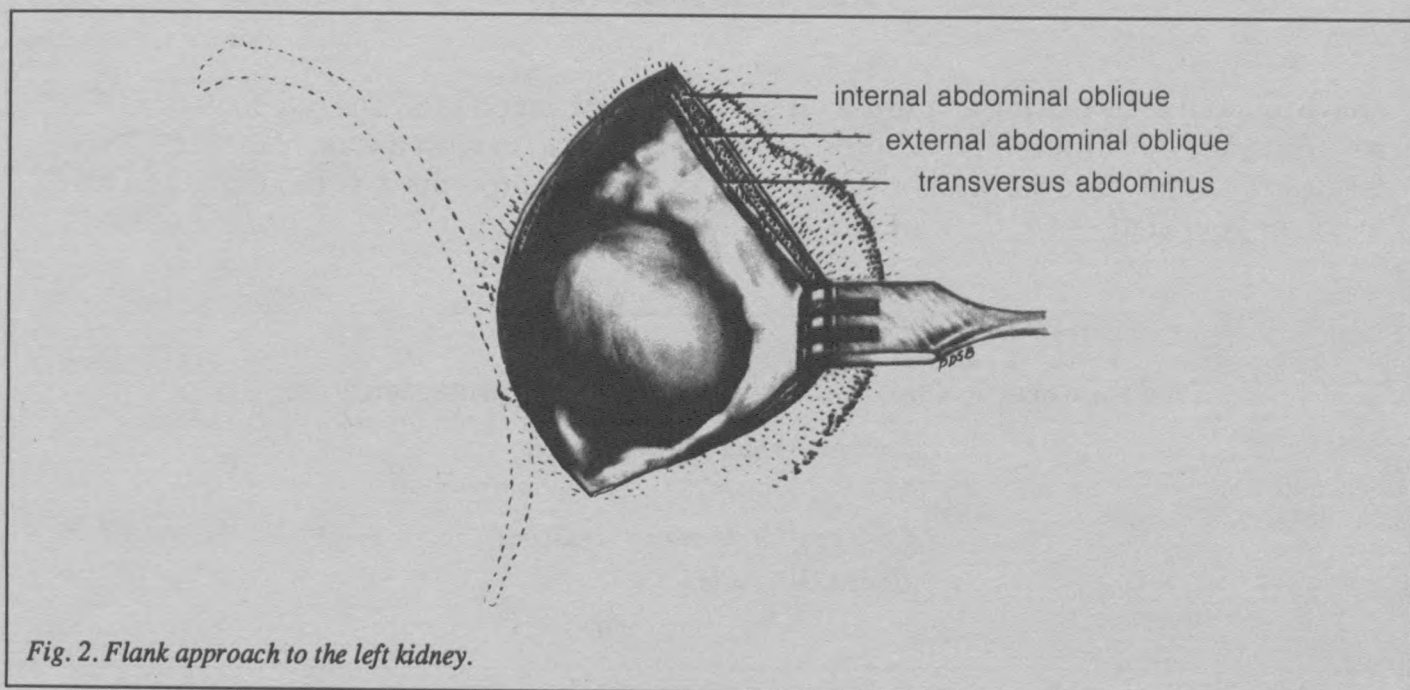
muscles are incised sharply, parallel to the skin incision. A grid approach with the muscular incisions parallel to the muscle fibers of the internal and external abdominal oblique is not recommended because the resulting kidney exposure is small. A vertical incision parallel to the transversus abdominus muscle fibers is made to enter the retroperitoneal recess of the kidney. A stay suture of 3-0 silk is passed through the renal capsule to stabilize the kidney. Stabilization

may also be done with the surgeon's fingers. The biopsy is done in the same manner as the ventral midline approach.

A Tru-Cut biopsy needle may be used as an alternative to the wedge biopsy technique. The biopsy site is closed in the same manner as used in the ventral midline approach. Each muscle layer is closed separately with 3-0 absorbable suture material in a continuous pattern. The subcutaneous tissue and skin are closed routinely. ■

*Dr. James A. Flanders is assistant professor of surgery at the College of Veterinary Medicine, Cornell University. He received his D.V.M. degree from the University of California. He did his internship and surgical residency at Cornell University.*

*The illustrations were reprinted with permission from Dr. James Flanders' chapter, Surgery of the Urinary Tract, in The Cat: Diseases and Clinical Management (Volume 2), Churchill Livingstone, New York, 1989.*



*Fig. 2. Flank approach to the left kidney.*

## Memorial Program—An Expression of Compassion

The Cornell Feline Health Center's Memorial Program provides a positive way to help your clients deal with the grief of losing their cherished feline companions. The program is simple, yet effective. After receiving your contribution and a completed memorial card, we send a personalized letter informing your client of your thoughtful gesture in memory of their pet. The response is gratifying as indicated by some of the comments we have received over the years—

*"Thank you for your kind letter telling me of the hospital's donation in memory of my cat. It is a great comfort to me to have her remembered in this way."*

*"Thank you so much for the letter telling of the donation made in our cat's memory. It is comforting to know that in some small way his death can help to improve feline health."*

Your memorial gift demonstrates your commitment to the continued progress of feline medicine, because the monies support the Center's work on developing effective treatments and methods of disease prevention for cats. Ultimately, the progress made by the Center benefits you and your client by helping feline patients live longer and healthier lives.

Discover for yourself the advantages of this program. Call 607-253-3414 for a Memorial Program starter packet. ■

### The Cat's Meow

I have found that by placing an unruly cat in a large-mesh onion sack, one can do vaccinations, nail trims, and other routine procedures very easily. Just start to twist the top of the sack. The cat is squeezed tightly into the position where you can do many procedures without physical harm to you or your staff.— *Dr. Eugene E. Curnow, Oregon*

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Send your practical tips and ideas on feline health management to:

*Cornell Feline Health Center  
The Cat's Meow  
College of Veterinary Medicine  
Ithaca, NY 14853*



## Brochures Keep Clients Informed

The Cornell Feline Health Center offers client information brochures on 10 different cat health topics. Brochures can be purchased through our office at a cost of \$20 per 100 copies. If you prefer to preview a sample of all 10 brochures before ordering a quantity, send for our sampler for only \$2.

If you are a professional member of the Cornell Feline Health Center, there is a 10% discount. (You are currently a *member if your mailing label is in black*. If your *mailing label is in red*, you are not currently a member. To qualify for the discount, send in your membership dues with your brochure order.) Please allow 4 to 6 weeks for delivery.

### Order Form

- Order for **brochure sampler** (10 brochures for \$2)
- Order for **quantity brochures** (please indicate quantities below)
- Professional Membership dues** (\$25) enclosed  
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**Brochure:**

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## Feline Health Center Announces Staff Changes

The Cornell Feline Health Center is pleased to announce the appointment of **Dr. James R. Richards** to the position of feline extension veterinarian for the Dr. Louis J. Camuti Memorial Feline Consultation and Diagnostic Service and assistant director. He will also have some responsibilities in the veterinary college's community service practice program. He will be joining the staff in September.

Dr. Richards is a 1979 graduate of the College of Veterinary Medicine at The Ohio State University. During the past 12 years he has worked in Ohio as staff veterinarian, relief veterinarian, and associate veterinarian in private practice. He is a member of the American Animal Hospital Association, and the Cleveland Academy of Veterinary Medicine.

**Dr. John E. Saidla**, who joined the staff in 1988 as feline extension veterinarian, has an expanded role in pet dentistry and primary care

medicine, as well as being the Director of Continuing Education at the College of Veterinary Medicine, Cornell University. His appointment began July 1.

Dr. Saidla was instrumental in developing and implementing a computerized system for the Consultation and Diagnostic Service. He has planned the annual feline seminars for veterinarians that began in 1989 at Cornell University.

### Is your mailing label in red?

If so, it means you currently are not a member of the Center. Use the form on page 7 to become a member today and take advantage of membership benefits!

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