



Cat Watch

October 2020 - Vol. 24, No. 10



Expert information on medicine, behavior, and health in collaboration with a world leader in veterinary medicine

© THIS JUST IN

U.K. Genetic Study May Shed Light on COVID-19

Pet susceptibility to coronaviruses being studied

According to *Vet Times*, researchers at the United Kingdom's (U.K.) Royal Veterinary College have received a grant of almost £200,000 (about \$259,000) by U.K. Research and Innovation to examine companion-animal susceptibility to two common coronaviruses: canine respiratory coronavirus, which can contribute to kennel cough in dogs; and feline enteric coronavirus, which can lead to FIP in cats. Both viruses are similar to SARS-CoV-2 that causes COVID-19.

The study, named MASCOT (Mapping Animal Susceptibility to Coronavirus: Outcomes and Transcriptomics), could help explain why certain people are more susceptible to COVID-19 and could help identify new treatment targets. This study is part of One Health, a collaborative, multisectoral, and transdisciplinary approach at the local, regional, national, and global levels focused on achieving optimal health outcomes by recognizing the interconnection between people, animals, plants, and their shared environment. The CDC's One Health Office leads the One Health efforts in the United States and abroad. ■

Ancient Skeletal Remains Found

Researchers believe this cat was a special pet

Common domestic cats, as we know them today, might have accompanied Kazakh pastoralists as pets more than 1,000 years ago. This notion is supported by new analyses done on a rare, almost complete cat skeleton found in southern Kazakhstan during an excavation along the former Silk Road, an ancient network of important caravan routes that connected Central and East Asia with the Mediterranean region by land.

After its death, the tomcat was buried, and virtually its entire skull including its lower jaw, parts of its upper body, legs, and four vertebrae have been preserved. Imaging revealed that the cat suffered several broken bones during its life. Based on a conservative estimate, the cat likely lived past its first year of life.

An examination of the cat's skeleton revealed astonishing details about its life. Isotope analyses of bone samples provided the team with information about the cat's diet. Compared to the dogs found during the excavation and to other cats from that time, this cat's diet was very high in protein, which means it likely was fed by humans toward the end of its life. DNA analyses proved that the animal was likely a domestic cat (*Felis catus L*). It is remarkable that this skeleton was found because, at that time (8th century AD), people only kept animals essential to their lives. ■

Haruda, A. F., et al. *The earliest domestic cat on the Silk Road. Scientific Reports, 2020; 10 (1) DOI: 10.1038/s41598-020-67798-6*



Worrisome Trend in Pet Nutrition

Few pets eat only conventional, commercial pet food

Researchers at the University of Guelph (Canada) found only 13 percent of dogs and 33 percent of cats are eating conventional pet foods exclusively, a finding that could put animals at risk. While 79 percent of dogs and 90 percent of cats were offered commercial pet food, most also ate homemade meals or raw or vegan diets at least some of the time. Few pets ate conventional pet foods only. Published in *BMJ's Vet Record*, the study surveyed more than 3,600 pet owners in Australia, Canada, New Zealand, the United Kingdom, and the United States.

This is the first study since 2008 to focus solely on pet-feeding practices, and it found that the practice of feeding pets unconventional foods has increased. The researchers believe that this trend is due to changes in pet owners' own eating habits toward less processed foods being transferred to the feeding of their pets.

Alternatively, they might see kibble as dry or boring and wonder how that could be good for their pets. The problem is that they may not be paying attention to the need for a nutritionally complete and balanced diet for their pets.

Nutrient deficiencies can occur with homemade pet diets if they are not formulated appropriately. The most common involve imbalances in quantities and ratios of calcium, phosphorus, and vitamin D, and these nutritional deficiencies or imbalances could cause a variety of physical problems. ■

INSIDE THIS ISSUE

Topical Anesthetic Makes Venipuncture Easier...	2
Generic Drug for Heartworm Prevention	2
How Do I Know She Loves Me?.....	3
FIP: Advances in Treatment.....	4
Five Feline Fun Facts	5
Interstitial Cystitis Is an Enigma.....	6
Choosing a Cat Harness	7
Ear-Canal Tumor Surgical Decision	8
Happening Now	8



Topical Anesthetic Makes Venipuncture Easier

Two studies show similar findings

A recent Brazilian study published in the *Journal of Veterinary Anaesthesiology Analogue* looked at placing intravenous (IV) catheters into the front legs of cats who had been sedated. Even with sedation, many cats will react negatively to catheter placement.

The study looked at 24 cats that were sedated with dexmedetomidine and methadone or nalbuphine. Sedation was allowed to take effect for 30 minutes before the leg was shaved and cleaned in preparation for the placement of a catheter. Half of the cats had a topical lidocaine-prilocaine cream applied 20 minutes before catheter placement, while the other half (controls) did not.

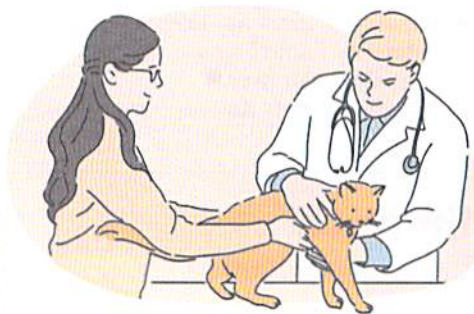
During the study, cats were scored on both level of sedation and reactions to the catheters. There was no difference in sedation scores between the two protocols used. None of the cats who received the lidocaine-prilocaine cream showed a negative reaction to catheterization, while all but one of the control cats did.

Based on the results of this study, an Italian study published in the *Journal of Feline Medicine and Surgery* evaluated the use of the lidocaine-prilocaine cream for jugular venipuncture (withdrawal of blood from the jugular vein) in cats. In this study, 18 client-owned cats had their necks shaved for venipuncture and half of the cats had liquid paraffin (placebo) applied, while the other half had the lidocaine-prilocaine cream applied to the area. The areas were lightly covered after application of the treatments. After 30 minutes, a blood sample was drawn.

In the study, the person drawing the blood, who did not know which treatment the cat had been given, subjectively scored the cats for stress and ease of sampling. All but one of the cats who received the lidocaine-prilocaine treatment were believed to be less stressed, and all but one had easier blood draws.

These studies suggest that the use of topical anesthetics can make venipuncture and catheter placement less stressful for cats. A drawback is the additional time required for the procedures, but this treatment may still be worth the extra time in some, if not many, situations. ■

<https://pubmed.ncbi.nlm.nih.gov/31129046/>



Transdermal Med for Heartworm Prevention

The FDA approved a generic transdermal preventative

Hearthworm disease is not just found in dogs. Cats can be infected too, even indoor cats if a mosquito gets into the house. Heartworm disease can be deadly in cats, and feline heartworm disease has been reported in every state.

The FDA recently approved Imoxi Topical Solution for Cats, a topical drug for heartworm prevention. It combines the systemic insecticide imidacloprid and the anthelmintic moxidectin, just like Advantage Multi for Cats.

Cats with heartworm not showing severe clinical signs are usually monitored to see if the condition resolves spontaneously. Because feline heartworm infections are usually characterized by a small number of worms, cats infected with heartworms most commonly do not show signs of disease and are often monitored until the infection spontaneously resolves. In some cases, though, heartworm disease can cause affected cats to become very ill, so heartworm prevention is recommended for all cats.

Cases where there is evidence of disease in the lungs and blood vessels can be monitored with periodic chest X-rays. Supportive therapy with small, gradually decreasing doses of prednisone is recommended for cats with clinically confirmed evidence of lung disease. Cats with clear signs of heartworm disease may require supportive intravenous fluids, oxygen therapy, cardiovascular drugs, and antibiotics. ■



CatWatch

EDITOR IN CHIEF

Bruce G. Kornreich, DVM,
Ph.D., Dipl ACVIM

EXECUTIVE EDITOR

Cynthia Foley

TECHNICAL EDITOR

Debra M. Eldredge, DVM

ADVISORY BOARD

James A. Flanders, DVM, Dipl ACVS,
Associate Professor, Clinical Sciences

Margaret C. McEntee, DVM,
Dipl ACVIM, DACVR,
Professor of Oncology

William H. Miller, Jr., VMD, Dipl ACVD,
Professor Emeritus, Clinical Sciences

Pamela J. Perry, DVM, Ph.D.
Lecturer, Clinical Sciences,
ACVB Behavior Resident

CatWatch is an independent
newsletter produced in collaboration
with the Cornell College of Veterinary
Medicine Feline Health Center



Cornell University
College of Veterinary Medicine
Feline Health Center

For information on your cat's health, visit
the Cornell University College of Veterinary
Medicine, Cornell Feline Health Center
website at www.vet.cornell.edu/fhc/.

Send Ask Dr. K questions and letters to the editor:

CatWatch*
535 Connecticut Ave.
Norwalk, CT 06854-1713
catwatcheditor@cornell.edu

Subscriptions: \$39 per year (U.S.) • \$49
per year (Canada). For subscription and
customer service information, visit
www.catwatchnewsletter.com/cs
or write to: CatWatch, P.O. Box 8535,
Big Sandy, TX 75755-8535. 800-829-8893



CatWatch* (ISSN: 1095-9092) is
published monthly for \$39 per
year by Belvoir Media Group, LLC,
535 Connecticut Ave., Norwalk,
CT 06854-1713. Robert Englander,
Chairman and CEO; Timothy H.
Cole, Chief Content Officer; Philip L.
Penny, Chief Operating Officer; Greg King, Chief
Marketing Officer; Ron Goldberg, Chief Financial
Officer; Tom Canfield, Chief Circulation Officer.
©2020 Belvoir Media Group, LLC.

Postmaster: Send address corrections to
CatWatch, P.O. Box 8535, Big Sandy, TX 75755-8535.

Express written permission is required to
reproduce, in any manner, the contents of this
issue, either in full or in part. For more information:
Permissions, CatWatch, 535 Connecticut Ave.,
Norwalk, Connecticut 06854-1713.

How Do I Know She Loves Me?

Feline affection is a subtle thing

While jokes abound about how cats just utilize humans as their slave caregivers, cats do care about and get attached to their owners. They just don't turn themselves inside out fawning all over them and licking their face like some dogs do. So how can you read your kitty's more subtle signs of affection?

Displays of Affection

"Cats can show affection in many ways," says Pamela J. Perry, DVM, PhD, Behavior Resident at Cornell University's College of Veterinary Medicine. "One of the most common ways a cat shows affection is through purring, which indicates contentment. However, some cats purr when they are ill or in pain, so the context of this behavior should be taken into consideration." If your cat is hunched in a hiding place or has her eyes wide with fear and her whiskers pulled tight, she is probably stress purring. But if she's snuggled up in your lap or strutting up to the door when you get home, she's one happy kitty.

"Other signs of affection include head bunting or cheek rubbing, which transfers pheromones from the cat's cheek glands to you," says Dr. Perry. "My favorite sign of affection is the slow blink. I often can get one of my kitties to demonstrate this behavior if I slow blink at her first. Other kitties express affection by grooming their owners, a type of allogrooming that cats display towards preferred feline associates."

While cats do often show some of these behaviors when you are dishing out the cat food (after all, who doesn't like dinner?), they will also show them during other points in the day, such as when you are both lounging on the couch or when you return home after running an errand. Your cat may also rub against your clothes or other items that smell like you.

If you just got your cat, it may take some time before she forms a bond with you and starts showing signs of affection. Relationships take work! Bring her her meals and treats (in moderation of course) and make sure she has places to hide where she feels secure. Provide opportunities for interactive play, such as with a wand toy, each day. As she settles in and gets used to you, initiate physical interaction such as petting. You can use



Cheek rubbing is a sure sign of affection.

treats to help gain her trust—gradually require her to come closer and closer to you to get the treat, working up to walking under one hand to get the treat from the other hand. Calm persistence will win her over.

Lost in Translation

Some feline indications of affection can be easily misunderstood. "Some cats solicit attention and affection through so-called 'love bites,'" says Dr. Perry. "When your cat is interacting with you, rubbing and head bunting may be mixed with a very gentle holding bite. Love bites are gentle and brief, intermixed with rubbing or licking, as opposed to harder bites accompanied by tail twitching and dilated pupils (which are a sign of petting-induced aggression)." So if your cat is doing some

silly nibbling on your arm, don't worry, she isn't evaluating you as her next meal—she's just saying she loves you!

It's Science

A 2019 study out of Oregon State University's Human-Animal Interaction Lab looked at how cats responded when they were left alone in an unfamiliar room for two minutes and then the owner returned. As it turns out, cats show many of the same attachment behaviors that dogs and human babies do. They care when their owners leave and when they return.

A Swedish study published in 2017 looked at how cats behaved while their owners were away and when they returned after two different absence lengths. The cats were left alone for half an hour and then for four hours. The cats did not behave differently during the two absences, but purred and stretched more when the owners returned after being gone for four hours! ■

You Should Know

These behaviors are signs of affection from your cat:

- ▶ Purring
- ▶ Cheek rubbing or head bunting
- ▶ Slow blink
- ▶ Grooming
- ▶ Gentle love bites

What is Allogrooming?

Allogrooming is when two members of the same species groom each other. This activity helps with bonding, forming and maintaining social relationships, and establishing hierarchies. Chimpanzees and Vervet monkeys are the most famous for their intricate mutual grooming, but many other species exhibit this behavior as well, ranging from bees to ravens to horses—and cats of course!



FIP: Advances in Treatment

A new compound offers hope in the fight

Until recently, the treatment of feline infectious peritonitis (FIP) focused on providing supportive care and alleviating symptoms (see sidebar). For a cat with fluid buildup in the chest and/or abdomen, for example, removal of that fluid can ease breathing and make an affected cat more comfortable. While drugs such as prednisolone, a corticosteroid that is often used to treat chronic inflammatory diseases, have anecdotally been reported to help some cats with FIP survive for weeks or even months, the prognosis is generally poor for cats diagnosed with this condition.

Immunostimulants and immunomodulators have also been tried in cats with FIP, with little success. Some studies show that polyprenyl immunostimulant, a compound approved for use in cats with herpesvirus

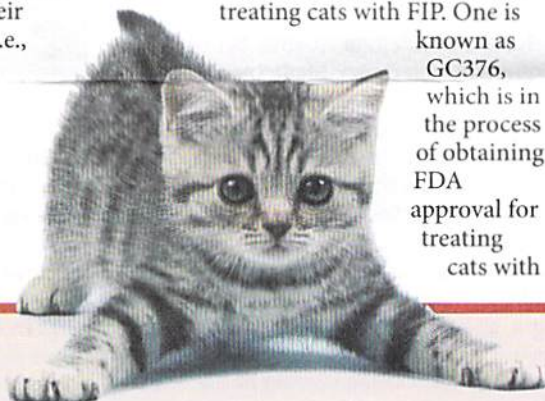
infections, may benefit some cats with the dry form of FIP, but these studies generally involved small numbers of cats and did not include a placebo group, which calls the interpretation of their results into question (the authors clearly acknowledged these limitations).

Research is now targeting anti-viral medications. "These are small molecules that are readily absorbed into cells and specifically target viral proteins that are essential for virus replication. Their toxicity for non-viral processes (i.e., cellular functions) is extremely low, making them both safe and efficacious," says Dr. Niels Pedersen, FIP researcher and professor emeritus at the University of California-Davis School of Veterinary Medicine (UC Davis).

Symptoms of FIP

- ▶ Fever that is not responsive to antibiotics
- ▶ Lethargy
- ▶ Poor appetite
- ▶ Accumulation of fluid in body cavities
- ▶ Neurological signs

Two drugs show promise for treating cats with FIP. One is known as GC376, which is in the process of obtaining FDA approval for treating cats with



What Is Feline Infectious Peritonitis (FIP)?

Most cases affect cats under 18 months old

Feline infectious peritonitis (FIP) has been a scourge for the cat world for many years. It is caused by a mutation in the normally well-tolerated feline enteric coronavirus, or FeCV. In general, FeCV is common in cats, resides in the intestinal tract, and rarely causes illness or damage. Some infected cats experience diarrhea and/or upper respiratory signs, but usually recover spontaneously.

FeCV is highly contagious (spread through feces or saliva), but most cats mount an immune response and develop a short-lived immunity. After that period, cats can be re-infected, and the cycle begins again.

Between 5 and 10% of cats infected with FeCV, however, the virus mutates to an FIP form, which can infect white blood cells and spread through the body, causing an intense inflammatory reaction that can cause fluid accumulation and damage to a variety of organs.

The mutated form of the virus is not believed to be contagious (i.e. mutations occur within a given cat after it is infected with FeCV), but mortality of cats with FIP is nearly 100% (this may change pending development of GS-441524). Cats with FIP tend to have a loss of appetite, lose weight, act lethargic, and may run a fever.

About 70% of FIP cases occur in cats under 18 months of age, with 50% of cases occurring in kittens under 7 months of age. Purebred cats, males, and, in some cases, senior cats are also at

risk. Any cat in a high stress situation with high housing density (such as a shelter or a cattery) is at higher risk of developing FIP. Kittens are felt to be at higher risk due to their immature immune systems.

There are two forms of FIP: dry and wet. The "dry" form of FIP involves granulomatous reactions, with a gradual worsening of illness. Eventually, an infected cat may show neurologic signs such as difficulty moving or seizures.

The "wet" or "effusive" form tends to progress rapidly. Affected cats will usually accumulate fluid in the abdomen and/or chest, which interferes with normal breathing. The fluid usually has a yellow tinge and is thick and somewhat sticky. Cats with milder forms of FIP may live for a year or more, but most cats die in less than 12 months from the time of diagnosis.

The definitive diagnosis of FIP can be challenging, particularly without analysis of accumulated fluid. In some cases, though, a presumptive diagnosis can be made with reasonable confidence. In cats that are less than 2 years old, for example, a presumptive diagnosis can be made if they experience a fever that is not responsive to antibiotics, the accumulation of characteristic fluid in the chest and/or abdominal cavity, and evidence of inflammation in the eyes. Further testing is always warranted in these cases, but cats demonstrating these clinical signs are likely to ultimately be diagnosed with FIP.

FIP. A second compound, the nucleoside analog GS-441524, is also being studied at UC Davis. This compound inhibits RNA replication. Since these two medications work through different pathways, having the two options could mean more success for cats with FIP.

In a study at UC Davis, 18 of 26 cats responded favorably to the first 12-week course of treatment with GS-441524. Some cats relapsed and required a second course, but at this time, 24 of these cats are doing well.

The clinical response of the 26 cats that completed at least 12 weeks of treatment was dramatic. Fever usually resolved within 12 to 36 hours, concurrent with a marked daily improvement in appetite, activity levels, and weight gain. Abdominal effusions rapidly disappeared over a one- to two-week period starting around 10 to 14 days post-treatment. Cats with thoracic effusions were usually dyspneic (struggling to breathe) upon presentation to private veterinarians, prompting removal of pleural effusions prior to coming to UC Davis. Residual dyspnea and thoracic effusion responded rapidly to treatment and were no longer apparent after seven days.

With the advent of these two drugs, veterinarians began to celebrate the notion of an upcoming cure for FIP, but the COVID-19 pandemic has slowed testing and funding. UC Davis reports that it may be two to five years before these drugs are routinely available to veterinarians.

Research investigating the development of a vaccine to prevent

the coronavirus mutation that results in FIP and of an accurate diagnostic test is ongoing at Colorado State University, but neither of these options is available yet.

Cats with naturally occurring FIP require at least 12 weeks of GS-441524 therapy, but this drug is currently not FDA-approved, is quite expensive, and should not necessarily be considered a cure for FIP at this stage. There are black-market sources offering these medications to pet owners, but the quality and exact composition of these products can vary widely. Unfortunately, your veterinarian cannot legally prescribe these medications at this time.

For now, owners of cats with FIP should discuss treatment options for their cats with their veterinarians. UC Davis and the Cornell Feline Health

Center maintain excellent resources on FIP that can help owners stay on top of developments related to this disease, and we at *CatWatch* will keep you informed. ■

Can I Prevent FeCV?

Preventing FeCV infection is challenging given its ubiquitous nature, especially in cats that are housed in high density (shelters, catteries). FeCV is contagious (through feces and saliva of infected cats) and infects other cats primarily via the oral cavity. Newly acquired cats and any cats suspected of being infected with FeCV may be separated from other cats, although the usefulness of this management strategy is debatable.

A Hot Connection?

Obviously, the treatment of coronaviruses is a hot topic these days. According to a story in *The Atlantic*, "An interesting thing about GS-441524 is that it is almost identical to a much buzzed-about human drug: remdesivir, the antiviral currently our best hope for treating COVID-19, the disease caused by the novel coronavirus. Although early data suggest that the drug shortens recovery time at best, Dr. Anthony Fauci has touted remdesivir from the White House. The Food and Drug Administration has authorized it for emergency use. And Gilead Sciences, the company that makes remdesivir, is donating 1.5 million doses of the drug amidst the pandemic." Sadly, for cats, the focus on the potential of remdesivir aiding in human COVID-19 treatment has led to a significant decrease in the number of studies investigating the use of GS-441524 to treat FIP.

© 5 THINGS

Five Feline Fun Facts

Little-known cat trivia you can share with friends

- 1 Darwin was a cat fancier. He attended the first cat show in 1871 and was particularly interested in polydactyl (extra toes) cats.
- 2 Tortoiseshell color is specific to cats and was the first X-chromosome-linked gene identified.
- 3 Male tortoiseshell cats are rare. Most have an extra X chromosome and are infertile. A few are chimeras (i.e., they have two sets of DNA because two embryos fused together in utero) of XX/XY. Only a few of these cats are fertile.
- 4 A unique anatomical finding in cats is that their auditory bullae (a bony capsule in the middle ear) is double chambered.
- 5 Cats with color points, like Siamese, may be cross-eyed or show nystagmus (abnormal eye movement) due to a defect in the optic chiasma of the brain. ■



Charles Darwin (1809-1882), best known for his theory of evolution by natural selection, loved cats.

A Word to Our Readers: CatWatch Mailing List Policy

Like many other publishers, we make portions of our customer list available to carefully screened companies that offer products and services we believe you may enjoy. Indeed, in all likelihood, we were able to first reach you only because another company graciously permitted us access to its customer list. If, when we make our list available, you do not wish to receive these offers and/or information, please let us know by contacting us at: CatWatch Opt-Out Program, PO Box 5656, Norwalk, CT 06856-5656. Please include your mailing label.

Interstitial Cystitis Is an Enigma

Potential causes vary, and stress is likely a factor

Feline interstitial cystitis (FIC) has been frustrating veterinarians for many years. While FIC is the most common diagnosis in cats with lower urinary-tract problems, its exact cause remains unknown.

Cats with FIC show classic bladder problem signs:

- ▶ Frequent visits to the litterbox
- ▶ Blood in the urine
- ▶ Urinating outside the litterbox

The urinary tracts of cats with FIC are (thankfully) not blocked, so they do pass urine, although often in small amounts (the inability to pass urine is an emergency that requires immediate veterinary attention). In cats with FIC, however, the bladder is inflamed, which causes significant discomfort/pain.

Leni Kaplan, DVM MS, lecturer in the Community Practice Service at the Cornell University College of Veterinary Medicine, notes that some owners will report that their cat is having trouble urinating. These cats need to be checked to be sure they can urinate. Some cats will be observed to excessively lick and groom the area around the vulva or penis.

Risk factors for FIC in cats include being male (which means that urinary blockage must be ruled out, as this is more common in male cats), young, overweight, having a nervous temperament, and eating more than 50% of the diet as dry food. Cats in multi-cat households are also overrepresented, which could reflect stress due to limited access to resources like food, water bowls, and litterboxes.

Diagnosis

Diagnosis is a process of elimination. A urine sample will be evaluated to rule out infections and urinary crystals. A blood chemistry panel is usually done to make sure the cat does not have any problems that could be contributing, such as kidney disease. Radiographs or an ultrasound may be done to look for bladder stones or cancer.

A definitive diagnosis can only be obtained via bladder biopsy obtained during a cystoscopic exam (this involves passing a small flexible fiberoptic camera into the bladder). Generally, the diagnosis is arrived at by ruling out other potential causes of the symptoms.



Finding the source of the stress is vital.

Treatment

The treatment of FIC is generally not straightforward. Data suggest that the bladder is a bit of a “stress” organ that can become inflamed when a cat experiences chronic anxiety (this is true in people as well).

Treatment includes reducing stress in an affected cat’s environment. “Reduction of stress in the cat’s environment is very important to controlling or eliminating FIC,” writes Susan Little, DVM, DABVP, in a recent publication. “Even cats that do not appear anxious or stressed may experience boredom if not properly stimulated.” And this can cause stress.

Urine contains substances that can irritate or damage the cells that line the urinary bladder. If the layer of mucus and glycosaminoglycans that helps to protect the cells of the bladder wall becomes defective or deficient, ulcerated areas can appear. Irritation to nerves in the bladder wall can then cause pain.

Dr. Kaplan suggests a multimodal initial treatment plan:

1. Analgesics to address pain. Your veterinarian may use non-steroidal anti-inflammatory drugs, opioids (such as buprenorphine), or gabapentin to address neuropathic pain.

2. Medication to help relax the muscles in the urethral sphincter so the cat can urinate more easily. These muscles can become spastic (contracted) after the cat has been straining for a long time.

3. Subcutaneous fluids to help dilute the urine so it is less irritating to the inflamed bladder and urethra. The fluids also help flush out the inflammatory debris to help promote healing.

Long-Term Help

These treatments help get your cat through the acute phase of FIC, however, about 50% of cats will have a recurrence within one year of the initial diagnosis. It is in the best interests of your cat to resolve the issues that are suspected to have contributed to FIC in the first place.

“Stress relief including MEMO (Multimodal Environmental Modification) is key to successfully managing these cases. Owners should be counseled regarding best diets for these pets (canned food with some added water always helps; prescription diets are also available). Despite many owners’ best efforts, some cats will need anti-anxiety medications as well. Finally, cats do develop medical conditions (such as bladder stones and urinary tract infections) that cause similar clinical signs, so it is crucial that owners have their pets examined by their veterinarians when they are having an episode or flare of cystitis,” says Dr. Kaplan.

MEMO involves owners taking a critical look at their cat’s environment and detecting areas that are potential stressors, such as the placement and number of litterboxes and food bowls if they have more than one cat. They all should be easily accessible.

Make sure you have safe, comfortable resting and sleeping spots in an adequate number. Ideally, there are some safe “hiding” spots available to your cat. You may need multiple scratching posts.

Cats need enrichment. Food puzzle toys, playing with your cat with a feathered wand, retrieving games, a window seat, and even a fish tank can all provide entertainment for your cat. Rotate toys. Take time to groom, play with, and interact with your cat daily. If you have multiple cats, they each need some private one on one time.

Diet is important. Canned food helps, and encouraging drinking is important to keep urine concentration down and flush the bladder. Dump and replace water daily. Ask your veterinarian about antioxidant and fatty acid supplementation. Some studies have suggested that these may help.

Despite all you do, however, some cats need anxiolytic medications to help their stress. Your veterinarian may prescribe these or may refer you to a veterinary behaviorist. Getting a handle on a cat with FIC may take some effort, but the reward is a healthier, happier feline companion. ■

Choosing a Cat Harness

Go with function first, style and color second

Whether you want to take your cat for safe outdoor excursions or just have a little more security when transporting her in your car, a harness is the way to go. Collars are more for identification purposes, and even for firmly attached collars, cats are exceptionally good at wriggling out of them or, if they don't, they may injure their throats in the attempt.

Types of Harness

Most cat harnesses fit into two general styles: H style or vest style.

H harnesses get their name because they look like the letter H from above when laid flat on the ground. One loop goes around the cat's head and neck and the other around the cat's ribcage behind the front legs, with the two loops connected by one or two straps (one that lies along the cat's back and, in some harnesses, another which runs along the belly between the front legs). The exact way that the straps attach will vary between manufacturers.

An H-style harness should be adjustable around both primary loops to allow you to fit it to your cat. Some harnesses are also adjustable along the back and belly straps. These harnesses generally have a metal O or D ring on top to attach a leash.

Vest harnesses, also referred to as holsters or jackets, have more material and look more like the cat is wearing a little vest. There are four holes when the harness is closed: one for the head, two for the front legs (although sometimes the legs share one larger hole), and one for the body of the cat.

Styles may be adjustable at the neck and waist or may only be adjustable at the

waist. Like the H harnesses, there will be a D or O ring at the top to attach a leash.

Snug Fit

The most important consideration when choosing a harness for your cat is that it fits her snugly so she can't wiggle out. You should be able to fit one finger between the harness and your cat's body. If you can fit two fingers comfortably, it is probably too loose. A visible gap when pressure is put on the leash is a bad sign.

Pay attention to size charts provided by the harness manufacturers. Measure your cat's dimensions with a flexible measuring tape to get accurate measurements. If your cat is at the small end of a size range, it is often better to buy a smaller size harness to be sure you will be able to adjust it to fit her body closely. If your cat has a small head, be wary of harnesses that are not adjustable in the neck area.

Other Considerations

Consider what you will be doing with your cat in her harness. If she is just going to wear it for short walks or to hold her identification while in her carrier on car rides, you have a lot of leeway with material and style. If your cat will be going on longer outings and is likely to be active, the harness should be made



Vest-style harness

of a durable material that can stand up to wear. The harness should also be comfortable for your cat. A fleece holster harness might be super cute for winter, but will get very hot and uncomfortable on a long walk in the summer.

Consider the sound that the harness' closure makes and how your cat will react to that. Plastic buckles and Velcro are attractive to us because they are quick and easy to manipulate, but they can be loud. Desensitize her to the sound of the buckle or Velcro by making the noise during playtime or during mealtime for a while before you try putting it on.

Safety features can be a nice addition, too. Some harnesses have multiple layers of closure in case one fails, and they can have reflective strips for nighttime visibility when walking. ■

Harness Training

It's all well and good to choose a nice harness that fits your cat appropriately—but **how do you go about that first walk?** Start by getting some special treats or a favorite toy and put the harness on your cat in the house. Properly adjust the straps immediately, then let your cat be. Most cats react as if the harness has paralyzed them, but some may jump around, trying to get out of it. Praise and reward your cat for being calm in the harness. After a few minutes, take it off. Repeat at least once a day until she is willing to move around while wearing the harness (this process may take days to weeks). At this point, you are ready to use the harness for safety purposes during a car ride or vet visit.

If you want to take your cat for walks, start by allowing your cat to take the lead—follow her where she wants to go in the house, at her speed. Over time, you can let her periodically feel pressure from the leash, but first you want her to be comfortable moving around.

Now you are ready to go outside! Your first few outdoor "walks" will probably be anticlimactic, as your cat will be taking in the sights and sounds of outdoors. Be patient, and allow her to go at her own pace. Over time, you can start exploring farther. If your cat likes treats, you can use them to reward her for walking with you or to steer her where you would like to go.



H-style harness

Ear-Canal Tumor Surgical Decision

Is surgery the right option for a 16-year-old cat?

Q I have a 16-year-old cat, and he has developed a tumor in his ear canal. It has been active and growing for six months. I have discussed options with my veterinarian, and the surgery is radical. I don't think it is the correct option for my cat. I clean the ear every day because it bleeds and there is an odor associated with it. I use MotaZol and ZYMOX on alternate days. Can you provide any advice about how it might be best to proceed?

A Thanks for getting in touch, and I am sorry to hear of your kitty's problem. I completely understand your reluctance to subject your cat to such a surgery, but perhaps a brief review of feline aural (i.e., related to the ear) tumors would help you make this important decision.

Aural tumors in the ears of cats most commonly arise from ceruminous glands (a specialized type of cell lining the ear canal that produces sweat, among other secretions). Unfortunately, ceruminous gland tumors are more commonly malignant (i.e., adenocarcinomas, accounting for approximately two-thirds of feline aural ceruminous gland tumors) than benign (i.e. adenomas,



A tumor in a cat's ear, originating from ceruminous cells.

accounting for one-third of feline aural ceruminous gland tumors) in cats. There is some evidence that these types of tumors may be more common in cats that have experienced chronic ear infections. Other malignant (i.e., squamous cell carcinomas) and benign (i.e., inflammatory polyps and basal cell tumors) masses may occur, but these are less common.

Ceruminous adenocarcinomas tend to invade other local structures, including the bones of the skull, and may metastasize to other areas, including local lymph nodes, salivary glands, and the lungs. Adenomas and polyps do not generally invade other structures, but may grow to the extent that they can occlude the ear canal and put pressure on adjoining tissues.

Regardless of whether they are malignant or benign, aural tumors can become ulcerated and may bleed and become infected, resulting in pain, itchiness, and, in some cases, balance problems if they invade the inner ear or an associated bacterial infection penetrates to this region.

The definitive diagnosis of aural tumors requires a biopsy, obtained either during otoscopic examination (this requires sedation or anesthesia) or by surgical removal of the tumor, which requires anesthesia. Advanced imaging of the head, including computerized axial tomography (CAT) scan and/or magnetic resonance imaging (MRI) may be recommended to more accurately characterize the extent of local invasion of the tumor in question.

The therapy of choice for aural tumors in cats is surgical removal, as this can be curative in the case of benign tumors and can provide a survival benefit with malignant tumors. For malignant tumors, radical surgery, including ablation (surgical closing) of the ear canal, combined with radiation therapy and/or chemotherapy may be recommended, depending upon the type of tumor and how invasive it is.

I hope that this is helpful, and I know that this is an important and difficult decision. I recommend that you continue to work closely with your veterinarian, and perhaps a veterinary oncologist, to help you make the right choice for your situation. Please send us an update when you can, and we wish the best of luck to you and your baby. ■



Elizabeth's popular column is being continued by Bruce Kornreich, DVM, PhD, DACVIM, Director of the Cornell Feline Health Center and Editor-in-Chief of

CatWatch. You can write to Dr. Kornreich at catwatcheditor@cornell.edu or CatWatch, 535 Connecticut Ave., Norwalk, CT 06854. We welcome digital photos of your cat to consider for use with your question.

© HAPPENING NOW...

Coronavirus in Cat—The United Kingdom's Animal and Plant Health Agency confirmed a SARS-CoV-2 infection in a cat, according to CNN. The cat likely contracted the infection from its owners, who had COVID-19. Both the cat and its owners have recovered. The cat's preliminary diagnosis was feline herpes virus, but the cat was tested for infection with the novel coronavirus as part of an ongoing study.

Grounded—According to the website cbc.ca, a Canadian cat named Spooky went on a

491-mile trip in the engine of a Peterbilt truck and ended up in the United States. The driver found the cat during a routine check of his truck and found the cat to be in excellent shape after the journey.

The truck driver called the number on the cat's collar, which was for the cat's veterinary clinic, who located the cat's owners. With the help of understanding border-patrol personnel, the truck driver drove the cat back to Canada and returned him to his owner. Spooky is no longer being allowed outside without supervision, say the owners. ■



Coming Up ...

- ▶ *Bumpy, Lumpy, Patchy Fur*
- ▶ *Using Steroids for Extended Time*
- ▶ *Support for the Terminal Cat*
- ▶ *Do I Really Need All That Testing?*