



Cat Watch

February 2019 - Vol. 23, No. 2



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

© THIS JUST IN

FDA Approves Revolution Plus

Approval comes 20 years after the release of original Revolution

The U.S. Food and Drug Administration (FDA) has approved Revolution Plus (selamectin and sarolaner topical solution), a new combination topical product that provides protection against fleas, ticks, ear mites, roundworms, hookworms, and heartworms for cats and kittens as young as eight weeks of age and weighing 2.8 pounds or greater. Revolution Plus combines the proven broad-spectrum protection of selamectin (found in Revolution) with the advanced flea- and tick-killing power of sarolaner.

"By adding sarolaner to selamectin, we have produced an innovative combination product with a broad endo- and ectoparasiticide spectrum for cats and kittens," says Tara Bidgood, DVM, PhD, Diplomate ACVCP, Executive Director, Veterinary Professional Services, Zoetis Petcare.

Revolution Plus is administered once monthly. It kills fleas before they can lay eggs and kills ticks for a full month. Zoetis expects Revolution Plus to start shipping to customers in early 2019. ■



Soothing the Savage Beast

Study indicates stress relief may be in a bottle

Many family cats show signs of stress at some point. It may be a short-term stress, which is a swiftly passing stage that may occur after a move or the addition of a new pet. But some cats show long-term stress. Stress may manifest itself as urinary marking, aggression toward people or other pets, scratching inappropriate things like furniture, or overzealous grooming leading to hair loss and possible skin lesions. Some physical ailments, such as idiopathic cystitis and chronic gastrointestinal problems, can also be stress-related.



Moving to a new home can be very stressful.

A study out of Ireland may have found relief for these stressed-out felines. The study looked at oral L-theanine, an amino acid found in tea leaves. It has a soothing effect on people, dogs, and various laboratory animals. L-theanine helps encourage brain alpha waves that are part of a relaxed, awake, and alert state, but it doesn't make the animal sleepy. In addition, physiological parameters that normally increase during stressful events (e.g. blood pressure, heart rate, cortisol secretion) tend to decrease.

The oral medication (Anxitane) was given to 33 cats whose owners had described stressful behaviors. Cats were given 25 milligrams twice a day for 30 days and 20 stress-related parameters were scored at Days 0, 15, and 30. Stress parameters included behaviors such as hiding but also aggression, elimination problems, and any other signs of stress. Most cats were willing to eat the medication either with meals or hand fed as a treat. No behavior modification was used.

Most of the cats showed improvement by two weeks but even better results were seen by the end of the month. Inappropriate elimination decreased.

This study suggests L-theanine is promising, but further research must be done. There was no control group, and the study relied heavily on owner observations (as opposed to objective measurements). Still, this is an option to discuss with your veterinarian. Anxitane is made by Virbac and does not require a prescription. ■

Ir Vet J. 2018 Oct 9;71:21. doi: 10.1186/s13620-018-0130-4. eCollection 2018.

Veggies Make Good Treats

Some cats enjoy these low-cal options

If your cat loves treats, but you see her weight increasing, consider vegetables as treats. It may take some experimentation to find out what she'll eat, but many cats like veggies. Two ounces is about 20 calories. Cut them up to the size of kibble and put it in a bowl. Hint: Some cats really like zucchini.

It's wise to cook the vegetables to liberate the nutritional density. Raw vegetables don't have any advantage except that they aren't as calorie dense.



Many cats like chopped zucchini.

Canned or frozen is a great option because of the convenience.

Stick with vegetables, however, and maybe a bit of apple. Remember, though, that cats aren't into sweets, so most fruits will not be enticing. ■

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AVMA Releases Stats on Pet Ownership

Cats remain second behind dogs, as poultry pets rise

Pet ownership is on the rise in the United States, with dogs leading the way and large increases in less traditional pets like poultry and lizards, according to the American Veterinary Medical Association (AVMA).

The AVMA's new *Pet Ownership and Demographics Sourcebook* says nearly 57 percent of U.S. households owned a pet at end of year 2016. About 38 percent owned one or more dogs—the highest rate of dog ownership since the AVMA began measuring it in 1982. Cats were the next most popular, at 25 percent of households.

More than 13 percent of U.S. households owned a specialty or exotic pet, a 25 percent increase from 2011. The number of poultry owned as pets climbed 23 percent in five years, with 1.1 percent claiming poultry as pets.

Dog owners have a higher propensity to obtain veterinary care than do owners of other pets. On average, dog-owning veterinary clients made three visits to the veterinarian. Cat-owning veterinary clients made 2.4 visits. ■



Excess Gastric Acid in Cats with Kidney Disease

One study shows treatment may not be necessary

Chronic kidney disease (CKD) is common in older cats. Decreased appetite, vomiting, and presumed nausea are commonly seen in cats with CKD, and it's been assumed this is due to hypergastrinemia (excess of the gastrin hormone that releases gastric acid), with subsequent increased gastric acid production and mineralization/damage to the mucosal lining of the stomach. To address this presumption, gastric acid suppressants are often administered, despite the fact that there is no evidence that cats with CKD have reduced gastric pH nor that cats diagnosed with CKD derive any benefits from gastric acid suppressant therapy.

A study using orally administered pH monitoring capsules and serum gastrin measurements in cats with naturally occurring CKD and healthy control cats found no difference in either gastric pH or serum gastrin concentrations between these two groups. This suggests that cats with CKD may not require gastric acid suppressant therapy. ■

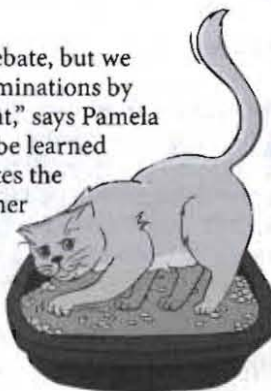
J Vet Intern Med. 2017 Sep;31(5):1414-1419. doi: 10.1111/jvim.14807. Epub 2017 Aug 20.

Litterbox Covering at 1 Month of Age

Why cats do this remains a mystery

Why cats cover their feces in a litterbox is a subject of debate, but we know it begins at a young age. "Kittens cover their eliminations by 1 month of age by raking loose dirt over the excrement," says Pamela J. Perry, DVM, Ph.D. "The specific site and substrate tend to be learned from the queen. It is believed that the odor of the feces initiates the burying behavior. In fact, some cats will cover the feces of other cats in the household.

"Most cats prefer uncovered litterboxes, probably because they have more room to move around and the odor isn't trapped inside the box. Cats cannot see out well in a covered box, making them more vulnerable to being ambushed by another cat," says Dr. Perry. ■



CatWatch

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Send Ask Elizabeth questions and letters to the editor:

CatWatch

535 Connecticut Ave.
Norwalk, CT 06854-1713

catwatcheditor@cornell.edu

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Big Sandy, TX 75755-8535. 800-829-8893



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Chairman and CEO; Timothy H. Cole,
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Tooth Resorption

A simple name for a painful condition

Tooth resorption, still sometimes referred to as feline odontoclastic resorptive lesions or FORLs, is a common and painful condition affecting cats' teeth. In cats with this condition, one or more teeth slowly break down and resorb, exposing the pulp of the tooth. Estimates of how many cats are affected by tooth resorption range from 20 to 60 percent.

What Happens

Your cat's teeth are made up of several layers, just like yours. The outer, hardest layer is enamel, which protects the rest of the tooth. The thickest layer is dentin, a firm, somewhat bony material. The innermost layer is the pulp, which contains blood vessels and nerve endings. Normally, the dentin and enamel protect the pulp from the outside world.

When tooth resorption occurs, cells called odontoclasts break down the dentin layer of the tooth. This exposes the pulp, which can then be damaged by food debris and even the normal pressure of chewing. If you have ever had a bad cavity or a broken tooth, you know how painful this can be!

Eventually, the entire tooth will disintegrate and be resorbed by the body. Some cats will only have one tooth affected, while other cats may lose their entire set of teeth. The rate of resorption varies from cat to cat and sometimes tooth to tooth.

Unknown Cause

At this point in time, the cause of tooth resorption in cats is unknown. Odontoclasts are cells that occur



With a cooperative cat, your veterinarian can see any holes or inflammation.

normally (they are responsible for breaking down the roots of baby teeth to allow them to fall out), but we don't know why they sometimes go haywire. One theory blames excess vitamin D in cats' diets.

Signs

Tooth resorption often goes unnoticed by owners due to cats' stoic tendencies.

Things to watch for that indicate your cat may be suffering from tooth resorption:

- ▶ Swallowing kibbles whole rather than chewing
- ▶ Dropping food
- ▶ Tilting head to chew food on one side
- ▶ Reluctance to eat, especially hard food
- ▶ Decreased interest in picking up toys
- ▶ Crying when chewing
- ▶ Pain when mouth is touched
- ▶ Drooling
- ▶ Bleeding from the mouth
- ▶ Missing teeth
- ▶ Teeth that appear damaged

Chewing abnormalities are the most common sign that you may observe as an owner. In severe cases, a cat may stop eating completely.

If your cat allows you to look at his teeth, watch for small holes (especially if they get larger over time), jagged missing pieces of teeth, and teeth that seem to be covered by angry red gum tissue. This last sign is the body attempting to protect the tooth pulp with gum tissue since the dentin and enamel are gone.

Diagnosis

An oral exam should be part of your cat's annual veterinary visit. Your veterinarian

will gently pull back your cat's lips to view his teeth and will open the cat's mouth to get a view of the tongue and back of the mouth. If your cat is cooperative, your veterinarian will see any holes present on the outside of the teeth or other signs of inflammation. A full oral exam under anesthesia will allow your veterinarian to see all sides of the teeth and to measure any pockets between the teeth and gums.

The best way to diagnose tooth resorption is to do dental radiographs. This allows your veterinarian to view the entire tooth, including the roots beneath the gumline. Dental radiographs will require your cat to be sedated or anesthetized to keep him still and to protect the equipment.

Treatment

Treatment is to extract the affected tooth. This removes the source of discomfort and allows the gum tissue to heal over. If your veterinarian or technician comes across a resorptive lesion during a routine dental cleaning, and extractions had not been discussed beforehand, he or she will call to get your permission to remove the tooth. Extractions range from easy to difficult. Canines and three-rooted teeth are the most difficult to extract, and resorption makes it more likely that the tooth will fracture during extraction.

In some cases, it may be decided to leave a tooth that only shows minor damage and remove it if it becomes a problem. This usually happens when a tooth appears to be in generally good health but shows signs of resorption on x-ray.

If your cat has multiple extractions, don't worry. The mouth usually heals quickly, and your cat will be far more comfortable with the bad teeth removed than he was with them in his mouth. He will need to eat soft food during the initial healing process, but many cats are able to go back to their regular dry food without problems, even if they are missing several teeth.

Prevention

The bad news is that until we know the cause of tooth resorption, it is difficult to say how to prevent it from happening. The good news is that routine dental care, such as daily brushing, has plenty of other benefits for your cat's oral and overall health. The brushing action is more important than the toothpaste itself, so don't worry if your cat objects to the toothpaste. ■

Did You Know?

Tooth resorption has been observed in pet cats, feral cats, and wild felines.

Cats and Cavities

While they are technically possible, true cavities are rare in companion animals. It is possible to fill holes from tooth resorption if the pulp has not yet been exposed, but the tooth will continue to be resorbed, ultimately causing the filling to fail.

Good-Bye Severe Sinus Problems

Although reserved for cases that can't otherwise be managed, a rhinotomy may be the answer

Despite the disturbing definition that will first appear if you do an internet search for "rhinotomy" (mutilation or amputation of the nose), this procedure can be beneficial to cats experiencing chronic nasal problems. There are two primary surgical techniques: dorsal rhinotomy and ventral rhinotomy. In both cases, the surgeon removes part of the bone surrounding the cat's sinuses in order to gain access to the sinus and remove the source of the problem, be it a foreign body, a tumor, or infected tissues.

When Is It Necessary?

Surgery is rarely the first step in treating nasal issues. Upper respiratory infections are common in cats, particularly those housed in close quarters with many other cats (shelter, cattery, hoarding situation) or those living in stressful environments (shelter, outside). These infections affect the cat's nose and/or throat, and can be caused by viruses, bacteria, fungi, and/or protozoa.

If your cat or kitten is exhibiting some or all of the symptoms of an infection (see sidebar), your veterinarian will usually start with medical treatment. In many cases he/she will start by prescribing a broad-spectrum antibiotic

to address any bacterial infection that may be present, along with eye ointments if necessary. Cats with oral ulcers may need soft food to prevent eating from being painful.

Your veterinarian may send out swabs from your cat's eyes, nose, and/or throat for a respiratory panel to identify the cause of the infection. This is particularly useful for stubborn infections that aren't responding to the initial treatment, or for cats who are in poor health and need to be sure they are getting the most ideal treatment from the start.

But sometimes nasal issues either don't respond to treatment or respond for a short time and then return in full force. These chronic problems usually suggest either a severe infection and/or that the infection is being caused or exacerbated by a tumor or foreign body in the nasal passages. Tumors and foreign objects can result in chronic irritation or blockage of normal fluids, creating spaces for microbial infections to set up shop.

Your veterinarian may recommend x-rays, a CT scan, or nasal endoscopy to see inside your cat's nose. An endoscope is a flexible tube with a light and camera attached that can be inserted into a body cavity to perform a visual inspection.

A rhinoscope is an endoscope

designed specifically for use in the nasal passages. Many of these scopes also have attachments that can take biopsies and other samples. It may be possible to remove a foreign body or tumor using an endoscope. This procedure does require general anesthesia, as few cats are willing to sit still while a tiny camera is inserted up their nose. If rhinoscopy is not available or unable to resolve your cat's nasal problems, a rhinotomy may be the next step.

Dorsal vs. Ventral

For the dorsal approach, an incision is made in the front of the cat's face. A piece of one or both nasal bones is then removed to allow access to the sinuses so that the surgeon can remove tumors, foreign bodies, or any infected tissues present. If the bone itself is healthy, it will then be fixed in place before the surgery is completed and will heal like a normal fracture.

A dorsal rhinotomy allows the surgeon full access to the sinuses, but has a high likelihood of altering the cat's appearance (this is less severe if the bone is able to be replaced).

The ventral approach accesses the sinuses from underneath, going through the hard palate on the roof of the mouth. Pieces of bone will be removed to allow access to the sinuses and nasal cavity.

Symptoms of an Upper Respiratory Infection

- ➔ Nasal discharge
- ➔ Runny eyes
- ➔ Conjunctivitis (red, swollen tissue in and around the eyes)
- ➔ Coughing
- ➔ Sneezing
- ➔ Lethargy
- ➔ Poor appetite
- ➔ Oral ulcers, including on the tongue
- ➔ Difficulty breathing (rare)
- ➔ Neurological signs (if the sinuses are involved)



Sneezing is one of the symptoms of an upper respiratory infection, along with coughing, runny eyes, and nasal discharge.



Many feline upper respiratory infections are contagious, so cats living in close proximity are at risk.

A ventral rhinotomy is considered less invasive and has a better cosmetic outcome, but there is some debate over whether or not it allows the surgeon full access to the frontal sinuses. A cat will need to eat soft food after this surgery to allow the incision to heal.

Complications

Bleeding is a common complication of the rhinotomy surgery due to the large number of blood vessels in the face. Thorough bloodwork must be done before the procedure to ensure that the cat is healthy enough to undergo the operation and to evaluate clotting abilities. Blood transfusions may be necessary during the surgery if there is excessive bleeding. After the procedure, the cat's face, especially the nostrils, will need to be cleaned frequently to allow for proper breathing.

Nasal surgery can impact a cat's sense of smell, which may cause the cat to be disinterested in food. Appetite stimulants such as mirtazapine can help, or the cat may need to be syringe fed or to have a feeding tube placed temporarily.

The most common long-term

complication is chronic nasal discharge. Some studies found that as many as 75 percent of patients have persistent nasal discharge following the procedure. This discharge may be clear or mucoid. Some patients may also breathe more loudly than usual after the surgery. Both of these complications are most likely due to the altered anatomy of the nasal passages.

It is possible for the cat's cranial vault (contains the brain) to be opened during the procedure, which can have severe consequences depending on the situation. This is why it is important to have an experienced surgeon and to do diagnostic imaging beforehand so that

the surgeon knows exactly where the problem originates before going in.

Outcome

Cats are more likely to have good results post-rhinotomy if the cause of the nasal problems was a foreign body or infection. Malignant tumors have a poor prognosis, especially if the cancer has spread. However, if the tumor was affecting the cat's breathing ability, the cat may gain relief from having the tumor debulked. Exact outcome will vary depending on the type of tumor, whether or not the surgeon was able to achieve clean margins, and the cat's age and health. ■

5 THINGS

Five Things to Know About Supplements

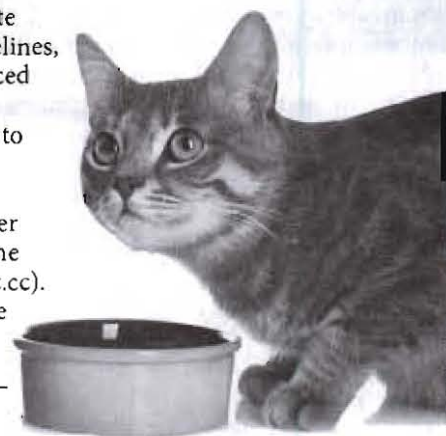
A nutritional supplement should fill a need in your cat's diet

Colorful advertisements boasting enticing benefits may compel us to purchase nutritional supplements for our cat. After all, we all want what's best for our kitty. But if you're feeding a quality cat food, you're likely all set. Good cat food manufacturers hire veterinary nutritionists who follow guidelines from the Association of American Feed Control Officials (AAFCO) to ensure that the foods are nutritionally complete and balanced. You shouldn't need to purchase a supplement unless your cat has a specific problem.

We've compiled five tips to help you determine if your cat would be helped by a supplement. Of course, consultation with a veterinarian is recommended before adding any supplements to your cat's diet.

- 1 Talk to your veterinarian before adding any supplements. Your cat may indeed have a specific need, such as glucosamine for joint pain or a probiotic to help you manage your cat's diarrhea. Avoid adding a product without a specific reason.
- 2 If you're feeding supplements, look at the levels of nutrients in your supplement and in the food you're feeding. Some nutrients, such as vitamin A, vitamin D, and selenium, can reach toxic levels if they are overfed.
- 3 Watch for overlapping ingredients. Your cat may not need a supplement or may not be helped by the one you are considering. Feeding multiple joint supplements with the same ingredients is not preferable to feeding more of one supplement.
- 4 If your pet is on a balanced and complete diet that is formulated to AAFCO guidelines, adding supplements may lead to an unbalanced diet. Some nutrients need to be fed in the correct ratio to one another, such as calcium to phosphorus.
- 5 Always check to ensure the manufacturer is legitimate. A good source for this is the National Animal Supplements Council (nasc.cc). Member companies undergo audits to ensure their products contain the ingredients listed on the label. ■

Source: Petfoodology, Cummings Veterinary Center at Tufts University



The Feline Infectious Respiratory Panel

This panel of tests from the Animal Health Diagnostic Center at Cornell School of Veterinary Medicine costs \$311 and includes an aerobic bacterial culture and sensitivity, cytology, virus isolation, and testing for chlamydia, calicivirus, feline herpesvirus, panleukopenia, and mycoplasma.

Acceptable samples include fluid from a transtracheal wash or bronchial alveolar lavage, nasal swabs, or throat swabs.

Feline Pancreatitis May Be Chronic

Diagnosis requires that cat owners be observant enough to see subtle symptoms

When pet owners think of pancreatitis, often the image that comes to mind is a dog who does a garbage raid and consumes a bunch of spoiled or fatty food. Dietary indiscretion usually is not considered a cause of pancreatitis in cats, perhaps because cats are more fastidious in their eating habits!

The pancreas is a slender organ located where the stomach and duodenum (first section of the small intestine) come together in the front right side of the abdomen. While it is a small organ, the pancreas is extremely important. It has two primary functions, called endocrine and exocrine.

A major component of the endocrine function of the pancreas involves the production of two hormones that are produced in cells called the islets of Langerhans. The first hormone is glucagon, which increases blood glucose, the preferred energy source for bodily functions. The second hormone is insulin, which decreases blood glucose by allowing it to get into cells.

The most common health problem associated with the endocrine activity of the pancreas is diabetes mellitus. Cats with diabetes mellitus may require insulin injections to prevent their blood glucose from getting too high.

The exocrine function of the pancreas involves the production of enzymes that help to digest your cat's food. Different enzymes work on proteins, fats, and carbohydrates. If your cat has pancreatic insufficiency, she will not produce enough digestive enzymes to maintain proper nutrition and can't absorb nutrients that have not been broken down into smaller components by these enzymes. In this case, she will usually require lifelong daily supplements of enzymes to help her digest meals. An emergency may arise if the pancreatic enzymes "leak" out of the pancreatic duct and begin digesting the pancreas itself (pancreatitis).

Diagnosis

Acute pancreatitis is the common form of pancreatitis seen in dogs. This is accompanied by vomiting and severe pain. Cats tend to have a somewhat more



A lethargic cat is not a normal cat, and the cause needs to be investigated.

subtle, chronic form of pancreatitis, and the clinical symptoms seen are less specific and may not be obvious, unless you are a careful observer of your cat.

Cats battling pancreatitis tend to have a decreased appetite, can lose weight, act lethargic, and may have diarrhea, which can lead to dehydration. With such nonspecific signs of illness, veterinarians look to diagnostic testing to determine whether pancreatitis is present.

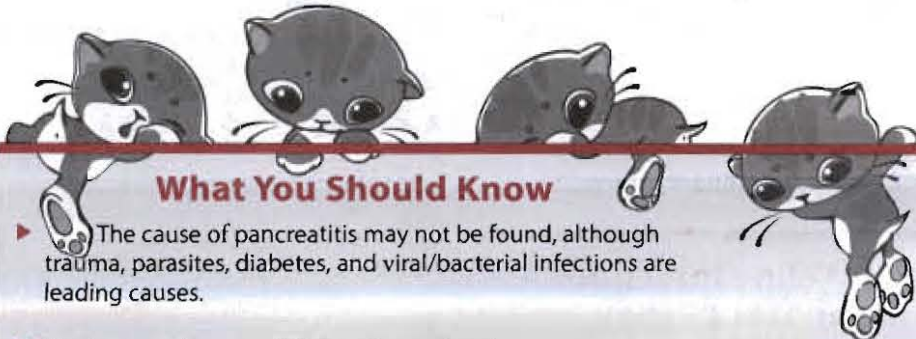
For the most part, radiographs (x-rays) are not useful here. Ultrasound can be helpful, especially if done by an experienced evaluator, but changes can

be very subtle.

Dr. Katie McClaine (Cornell DVM, 1996) of Cats Limited Veterinary Hospital in West Hartford, CT, points out, "Pancreatitis can be associated with calicivirus, toxoplasmosis, or feline infectious peritonitis (FIP) in cats. It is usually not associated with the ingestion of high dietary fat intake, as it is in the dog. I believe many of these cats have inflammatory bowel disease (IBD) along with pancreatitis. Pancreatitis may then develop secondary to inflammation from enteric bacteria or due to inflammation in the guts themselves resulting in inflammatory mediators that affect the pancreas." Parasite infections, toxic reactions to medications, and trauma are all considered possible causes of pancreatitis in cats. The exact cause of pancreatitis is commonly not determined in affected cats.

Diagnosing pancreatitis in cats via bloodwork can be challenging. The standard blood tests used in dogs, which measure amounts of certain pancreatic enzymes (amylase and lipase) aren't helpful in cats, although some blood tests for feline pancreatic function can help. Feline trypsin-like immunoreactivity (fTLI) and/or feline pancreatic lipase immunoreactivity (fPLI) can help to diagnose pancreatitis.

Elevations in fTLI may be seen in cats with IBD or gastrointestinal lymphoma. The most sensitive and specific assay



What You Should Know

- ▶ The cause of pancreatitis may not be found, although trauma, parasites, diabetes, and viral/bacterial infections are leading causes.
- ▶ Most cases of pancreatitis in cats are chronic.
- ▶ Severe pancreatitis can lead to kidney failure, respiratory failure, shock and/or death.
- ▶ The goal of treatment is to control pain and nausea and to assure adequate nutrition and hydration.
- ▶ Some cats may require pancreatic enzyme replacement therapy.
- ▶ Pancreatitis, inflammatory bowel disease (IBD), and cholangitis (inflammation of the bile duct) appear to co-exist in many cats. This is called "triaditis." These three problems have overlapping clinical and diagnostic findings, which may make individual diagnosis difficult at times.

Pancreatitis Symptoms

- Dehydration
- Diarrhea
- Increased respiratory rate
- Lack of appetite
- Lethargy
- Weight loss
- Less likely but possible:
- Vomiting
- Abdominal pain

for chronic pancreatitis (CP) is fPLI. However, this assay is most useful in cats with severe disease, as cats with mild CP may not have abnormal fPLI values.

"We base our diagnosis of pancreatitis first on the clinical signs in the patient," says Dr. McClaine. "We will often run a feline pancreas specific lipase blood test if we are presented with a cat that is not eating well, vomiting, and/or has abdominal pain, but this test is not perfect. It can be influenced by other disease processes." The gold standard for pancreatitis is a biopsy of the pancreas, but many owners are hesitant to authorize a biopsy due to cost and potential risks.

Treatment

Treating pancreatitis is a challenge. Previously, it was believed that withholding food and water would "rest" the pancreas. However, fluids are extremely important for cats with this illness. Fluids can be given subcutaneously or ideally, at least initially, intravenously. Feeding appropriately as soon as possible is also now realized to be important. Nutritional support is vital to help maintain an affected cat's well being and to aid in healing. The diet should be highly digestible and palatable to encourage your cat to eat on her own. Unlike dogs with chronic pancreatitis, affected cats do not need to be fed a low-fat diet.

Vomiting and nausea must be controlled to help your cat eat and keep food down. Once vomiting is controlled, your veterinarian may put in a feeding tube to ensure your cat receives adequate

nutrition if he will not eat on his own. Rarely, cats will need parenteral nutrition via an intravenous line.

Pain medications are important, as a painful cat won't eat or drink. As most of us know, cats are extremely good at hiding pain, often literally hiding themselves! Pain medications may be given orally, intravenously, or via transdermal patches.

Antibiotics are usually not required, as bacterial infections are uncommon causes of pancreatic problems (see sidebar "Study Shows Antibiotics Helped"). Glucocorticoids or steroids may be used to help reduce inflammation, especially for cats with chronic pancreatitis.

During a bout of acute pancreatitis, your cat might become insulin resistant. This is usually a temporary form of diabetes mellitus but, if there is enough damage to the pancreas, this could become a permanent problem. Short-term use of insulin may be required, followed by careful monitoring to determine whether your cat can be weaned off the insulin.

"Our treatment protocol includes supportive care and pain control. We want to get the cat eating again and may use fluid therapy, drugs such as mirtazapine and/or maropitant to control nausea and vomiting and improve appetite, and pain control such as buprenorphine. A feeding tube also is an excellent means of treatment if needed. We want to get these cats eating again as soon as possible to avoid hepatic lipidosis," states Dr. McClaine.

The prognosis for cats with either acute or chronic pancreatitis can vary. Cats with hypocalcemia (low blood calcium) have a poorer prognosis. Cats who have hepatic lipidosis either during a bout of pancreatitis or shortly thereafter also have a less favorable prognosis.

Acute pancreatitis can be fatal.

Chronic pancreatitis, with recurrent bouts adding to the damage of the pancreas, is not as dramatic, but can lead to serious complications requiring consistent long-term care. Diabetes mellitus is one of these potential complications, as is exocrine pancreatic insufficiency. Both require daily medications (insulin or enzymes) to keep your cat healthy. Treatment for either type of pancreatitis can be expensive and home care can be difficult.

Prevention

Prevention starts with proactive health care, including regular veterinary visits, necessary infectious disease testing, and a quarantine period before you add any new cats or kittens to your family. Keep your cat indoors and only allow him outdoors in an enclosure, high-fenced yard, or on a leash and harness to avoid risk of trauma.

Your next safeguard is to be observant every day. Feeding meals, as opposed to free feeding, allows you to notice any problems with appetite immediately. Watch for signs of pain that may be as subtle as hiding under the bed instead of lying on the couch. Caught early, pancreatitis is not only easier to treat, but the risk of permanent consequences such as diabetes mellitus is minimized. ■

What's a "Sensitive" Test?

You will see the terms "sensitive" and "specific" applied to diagnostic tests. High sensitivity means relatively few false negatives (i.e. cases in which a disease is present but missed). High specificity means relatively few false positives (i.e. cases in which a disease is diagnosed but is not actually present). Of course, no diagnostic test is 100 percent sensitive /specific.

Study Shows Antibiotics Helped

A new study from Israel on pancreatitis in cats looked at cats admitted to university hospitals for care. This was a retrospective study (looking back at 156 cats over a six-year period). As expected, the actual cause for the pancreatitis was unknown in most cases. Some factors associated with poor prognosis or death were not eating and requiring parenteral nutrition, low blood calcium, and in particular, low blood glucose (which would tie in with not eating and secondary liver problems). An interesting observation is that cats put on antibiotics did better. This may indicate these cats had infections traveling up through the bile ducts. A total of 122 cats survived. This study raises many questions that will need further evaluation.

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Why So Many Tests for FeLV?

Seemingly conflicting results are confusing

Q I recently took my 10-year-old Maine Coon indoor/outdoor cat to the veterinarian and had him tested for feline leukemia (FeLV). The initial test (ELISA) came back positive, and the follow-up test (IFA) came back negative. My veterinarian recommends retesting in 60 days or using PCR test, but I'm worried about my cat and confused about these tests and what they are telling us. Can you shed some light on this issue?



The Maine Coon is a North American breed, native to Maine and the official state cat.

A Thanks for getting in touch, and I understand your confusion about these tests. Let me explain how FeLV infects cats and the stages of infection detected by each test.

Cats infected with FeLV shed virus that can be infective to other cats in their saliva, urine, feces, and tears for varying periods of time, and infection of other susceptible cats occurs via the intake of virus (usually in the saliva and/or urine of another infected cat) via the oral and nasal cavity. The virus then travels to the lymph nodes in this region, and if the virus is not neutralized by an effective immune response, it replicates (makes copies of itself using the "cellular

machinery" of the host) and travels to the spleen, lymph nodes, intestine, urinary bladder, salivary glands, and the bone marrow in white blood cells called mononuclear cells.

If the immune system of the infected cat mounts a sufficient response at this point, the virus may be eliminated from all organs except the bone marrow, where it can remain in a latent state that can be reactivated later in life (called a regressive infection).

A regressive infection can usually be detected using a test called Polymerase Chain Reaction (PCR), which amplifies small amounts of FeLV genetic material (DNA). If a sufficient immune response is not mounted at this stage, the virus circulates in the bloodstream (called viremia, usually beginning two to four weeks after infection) and the cat becomes infective to other cats by shedding the virus in the body secretions mentioned above. Cats with regressive infections are not infective to other cats, but may become so at some point if the

virus in the bone marrow is reactivated (often by stress).

Both the Enzyme Linked Immunosorbent Assay (ELISA) and the Immunofluorescence Assay (IFA) tests detect a protein that is produced by the FeLV virus. The ELISA test detects this protein circulating alone in the blood (generally occurs earlier in the infection) and within white blood cells and platelets that are released from the bone marrow (generally occurs later in the infection), while the IFA test detects only virus within white blood cells (i.e. later in the infectious process).

ELISA is generally used as the first screening test, as it is technically easier to run and because it generally detects earlier stages of infection. A negative ELISA test is usually a pretty reliable indicator of whether a cat is infected by FeLV, but if the possibility of recent FeLV infection exists, this test may return a false negative result. This possibility can be addressed by repeating the ELISA test a minimum of 30 days after the initial test.

A positive ELISA should always be verified by performing a follow-up test. IFA is commonly recommended in this case, and this is reasonable, except in the case where a cat is not producing many white blood cells, in which case, the IFA may provide a false negative result. This problem can be addressed by running a PCR test to rule out a regressive infection. Cats with regressive infections will test negative on both ELISA and IFA in spite of the fact that they may ultimately develop FeLV associated conditions and become sources of infection for other cats.

Be sure to work with your veterinarian to devise the best diagnostic plan and isolate any cats whose FeLV status is undetermined from other susceptible cats.

All My Best,
Elizabeth



Elizabeth works with the Cornell Feline Health Center in providing the answer on this page (vet.cornell.edu/fhc/).

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Have a Question For Elizabeth?

Send Ask Elizabeth questions and letters to the editor to:

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

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