

Feline Interstitial Cystitis (FIC)

(Formerly known as Feline Lower Urinary Tract Disease, FLUTD, or Feline Urologic Syndrome, FUS)

and Urinary Blockage

What is FIC?

Feline interstitial cystitis (FIC) is a term used to describe the following clinical signs:

- Bloody urine
- Straining to urinate (may be mistaken for constipation/straining to defecate)
- Vocalization during urination
- Urinating outside of the litterbox
- Urinary blockage (almost always male cats, is an emergency)
- Licking the urinary opening due to pain

What causes FIC?

FIC has many primary causes, including:

- Infection: 1-5% of cases
- Urinary tract tumor: 1-5% of cases
- Bladder stones: 20% of cases
- Bladder stones and infection: 1-5%
- Urethral blockage: 20% of cases
- Emotional stress
- Unknown cause: 50% of cases; many of these are likely due to emotional stress or to pain, in the urinary tract or elsewhere in the body

Cats that are predisposed to FIC have a unique imbalance in the way their brain controls hormones. They are very sensitive to environmental stress, which manifests as urinary tract signs.

How do we manage FIC?

Cats with FIC are an average of 4 years old; these episodes tend to recur during times of stress, and then improve with old age. Many treatments can be given to cats with FIC, but while these treatments can make cats with FIC more comfortable, it appears that regardless of treatments given, cases of FIC will run their course over 1-2 weeks. Prevention of future episodes is much more effective.

Diagnostics recommended during an active episode of FIC:

- *Urinalysis*: this a urinary test that is best collected via sterile method called a “cystocentesis”. This test evaluates the urine’s acidity and concentration and looks for glucose, crystals, bacteria, blood and pus in the urine
- *Imaging*: while a urinalysis looks for urinary crystals, some bladder stones do not “shed” crystals; if your veterinarian is concerned that there may be a urinary stone, he or she will recommend an x-ray or an ultrasound. This will also enable your veterinarian to visualize your pet’s kidneys, liver and other internal organs, and look for urinary tract tumors.

- *Bloodwork:* if your pet is very sick or has a urinary block, your veterinarian will recommend bloodwork. This is to evaluate kidney function, to ensure the upper urinary tract is not involved; liver function, if your pet is not eating, as this may cause liver failure; electrolyte balance, as a urinary block can cause a dangerously high level of potassium in the blood, which must be corrected immediately

Treatments recommended during an active episode of FIC:

Cats that are stable and do not have a urinary block:

- *Pain medications:* if your cat will be managed as an outpatient, most veterinarians will put him or her on Buprenex, an opiate pain medication that is given orally. Some veterinarians may also administer Metacam or an alternative anti-inflammatory medication. FIC is a very painful condition, and pain medications are indicated in every case. If your cat is very sick and will be managed as an inpatient, your veterinarian will be giving him or her intravenous pain medications.
- *Antispasmodics and tranquilizers:* medications such as diazepam (Valium) or acepromazine will calm your cat and help his or her urethra to relax, thus increasing your cat's comfort and allowing him or her to urinate. These medications are both available as an injectable for in-house use, or as an oral for at-home use, depending on how your cat will be managed.
- *Cerenia:* this is an anti-nauseant medication that is also anti-inflammatory and anti-pain. While many cats with FIC may experience nausea associated with their illness (which can contribute to a poor appetite), they ALL have severe inflammation and pain. This medication is also available as an injectable and as an oral.
- *Adequan:* this is an injectable medication best known for use in animals with arthritis, however it has also proven helpful in cats with FIC. This is because the bladder has a protective lining composed of a glycoprotein called polysulfated glycosaminoglycan (PSGAG), which protects the bladder from the urine it contains (urine is acidic in pH and contains many toxins and irritants that the kidneys have filtered from the blood and concentrated for removal in the urine). Adequan is a synthetic PSGAG product that is given as an injection.
- *Fluid therapy:* if your cat will be managed as an inpatient, these will be given IV over the course of many hours. If your cat will be managed at home, these will be given under the skin (subcutaneously or "SQ"). These fluids not only compensate for dehydration, which many cats with FIC have because they may vomit and refuse food, but it also will help flush the bladder of the urine and all of the irritants and toxins it contains.

Cats that have a urinary block:

****This is a very serious condition; if you think your cat is not able to urinate or if he is crying out while in the litterbox, it is critical that you rush him to your nearest veterinarian. If you are a client of La Costa Animal Hospital and our clinic is closed, please bring your cat to California Veterinary Specialists at 2310 Faraday Avenue in Carlsbad, CA; their phone number is 760 431 2273. It is wise to phone them in advance, so that their veterinarians can prepare for your cat's arrival****

In addition to the above treatments, the following additional treatments will be recommended. It is not possible to manage cats with a urinary block as an outpatient—they will need to spend at least a few hours in the hospital, possibly a few days.

- *Correction of electrolyte and acid/base imbalances:* bloodwork will be drawn as soon as your cat arrives so that his pH and electrolyte balance can be assessed and correction of these imbalances can be started. This is absolutely critical—many cats with a urinary blockage have a dangerously high potassium level, which can result in sudden death.

- *Bladder decompression:* it is critical that the urine in your cat's bladder is released, or else the bladder can rupture. Ideally this is done with a urinary catheter, however if this is not possible this can be done by placing a needle directly into the bladder and removing the urine this way ("cystocentesis" or "cysto") into a syringe. Cysto is not ideal as the inflamed, stretched bladder is very weak and excessive manipulation can cause bladder rupture ****note: cysto is a very safe procedure in pets that do not have a urinary block****. Urinary catheterization requires general anesthesia, as your cat must be very relaxed for the catheter to be able to pass through his inflamed, spasming urethra. Furthermore, if he had a choice he would absolutely request that this painful but necessary procedure be performed under general anesthesia! The urinary catheter not only drains the bladder of its urine, but will dislodge the blockage, which is usually a plug made up of a combination of crystals and mucus produced by the inflamed urinary tract due to FIC.
- *Flushing of the urinary tract:* once the blockage is released, the bladder and urethra will be flushed multiple times with sterile saline via the catheter until the urine runs clear. With firm blockages, gentle flushing of the catheter may be required to dislodge the blockage.
- *IV fluid therapy:* cats that have been blocked will experience what is called a "post obstruction diuresis". This means that they will produce a very large amount of very dilute urine after their block is released. If they do not receive supportive IV fluids for this time, they will become very dehydrated.
- *Antibiotics:* **ONLY** if the urinalysis confirms there is a bacterial infection of the urinary tract. Inappropriate use of antibiotics can in fact predispose future urinary tract disease
- *Hospitalization:* your cat will remain in the hospital until it is safe to take him off of IV fluids and remove the urinary catheter. Many cats will re-block after the urinary catheter is removed, so your veterinarian will likely monitor your cat for several hours after removal of the catheter, before sending him home. The goal is to have your cat home with you by 2 days after they are admitted; 1 in 4 cats can go home after several hours.
- *Perineal urethrostomy (PU) surgery:* if your cat keeps on re-blocking after removal of the urinary catheter, a PU surgery is indicated. This involves surgical resection of your male cat's urethra to create a female-like urinary opening, which is much shorter and wider than his previous opening. This is **NOT** a treatment for FIC, it will just prevent future urinary blocks, which are a consequence of FIC. If your cat has a PU surgery done but receives no other treatment for FIC, he will continue to live in pain and discomfort. Cats that have had a PU surgery are more susceptible to urinary tract infections than they were before the surgery, so urine screenings to check for bacteria are recommended every 3-6 months long-term, even if your cat seems fine. If your cat's blockage is severe and cannot be displaced with a urinary catheter, this procedure may be done as an emergency.

Cats with a past history of a urinary block can re-block at any time! This could be the day that you bring him home, 1 week later, or 1 year later. **It is absolutely critical that you follow your veterinarian's recommendations to reduce the risk of a re-block.** Treatment of a blocked male cat is very expensive for you and very painful for your cat—it is not something you want to go through more than once.

Prevention of future episodes of FIC:

- *Increased water intake:* cats that have a history of FIC, and especially male cats with a history of a urinary block, **MUST** be fed a canned-only diet. Not a mix of canned and dry, canned only! This will help keep the urine dilute (your veterinarian will look for a urine concentration or "specific gravity" that is less than 1.035). If you need help to coax your "dry food addict" to eat canned food, please visit <http://www.catinfo.org/docs/TipsForTransitioning1-14-11.pdf>. To further increase water intake, consider offering your cat a fountain drinker if he or she prefers running water.
- *Prescription food:* if your cat has a history of a urinary block or urinary crystals or stones, a prescription diet such as Royal Canin® Urinary SO or Hill's c/d® will be recommended. These diets will modify the urine character to reduce

the risk of crystals and stones re-forming. It is critical that these diets are fed as the sole diet—**do not mix with other diets**. These must also be **canned**, for the reasons noted above; dry prescription diets are of little use.

- *Environmental enrichment and stress reduction*: many cats with a history of FIC are indoor-only cats who may be bored or stressed. Covered outdoor runs or “catios” are great ways to enrich the environment of indoor-only cats without exposing them to dangerous cars or coyotes. Inexpensive shelving, for instance from Ikea, can be installed for your cat to use the vertical space within your home, which can give your cat adequate room to play even in a small home. Litterboxes should be large (at minimum 1.5 times the length of your cat), uncovered and in a private place where your cat will not be disturbed by children, dogs, other cats or loud machinery. You should also ensure that your cat has multiple litterboxes so that he or she can get to the litterbox without being ambushed by children or other pets. For more information on enriching the environment of your indoor cat, visit <http://indoorpet.osu.edu/cats/>. For ideas on reworking Ikea furniture to enrich your cat’s environment <http://www.ikeahackers.net/> is a great resource, search for “cats” or “litter box”.
- *Hill’s c/d Multicare Feline Urinary Stress®*:
- *Weight loss*: obesity can predispose cats to FIC and urinary blocks; excess dietary carbohydrates are a large contributor to feline obesity. Cats are carnivores, so they should be getting most of their calories from protein and fat, and less than 7% from carbohydrates. Do not be fooled by diets labeled as grain-free! Many of these diets are high in vegetable and thus carbohydrate content. Canned food tends to be lower in carbohydrate, and environmental enrichment can also help to burn excess calories. The “Pet Health Library” on La Costa Animal Hospital’s website contains a table of low-carbohydrate canned foods: <http://lacostavet.com/pet-health-resources/pet-health-library.html>.
- *Anti-anxiety medications*: stressful events such as owner absences, visitors in the home, etc. will likely precipitate another episode of FIC or even a urinary block. Depending on your lifestyle and your cat’s susceptibility to urinary tract disease, you may wish to consider putting him or her on anti-anxiety medications long-term. If such events will be infrequent and your cat’s signs are relatively mild, it is appropriate to only put him or her on such medications in advance of such events, then taper off of the medications several days after the stressful event has passed. Amitriptyline is a commonly-used anti-anxiety medication; this medication may cause lethargy and weight gain, but does work quickly. Fluoxetine (Prozac) is an alternative option that usually does not cause lethargy or weight gain, but is very slow to have an effect (2 weeks to have any effect, 4-6 weeks for full effect) so is not ideal for short-term use, but may be a good option for long-term use.

Why can’t we just give my cat antibiotics? Cats with FIC that are less than 10 years old have a less than 2% chance of having a bacterial urinary tract infection. Not only is antibiotic resistance a serious public health concern, inappropriate use of antibiotics can predispose your cat to future resistant bacterial infections. If your cat’s urinalysis confirms a bacterial urinary tract infection, antibiotics will be prescribed.