

## THE PET HEALTH LIBRARY

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# Feline Idiopathic Cystitis

*(Lea este artículo en español)*

***(The disease formerly known as FUS and FLUTD)***

Feline lower urinary tract disease, or feline idiopathic cystitis, is the term describing the following group of clinical signs:

- bloody urine
- straining to urinate (can easily be mistaken for straining to defecate)
- urinating in unusual places
- urinary blockage (almost exclusively a male cat problem and constitutes an emergency)
- licking the urinary opening (usually due to pain).

A cat need only demonstrate some of these signs to be considered affected.

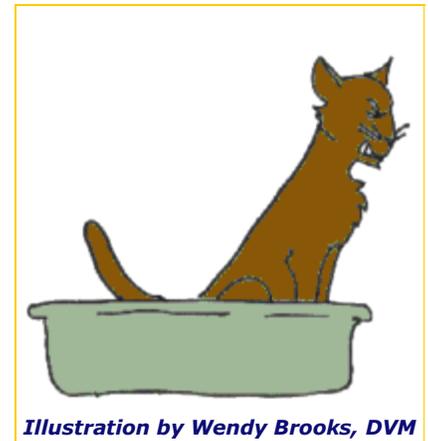
This syndrome has been described in cats for nearly 100 years and continues to be a common condition. The chief obstacle in eradicating this condition seems to be that any number of inflammatory conditions (infection, tumor, bladder stone, etc.) in the urinary bladder will produce the same symptoms. This condition has been called feline urologic syndrome, and was later re-named feline lower urinary tract disease.

### Sorting out Causes

The average age of a cat with FLUTD is 4 years. Of all cats with FLUTD:

- 50% will not have a cause that can be identified despite extensive testing.
- 20% will have bladder stones.
- 20% will have a urethral blockage.
- 1-5% will have a true infection.
- 1-5% will have a urinary tract cancer.
- 1-5% will have had trauma to the urinary tract (i.e., have been hit by a car etc.)
- 1-5% will have a combination of a bladder stone and an infection.

Hundreds of studies have been conducted to determine which causes are most likely for which cats. What has emerged from these studies is that for young adult cats, a definitive cause for the syndrome we call FLUTD cannot usually be found. These cats are said to have feline idiopathic cystitis or FIC, which means bladder inflammation of unknown cause.



*Illustration by Wendy Brooks, DVM*

### What Happens to Cats with FIC?

As the struggle to understand this common but confusing syndrome continues, some features of FIC have been observed:

- Lower urinary tract signs tend to recur.
- There seems to be an association with environmental stress.
- FIC seems to be a younger cat's problem, with episodes decreasing in frequency as the cat gets older.
- Urinary crystals, previously believed to be central to the syndrome, seem to be involved only peripherally.

- Numerous therapies have been used to curtail the episode once it has started but because the episode seems to last a week or two regardless of treatment, it is hard to be sure what is working.
- As difficult as it is to address an episode in progress, more success has been achieved in preventing future episodes.

### **Why Do only some Cats get FIC?**

We know that cats that get this syndrome have a unique imbalance in the way their brain controls hormones. In other words, these cats are unusually sensitive to environmental stress and, due to a complicated cascade of metabolic events, stress manifests in the urinary tract.

There are two parts of therapy: treating the episode and preventing future episodes.

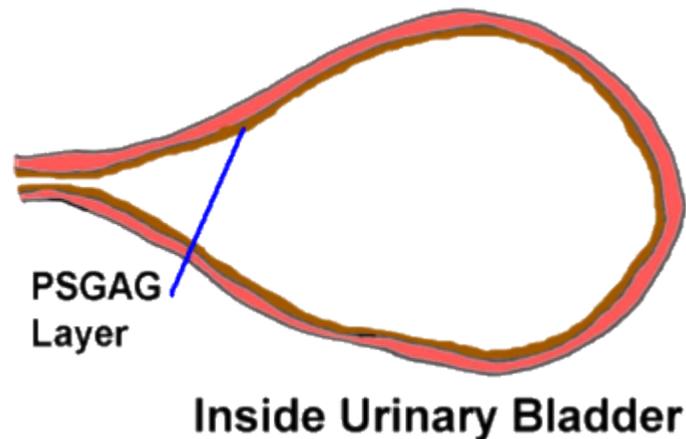
### **Treatment of the Non-Obstructed Cat**

Such patients include:

- Most female cats with FIC.
- Male cats with FIC that do not have a urethral obstruction.
- Male cats with FIC who have had their urethral obstruction relieved but are still suffering from their present FIC episode.

As we have mentioned, no definitive therapy has emerged for reliably curtailing the episode; still, we have a great deal of theory.

### ***Defective Mucous Lining Theory***



The urinary bladder is lined with a type of glycoproteins called PSGAGs. This material basically insulates the tissue of the bladder from the urine it contains. Urine can vary greatly in pH and can contain abrasive crystals in addition to assorted toxins and irritants that the kidneys have removed from the bloodstream and concentrated.

If the lining of the bladder becomes patchy, the tissue of the bladder is directly exposed to the urine and inflammation results. According to this theory, treatment might center on replenishing the PSGAGs that line the bladder, or distending the bladder periodically so as to deplete the painful inflammatory chemicals the bladder tissue has to release.

### ***Dietary/Urinary pH Theory***

Years ago it was commonly held that because commercial cat food was high in plant-based proteins (such as soy or grain), it could alter the urinary pH and lead to crystal formation, and that those crystals led to inflammation. This theory was later modified to include an interaction of urinary pH and dietary magnesium content leading to crystals and bladder inflammation. A massive reformulation of commercial cat food occurred in the late 1980s and the incidence of FIC rapidly decreased. Yet, FIC did not disappear completely, which tells us that this theory only fit some cases of FIC. Still, obstructed male cats most certainly show crystals in their urinary plugs. There are currently

different types of crystals involved in these plugs. Addressing crystals, especially in male cats, continues to be included in therapy for FIC.

### ***Environmental Stress Theory***

There has always seemed to be a link between environmental stress and FIC and now that a neurohormone link has been discovered, it is clear that many FIC cats can benefit from environmental manipulation. What is not clear is whether or not medication for anxiety can actually curtail an existing episode.

Aside from theoretical methods of limiting the duration of the episode, it is important to also consider the patient's pain. Painful urination can be excruciating and often therapy will include analgesics, urethral dilators, and muscle relaxants.

Since no single therapy has emerged to treat the existing FIC episode, often treatments are selected to cover multiple theories. The following medications are commonly used in the face of an FIC episode in progress.

### ***Anti-spasmodics and tranquilizers***

These medications help the painful urethral spasms that occur with the inflammation associated with the episode. They also help the urethra dilate so that urine can pass. Typical medications might include: acepromazine, phenoxybenzamine, or diazepam.

### ***Antibiotics***

While true infection is not typically involved in FIC, antibiotics are still commonly prescribed. There is controversy about antibiotic use since research seems to indicate that antibiotics may not alter the course of a typical episode. Antibiotics cover the 1-2% of cats that truly do have infection and some feel that some antibiotics have additional anti-inflammatory properties separate from their antibacterial ones.

### ***Urine acidifiers***

These are not used as commonly as they were in the past. The idea behind them is to assist in the dissolution of struvite crystals. They are still prescribed in some cases, but the approach is somewhat controversial given that most diets have been acidified already. It is also important to note that some cats have crystals made of oxalate stones, which will be exacerbated by acidifiers. Still, this therapy is sometimes prescribed especially if struvite crystals are seen in large numbers on the urinalysis report.

### ***Prednisone/steroid anti-inflammatories***

These medications are anti-inflammatory and may help with the swelling and pain but they can also promote infections in catheterized patients. These medications are probably not best used in patients who have received urinary catheters. Research suggests that they do not alter the course of the episode; however, many feel they help with the pain.

### ***Narcotic analgesics***

These medications are straight pain-relievers with no anti-inflammatory effects. Their effects often include euphoria and relaxation which can assist in keeping the urethra relaxed and spasm free. Typical medications might include the fentanyl patch, buprenorphine, tramadol, or others.

### ***Anti-anxiety medications***

These medications address the stress component that is believed to have been the trigger the episode to start with. The problem seems to be that these medications typically require several weeks to reach maximum effect in most patients and the FIC episode has generally resolved on its own before that. This suggests that these medications are better for preventing future episodes rather than for curtailing an active episode. Still, some patients seem to respond very quickly to this type of therapy so it may be worthwhile. Typical medications include: amitriptyline, clomipramine, and fluoxetine.

### ***Elmiron and Adequan***

These medications may strengthen and thicken the mucous lining in the bladder. At first developed to increase lubrication and decrease inflammation within arthritic joints, one theory of this disease is that the mucous lining of the bladder becomes disrupted in some cats, leading to an inflammatory reaction within the bladder wall and the consequences are the FLUTD syndrome.

### ***Subcutaneous fluids***

Two purposes are achieved by giving fluids under the skin. The first is distending the bladder. There is evidence that as the bladder wall stretches, inflammatory chemicals are released into the urine. By depleting the bladder wall of its inflammatory chemicals, there is less on-going pain. The other goal in giving extra fluids is dilution of the urine,

meaning that any irritants the urine contains will be diluted and rendered less noxious. Fluids may be given as a one-time dose in the hospital or as a continuing therapy at home.

### **Prevention of Future Episodes**

Many management strategies have been proposed to prevent further episodes of this painful and potentially life-threatening condition but only some techniques have been proven effective:

- Feeding primarily canned food/Increasing water consumption
- Environmental enrichment/Relieving environmental stress

#### ***Canned foods/water consumption***

By increasing the amount of water consumed by the cat, the bladder is more distended and the urine is more diluted (as described above in the subcutaneous fluid section). Canned cat food is 80% water so simply switching to canned foods will increase a cat's water consumption. Also, filling the water bowl while the cat is watching or getting a drinking fountain encourages the cat to take a drink. This recommendation stems from a study of cats that had urinary blockages and were divided into two groups, one receiving a therapeutic urinary canned diet and one receiving the same food dry. None of the cats on the canned version had subsequent urinary episodes during the time of the study while there was some recurrence in the other group.

#### ***Environmental enrichment***

One might think a cat has plenty of toys and seems relaxed and well-adjusted but the reality is that the cat's natural environment of living in the forest and hunting and eating mice regularly throughout the day is a far cry from sitting on a sofa, eating processed foods, and eliminating waste in a plastic box filled with clay. Most cats are fine with the domestic lifestyle but the FIC cat is special and has special sensitivity. Stress can be minimized by allowing choices for the cat in terms of where to play, rest, eat, and eliminate.

Here is a summary of recommendations that have been published:

- Each cat at home should have the opportunity to play with the owner or with another cat if he chooses to.
- Each cat should be able to move freely about her home including climbing if she chooses to.
- Each cat should have convenient access to a private rest area where other animals will not disturb him or an escape route should he be bothered. There should be no loud appliances in the rest area that might suddenly come on and be frightening.
- Scratching posts should be available.
- Toys should be regularly rotated and replaced.
- Each cat should be able to choose warmer and cooler areas within the home.
- There should be a litter box for each cat, ideally plus one extra. Litter boxes should be located in well-ventilated areas and should be kept clean. Boxes should be washed out weekly with a minimally scented detergent. Unscented clumping litter seems to be best. If there is more than one floor in the home, there should be a box on each floor. Litter boxes should be private enough that other animals will not be bothering the cat and loud appliances will not startle the cat during litter box use.
- Each cat should have her own food and water bowls. Feeding/watering stations should be safe so that other animals (like dogs) will not be startling the cat. Bowls should be washed daily.
- The brand, flavor, or format of the food (dry vs. canned) should be kept fairly constant. If it is changed, allow your cat a choice of new food vs. old food at least for a while before changing over, and do not change more than once a month.

Many people are surprised to find that environmental enrichment has been effective in prevention since it does not involve medication or diets but it is important to remember that what makes a cat vulnerable to FIC is a problem with the neurochemicals involved in stress.

For more information on environmental enrichment, read about the [Indoor Cat Initiative](#).

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