

Feline Lower Urinary Tract Disease (FLUTD)

Your cat has been diagnosed with lower urinary tract disease or a bladder infection. There can be several different causes for this, and several different forms of treatments.

Bacterial Cystitis

- **Cause.** This is the most commonly thought of cause of bladder infections, but it is usually secondary to another cause.
 - This happens when urine, which is normally sterile and anti-bacterial, is affected such that bacteria that are always present in the urethra are able to get into the bladder and cause infection.
 - Most common reasons for this are very dilute urine from chronic kidney disease or diabetes, or blood in the urine from crystals, stones, interstitial cystitis or trauma.
- **Diagnosis.** We will generally diagnose this by finding an elevated level of white blood cells or bacteria in urine sediment, but that does not definitively confirm bacterial infection.
 - If you have any concern about using antibiotics without a confirmed diagnosis of bacterial infection, we can do a urine culture, however this can take up to a week to get results, and it must be collected by cystocentesis (using a syringe and needle directly into the bladder, also known as a bladder tap) to avoid contamination.
 - In addition, it is possible to have bacterial infection in the lining of the bladder, but not the urine itself, resulting in a negative urine culture.
- **Treatment.** We will usually treat all initial urinary tract infections (UTIs) as bacterial cystitis until determined otherwise, as most other causes will eventually lead to secondary bacterial infection.
 - Treatment consists of antibiotics and pain medications.

Urinary Crystals / Stones

- **Crystals.** The most common urinary crystals will form in urine that is too alkaline or too acidic.
 - While high levels of bacteria can lead to alkaline urine, much more commonly it is certain diets that tend to affect the urine pH in one direction or the other. Not every cat will form crystals on these diets, but some cats are more sensitive than others.
 - The amount of water intake by the cat also plays a large part. The more water a cat drinks, the more the urine will be diluted, and the less likely crystals will form.
 - Crystals will almost always show up if present in a urinalysis performed at the clinic, but rarely will dissolve before being found.
 - Crystals can usually be dissolved by feeding special prescription diets or medications, and can be prevented by switching to foods that do not tend to alkalinize or acidify urine.

- **Stones** can form from either crystals clumping into stones, or from metabolic abnormalities that can cause certain minerals to build up in the urine in levels that will result in precipitation into stones.
 - Struvite stones, which form in alkaline urine, can be dissolved with special urinary acidifying diets.
 - All other types of stones must be removed surgically.
 - Most stones will show up on an x-ray or bladder ultrasound, but we cannot always determine what type of stone it is from the x-ray or ultrasound.

Interstitial Cystitis

- Also known as idiopathic cystitis, this is a stress induced inflammation of the bladder lining, resulting in blood or elevated white blood cells in the urine.
- **Cause.** This is caused when your cat's cortisol levels (stress hormones) increase from stress, resulting in a systemic inflammatory response that can affect multiple areas in the body, but in cats, we can see it manifest primarily as bladder inflammation.
 - While sometimes we can point to a recent stressful event, many times we cannot determine conclusively the cause of the stress.
- **Sequelae.** This inflammation in the lining of the bladder can result in bleeding, pain, irritation, and secondary bacterial infection. This in turn causes its own level of stress, resulting in a vicious cycle.
- **Diagnosis.** When we see chronically recurring urinary tract disease, and have ruled out other metabolic disease, crystals or stones as a cause, then we will often diagnose interstitial cystitis by default, as there is no easy test for this. The only way to definitively diagnose interstitial cystitis is to do a biopsy of the bladder which is invasive and rarely done.
- **Treatment.** The treatment for interstitial cystitis is multifactorial.
 - Initially, we will treat with antibiotics for secondary infection, pain medications to help block the pain cycle as a stressor, prescription diets to make the urine less irritating to the inflamed bladder lining, and anti-anxiety medications to reduce the cortisol levels from stress.
 - If we can point to a recent one time stressor, such as moving to a new home or upheaval in the daily routine, then once the cat has recovered from this, there is a good chance that the problem will not recur, and so medications may not need to be continued.
 - If we cannot point to a single stressful event, if it is something that the cat must contend with daily, such as another animal antagonizing them in the home, or if we cannot determine the cause of the stress, then we may want to try long term anti-anxiety medications.
 - Sometimes the stress can be from lack of stimulation, sort of a boredom stress. Increasing stimulation in the home can help with this, and in fact there is a very good website that has multiple suggestions on how to do this at www.indoorcat.org.
 - A recent study by Dr. Tony Buffington, who wrote the original website above, took multiple cats with histories of chronic interstitial cystitis from homes all over the country whose owners relinquished them due to chronic urinating outside of the box. For most of these cats, multiple treatments had been tried. When they gave these cats full indoor stimulation in a low stress environment, not a SINGLE cat had flare ups of interstitial cystitis.
 - However, it is not always feasible to do this, so that is why we will often use anti-anxiety medications, to lower stress levels.

Items that may have been sent home with your cat:

- **Antibiotics**
 - These are to eliminate any infection that may be present, or to help prevent infection until we eliminate the source of the inflammation in your cat's bladder.
 - If you are having trouble administering the antibiotic to your cat, please contact us, as we do have alternative forms of delivery for most antibiotics.
- **Pain medications** – this may be one of two different pain medications, or both together.
 - **Metacam (meloxicam)** – this is an anti-inflammatory pain medication similar to ibuprofen that lasts up to 48 hours. This is given once every other day orally, but if your cat will not take it, you can also mix it in moist food.
 - **Buprenex** – this is a narcotic pain medication that doesn't block pain, but helps your cat to disassociate from the pain. This will last 8-10 hours, so must be given twice daily. This medication is not effective if swallowed; it must be applied to the gums or under the tongue, or given as a subcutaneous injection.
 - These two pain medications can be given together for maximum pain control if needed.
- **Urinary diets**
 - There are two primary prescription diets that we will send home with cats.
 - **Science Diet S/D** is a urinary acidifying diet, and is designed to dissolve struvite crystals or stones in weeks to months. This diet is a short term diet, and is not safe to feed to other cats in the home. This diet must be fed exclusively to be effective.
 - **Science Diet C/D** is a urinary diet designed to create perfect urine pH of 6.2. This can be used to dissolve struvite crystals or stones over a longer period of time, but is more often used to improve bladder health for cats with interstitial cystitis, or to prevent multiple types of urine crystals from forming. This diet is safe to feed to all cats in the home long term.
- **Urinary pH /mineral medications**
 - If your cat cannot eat a urinary diet for any reason, then we can affect the urine pH with certain medications.
 - If your cat has metabolic issues causing a buildup of minerals in the urine, we also have medications that can help to remove these before stones can form.
 - These medications can come in several forms, so if you are having problems administering, please contact us for alternatives.
- **Anti-anxiety medications**
 - These medications are designed to lower your cat's stress levels, to help prevent bladder inflammation from interstitial cystitis.
 - We have 3 primary medications that we will use, all with different formulations, pros, and cons, so if we have sent one medication home with you, and you feel it is not working, or are not happy with the side effects, please contact us, and we can discuss the other medications available.

If you have any questions on any of the above, or on any of the medications sent home with your cat, please do not hesitate to contact us at All Feline Hospital at 402-467-2711 or info@allfelinehospital.com.