

BLADDER DISEASES IN CATS

About 5% of cats are affected by FUS, FLUTD or bladder stones. They are some of the most common reasons for clients to seek veterinary care. Signs of FUS and FLUTD in both male and female cats are bloody urine, straining to urinate (owners often think their cat is constipated), pain on urination, or frequent urination. Affected cats may avoid the litter box (they associate it with the pain they feel when they urinate). Cats with painful bladders often prefer to urinate on a cool, smooth surface such as a countertop or bathtub. You may notice the urine is dark or bloody in color.

Bladder disorders of cats go by two acronyms. It is confusing because what was once considered one syndrome has turned out to be several. Our current nomenclature categorizes bladder inflammation caused by crystals in the urine as FUS, for Feline Urologic Syndrome. Inflammation **not** caused by crystals or bladder stones goes by FLUTD or IFLUTD, for Idiopathic Feline Lower Urinary Tract Disease. You may also see it referred to as IC, for idiopathic cystitis. Both of these diseases are common medical problems of cats.

"Idiopathic" means we don't know what causes the problem (or "pathology"). "Lower urinary tract" refers to the bladder and urethra vs. the kidneys. FLUTD is basically chronic or recurrent bladder inflammation, for which we don't know the cause. Stress is a huge factor in bladder disease in cats, so the problem is often as much psychological as it is physical.

FUS, on the other hand, occurs due to the formation of crystals, made up primarily of magnesium and phosphorus, within the bladder. These crystals are variously referred to as triple phosphate, magnesium phosphate or struvite. These sand-like crystals irritate the bladder lining, causing pain and blood in the urine. Occasionally, the irritation they cause also allows bacterial infection to set in. Crystals form, or don't form, because of the metabolism of the cat and the pet food he or she is eating.

FUS affects both males and females, but due to their anatomy it is a much more serious problem in male cats. Crystals, blood and mucous clumping together can form a plug within the penis that blocks urination. A cat that is plugged and cannot urinate will become ill, and painful, very rapidly. If not treated in time, the bladder will rupture and the kidneys will fail. Death usually occurs within 24 hours. Affected cats may yowl, moan, crouch in a funny position or vomit from straining to urinate.

Female cats have a wider urethra, so they don't plug up as easily. They can, however, develop painful bladder inflammation (cystitis) from urine crystals, just as male cats do. Cats of either sex can also develop stones in the bladder or the kidneys. Kidney stones can also cause pain, as they do in people, and can lead to kidney failure.

To make matters more confusing, bladder or kidney stones can be formed from struvite crystals or another type of crystal called calcium oxalate, or occasionally other types as well. Younger cats are more prone to struvite stones, older cats to calcium oxalate stones. Struvite stones can be dissolved with special diets. Calcium oxalate stones usually require surgical removal, and then a special diet to prevent recurrence.

Older cats are much more likely to have a bacterial infection as a component of their bladder disease. In young cats bladder infections are uncommon. Therefore your cat's treatment may vary depending on age and the results of urine testing.

Diagnosis of all of these problems requires urine testing, often multiple times. Urine may be

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obtained by you at home or by us in the hospital, depending on the problem and the cat. We may need X-rays or an ultrasound to look for bladder and kidney stones, or blood tests to check on kidney status. Sometimes multiple problems coexist. Some cats even have a stone made of one kind of crystal and sand in the bladder from another type of crystal along with it. They may have short term problems with FUS and long term problems with FLUTD - or the other way around.

HOW ARE THESE PROBLEMS TREATED?

Let's start with treatment for FUS, the problem with struvite crystals. Females with FUS are usually healthy enough to be treated at home. Males that are plugged (unable to urinate) are anesthetized and a catheter is passed into the bladder, dislodging the plug. The catheter is left in place for several days to allow the bladder and urethra to heal. Treatment is also given for dehydration, kidney damage, infection and shock. Recurrent or severe blockages occasionally require advanced surgery by a specialist.

Both males and females will need to be treated with special diets, and sometimes antibiotics or anti-inflammatory medications. Prescription diets are usually continued for the lifetime of the cat, because without long term dietary management, FUS often recurs. As cats age, their urine pH naturally changes. By about age twelve we may want to change a cat's diet from one that prevents struvite crystals to one that prevents calcium oxalate ones, since calcium oxalate urine crystals are more common as cats age. Yearly or twice yearly urine testing is done to monitor the health of the kidneys and bladder. This is important not just because of FUS but because kidney disease is the leading cause of death in older cats.

The pH, or how acidic the urine is, affects whether crystals will form in the urine, as does the amount of magnesium in the food. Special diets for FUS maintain acidic urine, which helps keep crystals from forming. Once problems occur you should not feed any cat food that is not a prescription from your veterinarian. The majority of commercial cat diets have 10 to 20 times the amount of magnesium needed, which is way too much for a cat with bladder disease. Some of these grocery or pet store diets do an OK job at helping to prevent FUS from starting in the first place (and in fact this is one of the primary reasons to feed a high quality cat food), but these diets are insufficient for cats that have already had bladder problems. Also, do not overfeed, to prevent obesity. FUS and urinary obstruction are more common in overweight cats.

Encourage frequent urination by keeping your cat's litter pan clean. Provide plenty of fresh water. Some cats will drink more if they have a little water fountain (available in pet stores or pet supply catalogs and websites) or you can run a faucet for them. Although dry cat foods are more economical, cats with FUS benefit from canned food, as it gives them more water via the food. Increased water intake allows for more dilute urine, which makes crystals less likely to form.

Above all, remember that FUS in male cats is a true medical emergency. If you think your cat may be suffering from this problem call your veterinarian immediately!

Treatment of FLUTD is different. FLUTD is a mysterious problem. It tends to wax and wane, with episodes lasting anywhere from a few days to a few months. It often starts in young cats and is less common as they get older. Affected cats may have very bloody urine, yet may seem perfectly comfortable, or they may be miserable, spending hours a day straining in the litter box. The primary goal with FLUTD treatment is to make the cat more comfortable, and wait for the problem to go away. The worse the symptoms, the more intensive the treatment needed. Some cats have one episode in their life, while others have repeated episodes, sometimes recurring like clockwork every year.

Even if crystals in the urine are not the primary problem in most cats with FLUTD diets made to reduce crystals have been shown to decrease flare-ups of FLUTD and help cats recover more

quickly. Hill's now has a crystal diet that also has two ingredients to help with stress, called C/D Stress. This diet reduces the risk of recurrence of symptoms by about 80%!

To quickly reduce pain and stress and make cats feel better we usually use a combination of treatments. Therapy laser treatment can relieve bladder pain within minutes so we almost always do one or two treatments with the laser. We use a non-steroidal anti-inflammatory drug (NSAID) such as meloxicam, Onsior or carprofen, for bladder inflammation. An opioid pain medication called Buprenex can be helpful and we also use gabapentin, which is both a pain and an antianxiety medication. An older anti-depressant called amitriptyline seems to help some cats. It can reduce chronic pain as well and is used in people with idiopathic cystitis. Infusing medication directly into the bladder helps some cats too.

It's usually a process of trial and error to figure out what works. This can be a very frustrating disease process for cat owners. We will do our best to keep your cat comfortable with this disease, and we'll let you know as new developments in treatment come about.

The other main treatment for FLUTD is stress reduction and sometimes long term antianxiety medications. Fluoxetine (Prozac) is a great medication for chronic stress. Some cats are so sensitive to stress that even a change in diet or the time of day they are fed can trigger an episode of bloody urine or vomiting. People tend to get an upset stomach when anxious and cats can do that as well. Unlike people, the same cells that cause stomach lining inflammation with stress also exist in the bladder lining in cats. Bladder inflammation thus occurs with stress. Please see our handout on reducing stress in cats for more information on FLUTD treatment.