



**Red, Cream and  
Tortoiseshell  
Cat Society**  
Founded in 1901

## **Feline Uninary Syndrome (FUS)**

### **What is FUS?**

Feline urinary syndrome (FUS) is the name given to a group of symptoms that occur in the cat secondary to inflammation, irritation, and/or obstruction of the urinary bladder, urethra, and penile urethra. This Disease is also know as feline lower urinary tract disease (FLUTD). A cat with FUS can exhibit one, some, or even all of the symptoms.

There are many known and some unknown factors that may cause or contribute to FUS. Any cause resulting in particulate debris in the urine is capable of causing obstruction in the male cat.

Males seem to be much more likely to get this disease than females. There is no known means of prevention. Treatment can vary from diet to surgery. Cats may recover if the disease is caught in time. However reoccurrence often takes place.

### **Symptoms**

Symptoms may appear periodically during a cat's life.

In males, small particles may lodge in the male urethra and cause complete obstruction with the inability to pass urine. This situation is extremely serious if not treated quickly.

In females, straining to urinate, blood in the urine, frequent trips to the litter tray with only small amounts passed are the major indicators.

Obstruction usually occurs in the male cat and is most often confined to the site where the urethra narrows as it enters the bulbourethral gland and penis; small particles that can easily pass out of the bladder and transverse the urethra congregate at the bottleneck of the penile urethra to cause complete blockage. In the female cat, the female urethra opens widely into the vagina with no bottleneck.

Symptoms of obstruction are much more intense than those of bladder inflammation alone; this is an emergency requiring immediate steps to relieve the obstruction.

### **Symptoms include:**

- Frequent non-producing straining-no urine produced, discomfort, pain, howling.
- Gentle feeling of the cats abdomen reveals a tennis ball size structure which is the overdistended urinary bladder.
- Subsequent depression, vomiting and/or diarrhea, dehydration, loss of appetite, uremic poisoning, and coma may develop rapidly within 24 hours.

Death results from uremic poisoning; advanced uremic poisoning may not be reversible even with relief of the obstruction and intensive care. Bladders can be permanently damaged as a result.

### **Causes of FUS**

In general: any condition that causes stricture, malfunction, inflammation, or obstruction of the urethra. In addition, any condition that causes inflammation, malfunction, or abnormal anatomy of the urinary bladder.

#### **Known causes:**

- Struvite crystals accompanied by red blood cells—generally caused by a diet too high in magnesium relative to the pH of the urine. The ability of a given diet may cause problems in an individual cat is highly variable. Those cats with a history of this kind of FUS may respond well to a strict dietary management. Many cats do not have problems with a diet that may produce FUS in some individuals.
- Bladder stones, may occur from struvite crystals, or be secondary to bladder infections. There are metabolic disorders (not all are understood) that result in a higher concentration of a given mineral that can remain in solution; hence stones are formed. Diet may modify the concentration of a given mineral in solution in the urine. Water intake may modify the concentration of all minerals in the urine, and bacterial infection increases the risk of stone formation.
- Anatomical abnormalities such as congenital malformations of the bladder and/or urethra (early neutering is NOT a factor) OR acquired strictures of the urethra and/or scarring of the bladder.
- Trauma.
- There may also be various neurogenic problems affecting the act of urination (these may be difficult to diagnose except at institutions capable of urethral pressure profiles).

### **Management of FUS**

Obstruction of the male cat is a medical emergency. The obstruction must be relieved immediately.

Failure to produce a good stream of urine after removal of the obstruction is indicative of urethral stricture and/or stones or matrex plugs. Failure of the bladder to empty after relief of the obstruction suggests bladder paralysis (usually temporary unless present prior to obstruction). In either event, a urinary catheter may be placed to allow continual urination.

Treatment of uremic poisoning requires IV fluid therapy with monitoring of blood levels of waste products until uremia is no longer present.

Permanent urethral damage with stricture, the inability to dislodge a urethral obstruction, or inability to prevent recurring obstructions are all indications for perineal urethrostomy (amputation of the penis and narrow portion of the urethra to create a female-sized opening for urination). This

procedure is usually effective in preventing re-obstruction of the male cat, but this procedure should be a last resort.

If FUS is indicated without an obstruction, publications indicate that 75 to 80% of FUS cats without obstruction may be successfully managed by diet alone if urine reveals typical crystals and red blood cells. Unobstructed male cats or non-uremic obstructed males who have a good urine stream and bladder function after relief of an early obstruction may be managed as above initially. Cats who are symptom-free after 7 to 10 days of dietary management and who have normal follow-up urines at 21 days, may be maintained indefinitely with dietary management only.

DL-Methionine is often prescribed for cats with FUS. Most commonly, FUS-specific diets contain this acidifier. Antibiotics may be used. Distilled water for FUS-prone cats is often recommended as well.

**ALWAYS seek the advise of your veterinarian**