

# FELINE IDIOPATHIC LOWER URINARY TRACT DISEASE

## BASICS

### OVERVIEW

- “Idiopathic” refers to a disease of unknown cause; the “lower urinary tract” refers to the bladder and urethra (the tube from the bladder to the outside, through which urine flows out of the body)
- “Feline idiopathic lower urinary tract disease” is a general term for disorders of domestic cats characterized by blood in the urine (known as “hematuria”); difficult or painful urination (known as “dysuria”); abnormal, frequent passage of urine (known as “pollakiuria”); urinating in inappropriate locations (known as “periuria”), such as in a bath tub; and partial or complete blockage of the urethra (known as “urethral obstruction”)
- Varying combinations of these signs may be associated with any cause of feline lower urinary tract disease (also known as “FLUTD”)
- Similarity of clinical signs with diverse causes is not surprising, since the feline urinary tract responds to various diseases in a limited and predictable fashion
- Idiopathic feline urinary tract disease and inflammation of the bladder for unknown reasons (known as “idiopathic cystitis”) are diagnoses that are established only after known causes (such as kidney stones or urinary tract infection) of the described signs of urinary tract disease have been eliminated
- “Feline urologic syndrome” or “FUS” previously has been used by the veterinary profession as a diagnosis for the described signs of FLUTD; “feline urologic syndrome” is a misnomer as it is not a “syndrome” or a diagnosis, but rather a description of a collection of signs; when used, “FUS” should be defined as “feline urologic signs”

### SIGNALMENT/DESCRIPTION of ANIMAL

#### Species

- Male and female cats
- The incidence of blood in the urine (hematuria), difficult or painful urination (dysuria), and/or blockage of the urethra (urethral obstruction) in domestic cats in the United States and Great Britain previously has been reported to be approximately 0.5% to 1.0% per year

#### Mean Age and Range

- May occur at any age, but is recognized most commonly in young to middle-aged adults (mean age, 3.5 years)
- Uncommon in cats less than 1 year of age and in cats greater than 10 years of age

### SIGNS/OBSERVED CHANGES in the ANIMAL

- Difficult or painful urination (dysuria)
- Blood in the urine (hematuria)
- Abnormal, frequent passage of urine (pollakiuria)
- Urinating in inappropriate locations (periuria)
- Blockage of urine flow through the urethra to outside the body (known as “outflow obstruction”)
- Thickened, firm, contracted bladder wall felt by the veterinarian during physical examination
- Some cats with lower urinary tract diseases exhibit findings similar to those observed in humans with interstitial cystitis

### CAUSES

By definition, this is “idiopathic” disease for which the cause is unknown. Many possible causes have been suggested, such as the following:

- Noninfectious diseases, including interstitial cystitis
- Viruses implicated—calicivirus, feline syncytia-forming virus, and a gamma herpesvirus (bovine herpesvirus 4) have been suggested as potential causes in some cats
- Initial episodes of idiopathic lower urinary tract diseases usually occur in the absence of a significant number of detectable bacteria and white blood cells in the urine (known as “pyuria”); studies of male and female cats with and without blockage of the urethra (urethral obstruction) found bacterial urinary tract infections in less than 3% of young to middle-age adults and approximately 10% of senior cats

### RISK FACTORS

- Stress—may play a role in causing signs or in making the signs worse; unlikely to be a primary cause of FLUTD

## TREATMENT

### HEALTH CARE

- Patients without blockage of the urethra (nonobstructive lower urinary tract diseases)—typically managed as outpatients; diagnostic evaluation may require brief hospitalization

- Patients with blockage of the urethra (obstructive lower urinary tract diseases)—usually hospitalized for diagnosis and management

### **DIET**

- Appropriate dietary management recommended for cats with persistent presence of crystals in the urine (known as “crystalluria”) associated with plugs in the urethra, causing blockage of the urethra (urethral obstruction)
- Observations suggest that feeding moist rather than dry foods may minimize recurrence of signs; the goals are to promote flushing action of the bladder and urethra by increasing urine volume and to dilute concentrations of toxins, chemical irritants, and substances that lead to inflammation (known as “inflammatory mediators”), and components needed to produce urinary tract stones (known as “uroliths”)

### **SURGERY**

- Surgical incision into the bladder (known as “cystotomy”) to flush (lavage) and remove inflamed tissue (debride) the lining of the bladder mucosa is not recommended
- Surgical opening of the urethra (known as “perineal urethrostomy”) to minimize recurrent blockage of the urethra (urethral obstruction) should be considered only when the obstructive disease is localized to the area of the urethra within the penis (known as the “penile urethra”) by contrast X-rays of the urethra

### **MEDICATIONS**

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

- Propantheline may be considered to minimize hyperactivity of the bladder detrusor muscle and urge incontinence or the need to urinate frequently
- Amitriptyline, a tricyclic antidepressant (TCA) and anti-anxiety drug—has been suggested as a treatment for cats with severe recurrent or persistent signs
- Butorphanol, buprenorphine, and fentanyl—have been suggested for short-term pain relief (analgesia) in cats with inflammation of the bladder for unknown reasons (idiopathic cystitis)
- Phenoxybenzamine—may be used to minimize muscular spasm in the urethra and thus minimize blockage of urine flow related to muscle spasm
- Pentosan polysulfate sodium, a semisynthetic glycosaminoglycan—suggested to help repair the glycosaminoglycan coating of the lining of the urinary tract (glycosaminoglycan is a protein-carbohydrate compound, also known as “GAG”)
- Glucosamine alone or in combination with chondroitin sulfate has been suggested to help repair the damaged GAG layer coating the lining of the urinary tract
- Steroids—no detectable effect on relieving clinical signs; may make bacterial urinary tract infection more likely, especially in cats with catheters placed in their urethras to allow removal of urine from the bladder
- Nonsteroidal anti-inflammatory drugs (NSAIDs)—suggested by some, because of their anti-inflammatory and pain-relieving (analgesic) properties
- Dimethylsulfoxide (DMSO)—no detectable effect on relieving clinical signs
- Antibiotics and methenamine—no detectable effect on relieving clinical signs

### **FOLLOW-UP CARE**

#### **PATIENT MONITORING**

- Monitor blood in the urine (hematuria) by urinalysis; tapping the bladder (known as “cystocentesis”) to obtain a urine sample may introduce blood into the urine (known as “iatrogenic hematuria”), so collecting a urine sample from naturally voided urine is preferred

#### **PREVENTIONS AND AVOIDANCE**

- Observations suggest that feeding moist rather than dry foods may minimize recurrence of signs
- Reduce environmental stress

#### **POSSIBLE COMPLICATIONS**

- Use of catheters placed into the urethra and bladder to allow removal of urine from the bladder (known as “indwelling transurethral catheters”)—often cause trauma; may lead to bacterial urinary tract infections, because the catheter provides a pathway for bacteria to move up the urethra and into the bladder (and possibly to the kidneys)
- Surgical opening of the urethra (known as “perineal urethrostomy”)—may allow increased likelihood of bacterial urinary tract infections; postoperative scarring may lead to narrowing of the urethra (known as “urethral stricture”)

#### **EXPECTED COURSE AND PROGNOSIS**

- Blood in the urine (hematuria), difficult or painful urination (dysuria), and abnormal frequent passage of urine (pollakiuria) often are self-limiting in patients with most idiopathic lower urinary tract diseases; signs generally subside within 4 to 7 days

- Signs often recur unpredictably; frequency of recurrence appears to decline with advancing age

## KEY POINTS

- Blood in the urine (hematuria), difficult or painful urination (dysuria), and abnormal frequent passage of urine (pollakiuria) often are self-limiting in patients with most idiopathic lower urinary tract diseases; signs generally subside within 4 to 7 days
- Signs often recur unpredictably; frequency of recurrence appears to decline with advancing age
- FLUTD generally is treated symptomatically; few controlled scientific studies demonstrate effectiveness of most drugs used
- Male cats should be monitored for signs of blockage of the urethra (urethral obstruction)
- Reduce environmental stress by minimizing impact of changes in the home, and maintaining a constant diet; environmental enrichment for indoor-housed cats consists of providing necessary resources (such as food, water, litter boxes, space, play), providing a safe place to hide, refinement of cat-owner interactions, and management of conflict
- Provide proper litter-box hygiene

