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## Feline lower urinary tract disease - 2018 update

Gerber, Bernhard

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## ***Feline lower urinary tract disease - 2018 update***

### **Introduction**

Diseases of the lower urinary tract of cats are summarized under the term “Feline Lower Urinary Tract Disease” FLUTD. FLUTD describes the common clinical presentation of different diseases with a wide variety of causes. The signs of FLUTD are pollakiuria, stranguria, periuria and hematuria. (1) Obstruction of the urethra occurs frequently in this disease complex.

### **Causes**

If the cause of FLUTD can not be identified the disease is called idiopathic cystitis (FIC). Between 55% and 63% of the cats with FLUTD are considered to suffer from FIC.(2, 3, 4, 5) Common causes of FLUTD are urinary calculi, urethral plugs and urinary tract infections. Further less common causes of FLUTD are neoplasias (e.g. transitional cell carcinoma), acquired or congenital anatomic defects, and central nervous system diseases leading to micturation disturbances.

### **Diagnosis**

Because all forms of FLUTD have a very similar clinical presentation, laboratory tests and diagnostic imaging are required in each case to establish a diagnosis. Recurrent episodes in the same cat can have different causes and have to be worked up completely. (6) Urinalysis is very important and urine should always be collected before any therapy is instituted. Ideally urine should be collected by cystocentesis, however there is some debate about the danger of cystocentesis in obstructed cats. Urinalysis should include measurement of the specific gravity, a dip-stick analysis, analysis of the urine sediment and a urine culture. Serum biochemical analysis can provide information about underlying diseases. Furthermore it is important to identify and quantify metabolic disturbances including hyperkalemia or postrenal azotemia in cats with urinary tract obstruction.

On radiographs radio dense stones can be seen, furthermore size and form of the bladder can be evaluated. It is important to make sure that the distal end of the urethra is on the radiograph. Ultrasound evaluation of the urinary tract provides information about the bladder wall and the content of the bladder. Diseases of the urethra can be seen by contrast urethrography. Urethroscopy and cystoscopy are not routinely performed in cats with FLUTD.

### **FIC**

It is still not known what's causing FIC. Studies on associations with viral diseases and with bacterial DNA in culture negative urine could not be made. (7,8) FIC was suggested as model for interstitial cystitis in people.(9) Typical glomerulations (small petechial bleedings) in the submucosa of the bladder wall are part of the human disease and are required for the diagnosis. However cystoscopy is not routinely used for the diagnosis of FIC and the term interstitial cystitis is only applicable for cats in the few cases where cystoscopy was performed.

Risk factors associated with FIC are male gender, neutered, middle-aged (2-7 y), and overweight. Stress caused by husbandry or environmental factors like indoor housing are also associated with FIC. (10)

Cats suffering from FIC show pain, hematuria, pollakiuria, stranguria, periuria or are not able to urinate at all. This picture is not different from other causes of FLUTD.

### **Treatment of urinary tract obstruction/Prognosis**

Cats with urinary tract obstruction are emergency patients. The main goal of the therapy is to re-establish urine flow. Life threatening metabolic derangements like hyperkalemia or severe acidosis have to be corrected immediately. Possibilities for the therapy of hyperkalemia are: -infusion with NaCl 0.9%; -infusion with glucose 5%; -regular insulin followed by a glucose bolus followed by infusion with glucose 5%; -calcium gluconate 10% or -sodium bicarbonate.

If urethral patency can't be re-established, urine can be evacuated by cystocentesis. Possible side effects of decompressive cystocentesis are extravasation of urine into the peritoneal cavity and injury to a pre damaged bladder wall. Once the urethra is patent an indwelling catheter is left in place and connected to a closed urine collecting system. Reobstruction ratios are reported to be between 11% and 36% (11). Duration of catheterization seems to be important, leaving the catheter longer (mean 21.62 h vs 32.1 h) was associated with a lower recurrence rate and only establishing patency without leaving the catheter in place associated with a higher re-obstruction rate. (11,12) The size of the catheters left in place was associated with recurrence rate in one study, with bigger catheters (5 F vs 3.5 F) having a higher reobstruction rate. (13)

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