Zuku Review FlashNotes™  

Feline Lower Urinary Tract Disease (FLUTD)  

Extended Version

**Classic Case:** Strain often, vocalize, painful → small amounts urine → drops of blood/bloody urine → inside/outside litter pan → +/- obstruction

**VERY, VERY COMMON REASON CATS ARE RELINQUISHED TO SHELTERS**

**Presentation:** FLUTD is an umbrella term

- MANY possible underlying causes, including
  - Urolithiasis, urethral plugs, urinary tract infection, neoplasia, neurologic abnormalities, feline idiopathic cystitis (FIC), and anatomic defects.
  
  - Underlying cause of FLUTD must be determined because treatment for one cause may be contraindicated for other causes.
  
  - **Most common cause of FLUTD is cystitis followed by urolithiasis.**

- Males = Females (2 - 6 yo)
- NEUTERED
- Subacute to acute onset:
  - Stranguria (client thinks cat is constipated?)
  - Periuria (urination in inappropriate areas)
  - Pollakiuria
  - Hematuria
  - Vocalization
  - Excessive licking

- 2 scenarios

  - **Not obstructed**
    - Small, contracted bladder, +/- difficult to palpate, +/- empty, +/- painful

  - **Obstructed**
    - **Life Threatening Medical Emergency**
    - MALES >>> Females
    - Narrow penile urethra
    - Large, firm bladder palpable (feels like a baseball)
    - Depression, dehydration, weakness (occas. extreme), vomiting, hypothermia
    - +/- Cardiac arrhythmias, tachycardia or bradycardia
    - Rx: pass urinary catheter under anesthesia, drain/flush and IV fluids

**Differential Dx:**

Urolithiasis, urinary tract infection, behavioral disorder, neurologic dysfunction, anatomic urinary tract defect, bladder neoplasia (uncommon, but transitional cell carcinoma most likely)
**Test(s) of choice:**
- No test specific for FLUTD - Diagnosis of exclusion
- Dx often based on Hx, PE and UA, esp. at first presentation
- Urinalysis:
  - Routine and sediment exam
    - Often ↑ USG and protein
    - Hematuria, +/- crystalluria
- Urine culture & sensitivity:
  - Infection rare in true FLUTD cases in US
  - Infection more common in Europe
- With recurrence, atypical presentation, or obstruction, further workup recommended:
  - CBC and Chemistry
  - FIV/FeLV test
  - Radiographs: Entire lower urinary tract, include entire urethra!
    - See only radiopaque stones > 3mm
  - Occasionally need:
    - Contrast cystography
    - Double contrast cystography - to image stones < 3mm
    - Ultrasound of lower urinary tract
    - Cystoscopy +/- biopsies

If idiopathic FLUTD - NO abnormalities expected

**Rx of choice:**
- Many cats better w/in a few (5 –10) days regardless of Rx
- Relieve obstruction if indicated and correct electrolytes
- **Goals of Tx:**
  - ↓ Severity & duration of clinical signs
  - ↑ Interval between episodes
- Antibiotics **not** indicated w/ negative bacterial culture
- Management of feeding, water, litter, environment as below:

<table>
<thead>
<tr>
<th>Environmental enrichment</th>
<th>Feeding</th>
<th>Litter</th>
</tr>
</thead>
<tbody>
<tr>
<td>= Stress reduction</td>
<td>↑ H₂O content of diet</td>
<td>Rule = ‘One box per cat, + 1’</td>
</tr>
<tr>
<td>Separate cats if needed</td>
<td>Canned food</td>
<td>• Deep-sided w/ LOTS of litter</td>
</tr>
<tr>
<td>Provide hiding places</td>
<td>One food bowl per cat</td>
<td>• for digging, covering</td>
</tr>
<tr>
<td>Scratching posts</td>
<td>Separate locations</td>
<td>+/− Cover</td>
</tr>
<tr>
<td>Perches at windows</td>
<td></td>
<td>• Non-scented clumping litter</td>
</tr>
<tr>
<td>Views of outdoors</td>
<td></td>
<td>• ‘Safe’, private location</td>
</tr>
<tr>
<td>Climbing areas</td>
<td></td>
<td>• Scoop clean 1X daily</td>
</tr>
<tr>
<td>Designated play time</td>
<td></td>
<td>• Thorough cleaning weekly</td>
</tr>
<tr>
<td>10 minutes a day</td>
<td></td>
<td>• Older / arthritic cats</td>
</tr>
</tbody>
</table>

Encourage water drinking:
- Separate locations
- Multiple bowls
- Fresh water
- Wide-brimmed bowls
- Whiskers can’t touch
- Glass, ceramic, metal

Image courtesy Dr A Stambaugh
**Rx of choice:** (continued)

- Analgesics
  - NSAIDs: Onsior® (robenacoxib), meloxicam
  - Opiods: Buprenorphine

- If above Rx are not enough, may add the following:

<table>
<thead>
<tr>
<th>1) Feline facial pheromone (Feliway™)</th>
<th>2) Behaviour modifying drugs **</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Decreases perception of threat</td>
<td>Amitriptyline (Amitriptyline™) or</td>
</tr>
<tr>
<td>- Increases feeling of safety</td>
<td>Clomipramine (Clomicalm™)</td>
</tr>
<tr>
<td>- Diffuser - Constant delivery</td>
<td>- Tricyclic antidepressants</td>
</tr>
<tr>
<td>- Social stresses</td>
<td>- 4 weeks for full benefits</td>
</tr>
<tr>
<td>- Spray – for specific locations</td>
<td>- Liver enzymes prior to Rx &amp; q 6 mos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3) Glycosaminoglycan (GAG) supplement:</th>
<th>**</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Benefits some cats w/ Idiopathic cystitis</td>
<td>Possible adverse effects: sedation, weight gain, cardiac arrhythmias, urinary retention, anorexia, neutropenia, thrombocytopenia, vomiting, increased liver enzymes</td>
</tr>
<tr>
<td>- GAG deficiency in uroepithelium</td>
<td>**</td>
</tr>
<tr>
<td>- 125 mg of N-acetyl glucosamine PO q 24 hrs (Cystease™, Ceva Animal Health)</td>
<td>**</td>
</tr>
</tbody>
</table>

**Prognosis:**

- Prognosis depends on cat, environment, & client
- Good to excellent with diligent therapy, can be lifelong problems with some cats
- **Recurrence common, risk of obstruction increases with multiple episodes**

**Prevention:**

- **PATIENCE** (both DVM and client!) - Excellent client communication is KEY
- **ALL indoor cats need enriched environments**: this is often sufficient to suppress clinical signs

*Radiograph, urethral obstruction in a male dog, caused by three urinary calculi (blue arrows). (Yes, it’s a dog in feline notes, but it’s a good image to emphasize how little it takes to obstruct urinary outflow)*

*Image courtesy Dr. Kalumet*
**Pearls:**
- **RISK FACTORS:**

<table>
<thead>
<tr>
<th>Housing</th>
<th>Diet</th>
<th>Environment / STRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indoors only</td>
<td>Dry food</td>
<td>Multi-cat household</td>
</tr>
<tr>
<td>Litter box</td>
<td>Low water intake</td>
<td>Inter-cat conflict</td>
</tr>
<tr>
<td>management</td>
<td></td>
<td>LACK of routine</td>
</tr>
</tbody>
</table>

- Breed
  - ↑ Risk:
    - Persians
    - Long-haired breeds
  - ↓ Risk:
    - Siamese

- Season
  - Fall / Winter

- Other
  - ↑ weight
  - Low activity level
  - Neutered animals

- Successful Rx relies heavily on client’s bond w/ cat & commitment to follow recommendations
- Cause unknown
- Associated conditions:
  - Behavior disorders (fear, aggression, anxiety)
  - Dilated cardiomyopathy
  - Obesity