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# T-FloLoc™ INFECTION Protocol

*Note: This protocol is based on initial clinical experience presented at the Veterinary Interventional Radiology and Endoscopy (VIRIES) conference in 2017. Successful demineralization of a SUB device was accomplished in 8/10 devices and successful eradication of recurrent urinary tract infections was successful in 3/4 patients. The protocols recommended is what has been deemed to be safe and effective in this small groups of feline patients in the authors' experience.*

## T-FloLoc™ (Tetra-EDTA) Protocol for INFECTION

*Provided by Drs. Allyson Berent and Chick Weisse*

**Precautions:**

1. **Clip the port site and scrub using aseptic technique as usual when accessing the SUB™.**
2. **Follow instructions on SUB Flushing in *THE SUB™ FLUSH KIT or T-FloLoc™ IFUs.***
3. **Typically, DO NOT INFUSE MORE THAN 6-10 mL after emptying bladder. NEVER infuse more than you can remove. ALWAYS monitor renal pelvis using ultrasound or fluoroscopy during infusion. AVOID OVERFILLING THE RENAL PELVIS. Infuse in pulses and avoid using too much pressure to avoid overfilling pelvis. The goal is for the T-FloLoc™ to stay in the bladder and to coat the catheters as long as possible. Try to get the bladder empty through the SUB™ prior to infusion.**
4. **Must have pet on correct antibiotic before starting protocol. This material will clear the biofilm from the catheter but NOT the tissue of the bladder, ureter, and kidney. In addition, as the bacteria are released from the biofilm, systemic antibiotic therapy will help to kill the bacteria in the urine. If you cannot get on a proper systemic antibiotic, then the chance of success is likely lower to clear a recurrent infection associated with a biofilm on the catheters and in the urinary tissues. We recommend 3-7 days of appropriate antibiotic before starting this protocol so that you have a negative culture on the day of starting infusions. We continue antibiotics for a minimum of 4-6 weeks.**

**WEEK 1:**

**Day 1:** focused urinary tract ultrasound, CBC/CHEM, remove urine for urine cytology, urinalysis and urine culture, remove and quantify all urine from SUB(s) through the port, infuse up to 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder OR until the pelvis is getting some dilation (not more than about 6-10 mL total given VERY slowly). Do this under sedation if the patient is not compliant so that the patient can be in dorsal recumbency and immobile for 20-30 minutes (usually sedation is NOT needed). If patient is compliant, keep bladder small so that they do not urinate for 1-2 hours, and remove litter box from cage for 1-2 hours. Repeat drainage and infusion 2-4 hours later.

**Day 2:** Same infusion procedure as above with a urine cytology (no need for culture or UA)

**Day 3:** Same infusion procedure as above with urinalysis, cytology and culture.

**Day 4:** Same infusion procedure as above with a urine cytology (no need for culture or UA)

**Day 5:** Same infusion procedure as above with urinalysis, cytology and culture, and renal panel

**WEEK 2: INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 8-10**: Renal panel, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

**WEEK 3: INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 15-17**: Renal panel, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

**WEEK 4: INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 22-24**: Renal panel, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

**WEEK 5**: **STOP ANTIBIOTICS**** INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 29-31: Antibiotics should have been stopped 1-3 days prior to this visit.** Renal panel, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

**WEEK 6: OFF Antibiotics for 1-week INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 36-38:** Renal panel, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

**WEEK 8: INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 50-65**: Renal panel, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day. Then every 3 months thereafter: renal panel urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 1.5 ml per SUB device as long as that much or more is removed prior to infusion.

**WEEK 12: INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 78-80:** CBC/CHEM, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

**WEEK 18: INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 120-122:** Renal panel, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if

not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

**WEEK 30: INFUSE THIS ONE TIME DURING THIS WEEK**

**Day 204-206:** CBC/CHEM, urinalysis, cytology and culture, then remove and quantify all urine from SUB(s) port, infuse 75% of that volume under ultrasound guidance to fill the kidney, catheters and bladder (not more than 6-10 mL total). Do this under sedation if not compliant (usually sedation not needed) so that the patient can be in dorsal recumbency and immobile for 20-30 minutes. Remove litter box for 1-2 hours. Do not repeat same day.

REPEAT EVERY 3-months thereafter unless infection recurs and then modify schedule.

***For Technical Information, please contact:***

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and /or

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# T-FloLoc™ INFECTION Protocol CHART

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**Tetra-EDTA For Infection (please note the ranges denote flushing one time during that period, NOT every day; i.e. Day 8-10 = 1 infusion during that day range)**

| T-FloLoc™ - Infection | Day | 1 | 2 | 3 | 4 | 5 | 8-10 | 15-17 | 22-24 | 29-31 | 36-38 | 50-65 | 78-80 | 120-122 | 204-206 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 8-10 (1x in this range) | Day 15-17 (1x in this range) |
|---|---|---|---|---|---|---|
| ☐Focused UT US<br>☐CBC/Chem<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion 1<br>☐Infusion 2 | ☐Urine cytology<br>☐UA<br>☐Infusion 1<br>☐Infusion 2 | ☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion 1<br>☐Infusion 2 | ☐Urine cytology<br>☐UA<br>☐Infusion 1<br>☐Infusion 2 | ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion 1<br>☐Infusion 2 | ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion | ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion |
| **Day 22-24 (1x in this range)** | **Day 29-31 (1x in this range)** | **Day 36-38 (1x in this range)** | **Day 50-65 (1x in this range)** | **Day 78-80 (1x in this range)** | **Day 120-122 (1x in this range)** | **Day 204-206 (1x in this range)** |
| ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion<br>☐**Stop abx 1-3 days prior to next tx** | ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion | ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion | ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion | ☐CBC/Chem<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion | ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion | ☐CBC/Chem<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion |
| **Every 3 mo after** | | | | | | |
| ☐Renal panel<br>☐Urine cytology<br>☐UA<br>☐UCS<br>☐Infusion | | | | | | |

**Infusion procedure:**

1) Remove and quantify all urine from SUB(s) through port.
2) Infuse up to 75% of that volume under ultrasound guidance to fill the kidney, catheters, and bladder **OR** until the pelvis is getting some dilation (not more than 6-10 mL total). This may be done under sedation if patient is not compliant so that the patient remains in dorsal recumbency and is immobile for 20-30 minutes (sedation is usually not needed). DO NOT LET PELVIS ENLARGE. IF IT DOES, STOP UNTIL IT DECOMPRESSES DOWN THE SUB, AND THEN GIVE ANOTHER PULSE.
3) If patient is compliant, keep bladder small so that they do not urinate for 1-2 hours, and remove the litter box from the cage for 1-2 hours.
4) The second infusion should be done 2-4 hours after the first infusion.

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**Individual T-FloLoc™ Infection Protocol Chart**

**Name:** **MR#:**

| **Date:** | | | | |
|---|---|---|---|---|
| | **Day 1** | **Day 2** | **Day 3** | **Day 4** |
| **Culture** | | | | |
| **UA Sediment** | | | | |
| **UA pH** | | | | |
| **UA Bacteria** | | | | |
| **UA WBC** | | | | |
| **Cytology** | | | | |
| **Volume Removed** | | | | |
| **Volume Infused** | | | | |
| **% EDTA Infused** | | | | |
| **Times Per Day** | | | | |
| **Dwell Time** | | | | |
| **Sedation** | | | | |
| **Date:** | | | | |
| | **Day 5** | **Day 8-10 (1x in this range)** | **Day 15-17 (1x in this range)** | |
| **Culture** | | | | |
| **UA Sediment** | | | | |
| **UA pH** | | | | |
| **UA Bacteria** | | | | |
| **UA WBC** | | | | |
| **Cytology** | | | | |
| **Volume Removed** | | | | |
| **Volume Infused** | | | | |
| **% EDTA Infused** | | | | |
| **Times Per Day** | | | | |
| **Dwell Time** | | | | |
| **Sedation** | | | | |

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## Individual T-FloLock™ Infection Protocol Chart

**Name:** **MR#:**

| Date: | | | | |
|---|---|---|---|---|
| | **Day 22-24 (1x in this range)** | **Day 29-31 (1x in this range)** | **Day 36-38 (1x in this range)** | **Day 50-65 (1x in this range)** |
| **Culture** | | | | |
| **UA Sediment** | | | | |
| **UA pH** | | | | |
| **UA Bacteria** | | | | |
| **UA WBC** | | | | |
| **Cytology** | | | | |
| **Volume Removed** | | | | |
| **Volume Infused** | | | | |
| **% EDTA Infused** | | | | |
| **Times Per Day** | | | | |
| **Dwell Time** | | | | |
| **Sedation** | | | | |
| **Date:** | | | | |
| | **Day 78-80 (1x in this range)** | **Day 120-122 (1x in this range)** | **Day 204-206 (1x in this range)** | |
| **Culture** | | | | |
| **UA Sediment** | | | | |
| **UA pH** | | | | |
| **UA Bacteria** | | | | |
| **UA WBC** | | | | |
| **Cytology** | | | | |
| **Volume Removed** | | | | |
| **Volume Infused** | | | | |
| **% EDTA Infused** | | | | |
| **Times Per Day** | | | | |
| **Dwell Time** | | | | |
| **Sedation** | | | | |