

Just Passing Through: A Urethral & Ureteral Obstruction Guide

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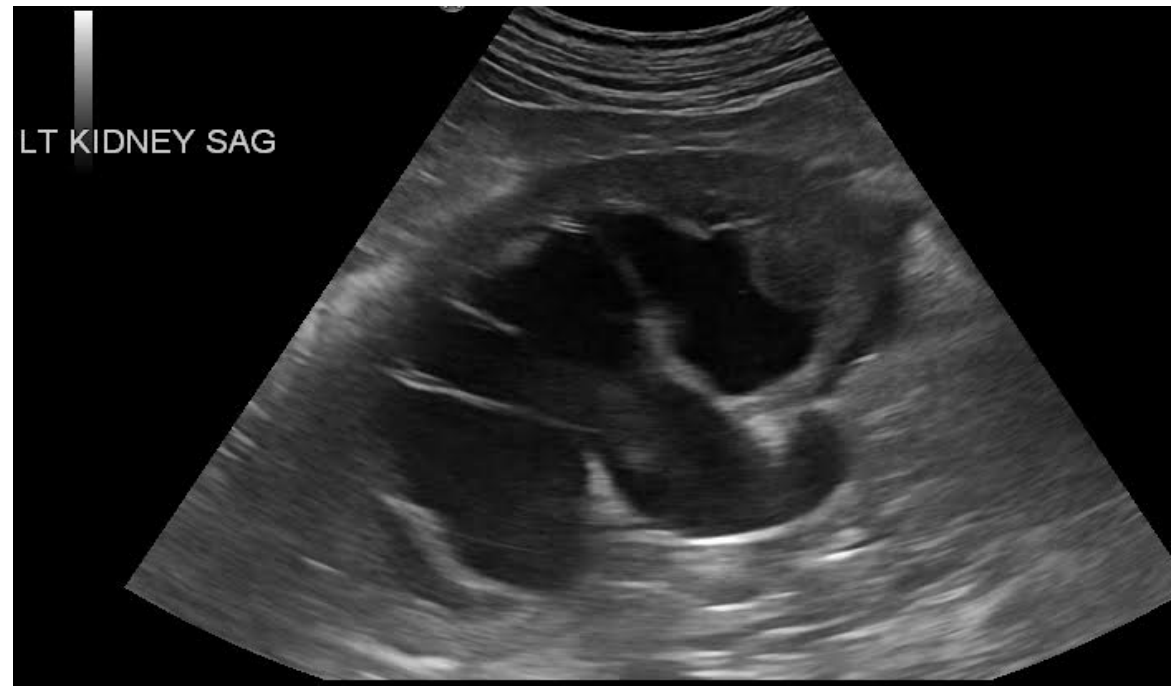
Overview

- Common causes of obstruction
 - Ureteral
 - Urethral
- Diagnosis
- Management of these patients
- Interventions to address specific conditions



Ureteral obstructions

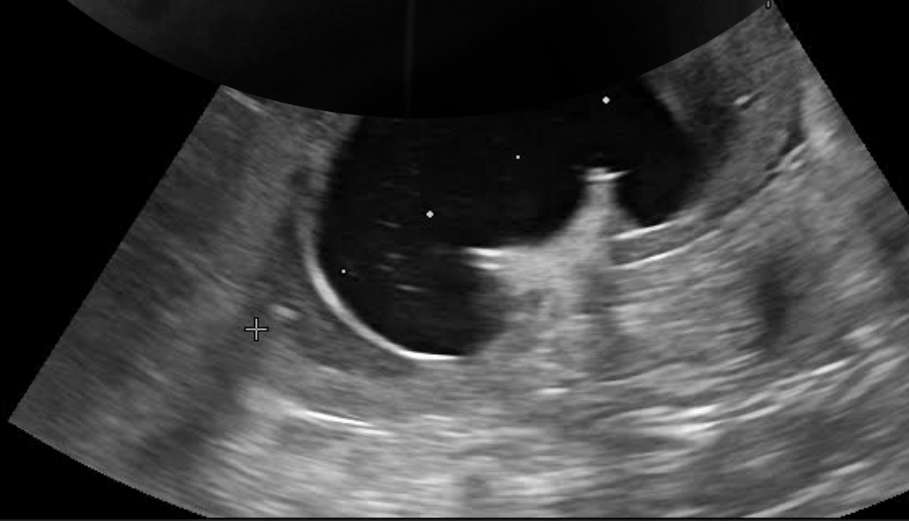
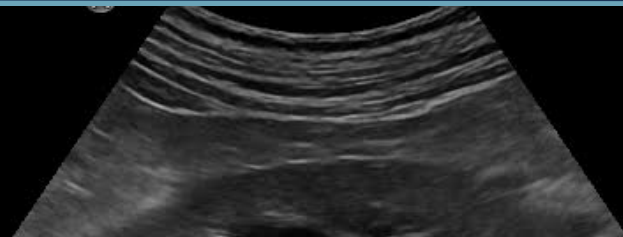
- Stones
- Stricture
- Neoplasia
- Anatomic variations
 - Ectopic ureters
 - Ureterovesicular junction (UVJ) stenosis
 - Circumcaval right ureter
- Presentation
 - Azotemia
 - Otherwise vague symptoms



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Treatment- ureteral obstructions

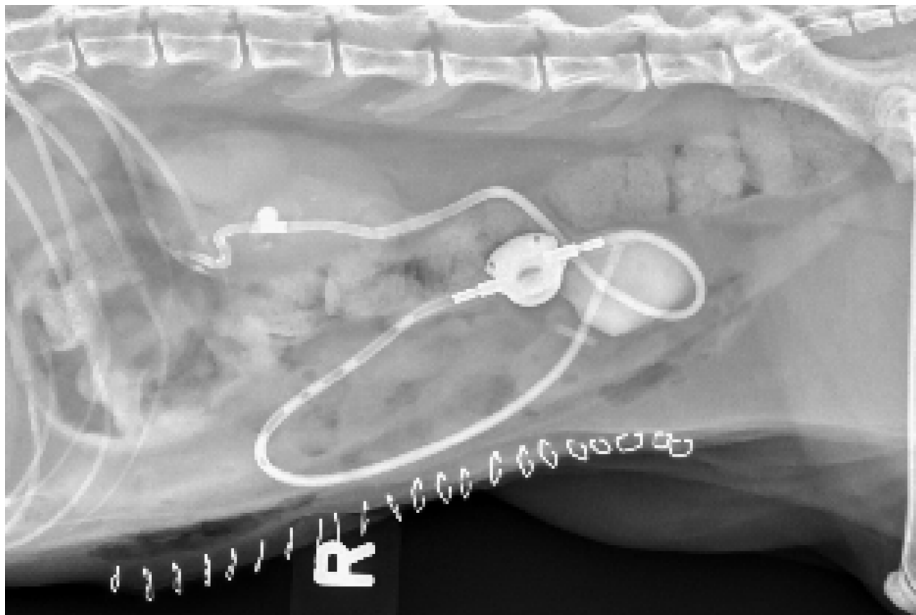
- Stabilize
- Fluids
- Treat any more life threatening conditions
 - Hyperkalemia
 - Marked acidemia
- Analgesia
- Anti-nausea or anti-emetics
- +/- Hemodialysis
- Treat any infection (if present)
- Medical therapy to try and pass a stone (often not warranted)
 - Tamsulosin or silodosin (alpha-adrenergic antagonists)
 - Glucagon
 - Etc

Intervention- ureteral obstruction(s)

- Subcutaneous ureteral bypass (SUB) placement
- Ureteral stenting
 - Open (surgically placed)
 - Percutaneous
 - Cystoscopy- and fluoroscopy-guided placement
- Ureterotomy, ureteral resection/anastomosis
- Neoureterocystomy

Subcutaneous ureteral bypass (SUB)

- Cats with ureteral obstruction(s)
- Very small dogs (stents preferred)
- Dogs with trigonal mass



Ureteral stenting

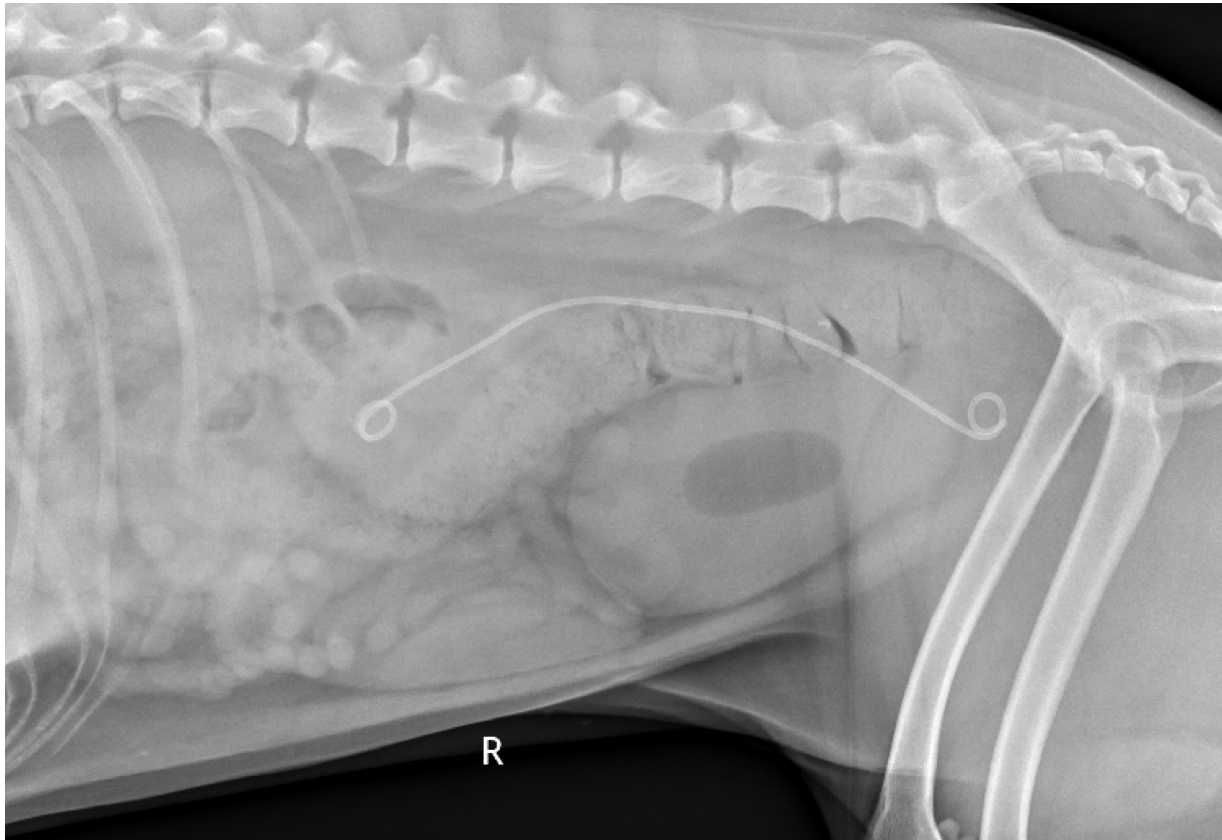
- Percutaneous
- Surgically placed (open)
- Endoscopically/fluoroscopically-guided



Ureteral stenting



Ureteral stenting



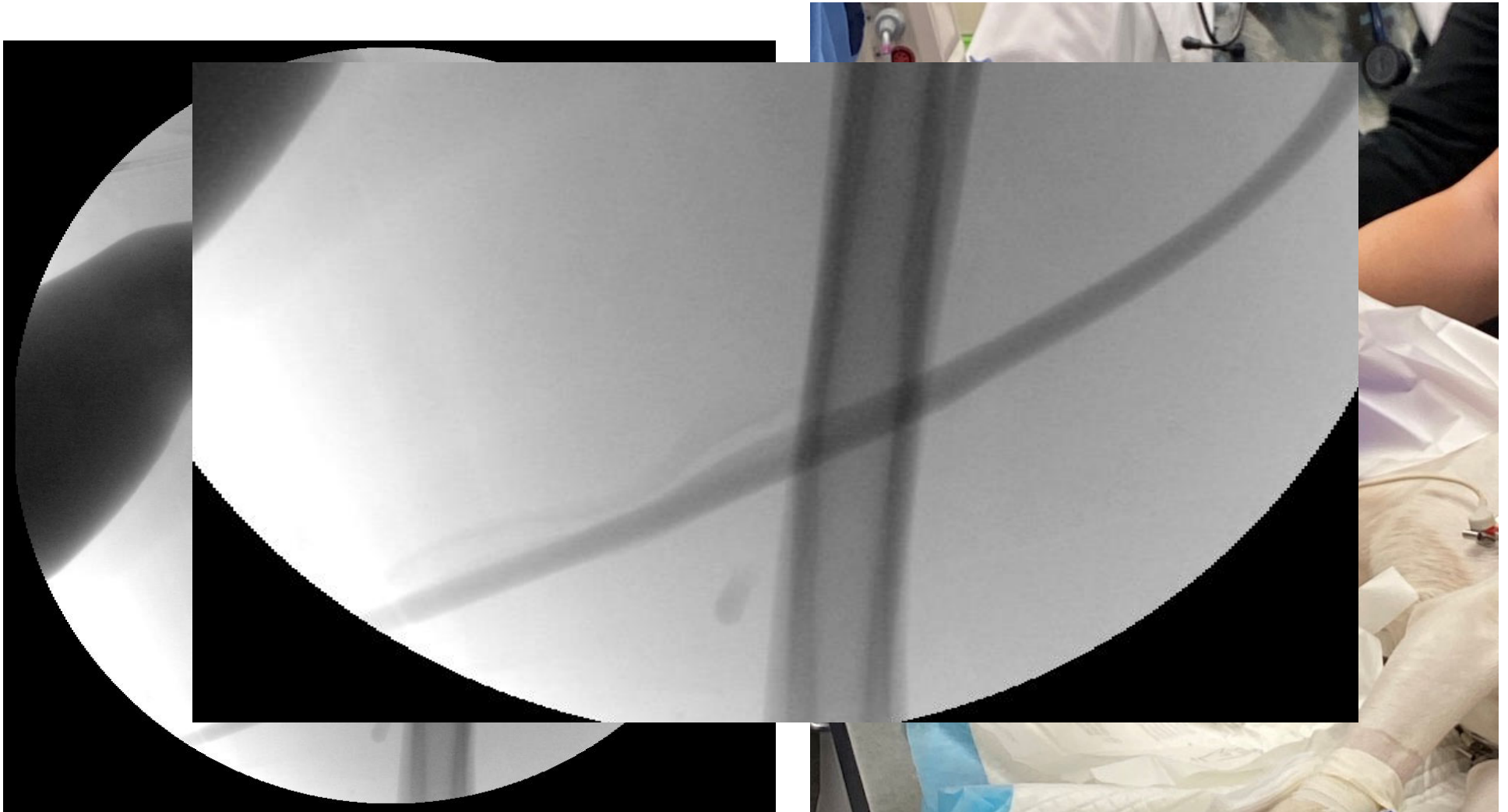
Urethral obstructions

- Dogs
 - Stones
 - Neoplasia
 - Prostatomegaly (BPH)
 - Infection/urethritis (uncommon)
 - Stricture (uncommon)
- Cats
 - Stones
 - Crystalline grit/plug
 - +/- urethral spasm
 - Neoplasia (rare)



Uroretrohydropulsion

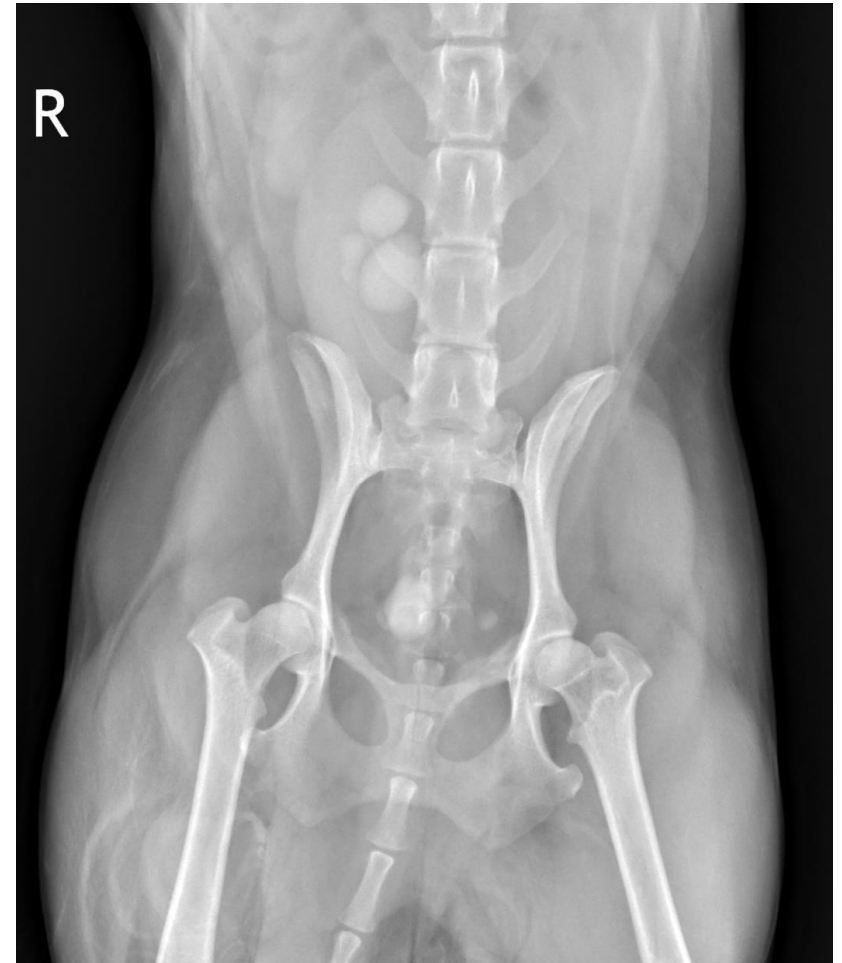
- Males dogs with stones



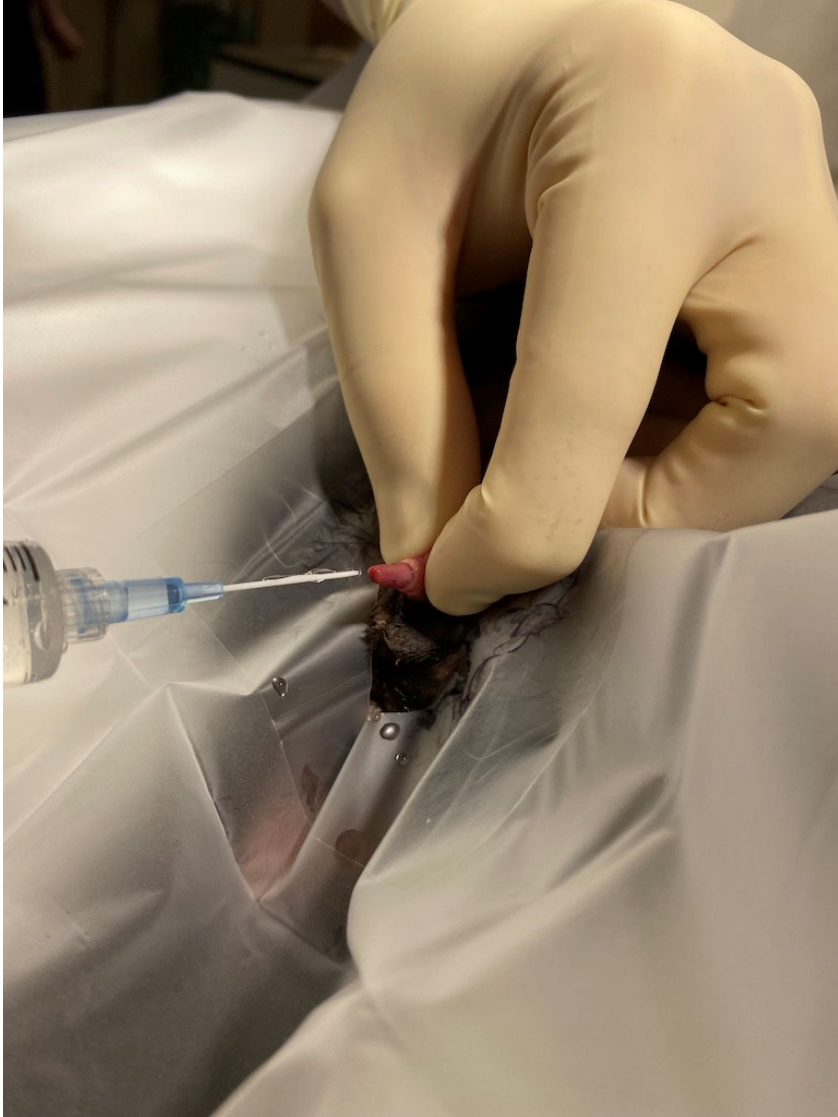
Urohydropulsion



Females with stones



Male cats

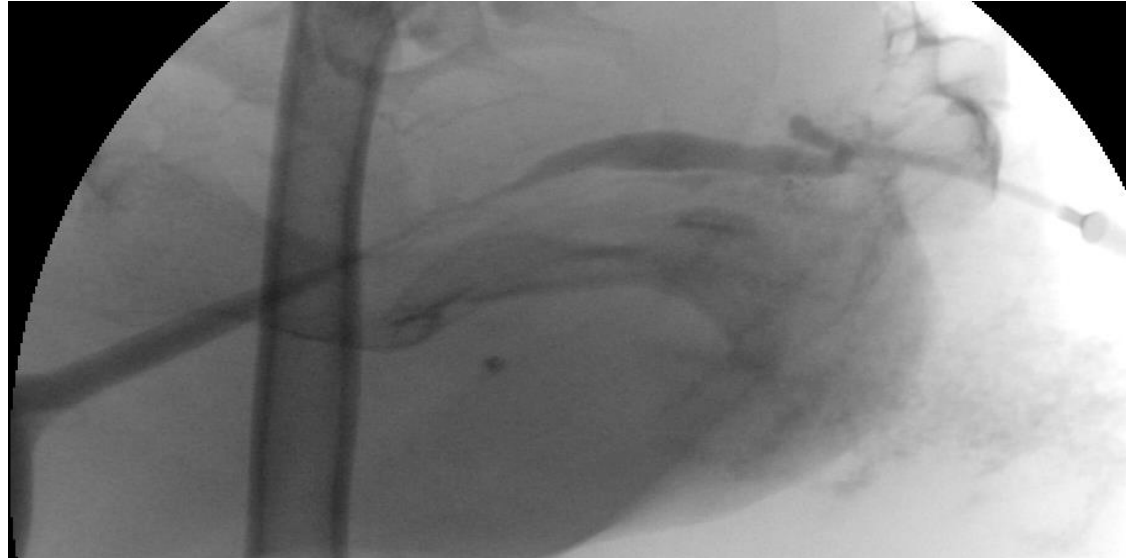


Male cats



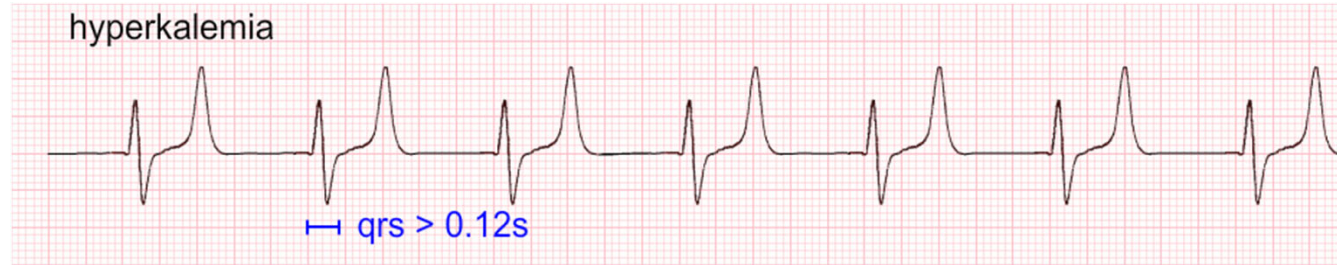
Other medical support

- IV fluids
- Analgesia
 - Opioids
 - Gabapentin
 - Avoid NSAIDs
- Urethral “relaxants”
 - Prazosin- studies have failed to show a benefit¹⁻³
 - Compounded silodosin- 0.01 mg/kg PO q12hrs (can uptitrate)
- Other therapies studied
 - Anti-inflammatories
 - Buprenorphine
 - Gabapentin
 - Intravesicular lidocaine
 - Acepromazine

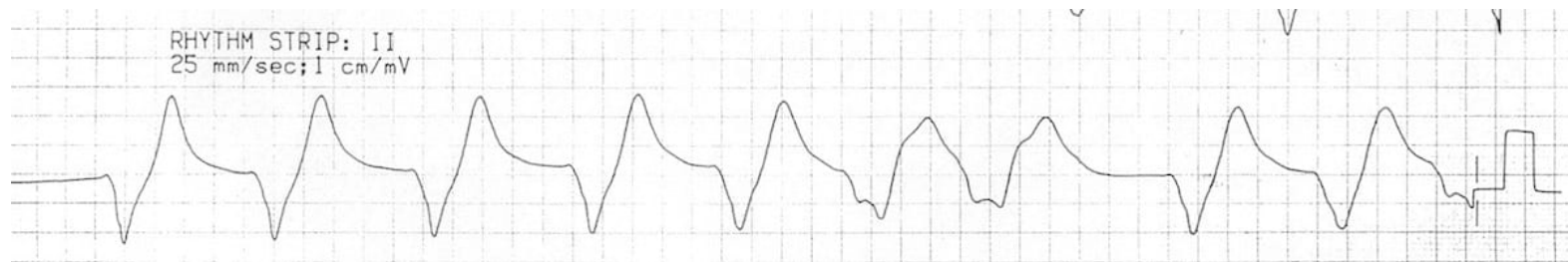


¹Hanson KR, et al. J Feline Med Surg 2021; 23(12): 1176-1182
²Reineke EL, et al. J Vet Emerg Crit Care 2017; 27(4): 387-396.
³Conway DS, et al. J Am Vet Med Assoc 2022; 3: 1-6.

Hyperkalemia



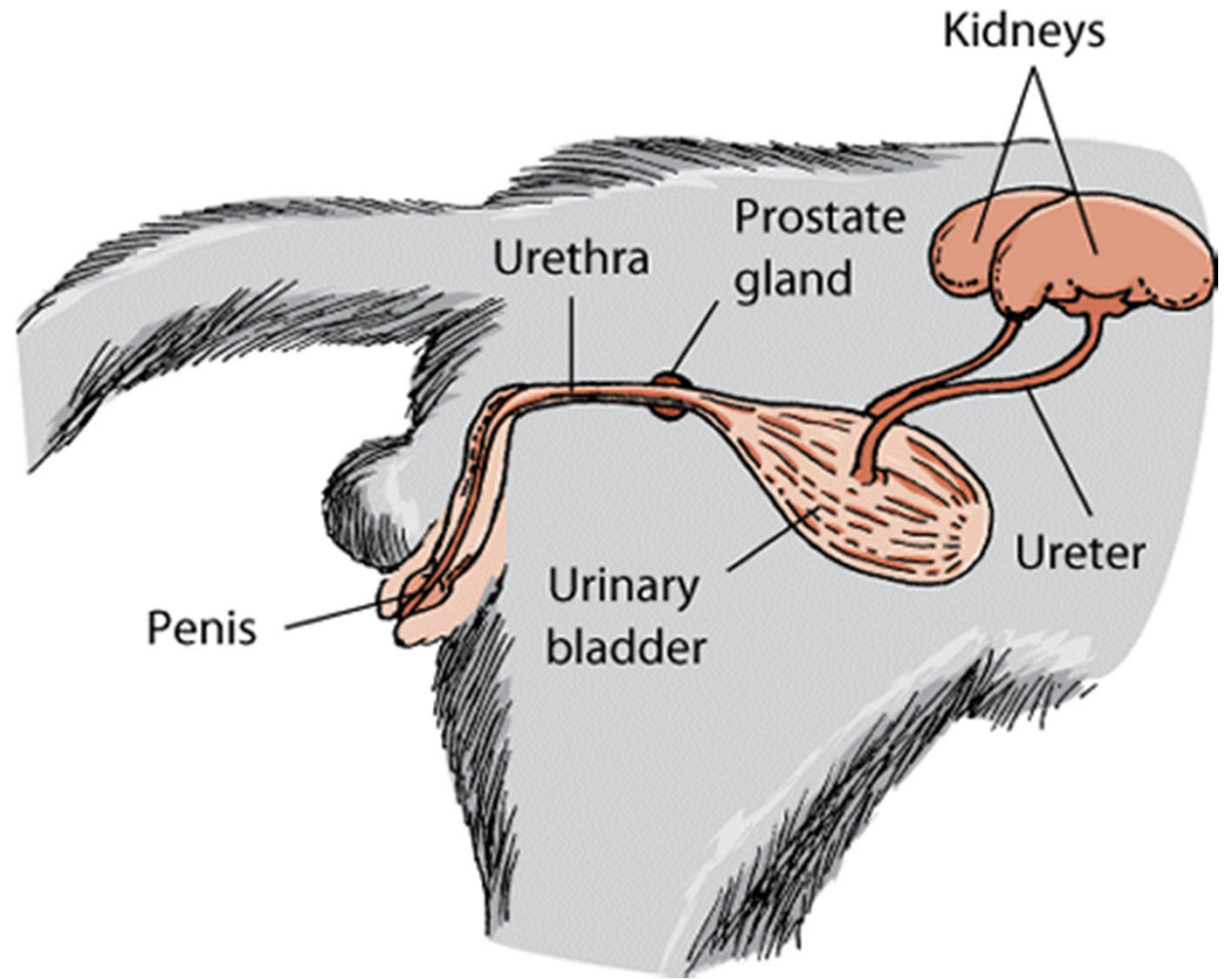
- Arrhythmias are not predictable based upon level
- Calcium gluconate
 - 1 mL/kg of 10% solution IV over 5-10 minutes
- Insulin/dextrose
 - 0.2 U/kg regular insulin IV, dextrose bolus + CRI
- Albuterol/terbutaline
- Sodium bicarbonate
 - 1 mEq/kg (1 mL/kg) IV over 15 minutes



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Urethral tear

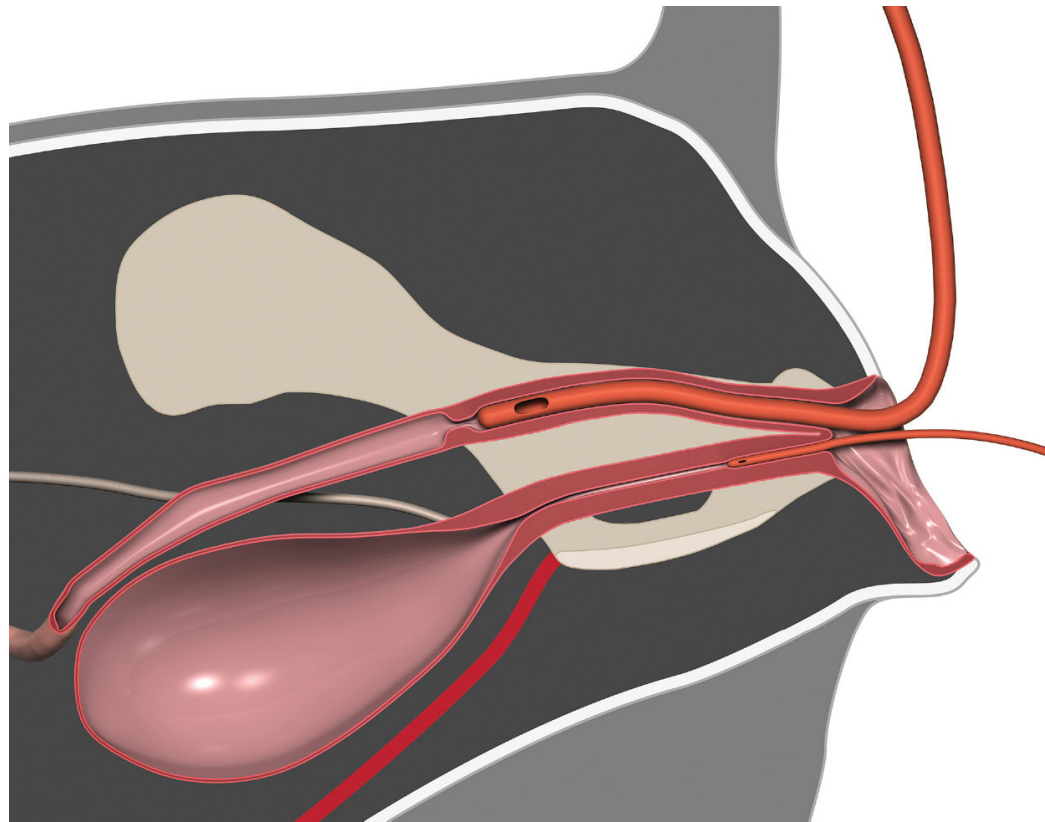
- Relatively common
- Signs
- Treatments
 - Heal over a catheter (7-10 days)
 - PU if distal enough
- Gaining access
 - Sometimes you get lucky with retrograde (0.018") wire
 - Percutaneous antegrade access for catheterization



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Female cats

- Blind catheterization
- Catheterize like a female dog
- Pass Slipper Sam or red rubber (5-8 Fr)



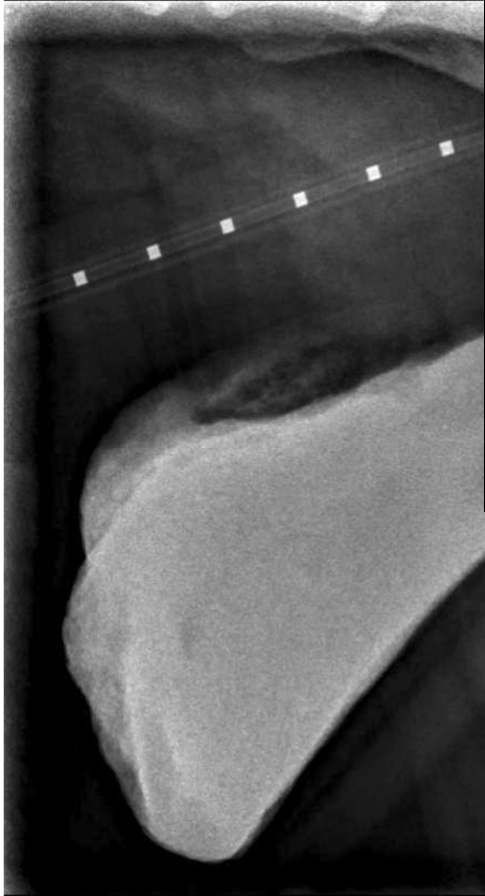
Abrams BE, Selmic LE. J Am Vet Med Assoc 2020 81(5)

Urethral obstruction- neoplasia

- Uroepithelial carcinoma (transitional cell carcinoma)
 - Female with stranguria and no stones
 - Typically palpable via rectal
 - Often treated for UTIs but failed to improve
- Prostatic carcinoma
 - Neutered long ago with prostatomegaly
 - Prostatic mineralization with early neuter
 - Paraprostatic cysts in a neutered dog
- Diagnosis
 - Cytology (catheterized or aspirate)
 - Histopathology
 - BRAF positive



Prostatic



Extracorporeal therapies at MedVet NOLA

- Hemodialysis
- Hemoperfusion
 - Drugs/toxins with larger MW + higher protein binding
 - Cytokines
 - Bilirubin and other unwanted substances
- Apheresis
 - Total plasma exchange
 - Drugs/toxins with larger MW + higher protein binding
 - Removal of antibodies
 - Removal of other substances (e.g. bilirubin)
 - Mononuclear cell collection

Immune-mediated conditions treated with TPE

- IMHA
- IMT
- Myasthenia gravis
- Polyradiculoneuritis
- Severe acute glomerulonephritis

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