Urethral obstructions in the dog and cat

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Male cats and dogs are more commonly affected by urethral obstruction because of the longer length and narrower width of the urethra. Clinical signs can be mild but if the obstruction is complete and prolonged, it becomes a life threatening condition.

CATS

In male cats, obstructions are often the result of plugs of inflammatory material, blood clots and calculi. Cats typically present between one and ten years of age. Clinical signs include dysuria, pollakiuria and inappropriate urination. Cats with partial obstructions can have episodes which last 5–7 days. If it progresses to a complete obstruction, cats become anuric. The resultant azotaemia and hyperkalaemia causes them to become lethargic and anorexic, and death will ensue in 3–6 days. The most obvious clinical sign is a large, turgid bladder but if it has ruptured, the bladder may not be palpable.

Emergency management consists of intravenous fluid therapy (IVFT), correction of hyperkalaemia and decompression of the bladder. The condition is very painful and so analgesia such as methadone (0.1–0.2 mg/kg) is given. Sedation with ketamine (5 mg/kg) and midazolam (0.2 mg/kg) can allow placement of a urethral catheter. Generally, a rigid catheter is recommended (3–4 French). *If there is any resistance, stop and flush to dilate the urethra.* It is very easy to tear the urethra. Flushing is only recommended with sterile saline or Hartmanns solution.

Once the cat is stable for anaesthesia, a contrast retrograde urethrocystogram will help identify any causes of obstruction. The bladder is flushed copiously to remove any sediment and inflammatory mediators.

A non-rigid (silicone) indwelling urethral catheter is placed and a closed urinary drainage system placed. It is important to continue to monitor electrolytes as cats can have a rebound hypokalaemia. After 3–5 days, remove the catheter and monitor closely. It is important to keep the cat analgesed when the catheter is in place and following removal to encourage the cat to urinate. Drugs to relax the smooth muscle of the urethra/sphincter include prazosin and phenoxymethamine. Anti-inflammatories will help to reduce pain and inflammation and help the cat to urinate.

If a cat has repeated episodes of obstruction due to feline idiopathic cystitis, a perineal urethrostomy (PU) can be considered. This removes the narrowest part of the urethra at the level of the penis and allows mucus plugs to pass. If there is trauma to the urethra proximal to the caudal brim of the pubis, a transpubic or pre-pubic urethrostomy can be considered.

DOGS

In dogs, the most common cause of urethral obstruction is calculi or neoplasia and male dogs are most commonly affected. Urate stones are identified in Dalmations; if they occur in other breeds consider a porto-systemic shunt. Cysteine stones are found commonly in male entire Bulldogs and Staffordshire Bull Terriers. Urinary tract infections can predispose to struvite calculi.

Orthogonal radiographs and a positive contrast urethrocystogram will help identify the cause of the obstruction. Calculi typically obstruct male dogs proximal to the penis so it is important to examine this area carefully.

If possible, calculi should be retropulsed into the bladder and a cystotomy performed to retrieve them. During the surgery, a urethral catheter should be placed and the urethra flushed as calculi can fall back into the urethra. If calculi are stuck in the urethra, a urethrotomy can be performed to remove the calculus. Alternatively, a urethrostomy can be performed to create a permanent stoma to bypass an obstructed or traumatized portion of urethra.

If neoplasia is the underlying cause, transitional cell carcinoma of the bladder neck or prostatic carcinoma are the most common types; catheterization can provide temporary relief and stenting will allow palliation of this condition.

KEY LEARNING OBJECTIVES

- Urethral obstruction is a life threatening condition and rapid correction of electrolyte disturbances is essential
- Gentle urethral catheterization allows urinary diversion to decompress the bladder
- Surgical procedures such as perineal urethrostomy in cats, cystotomy to retrieve calculi, or a scrotal urethrostomy in dogs may be indicated

MULTIPLE CHOICE QUESTIONS

1. What is the name of the surgery that can be performed in cats with idiopathic cystitis that have blocked repeatedly?
(A) Perineal urethrostomy
(B) Cystotomy
(C) Urethrotomy
(D) Pre-scrotal urethrostomy
2. What fluid is most appropriate to use to flush the bladder in blocked cats?
(A) 0.9% sodium chloride
(B) 0.01% chlorhexadine
(C) 0.5% povidone iodine
(D) 0.5% dextrose
3. What is the most common underlying cause of calculi stones in non-Dalmation breeds?
(A) Porto-systemic shunts
(B) Pre-renal azotaemia
(C) Hepatic cirrhosis
(D) Glomerular nephritis