Urinary emergencies in dogs and cats
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Emergencies involving the urinary tract are common in small animal practice with potential to become life threatening quickly. In this lecture, we will discuss the following:

1. Review of common diseases presented to the emergency department in dogs and cats, including urethral obstruction, urinary tract trauma, and uroabdomen
2. Review of presenting signs, diagnosis (contrast studies and advanced imaging) and treatment, including a review of surgical options and urinary diversion techniques
3. Complications and prognosis of urethral obstruction, urinary tract trauma and uroabdomen

Urethral obstruction:

Urethral obstruction leads to life threatening hyperkalemia, azotemia, hypocalcemia, metabolic acidosis, and hyperphosphatemia. The goal with emergency intervention includes relieving urethral obstruction with urinary diversion, reversing shock, treating hyperkalemia, and fluid therapy. The fluid therapy plan should address fluid deficits and resolving shock. An ECG is used in obstructed patients to look for changes consistent with hyperkalemia. In cats, bradycardia (heart rate less than 140 beats per minute) and hypothermia (body temperature < 96.6F) is 98% predictive of a potassium value of > 8.1 mEq/L. Placement of an indwelling urinary catheter is essential, with attention to minimizing trauma to urethra and bladder wall. A cystocentesis may be considered to relieve pressure on bladder wall and urethra, with care not to lacerate bladder wall. The author has utilized a single cystocentesis, via ultrasound guidance, safely in patients to remove urine and provide comfort and allow time for catheter placement. Cats that develop urethral obstruction are at risk for recurrence anywhere from 15-40% For cats with 2 or more episodes of urethral obstruction may be a candidate for perineal urethrostomy. A perineal urethrostomy does not resolve underlying FIC, however, it may decrease likelihood of obstruction.

Abdominal trauma, the urinary tract, and uroabdomen

Hemoabdomen may develop as a result of blunt trauma to renal blood vessels or the kidney itself. It is not as common as uroabdomen. Uroabdomen occurs in patients with disruption of the distal ureters, urinary bladder, or proximal urethra leaking urine into the abdomen, leading to severe electrolyte imbalances and acid base derangements. The most common cause of uroabdomen in dogs and cats is bladder rupture from blunt abdominal trauma. Patients with uroabdomen present with signs such as vomiting, diarrhea, lethargy, anorexia, plus abdominal distension and a palpable fluid wave. Diagnosis of uroabdomen is made by comparing the creatinine and potassium of the abdominal fluid with peripheral blood. For dogs, diagnosis of

uroabdomen can be made with an abdominal fluid to blood creatinine ratio of 2:1 and potassium of 1.4:1. In cats, ratios for creatinine are 2:1 and 1.9:1 for potassium. Treatment involves surgical correction of defect within the urinary tract, supportive care to resolve azotemia, electrolyte abnormalities and acid base disturbances and urinary diversion. Often a patient will require an abdominal catheter in addition to an indwelling urinary catheter. Abdominal catheters used range from sterilely placed red rubber catheter to specific peritoneal dialysis catheters or pigtail catheter. Diagnostic techniques range from survey abdominal radiographs to CT scan with contrast. Once a patient has been stabilized, identification and surgical repair of the defect can be performed.

References:

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