Feline lower urinary tract disease – treatment and management

Accession Number
20153153337

Author
Jessen, L. R.; Sorensen, T. M.; Bjornvad, C. R.; Nielsen, S. S.; Guardabassi, L.

Title
Effect of antibiotic treatment in canine and feline urinary tract infections: a systematic review.

Source

Publisher
Elsevier Ltd

Location of Publisher
Oxford

Country of Publication
UK

Abstract
Urinary tract infection (UTI) is a major reason for antibiotic prescription in small animal practice. Optimal antibiotic treatment strategies have not been established for veterinary species, especially when considering duration of treatment, which is often considerably longer than for human patients with UTI. The aims of this study were (1) to identify and assess evidence related to the efficacy of antibiotic treatment in canine and feline UTIs; and (2) to compare the efficacy of short (<5 days) and standard (>=7 days) duration of antibiotic treatment for canine uncomplicated UTI. An electronic literature search was conducted for publications to 1 May 2014. Fourteen peer-reviewed prospective and controlled studies were retrieved, 10 of which evaluated antibiotic treatment in dogs and four in cats. Of the 14 studies, seven were clinical trials and five of those were randomised controlled trials. Most (12/14) studies were not considered to contribute sufficient evidence to evaluate treatment strategies. There were no clinical studies examining the effect of duration of the same drug. Of the short duration regimens evaluated, the efficacy of 3 day antibiotic therapy with trimethoprim-sulphonamide (females only) or high-dose enrofloxacin in dogs with uncomplicated UTIs was supported by fair evidence, as these treatment strategies were noninferior to medium duration (10-14 days) therapy with beta-lactam antimicrobials. In conclusion, there is little published evidence relating to antibiotic treatment of UTIs in dogs and cats. Well-designed clinical trials focusing on the duration of treatment are warranted to create evidence-based treatment protocols.

Publication Type
Journal article.


Source
Journal of Veterinary Emergency and Critical Care; 2015. 25(2):256-262. 18 ref.
Abstract

Objective: To characterize the duration of urinary catheterization, length of hospitalization, complications and clinical outcome in cats with urethral obstruction managed with decompressive cystocentesis and subsequent urinary catheterization. Design: Retrospective, observational, descriptive study. Setting: University teaching hospital. Animals: Forty-seven client-owned male cats diagnosed with urethral obstruction. Measurements and Main Results The medical records of 47 cats diagnosed with urethral obstruction were reviewed. Treatment of all cats included decompressive cystocentesis, placement of an indwelling urinary catheter and hospitalization for a minimum of 6 hours. Collected data included signalment, body weight, body condition score, owner-reported clinical signs, duration of clinical signs, vital signs, and venous blood gas or chemistry values. Mean duration of urinary catheterization was 27.9 hours, median length of hospitalization was 40 hours, and survival to discharge was 91%. Of 34 cats that had survey abdominal radiographs, 56% (19/34) had loss of peritoneal detail consistent with abdominal effusion. No cat was diagnosed with a ruptured bladder during hospitalization. Conclusions: Decompressive cystocentesis, in cats with urethral obstruction, followed by placement of an indwelling urinary catheter, did not result in a diagnosis of bladder rupture in any cat. The source of and clinical significance of the reported abdominal effusion is not known. Survival to discharge, duration of catheterization, and length of hospitalization were similar to previously reported populations.

<3>

Accession Number
20153095982

Author
Cooper, E. S.

Title
Controversies in the management of feline urethral obstruction. (Special Issue: Controversies in critical care.)

Source
Journal of Veterinary Emergency and Critical Care; 2015. 25(1):130-137. 41 ref.

Publication Type
Journal article.
Diagnostics, research and management of feline idiopathic cystitis.

Source

Publisher
Ontario Veterinary Medical Association (OVMA)

Location of Publisher
Milton

Country of Publication
Canada

Abstract
Traumatic urinary bladder injuries in the recent times are considered to be of great importance in veterinary medicine, as they can lead to significant morbidity and subsequent mortality when diagnosed late or left untreated. However, the true incidence rates, absolute treatment recommendations and prognoses of lower urinary tract traumas are not available in literatures as the majority of specific information regarding lower urinary tract injuries in small animals exist as isolated case reports or small case series. Urologists may only encounter traumatic bladder injuries in their practice, because of the current modernization and human activities leading to increase in occurrence of the injuries. This paper reviews mainly the literatures and reports on the causes, clinical signs, diagnosis and management of traumatic urinary bladder injuries (blunt, penetrating and iatrogenic bladder traumas) to assist clinicians in this specialty. History, presenting clinical signs and laboratory evaluations are the diagnostic tools of bladder injuries and in predicting prognosis when treated. Despite presentation with nonspecific signs, haematuria and abdominal tenderness are the most common clinical signs of bladder rupture in animals. Early diagnosis and repair of bladder rupture offers good prognosis. Management of these conditions may require either solely medical or surgical intervention, while others will require a combined management intervention.
The objective of this study was to determine the outcome of cats with ureteric obstruction managed with double pigtail ureteric stents and to document the incidence of lower urinary tract signs at long-term follow-up. Data were obtained retrospectively from the medical records (2009-2012) of 26 cats that underwent ureteric stent placement. Owners were contacted for follow-up, and a quality of life questionnaire completed. Survival to discharge after stent placement was 85% (22/26). Prevalence of postoperative uroabdomen necessitating further surgery was 15% (4/26). Stents were replaced 4-28 months after the initial surgery in four cats because of migration, fracture, encrustation causing luminal obstruction or sterile cystitis, respectively. Nine cats were alive at follow-up, which was 3-28 months after the original surgery. Nine cats had azotaemic chronic kidney disease and nine had signs related to sterile cystitis; three of these cats were euthanased as a result of the severity of the signs. Preoperative serum creatinine of the survivors (9.4 mg/dl, n=9) was not significantly different from that of the non-survivors (6.5 mg/dl, n=13; P=0.295). Quality of life was assigned a mean score of 8/10. Median survival of cats following discharge was 419 days (range 44-994 days). Signs consistent with sterile cystitis affected 35% of cats. It was concluded that ureteric stent placement in cats was associated with a 15% mortality rate before hospital discharge. Long-term management of ureteric stents is associated with a high rate of lower urinary tract signs.

Publication Type
Journal article.
with similar frequency. The most common diagnosis was feline idiopathic cystitis (FIC) (55.0%), followed by bacterial urinary tract infection (UTI) (18.9%), urethral plug (10.3%) and urolithiasis (7.0%). Urethral obstruction was significantly more frequent in cats with FIC than in cats with UTI. Cats with FIC and urethral plugs were significantly younger and had significantly higher body weights than cats with UTI and neoplasia. FIC and urethral plugs were significantly more common causes of FLUTD in cats younger than 10 years compared to cats that were 10 years or older (65.2% versus [vs.] 35.8% and 13.3% vs. 3.0%), while the incidences of UTI and neoplasia increased with age (12.9% vs. 41.8% and 1.0% vs. 13.4%). Conclusion and clinical relevance: FIC and UTI are the most common diagnoses in cats with FLUTD, with a significant age-related difference in incidence.

Publication Type: Journal article.

Accession Number: 20143283149

Author: Manassero, M.; Decambron, A.; Viateau, V.; Bedu, A. S.; Vallefuoco, R.; Benchekroun, G.; Moissonnier, P.; Maurey, C.

Title: Indwelling double pigtail ureteral stent combined or not with surgery for feline ureterolithiasis: complications and outcome in 15 cases.


Publisher: Sage Publications

Location of Publisher: Thousand Oaks

Country of Publication: USA

Abstract: Ureteral obstruction secondary to ureterolithiasis in cats is a challenging situation. Ureteral stenting has recently been introduced to prevent complications that often occurred after ureterotomy or other invasive surgeries. The purpose of this study is to describe the stenting technique and perioperative difficulties, as well as long-term outcome and complications with ureteral stenting in 12 cats with ureteroliths. Fifteen 2.5 Fr soft double pigtail multi-fenestrated ureteral stents were placed in an anterograde fashion under open surgical approaches and with fluoroscopic guidance in 12 cats. Nine cats received a unilateral stent and three received bilateral stents. Ureterotomy or ureteral resection and end-to-end anastomosis were performed in three and four cases, respectively. In six cats, papillotomy was performed to facilitate dilatator and stent placement. All cats recovered well from the surgical procedure, except one cat, which died during the anaesthesia recovery period. Postoperative complications included dysuria (three cases, diagnosed at 15 days, 1 month and 3 months, respectively), urinary tract infection (one case, 1 month after surgery), stent migration requiring stent replacement (one case, 19 months after surgery) and stent obstruction requiring stent removal (three cases with previously end-to-end anastomosis between 2 and 8 months after surgery). Nine cats (75%) were alive at a mean follow-up of 453+or-194 (123-720) days. The median survival time was >415 days. Stent placement appeared to be a valuable and safe option for treating ureteral obstruction in cats. However, periodic and long-term monitoring of stents is warranted.

Publication Type: Journal article.

Accession Number: 20143231183

Author: Ackerman, N.

Title: Feline idiopathic cystitis - nursing role in treatment and management.

Source:
Abstract
Feline cystitis, that is to say, feline lower urinary tract disease (FLUTD), is common, with most cases being stress-associated feline idiopathic cystitis (FIC). FIC and the associated condition of urethral plugs account for approximately 75 per cent of all cases of FLUTD, and up to 90 per cent of urethral obstruction. The key to successful treatment is a correct diagnosis. Where no underlying cause can be found, treat for FIC.

Abstract
Feline idiopathic cystitis is a common condition, often resulting in repeated episodes of life-threatening urethral obstruction. Defective urinary bladder glycosaminoglycans have been implicated as a causal factor. In this report, a commercially available glycosaminoglycan product was infused into the urinary bladders of cats with urethral obstruction from idiopathic cystitis to study the effect on repeated obstruction. In this randomized, blind, placebo-controlled clinical trial, the therapeutic protocol was well tolerated with no adverse effects. Whereas no glycosaminoglycan-treated cats (n=9) developed repeated urethral obstruction during the 7 day follow-up period, 3/7 placebo-treated cats developed repeated obstructions. Approaching statistical significance (P=0.06), these data suggest that further investigation of this new treatment option is warranted.
<12>
Accession Number
20143184978
Author
Blanchard, G.
Title
Treatment of idiopathic cystitis with crystals and obesity in cats. [French]
Source
Le Nouveau Praticien Veterinaire Canine - Feline; 2013. 12(55):56-60. 5 ref.
Publisher
NEVA Europarc
Location of Publisher
Creteil
Country of Publication
France
Abstract
This article discusses the clinical aspects, diagnosis and therapeutic management of idiopathic cystitis with crystals of ammonia and phosphates in an obese adult cat. The dietary management and nutritional recommendations are highlighted.
Publication Type
Journal article.

<13>
Accession Number
20143184922
Author
Cabon, Q.
Title
Use of ureteral stents in the management of benign ureteral obstructions. [French]
Source
Point Veterinaire; 2014. 45(345(Part 1)):42-43. 11 ref.
Publisher
Wolters Kluwer France
Location of Publisher
Rueil-Malmaison
Country of Publication
France
Abstract
The efficacy of stents for the treatment of ureteral obstructions in cats and dogs are described.
Publication Type
Journal article.

<14>
Accession Number
20143185219
Author
Lulich, J.; Kruger, J.; Macleay, J.
Title
Advances in management of feline lower urinary tract disease: efficacy of nutritional struvite dissolution in cats.
Source
New concepts: Ideas about the causes of lower urinary tract signs (LUTS) in cats have changed significantly in the past 40 years. Recent research is challenging the conventional view that the bladder is always the perpetrator of LUTS, and suggests that the bladder can also be one victim of a systemic process associated with a sensitized central stress response system. Aim: In this article the authors provide their perspective on the implications of these findings for the diagnosis and treatment of cats with LUTS, provide some historical context, and suggest ways that the veterinary profession might work together to better understand the disorders underlying these signs, and possibly reduce their prevalence.

Publication Type
Journal article.
This article discusses the pathogenesis, clinical aspects, aetiology, physiopathology, diagnosis and therapeutic management of feline idiopathic cystitis in cats. The gradual environmental enrichment, stress reduction and increasing water intake that are crucial in the long-term management of feline idiopathic cystitis in cats are highlighted.

Publication Type
Journal article.

This article discusses the prevalence, risk factors, pathogenesis, clinical features, diagnosis and treatment of feline idiopathic cystitis. Focus is given on the physiopathology and medical and environmental treatment of this disease.

Publication Type
Journal article.

Feline CKD: pathophysiology and risk factors - what do we know? (Special Issue: Chronic kidney disease - a challenge for the 21st century.)
Abstract

Practical relevance: Chronic kidney disease (CKD) is one of the most frequently encountered disorders in cats, having increased in prevalence in recent decades. Although the underlying cause is rarely identified, the common final outcome of feline CKD is tubulointerstitial fibrosis. Knowledge of CKD pathophysiology is necessary for optimal individualised patient management, especially with regard to diagnosis and treatment of extrarenal complications. Patient group: CKD is most common in senior and geriatric cats, but should be considered in any feline patient with ureterolithiasis, hyperthyroidism, retrovirus infection, systemic hypertension, cardiovascular disease or urinary tract infection. Evidence base: Most of our knowledge of the pathogenesis of CKD is extrapolated from human nephrology and experimental animal studies. There is, therefore, a need for further studies in cats. The prevalence of clinical signs in feline CKD is well documented. Several concurrent diseases associated with CKD have also been reported in cats, especially in the geriatric population, but there is no or only limited published evidence demonstrating a cause-and-effect relationship between most of these conditions and CKD. Studies performed over the past 15 years have nevertheless allowed identification of major risk factors (proteinuria, plasma phosphate and plasma creatinine) influencing the progression of feline CKD. Clinical challenges: Clinical signs occur in the late stages of renal disease, so populations at higher risk of CKD should be screened routinely. CKD-associated complications (systemic hypertension, secondary renal hyperparathyroidism, hypokalaemia, anaemia, metabolic acidosis) must not be overlooked as they may affect the progression of disease. Disease progression is itself unpredictable and renal function may remain stable for extended periods. Most cats with early CKD do not progress to end-stage CKD before they die. Audience: General practitioners play a major role in screening feline patients at risk of development or progression of CKD.
Management of urinary tract emergencies in small animals. (Special Issue: Emergency medicine.)


This article focuses on some of the most commonly seen urinary tract emergencies in dogs and cats, with emphasis on basic pathophysiology, diagnosis, and emergency management of these cases.

Dietary management of feline lower urinary tract symptoms.


Experimental and clinical investigations have confirmed the importance of dietary modifications in medical protocols designed to treat and prevent feline lower urinary tract signs (LUTS). The objective of this review is to discuss common medical conditions contributing to feline LUTS and to present currently used and potential preventative dietary modifications. Feline LUTS are a set of clinical conditions with similar symptoms related to inappropriate urine elimination due to a combination of genetics, stress and frustration reactions, environment, and medical condition or conditions, for example, idiopathic cystitis, urolithiasis, urethral obstruction, and urinary tract infection. The main goals of dietary modifications to prevent LUTS are (1) promote large dilute volumes of urine, (2) decrease the relative supersaturation of urine for specific stone types, and (3) promote healthy bacterial populations in the gastrointestinal and urogenital tracts. The impact of dietary composition, including dietary moisture, protein concentration and digestibility, mineral concentrations (i.e., Na, Cl, Ca, P, and Mg), inclusion of acidifiers and alkalinizing agents, inclusion of vitamin B6, eicosapentaenoic acid (EPA), docosahexaenoic acid (DHA), and gamma-linolenic acid, fiber concentration and characteristics, and oxalate degrading probiotics, on these outcomes is discussed, and dietary guidelines for cats are provided. Because of the complex interaction of diet composition, environment, and animal physiology, there is a need for clinical research linking current recommendations or dietary options for the treatment and prevention of LUTS with physiological outcomes (i.e., decreased relative supersaturation and LUTS recurrence). Additionally, for many recommendations (e.g., probiotic administration, EPA, DHA), extrapolation from other species was necessary. Research is needed in feline patients with LUTS on these dietary components.
Conference paper.

<23>
Accession Number
20133102832
Author
Smee, N.; Loyd, K.; Grauer, G. F.
Title
UTIs in small animal patients: Part 2: diagnosis, treatment, and complications.
Source
Publisher
American Animal Hospital Association
Location of Publisher
Denver
Country of Publication
USA
Abstract
There are multiple considerations when making a treatment plan for patients with urinary tract infections (UTIs). In part 2 of this review the authors discuss the clinical signs, diagnosis, treatment, and complications associated with bacterial UTIs in dogs and cats. Part 1 of this review summarized etiology and pathogenesis (see the Jan/Feb 2013 issue of the Journal of the American Animal Hospital Association).
Publication Type
Journal article.

<24>
Accession Number
20133029162
Author
Smee, N.; Loyd, K.; Grauer, G.
Title
UTIs in small animal patients: Part 1: Etiology and pathogenesis.
Source
Publisher
American Animal Hospital Association
Location of Publisher
Denver
Country of Publication
USA
Abstract
Understanding how urinary tract infections (UTIs) can occur and how to classify them can help the practitioner to make a plan for treatment. This review summarizes the etiology, pathogenesis, and host defense mechanisms associated with bacterial UTIs in dogs and cats.
Publication Type
Journal article.

<25>
Accession Number
20123226207
Author
Chew, D. J.
Title
Idiopathic (interstitial) cystitis: new concepts in pathophysiology, diagnosis and treatment: (Parts I & II).

Abstract
The most common lower urinary tract (LUT) trauma in cats is urethral rupture, which is most commonly iatrogenic. Bladder ruptures are also encountered and most commonly result from blunt trauma to the abdomen. LUT ruptures are best diagnosed by positive contrast radiography. Their emergency management must be directed at evaluating and correcting the metabolic disturbances resulting from the potential associated uroperitoneum, diagnosing and prioritising the treatment of any concurrent lesions and temporarily diverting urine if definitive treatment of the LUT rupture must be delayed. Treatment of significant bladder rupture consists of surgical repair of the bladder wall, combined with placement of a means of temporary urine diversion (urethral catheter or cystostomy tube) if necessary. Whenever possible, urethral ruptures are treated conservatively by second intention healing around a retrograde urethral catheter. When this is unsuccessful, or when the urethral defect is too large, urethral repair or permanent urine diversion is performed surgically. Permanent urine diversion is achieved by urethrostomy. The technique allowing preservation of the longest portion of urethra is chosen, depending on the location of the urethral rupture - for example, perineal, transpelvic, subpubic or antepubic.

Intravesical application of lidocaine and sodium bicarbonate in the treatment of obstructive idiopathic lower urinary tract disease in cats.

Abstract
Intravesical application of lidocaine and sodium bicarbonate in the treatment of obstructive idiopathic lower urinary tract disease in cats.
Background: In human patients with interstitial cystitis, intravesical instillation of alkalinized lidocaine sometimes is associated with sustained amelioration of symptoms beyond the acute treatment phase. Interstitial cystitis shares many features in common with feline idiopathic cystitis. Objective: To evaluate whether intravesical instillation of alkalinized lidocaine decreases recurrence of urethral obstruction and severity of clinical signs in cats with obstructive idiopathic LUTD. Animals: Twenty-six cats with obstructive idiopathic LUTD. Twelve cats in case group (treatment with alkalinized lidocaine) and 14 control cats (treatment with placebo or standard treatment). Methods: Cats were randomly assigned to treatment (2 or 4 mg/kg lidocaine and sodium bicarbonate) or placebo groups (0.2 mL/kg saline solution and sodium bicarbonate). The intravesical instillation was done once a day for 3 days. Some cats underwent standard treatment only (indwelling urinary catheter for 3 days without intravesical instillations). A 2-week, 1-month, and 2-month follow-up after treatment was made using a questionnaire. The recurrence rate and amelioration scores of clinical signs were assessed and compared. Results: Recurrence of urethral obstruction was 58% (7/12) in the case group and 57% (8/14) in the control group. Amelioration scores were similar between the 2 groups. Conclusion and Clinical Importance: Intravesical administration of lidocaine for up to 3 consecutive days had no apparent beneficial effect on decreasing recurrence rate and severity of clinical signs in cats with obstructive idiopathic LUTD.
Author

Title
Antimicrobial use guidelines for treatment of urinary tract disease in dogs and cats: antimicrobial guidelines
Working Group of the International Society for Companion Animal Infectious Diseases.

Source

Publisher
Hindawi Publishing Corporation

Country of Publication
USA

Abstract
Urinary tract disease is a common reason for use (and likely misuse, improper use, and overuse) of antimicrobials in dogs and cats. There is a lack of comprehensive treatment guidelines such as those that are available for human medicine. Accordingly, guidelines for diagnosis and management of urinary tract infections were created by a Working Group of the International Society for Companion Animal Infectious Diseases. While objective data are currently limited, these guidelines provide information to assist in the diagnosis and management of upper and lower urinary tract infections in dogs and cats.

Publication Type
Journal article.

Accession Number
20113341875

Author
Bartges, J. W.

Title
New guidance for treating bacterial UTIs.

Source
Veterinary Medicine; 2011. 106(9):434. 3 ref.

Publisher
Advanstar Communications Inc

Country of Publication
USA

Abstract
This article discusses the guidelines for diagnosing and managing urinary tract infections (UTI) in cats. The guidelines provide recommendations for the diagnosis and antimicrobial treatment of simple and complicated bacterial UTI, pyelonephritis and UTI caused by multi-drug resistant bacterial organisms. Recommended dosages for antimicrobial agents are also presented.

Publication Type
Journal article.

Accession Number
20113322786

Author
Palm, C. A.; Westropp, J. L.

Title
Cats and calcium oxalate: strategies for managing lower and upper tract stone disease.

Source

Publisher
Practical relevance: Calcium oxalate (CaOx) containing stones are among the most common of the urinary tract stones identified in cats. Risk factors: Risk factors for CaOx stone formation include such things as breed, gender and diet; stress and obesity have also been hypothesized to be risk factors for this disease.

Management approach: A tailored, individual management strategy for preventing CaOx stone recurrence is important and should include addressing the diet, environment and any other comorbid conditions present. Increasing the cat's moisture intake is one of the key mechanisms for preventing recurrence. Clinical challenges: CaOx ureterolithiasis has emerged as a difficult and sometimes life-threatening problem for cats. In those cats where stones are found incidentally, periodic monitoring may be required to assess for disease progression. Interventional procedures such as ureteral stent placements are now increasingly being performed for recurrent cases or those with larger stone burdens. Periodic radiographs for more severe cases and frequent client communication can help ensure successful outcomes for cats with lower and upper CaOx stone disease. Evidence base: Limited evidence-based studies are published regarding management of feline upper and lower urinary tract CaOx stone disease, making this a difficult condition to manage in some cats. Studies designed to evaluate the relationship to dietary modifications, medical management, stress, obesity and surgical techniques are warranted in cats with upper and lower urinary tract CaOx stones.
Abstract

Signs of lower urinary tract (LUT) disease in domestic cats can be acute or chronic, and can result from variable combinations of abnormalities within the lumen of the LUT, the parenchyma of the LUT itself, or other organ system(s) that then lead to LUT dysfunction. In the majority of cats with chronic signs of LUT dysfunction, no specific underlying cause can be confirmed after standard clinical evaluation of the LUT, so these cats typically are classified as having idiopathic cystitis. A syndrome in human beings commonly known as interstitial cystitis (IC) shares many features in common with these cats, permitting comparisons between the two species. A wide range of similarities in abnormalities has been identified between these syndromes outside as well as inside the LUT. A variety of potential familial and developmental risk factors also have been identified. These results have permitted generation of the hypothesis that some of these people have a disorder affecting the LUT rather than a disorder of the LUT. This perspective has suggested alternative diagnostic strategies and novel approaches to treatment, at least in cats. The purpose of this review is to summarize research investigations into the various abnormalities present in cats, to compare some of these findings with those identified in human beings, and to discuss how they might modify perceptions about the etiopathogenesis, diagnosis, and treatment of cats with this disease.

Publication Type
Journal article.