

In the spotlight: Management of calculi, stones, crystals and uroliths in cats and dogs

Search strategy

Database: CAB Abstracts <2000 to 2018 Week 13>

Search Strategy:

- ```

1 (Cats or dogs or canine* or feline*).mp.
2 (diagnos* or biomarker* or stage or staging or treat* or therap* or nutrition* or diet* or manag*).mp.
3 (kidney or renal or urine or urinary).mp.
4 (stone* or crystal* or calculi or calculus or urolith*).mp.
5 1 and 2 and 3 and 4
6 limit 5 to yr="2008 -Current"
```

\*\*\*\*\*

[mp=abstract, title, original title, broad terms, heading words, identifiers, cabicodes]

### Selection of references from CAB Abstracts database

<1>

Accession Number

20183059142

Author

Ergin, I.; Sen, Y.; Senel, O. O.; Ozgermen, D. B.; Bumin, A.

Title

Radiological and ultrasonographical evaluation of lower urinary tract diseases in cats.

Source

Ankara Universitesi Veteriner Fakultesi Dergisi; 2018. 65(1):73-78. 14 ref.

Publisher

Ankara Universitesi, Veteriner Fakultesi Dekanlg

Location of Publisher

Ankara

Country of Publication

Turkey

Abstract

The aim of this study was to evaluate lower urinary tract diseases of cats with plain radiography, ultrasonography and contrast cystography retrospectively and assess the most appropriate imaging method for each disease. In the study, 134 cats with different age, sex and breed were presented with one or more clinical signs of lower urinary tract diseases (LUTD). All cats were evaluated by radiography and ultrasonography, and contrast radiography had been performed on cats, in which plain radiography and ultrasonography were inadequate for diagnosing LUTD. LUTD included cystitis (n=20), urinary crystals (n=35), urinary crystals with cystitis (n=51), bladder calculi (n=6), bladder polyps (n=8), blood clots (n=9), bladder rupture (n=1) and idiopathic obstructions (n=4). The present study confirms that ultrasonography is an efficient imaging method for examination of lower urinary tract, but radiography and contrast cystography are still useful for diagnosing calculi, bladder ruptures, suspected urethral obstructions, and chronic cystitis which can not be evaluated by ultrasonography.

Publication Type

Journal article.

<2>

Accession Number

20183058049

Author

Yasar, T. O.; Ozkan, K.

Title

A urolithiasis case related to nutritional disorders in a male cat.

Source

Indian Journal of Animal Research; 2017. 51(6):1157-1158. 9 ref.

Publisher

Agricultural Research Communication Centre

Location of Publisher

Karnal

Country of Publication

India

Abstract

Urolithiasis was diagnosed by clinical and radiographic examination in a 2.5 year old male cat. Under general anesthesia routine laparotomy procedure was applied. Urine was taken out from the filled bladder and vesicotomy was performed. Crystalloid structures (uroliths) found in the bladder and urethra was removed. Urinary system antiseptic and antibiotics were administered during the postoperative period. Owner of the patient was informed about a proper feeding in order to avoid relapse. As a result, the diet of the castrated male cats requires special attention in order to avoid calculi formation. Low-protein foods which prevent crystallization in urinary tract must be preferred. Urine pH should occasionally be checked and water consumption should be encouraged by providing a source of fresh water.

Publication Type

Journal article.

<3>

Accession Number

20183021343

Author

Torres-Henderson, C.; Bunkers, J.; Contreras, E. T.; Cross, E.; Lappin, M. R.

Title

Use of Purina Pro Plan Veterinary Diet UR Urinary St/Ox to dissolve struvite cystoliths. (Special Issue: Urinary and cardiac disease: selected studies and case reports.)

Source

Topics in Companion Animal Medicine; 2017. 32(2):49-54.

Publisher

Elsevier Inc

Location of Publisher

Orlando

Country of Publication

USA

Abstract

The objective of this study was to determine the efficacy of feeding the commercially available diet, Purina Pro Plan Veterinary Diets UR Urinary St/Ox, for the dissolution of struvite cystoliths in cats with naturally occurring disease. Twelve cats with clinical signs of lower urinary tract disease and cystoliths confirmed via

radiographs were enrolled. The cats were fed the study diet ad libitum and assessed by abdominal radiographs weekly. Cats with cystoliths that resolved based on radiographs and confirmatory ultrasound examination were considered diet successes. Cats with no change in cystolith size after 2-6 weeks underwent cystotomy for stone removal, aerobic culture and antimicrobial susceptibility testing, and analysis. All cats accepted the study diet, and weight loss was not noted over the course of the study. Total cystolith dissolution was achieved by week 2 for 5 cats, which were presumed to have struvite cystoliths. All other cats underwent cystotomy for stone removal after radiographic evidence of cystoliths were still present at 2 weeks (1 cat with severe signs), 4 weeks (5 cats), or 6 weeks (1 cat). The cystoliths that were surgically removed were calcium oxalate (5 cats) and mixed (2 cats) and would not be expected to dissolve with this diet. Follow-up radiographs from 6 cats fed the diet long term (3 presumed struvite and 3 with other cystoliths removed surgically) were collected from 1 to 6 months after beginning the study and showed no evidence of cystolith recurrence. While larger case numbers are needed, these results suggest that feeding Purina Pro Plan Veterinary Diets UR Urinary St/Ox can successfully dissolve cystoliths that are likely struvite and may lessen the risk of recurrence of struvite and calcium oxalate cystoliths.

Publication Type

Journal article.

<4>

Accession Number

20173369587

Author

Walsh, K.

Title

Dealing with blocked tomcats - a snapshot.

Source

VN Times; 2017. 17(12):14. 6 ref.

Publisher

Veterinary Business Development Ltd

Location of Publisher

Peterborough

Country of Publication

UK

Publication Type

Journal article.

<5>

Accession Number

20183004938

Author

Hall, J. A.; Brockman, J. A.; Davidson, S. J.; MacLeay, J. M.; Jewell, D. E.

Title

Increased dietary long-chain polyunsaturated fatty acids alter serum fatty acid concentrations and lower risk of urine stone formation in cats.

Source

PLoS ONE; 2017. 12(10):e0187133. 41 ref.

Publisher

Public Library of Sciences (PLoS)

Location of Publisher

San Francisco  
Country of Publication  
USA

Abstract

The lifespan of cats with non-obstructive kidney stones is shortened compared with healthy cats indicating a need to reduce stone formation and minimize chronic kidney disease. The purpose of this study was to investigate the effects of increasing dietary polyunsaturated fatty acids (PUFA) on urine characteristics. Domestic-short-hair cats (n=12; mean age 5.6 years) were randomized into two groups and fed one of two dry-cat foods in a cross-over study design. For one week before study initiation, all cats consumed control food that contained 0.07% arachidonic acid (AA), but no eicosapentaenoic acid (EPA) or docosahexaenoic acid (DHA). Group 1 continued eating control food for 56 days. Group 2 was fed test food for 56 days, which was control food plus fish oil and high-AA oil. Test food contained 0.17% AA, 0.09% EPA and 0.18% DHA. After 56 days, cats were fed the opposite food for another 56 days. At baseline and after each feeding period, serum was analyzed for fatty acid concentrations, and urine for specific gravity, calcium concentration, relative-super-saturation for struvite crystals, and a calcium-oxalate-titrimetric test was performed. After consuming test food, cats had increased (all  $P < 0.001$ ) serum concentrations of EPA (173%), DHA (61%), and AA (35%); decreased urine specific gravity ( $P = 0.02$ ); decreased urine calcium concentration ( $P = 0.06$ ); decreased relative-super-saturation for struvite crystals ( $P = 0.03$ ); and increased resistance to oxalate crystal formation ( $P = 0.06$ ) compared with cats consuming control food. Oxalate crystal formation was correlated with serum calcium concentration ( $r = 0.41$ ;  $P < 0.01$ ). These data show benefits for reducing urine stone formation in cats by increasing dietary PUFA.

Publication Type  
Journal article.

<6>

Accession Number  
20183001153

Author

Mshelbwala, E. M.; Ajayi, O. L.; Adebisi, A. A.; Olaniyi, M. O.; Omotainse, S. O.; Omotainse, O. S.; Ohiwabi, M. T.; Ojebiyi, O. E.; Akpavie, S. O.; Kadiri, A. K. E.

Title

Retrospective studies on the prevalence, morphological pathology and aetiology of renal failure of dog in Lagos and Abeokuta, Nigeria.

Source

Nigerian Veterinary Journal; 2016. 37(4):206-216. 30 ref.

Publisher

Nigerian Veterinary Medical Association, National Veterinary Research Institute

Location of Publisher

Vom

Country of Publication

Nigeria

Abstract

The prevalence and morphological pathology of renal failure in exotic breeds of dog in Lagos and Ogun States, within Southwestern Nigeria were determined from postmortem records of the Department of Veterinary Pathology, College of Veterinary Medicine, Federal University of Agriculture, Abeokuta, between 2012 and 2015. The prevalences of renal failure were determined by calculating the percentage of occurrence among dog carcasses. Formalinized tissue samples of the kidney collected at postmortem during the period were processed and stained with Haematoxylin and eosin for histopathological studies. *Leptospira* species were demonstrated in the renal tubules using Wartin stary stain. The overall prevalence of glomerulonephritis was 22.81%. Annual prevalence varied from 15% in 2013 to 33.3% in 2014. Age-specific prevalence was highest (10.53%) among older dogs between the ages of 6 years and above. There was no significant difference ( $P > 0.05$ ) between the prevalence in male and female dogs. Breed-specific prevalence

varied from zero prevalence among the local breed to 50% prevalence among Rottweiler cross. Grossly, extra-renal lesions include ulcerative dermatitis and the mucous membrane of the buccal cavity was jaundiced and had ulcers in 57% of the cases. In acute cases, the kidneys were swollen and pale in 60% of the cases. Whereas in chronic cases, the kidneys were pale, shrunken, and the cortexes were rough and pitted with the capsules adherent to the cortexes in 80% of the cases. Twenty eight percent showed either left or right smaller kidney with calculi of variable sizes in the pelvis. Microscopically, in the acute cases, the kidneys showed moderate necrosis of tubular epithelial cells and infiltration by lymphocytes and macrophages in the interstitium while in the chronic cases; the tubules are atrophied in 27%. There is protein leak into the Bowman's space in 60%. The renal interstitium showed severe fibroplasia and the lumen of the collecting ducts contained proteinaceous cast. The interstitium is severely infiltrated by lymphocytes and plasma cells in 67% cases. The prevalence of acute and chronic glomerular and interstitial nephritis among exotic breeds of dog in Lagos and Ogun States was significantly high and the gross and histopathological lesions correlated well.

Publication Type

Journal article.

<7>

Accession Number

20173356319

Author

Livet, V.; Pillard, P.; Goy-Thollot, I.; Maleca, D.; Cabon, Q.; Remy, D.; Fau, D.; Viguier, E.; Pouzot, C.; Carozzo, C.; Cachon, T.

Title

Installation of ureteral diversion devices (SUB type) without fluoroscopic control in cats with ureteral obstruction: study on 19 cases (2014-2016). [French]

Source

Le Nouveau Praticien Veterinaire Canine - Feline; 2017. (67):59-60.

Publisher

NEVA Europarc

Location of Publisher

Creteil

Country of Publication

France

Abstract

In this article the clinical aspects and management of cases of ureteral obstruction in cats (based on clinical data collected within The veterinary hospital of VetAgro between 2014 and 2016) were presented highlighting the use of a ureteral diversion device (SUB) without fluoroscopy.

Publication Type

Journal article.

<8>

Accession Number

20173356311

Author

Manassero, M.; Maurey-Guenec, C.

Title

Medical treatment protocol for ureteral stones. [French]

Source

Le Nouveau Praticien Veterinaire Canine - Feline; 2017. (67):34.

Publisher

NEVA Europarc

Location of Publisher

Creteil

Country of Publication

France

Abstract

The use of drugs and other treatment modalities such as fluid therapy in the treatment of calculi and bacterial infections in the ureters of cats and dogs are presented.

Publication Type

Journal article.

<9>

Accession Number

20173356309

Author

Dufayet, C.

Title

Ureteral obstructions and sub-obstructions: when to suspect? What is the diagnostic procedure? [French]

Source

Le Nouveau Praticien Veterinaire Canine - Feline; 2017. (67):19-25. 18 ref.

Publisher

NEVA Europarc

Location of Publisher

Creteil

Country of Publication

France

Abstract

This article describes the aetiology, physiopathology, clinical signs and diagnosis of ureteral obstruction in cats and dogs.

Publication Type

Journal article.

<10>

Accession Number

20173334902

Author

Kovarikova, S.

Title

Management of calcium oxalate urolithiasis in dogs and cats. [Czech]

Source

Veterinarstvi; 2017. 67(10):755-762. 48 ref.

Publisher

Profi Press, s.r.o.

Location of Publisher

Praha 2

Country of Publication

Czech Republic

Abstract

Calcium oxalate urolithiasis represents important part of canine and feline urology. Currently, no medical or dietary protocols for calcium oxalate dissolution are available. This article summarizes methods of physical removal of uroliths with their indications, advantages, and disadvantages. Calcium oxalate urolithiasis is highly recurrent problem, thus preventive strategies are discussed.

Publication Type

Journal article.

<11>

Accession Number

20173345095

Author

Mack, J. K.; Kienzle, E.

Title

Unusual case of struvite urolithiasis in a dog. A case report. [German]

Source

Tierärztliche Praxis. Ausgabe K, Kleintiere/Heimtiere; 2017. 45(5):344-351. 43 ref.

Publisher

Schattauer GmbH

Location of Publisher

Stuttgart

Country of Publication

Germany

Abstract

A dog was referred for nutrition consultation after surgical removal of struvite uroliths from the bladder. Inspection of the dog's current ration revealed a pronounced vitamin-A deficiency together with a marked deficiency of protein, phosphorus and magnesium. Therefore, a supersaturation of the urine with ammonium, magnesium and phosphate, the three constituents of struvite, as a cause of struvite calculi formation appears rather unlikely. Vitamin-A deficiency can promote urinary infections and consequently struvite stone formation because of the lack of the protective effect of vitamin A on the epithelia of the urinary tract. Not only common causes for struvite urolith formation, including urinary supersaturation with stone-forming constituents and urinary tract infection, but also less common causes, including vitamin-A deficiency, which was the presumed trigger in the present case study, have to be taken into consideration. Dietetic measures appear to be a useful tool in such cases to prevent uroliths from reoccurring.

Publication Type

Journal article.

<12>

Accession Number

20173343417

Author

Nazaret, T. L.; Goloni, C.; Bonder, B. S. A.; Senhorello, I. L. S.; Gering, A. P.; Prado, T. D.; Tinucci-Costa, M.; Carciofi, A.

Title

Nutrition: urolith dissolution with nutritional management in dog.

Source



41st World Small Animal Veterinary Association Congress, Cartagena, Colombia, 27-30 September 2016; 2016. :860.

Publisher

World Small Animal Veterinary Association

Location of Publisher

Cartagena

Country of Publication

Colombia

Publication Type

Conference paper.

<13>

Accession Number

20173343334

Author

Zanutto, M. S.; Grano-Bordini, C. G.

Title

Clinical characteristics of cats with urolithiasis treated at veterinary hospital of Londrina State University (VH-LSU) Parana-Brazil from 2007 to 2015.

Source

41st World Small Animal Veterinary Association Congress, Cartagena, Colombia, 27-30 September 2016; 2016. :802.

Publisher

World Small Animal Veterinary Association

Location of Publisher

Cartagena

Country of Publication

Colombia

Publication Type

Conference paper.

<14>

Accession Number

20173314042

Author

Burmeier, H. U.

Title

Effects of variations in sodium and crude protein concentrations as well as protein quality in a diet on urine composition of healthy cats. [German]

Source

Auswirkungen des Natrium- und Rohproteingehalts sowie der Proteinqualität im Futter auf die Harnzusammensetzung von gesunden Katzen; 2016. :xviii + 168 pp. many ref.

Publisher

Mensch & Buch Verlag

Location of Publisher

Berlin

Country of Publication

Germany

## Abstract

This study aimed at investigating the effects of variations in sodium and crude protein concentrations as well as protein quality in a diet on urine composition of cats. In particular, risk factors for the formation of calcium oxalate urine stones were evaluated. For this, seven experimental diets were fed to 8 healthy adult cats. Diets varied in concentrations of sodium (0.38%, 0.65%, 1.14% and 1.43% in dry matter), crude protein (34.7%, 43.8% and 57.4% in dry matter) and collagen-rich greaves meal (12% and 35% in the diet). Each diet was fed for a three-week adaptation period and a subsequent one-week collection period. For the collection periods, cats were housed individually in metabolic cages to collect their urine and faeces. Feed and water intake were recorded daily during the collection periods. Concentrations of urinary anions and cations, relative supersaturation of the urine with calcium oxalate and struvite as well as faecal dry matter, crude nutrient and mineral concentrations were determined. The key findings of this study are briefly listed below. Increasing levels of dietary sodium were associated with an enhanced urine volume and renal sodium excretion. The concentration of calcium in the urine of the cats was not affected, but the urinary excretion of calcium increased from 0.62 to 1.05 mg/kg body weight/day with increasing dietary sodium levels ( $P \leq 0.05$ ). Urinary oxalate, citrate, phosphorus and potassium concentrations decreased at higher sodium intakes ( $P \leq 0.05$ ). The pH of the urine ranged between 6.33 and 6.45 among the treatment groups ( $P > 0.05$ ). The relative supersaturation of the urine with calcium oxalate was not affected by varying sodium levels in the experimental diets. Consequently, in the context of the formation of calcium oxalate urine stones, this part of the study shows some positive effects of a high sodium intake in cats over a short time. The concentrations of calcium in the urine as well as the relative supersaturation of the urine with calcium oxalate remained unaffected and the concentrations of oxalate in the urine were reduced. This finding could especially contribute to prevent the formation of calcium oxalate urine stones. With increasing concentrations of crude protein in the diet, an enhanced urine volume could be observed as well as an increase in urinary calcium concentrations, renal calcium and oxalate excretion and relative supersaturation of the urine with calcium oxalate ( $P \leq 0.05$ ). The pH of the urine ranged from 6.34 to 6.66 among all groups, while no unidirectional influence of the dietary protein level could be detected ( $P > 0.05$ ). With the exception of the enhanced urine volume, these effects of a high protein diet might be critical with regard to the prevention of calcium oxalate urine stones in cats. When feeding the diet with a higher percentage of collagen-rich greaves meal, less urinary excretion of calcium could be detected ( $P \leq 0.05$ ). The reason for this effect remains unclear and should be investigated in future studies. To be able to give reliable feeding recommendations for the prevention of calcium oxalate urine stones, the results of the present study should be verified through further investigations in cats that are either predisposed or diseased.

Publication Type

Thesis.

<15>

Accession Number

20173297868

Author

Granados Ortega, J. R.; Martinez Gomez-Rodulfo, J. M.

Title

Laparoscopic assisted cystoscopy. [Spanish]

Source

Argos - Informativo Veterinario; 2017. (190):48, 50-51. 4 ref.

Publisher

ASIS Biomedica s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Abstract

This article discussed some of the disorders affecting the urinary tract of dogs and cats such as haematuria, neoplasms, urolithiasis, and bladder disease and highlights on the application of laparoscopy assisted with cystoscopy in treating the animals and how this technique aids in reducing perioperative complications.

Publication Type

Journal article.

<16>

Accession Number

20173312512

Author

Prasad, V. D.; Raghunath, M.; Kumar, P. R.; Vidyasagar, P.

Title

Management of cystorrhesis and uroperitoneum in Dalmatian dogs: a report of two cases.

Source

Indian Veterinary Journal; 2017. 94(8):72-74. 7 ref.

Publisher

Indian Veterinary Association

Location of Publisher

Chennai

Country of Publication

India

Abstract

The ammonium urate stones seen in the Dalmatian breed are radiolucent and hence, cannot be seen on plain radiographs leading to cystorrhesis and uroperitoneum. This condition was successfully managed by fluid therapy, surgery, dietary management and alkalinization of urine.

Publication Type

Journal article.

<17>

Accession Number

20173307026

Author

Reineke, E. L.; Thomas, E. K.; Syring, R. S.; Savini, J.; Drobatz, K. J.

Title

The effect of prazosin on outcome in feline urethral obstruction.

Source

Journal of Veterinary Emergency and Critical Care; 2017. 27(4):387-396. 23 ref.

Publisher

Wiley

Location of Publisher

Boston

Country of Publication

USA

Abstract

Objective: To determine whether prazosin administration following urethral obstruction (UO) reduces the risk for recurrent urethral obstruction (rUO) or lower urinary tract signs, and to document adverse effects associated with prazosin use in cats. Design: Double-blinded, prospective, interventional study. Setting: University teaching hospital. Animals: A population of 47 consecutive male cats with UO not associated with

urinary tract calculi >2 mm in diameter. Interventions Cats were randomized to receive either prazosin (0.25 mg/cat PO q 12 h, n=27) or placebo (n=20) for 1 month following UO. Measurements and Main Results: Cats were monitored for rUO, severity of lower urinary tract signs, and medication adverse effects during hospitalization and through weekly conversations with the owner during the 1-month study period and once more at 6 months following discharge. There was no difference in the rUO rate among cats that received prazosin or placebo prior to hospital discharge (2/26 (7%) versus 1/19 (5%), P=1.00), during the 1-month medication period (4/26 (15%) versus 3/18 (17%), P=0.776), or at 6 months following treatment for UO (7/19 (37%) versus 4/13 (31%), P=0.811). There was no difference in the severity of lower urinary tract signs reported by the owners at the 1-, 2-, 3-, or 4-week follow-up periods among the cats in either group (P=0.62, 0.68, 0.33, 1.00, respectively). Reported adverse effects from prazosin administration included lethargy, ptyalism, diarrhea, anorexia, and malodorous stool. Conclusions: Although our study results failed to find a difference in the incidence of rUO and severity of lower urinary tract signs among cats receiving prazosin and those receiving placebo, these study results should be interpreted cautiously as our study was underpowered to identify such differences. Larger placebo-controlled, prospective studies are needed to determine the clinical utility of prazosin in prevention of rUO.

Publication Type  
Journal article.

<18>

Accession Number  
20173292393

Author  
Nguyen, P.; Reynolds, B.; Zentek, J.; Passlack, N.; Leray, V.

Title  
Sodium in feline nutrition.

Source  
Journal of Animal Physiology and Animal Nutrition; 2017. 101(3):403-420. many ref.

Publisher  
Wiley

Location of Publisher  
Berlin

Country of Publication  
Germany

Abstract

High sodium levels in cat food have been controversial for a long time. Nonetheless, high sodium levels are used to enhance water intake and urine volume, with the main objective of reducing the risk of urolithiasis. This article is a review of current evidence of the putative risks and benefits of high dietary sodium levels. Its secondary aim is to report a possible safe upper limit (SUL) for sodium intake. The first part of the manuscript is dedicated to sodium physiology, with a focus on the mechanisms of sodium homeostasis. In this respect, there is only few information regarding possible interactions with other minerals. Next, the authors address how sodium intake affects sodium balance; knowledge of these effects is critical to establish recommendations for sodium feed content. The authors then review the consequences of changes in sodium intake on feline health, including urolithiasis, blood pressure changes, cardiovascular alterations and kidney disease. According to recent, long-term studies, there is no evidence of any deleterious effect of dietary sodium levels as high as 740 mg/MJ metabolizable energy, which can therefore be considered the SUL based on current knowledge.

Publication Type  
Journal article.

<19>

Accession Number

20173282405

Author

Parvathamma, P. S.; Jayakrushna Das; Sadananda Nayak; Pattanaik, T. K.; Mishra, U. K.; Behera, P. C.; Sardar, K. K.

Title

Analysis of mineral composition of canine uroliths - a retrospective study.

Source

Exploratory Animal and Medical Research; 2017. 7(1):39-41. 10 ref.

Publisher

West Bengal Veterinary Alumni Association

Location of Publisher

Kolkata

Country of Publication

India

Abstract

Twenty six cases were studied for analysis of uroliths surgically retrieved from canine of different age, sex, body weight, geographical location and nutritional status. The uroliths were quantitatively analyzed by atomic absorption spectrophotometric analysis (AAS), Flame photometry and calcium and phosphorus estimation. The struvite stones were found to be more predominant in number, than other type of uroliths.

Publication Type

Journal article.

<20>

Accession Number

20173274752

Author

Hilton, S.; Mizukami, K.; Giger, U.

Title

Cystinuria caused by a SLC7A9 missense mutation in Siamese-crossbred littermates in Germany.

[German]

Source

Tierärztliche Praxis. Ausgabe K, Kleintiere/Heimtiere; 2017. 45(4):265-272. 39 ref.

Publisher

Schattauer GmbH

Location of Publisher

Stuttgart

Country of Publication

Germany

Abstract

Cystinuria is caused by defective proximal renal tubular reabsorption of the amino acids cystine, ornithine, lysine, and arginine (COLA). The low solubility of cystine in mildly acidic urine may lead to the formation of urinary cystine crystals and uroliths. Much progress has been made recently in the diagnosis and understanding of cystinuria in companion animals. In cats, cystinuria affects equally both genders independent of neutering status and, despite being rare, already more cystinuria-causing mutations have been detected in cats compared to dogs. In this study a litter of Siamese-crossbred cats in Germany was assessed clinically for cystinuria and screened for mutations known to cause cystinuria in cats. An adult male castrated cat was presented with cystine crystalluria and calculi-related urinary obstruction and treated with perineal urethrostomy, cystotomy, and medical management. This cat and a neutered male littermate without evidence of urinary tract disease were found to be positive for cystine by urinary nitroprusside test, to have

increased urinary COLA values and to be homozygous for the p.Val294Glu mutation in the SLC7A9 gene coding for b0,+AT subunit of the b0,+ renal COLA transporter. Another littermate was non-cystinuric and did not carry this mutation. The same SLC7A9 mutation was previously found in a Maine coon, a Sphinx and a medium-haired cat in North America suggesting a common ancestor and likely first widespread SLC7A9 mutation causing cystinuria in cats. Genetic screening for this mutation may offer a simple and precise mean to diagnose other cats for cystinuria and offer specific management.

Publication Type  
Journal article.

<21>

Accession Number  
20173274747

Author

Ruckert, C.; Braun, C.; Vervuert, I.

Title

Evaluation of nutritional characteristics of commercial canned cat diets. [German]

Source

Tierärztliche Praxis. Ausgabe K, Kleintiere/Heimtiere; 2017. 45(4):219-225. 43 ref.

Publisher

Schattauer GmbH

Location of Publisher

Stuttgart

Country of Publication

Germany

Abstract

**Objective:** To evaluate commercial complete canned cat foods according to their composition, labeling and nutritional characteristics. **Materials and methods:** A total of 21 commercial complete canned compound feeds for adult cats were analyzed for crude nutrients, minerals, vitamins, selected amino acids and taurine. The analyzed parameters were compared to the internal set of standards of the European Pet Food Industry Federation (FEDIAF). The energy content was calculated and compared with the labeled recommendations regarding the amounts of diet that should be fed. Analyzed nutrients were compared with the labeled nutrients according to the regulations of the EU food and feed law (directive EU regulation 767/2009). **Results:** In many cases, the labeled feeding protocols did not match the calculated daily energy requirements. In eight complete foods, the recommended daily feed amounts were underestimated and four recommendations exceeded energy requirements of adult cats. In 12 complete foods, the calcium and phosphorus contents were threefold higher than the respective requirement. In 16 of 21 complete foods, substantial discrepancies were observed between the recommendations and the analyzed trace elements. In particular, selenium contents exceeded the selenium requirement more than threefold. The vitamin, arginine and taurine contents showed no significant discrepancies to the recommendations. With respect to the labeled nutrients, there were only minor deviations from the regulations of the European law. **Conclusion and clinical relevance:** In general, healthy adult cats are adequately supplied with energy and nutrients when feeding commercial canned complete diets for cats. In cases of body weight loss or gain, the labelled feed amounts should be questioned. The high phosphorus contents are an issue of concern, because a high phosphorus intake can potentially increase the risk for urinary stones and particularly for older cats the risk for renal insufficiency. Furthermore, it is recommended to decrease the high selenium levels by the reduction of selenium-rich feed materials such as offal.

Publication Type  
Journal article.

<22>

Accession Number

20173266190

Author

Tan DeZhan; Huang KeHe; Pan CuiLing; Tan Yao

Title

Prophylactic effects of dietary Se-enriched Lactobacillus on calcium urolithiasis in dogs. [Chinese]

Source

Chinese Veterinary Science / Zhongguo Shouyi Kexue; 2017. 47(6):791-797. 12 ref.

Publisher

Chinese Veterinary Science

Location of Publisher

Lanzhou

Country of Publication

China

Abstract

In order to ensure the prophylactic effects of Se-enriched Lactobacillus on canine urolithiasis caused by too much oxalic acid from daily ration, 20 local dogs were randomly divided into 5 groups, including the control group, 0.5% oxalic acid positive group, 0.5% oxalic acid and organic selenium group, 0.5% oxalic acid and lactic acid bacteria group, 0.5% oxalic acid and Se-enriched Lactobacillus group. The corresponding components were added to the diets, respectively. At the time of 15 d and 30 d, the blood biochemical indexes and blood selenium contents were measured both in blood and urine. The results showed that the addition of Se-enriched Lactobacillus in diet could significantly enhance the decomposition of oxalate and improve the body's antioxidant capacity, so as to prevent the formation of calcium oxalate stones.

Publication Type

Journal article.

<23>

Accession Number

20173260335

Author

Lew-Kojrys, S.; Mikulska-Skupien, E.; Snarska, A.; Krystkiewicz, W.; Pomianowski, A.

Title

Evaluation of clinical signs and causes of lower urinary tract disease in Polish cats.

Source

Veterinarni Medicina; 2017. 62(7):386-393. 31 ref.

Publisher

Institute of Agricultural Economics and Information

Location of Publisher

Prague

Country of Publication

Czech Republic

Abstract

This paper describes the results of a retrospective study performed on 385 cats with feline lower urinary tract disease. The study was conducted to obtain epidemiological data and to evaluate clinical symptoms and the results of laboratory tests in a population of Polish cats with symptoms of lower urinary tract disease. The analysed population comprised feline patients of the veterinary clinic at the University of Warmia and Mazury in Olsztyn who had not been treated prior to admission. Medical history was obtained for all patients. Urine samples were collected mostly, but not solely, by cystocentesis. Feline idiopathic cystitis was diagnosed in most cats (60.7%), while urinary tract infections were noted in only 7.8% of patients. Urethral obstruction caused by mucus plugs was observed in 17.4% of animals. Urolithiasis was observed in 13% of

cats, 5% of whom were also diagnosed with urinary tract infections. Hyperplastic changes were identified in only 1% of the studied population. In 59% of cats, feline lower urinary tract disease was accompanied by urethral obstruction. Cats with feline idiopathic cystitis were the youngest animals in the analysed population, and the risk of urinary tract infections and neoplasia increased with age. Our results, obtained over a period of six years in a Polish feline population, show that sex, neutering, age, living conditions and diet influence the type of urinary tract disease, data which are consistent with those obtained in other countries.

Publication Type  
Journal article.

<24>

Accession Number  
20173243737

Author  
Haydon, S.

Title  
A less-usual case of canine urolithiasis.

Source  
Companion Animal; 2017. 22(7):410-414. 14 ref.

Publisher  
MA Healthcare Limited

Location of Publisher  
London

Country of Publication  
UK

Abstract

A 6-year-old male entire Irish Terrier presented following 24 hours of stranguria, pollakiuria, haematuria and dysuria. Investigations performed to determine the underlying cause of the lower urinary tract signs included urinalysis, abdominal radiography and ultrasonography. Cystine crystals were identified on urine microscopy. Uroliths were identified on abdominal imaging and were considered to be the cause of the urethral obstruction and resultant dysuria. Analysis of retrieved stones confirmed the uroliths to be composed entirely of cystine. This article uses a case example to discuss cystinuria in the dog and briefly review the approach to diagnosis, treatment and management of dogs presenting with lower urinary tract signs.

Publication Type  
Journal article.

<25>

Accession Number  
20173241942

Author  
Furrow, E.; McCue, M. E.; Lulich, J. P.

Title  
Urinary metals in a spontaneous canine model of calcium oxalate urolithiasis.

Source  
PLoS ONE; 2017. 12(5):e0176595. 49 ref.

Publisher  
Public Library of Sciences (PLoS)

Location of Publisher  
San Francisco

Country of Publication

USA

Abstract

Calcium oxalate urolithiasis is a common and painful condition in people. The pathogenesis of this disease is complex and poorly understood. Laboratory animal and in vitro studies have demonstrated an effect of multiple trace metals in the crystallization process, and studies in humans have reported relationships between urinary metal concentrations and stone risk. Dogs are a spontaneous model of calcium oxalate urolithiasis, and the metal content of canine calcium oxalate stones mirrors that of human stones. The aim of this study was to test for a relationship between urinary metals and calcium oxalate urolithiasis in dogs. We hypothesized that urinary metals would differ between dogs with and without calcium oxalate urolithiasis. Urine from 122 dogs (71 cases and 51 stone-free controls) was analyzed for calcium and 12 other metals. The cases had higher urinary calcium, copper, iron, and vanadium and lower urinary cobalt. Higher urinary vanadium in the cases was associated with being fed a therapeutic stone-prevention diet. Urinary calcium had a strong positive correlation with strontium and moderate positive correlations with chromium, nickel, and zinc. The results of this study complement the findings of similar human studies and suggest a potential role of trace metals in calcium oxalate urolithiasis. Further investigation into how trace metals may affect stone formation is warranted.

Publication Type

Journal article.

<26>

Accession Number

20173236735

Author

Canello, S.; Centenaro, S.; Guidetti, G.

Title

Nutraceutical approach for struvite uroliths management in cats.

Source

International Journal of Applied Research in Veterinary Medicine; 2017. 15(1):19-25. 45 ref.

Publisher

Veterinary Solutions LLC

Location of Publisher

Apopka

Country of Publication

USA

Abstract

Urolithiasis accounts for 15% to 23% of cases of feline lower urinary tract disease (FLUTD), with struvite uroliths occurring more frequently, followed by calcium oxalate, ammonium urate, cystine, and xanthine calculi. In this clinical evaluation, we tested the efficacy of a commercially available nutraceutical diet in 33 cats affected by struvite uroliths. Results clearly indicated a significant urine color, turbidity, pH, RBC, WBC, weight and proteins decrease (\*\*p<0.001, \*p<0.05), and a significant decrease of struvite uroliths in all treated cats. The nutraceutical diet enriched by botanicals, such as, Hieracium pilosella, Urtica dioica, Lespedeza spp, Vaccinium macrocarpon, Taraxacum officinale formulated with DL-methionine, and a controlled addition of minerals and amino acids resulted particularly effective for struvite uroliths management. This work can pave the way for a new, safe, and long lasting natural approach to treat struvite uroliths.

Publication Type

Journal article.

<27>

Accession Number

20173207796

Author

Baciero, G.

Title

Dietary management of urolithiasis. [Spanish]

Source

Argos - Informativo Veterinario; 2017. (189):76.

Publisher

ASIS Biomedica s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Publication Type

Journal article.

<28>

Accession Number

20173230423

Author

Martusevich, A. K.; Kozlova, L. M.

Title

Possibilities of urolithiasis crystallography.

Source

Iraqi Journal of Veterinary Sciences; 2017. 31(1):23-27. 21 ref.

Publisher

College of Veterinary Medicine, University of Mosul

Location of Publisher

Mosul

Country of Publication

Iraq

Abstract

Nowadays, one of the most common groups of diseases in veterinary medicine is the urinary system pathology. Urolithiasis is widespread disease, could be found in many species, including cats, dogs, rabbits, guinea-pigs, turtles etc. Despite the large scale of this pathology in animal world, there are some challenges with diagnostic process and diagnosis's verification. The aim of our study is estimation of diagnostic value of advanced urine tesciocrystalloscopy in urolithiasis (by the example of cats). We studied crystallogenic and initiated properties of 24 healthy cats and 32 animals with urolithiasis. Own and initiated crystallogenesis of the urine specimens was studied. For teziographic test we used sodium chloride solution (0.45%, 0.9%, 3% consequently), hydrochloric acid solution (0.1H) and sodium hydroxide (0.1H) as a crystal-forming substances. We used the original criterions to estimate crystalloscopic and teziographic facias. As the main parameters structure index (SI), crystallizability (Cr), facia's destruction degree (FDD) and edge belt intensity (EB) were used to describe free crystallogenesis, and main teziographic coefficient (Q), belt coefficient (B) and FDD were used for the comparative teziography data. Results showed that Cat's urine in normal conditions has moderate crystallogenic activity, but in urolithiasis it acquires high level of crystallizing, with intermedium value of structure index, and significant destruction of crystal-forming elements. A similar changes of physical-chemical biomedium properties are detected during analysis of teziographic microslides of urines of cats with urolithiasis, that was prepared using 0.9% sodium chloride as basis substance. In conclusion, we fixed that tesciocrystalloscopic "pattern" of cats' urine in urolithiasis significantly transforms into

activation of crystal formation and increasing of biomedium's initiating potential. So, the investigation of free or initialized urine crystallization in urolithiasis has diagnostic value.

Publication Type  
Journal article.

<29>

Accession Number  
20173227358

Author

Adamama-Moraitou, K. K.; Pardali, D.; Prassinou, N. N.; Menexes, G.; Patsikas, M. N.; Rallis, T. S.

Title

Evaluation of dogs with macroscopic haematuria: a retrospective study of 162 cases (2003-2010).

Source

New Zealand Veterinary Journal; 2017. 65(4):204-208. 22 ref.

Publisher

Taylor & Francis

Location of Publisher

Melbourne

Country of Publication

Australia

Abstract

**AIMS:** To retrospectively describe clinical features of dogs that were presented to a small animal clinic between 2003-10 with macroscopic haematuria, and investigate whether signalment of the dog and severity and duration of the haematuria at admission were associated with specific aetiologies. **METHODS:** Medical records were evaluated of 162 dogs with macroscopic haematuria admitted to a University-based small animal clinic in Thessaloniki, Greece, from January 2003 to December 2010. The inclusion criteria were discolouration of the urine sediment combined with abnormal numbers of erythrocytes, when examined microscopically. Data collected from the medical records included signalment, severity, frequency and duration of haematuria, and diagnosis. **RESULTS:** Between January 2007 and December 2010, 8,893 dogs were admitted to the clinic; of these 99 (1.1%) were admitted with haematuria. Of the 162 dogs with records of haematuria, 80 (49.4%) were aged between 5.1-10 years, presented with acute (96/162; 59.3%), constant (99/162; 61.1%) and mild/moderate (150/162; 92.6%) haematuria. Of 147 dogs with a recorded diagnosis, the commonest diagnoses were urinary tract infection (UTI, 42/147; 28.6%), urolithiasis (38/147; 25.9%), prostatic disease (25/147; 17.0%) and urinary tumours (13/147; 8.8%). The prevalence of UTI was higher in female (22/56; 39%) than male (20/91; 22%) dogs, and in medium sized (22/52; 42%) than small (6/40; 15%) dogs. Urolithiasis was most prevalent in small (21/40; 52.5%) dogs, and all dogs with urolithiasis presented with mild/moderate haematuria. The prevalence of prostatic disease was highest in large (11/46; 24%) and giant (3/9; 33%) sized dogs and in dogs aged >10 years (8/30; 27%). **CONCLUSIONS AND CLINICAL RELEVANCE:** In this retrospective study from one small animal clinic, UTI, urolithiasis, prostatic disease and urinary tumours predominated among the causes of canine haematuria. The consideration of sex, age, and size of the dog and characteristics of haematuria were found to be useful parameters when forming the list of differential diagnoses.

Publication Type  
Journal article.

<30>

Accession Number  
20173220329

Author

Santiago, I. L. T.; Xavier Junior, F. A. F.; Macambira, K. D. da S.; Morais, G. B. de; Vieira, A. A. R.; Evangelista, J. S. A. M.

Title

Urolithiasis in Schnauzer: a clinical and surgical approach. [Portuguese]

Source

Ciencia Animal; 2016. 26(1):160-162. 6 ref.

Publisher

Universidade Estadual do Ceara, Faculdade de Veterinaria

Location of Publisher

Ceara

Country of Publication

Brazil

Publication Type

Journal article  
Conference paper.

<31>

Accession Number

20173218438

Author

Sigrist, N. E.; Kalin, N.; Dreyfus, A.

Title

Changes in serum creatinine concentration and acute kidney injury (AKI) grade in dogs treated with hydroxyethyl starch 130/0.4 from 2013 to 2015.

Source

Journal of Veterinary Internal Medicine; 2017. 31(2):434-441. 27 ref.

Publisher

Wiley

Location of Publisher

Boston

Country of Publication

USA

Abstract

Background: Hydroxyethyl starch (HES) solutions may cause acute kidney injury (AKI) in humans. Objective: To compare AKI grades in 94 dogs exposed and 90 dogs that were unexposed to 6% HES-130/0.4. Animals: Dogs receiving 6% HES-130/0.4 (HES cohort) or crystalloids (unexposed cohort) between 2013 and 2015. Methods: Historical cohort study. Diagnosis, total cumulative dose and total mL/kg of HES administered, time frame of HES administration and serum creatinine concentrations up to 90 days after initiation of HES treatment were retrospectively reviewed. The AKI grades were retrospectively determined by IRIS guidelines. Results: Exposed dogs received a median cumulative dose of 69.4 mL/kg (range, 2-429 mL/kg) HES over a median of 4 (range, 1-16) days, resulting in a median dose of 20.7 (range, 2-87) mL/kg/d. Although the cohorts differed in terms of age and diagnosis, AKI grades were not significantly different at the evaluated short- and long-term time points. Results of ordinal logistic regression identified the number of days of HES administration as significantly associated with an increase in AKI grade within 10 days ( $P=.038$ ), whereas there was no significant association among HES exposure, HES mL/kg/d, and an increase in AKI grade. Conclusions and Clinical Importance: HES-130/0.4-treated dogs were not more prone to develop AKI than HES-untreated, but the number of HES days was significantly associated with an increase in AKI grade within 10 days post-HES administration. The time frame of HES treatment should be kept short. Prospective, randomized clinical trials are required to assess the effect of HES on renal function in dogs.

Publication Type

Journal article.

<32>

Accession Number

20173185096

Author

Rick, G. W.; Conrad, M. L. H.; Vargas, R. M. de; Machado, R. Z.; Lang, P. C.; Serafini, G. M. C.; Bones, V. C.

Title

Urolithiasis in dogs and cats. [Portuguese]

Source

PUBVET; 2017. 11(7):705-714. 16 ref.

Publisher

Pubvet

Location of Publisher

Maringa

Country of Publication

Brazil

Abstract

Urolithiasis in dogs and cats is one of many causes of urinary calculus formation, which may occur from the renal pelvis until the urethra. These formed calculi are responsible for modifying the physiology of the urinary tract according to its composition. The most founded uroliths in dogs are composed by magnesium ammonia phosphate and calcium oxalate. In cats, the most founded uroliths between the age of seven and nine are composed by calcium oxalate, and in young cats, the struvite uroliths, are the most founded. Clinical signals varied between themselves, being the simple radiography and radiography with contrast the most used methods for diagnostic. Predisposing factors include the infections of urinary tract, changes in the urine pH, hereditary factors, diet types and low ingestion for water. This review has the purpose to inform about the difference between the uroliths, how their formation happens and the principles of both clinical and surgical treatments.

Publication Type

Journal article.

<33>

Accession Number

20173175713

Author

Rantasila, J.; Syrja, P.; Spillmann, T.

Title

Cystoscopies on dogs at Small Animal Veterinary Teaching Hospital in 2006-2016 (47 cases). [Finnish]

Source

Suomen Elainlaakarilehti; 2017. 123(3):142-149. 29 ref.

Publisher

Suomen Elainlaakariliitto

Location of Publisher

Helsinki

Country of Publication

Finland

Abstract

Within a 10-year period 47 cystoscopies were performed for dogs at the Small Animal Veterinary Teaching Hospital. The dogs represented 33 different breeds. Most of the procedures were performed for female dogs (91%). The majority of the patients presented multiple clinical signs (62%). The most common were pollakiuria (49%), stranguria (43%) and hematuria (45%). In the study 29 patients (62%) were referred to the hospital because of continuous or relapsing signs of cystitis. Nineteen (40%) had been treated with antibiotics at least three times during the previous year due to recurring bacterial urinary tract infections. Based on the examinations done prior to cystoscopy, 25 the patients (53%) were suspected to have changes in the urinary bladder. In cystoscopy, vagina, urethra, urinary bladder, ureter openings and their possible changes were examined. The cystoscopy led to a final diagnosis in 79% of the cases. Forty-five % of the patients had mucosal changes, 23% had mass-like lesions and 17% had urolithiasis. Some of the patients had multiple changes. Biopsies for further investigations were taken during cystoscopy from 74% of the patients. The majority of mucosal changes were inflammatory (76%). Most of the mass-like lesions were transitional cell carcinomas (55%). Other findings were inflammatory polyps (18%), rhabdomyosarcoma (9%), leiomyoma (9%) and extra medullary plasmacytoma (9%). Cystoscopy did not reveal abnormalities in 10 (21%) dogs but was helpful in ruling out inflammatory or neoplastic conditions. Cystoscopy was primarily a diagnostic tool, but with four patients it was also a part of the therapeutic procedure.

Publication Type

Journal article.

<34>

Accession Number

20173018999

Author

Ferne, R. M.

Title

Treatment of ureterolithiasis in feline patients.

Source

The Veterinary Nurse; 2016. 7(9):526-529.

Publisher

MA Healthcare Limited

Location of Publisher

London

Country of Publication

UK

Abstract

Ureterolithiasis is becoming more frequently diagnosed in feline patients as diagnostic imaging has become more available and the understanding of the clinical signs suggestive of this disease process has grown. The presence of ureteral stones can be diagnosed by radiography and ultrasonography. As 98% of ureteral stones in cats are calcium oxalate, medical management may not be an option for the majority of cases. Subcutaneous ureteral bypass, nephroureterectomy, ureteral stenting and lithotripsy are all techniques that can be used for the treatment of ureteral obstruction caused by ureteral stones; this article focuses on the subcutaneous ureteral bypass device (SUB). This paper outlines how ureterolithiasis is diagnosed, briefly outlines treatment options then focuses on how the SUB device is placed. Postoperative care following a SUB placement is discussed as these patients need careful medical management in the immediate postoperative period to resolve azotaemia without causing fluid overload as well as lifelong follow-up care to ensure the SUB device stays patent and to support renal function.

Publication Type

Journal article.

<35>

Accession Number

20173037918

Author

Singh, A.; Hoddinott, K.; Morrison, S.; Oblak, M. L.; Brisson, B. A.; Ogilvie, A. T.; Monteith, G.; Denstedt, J. D.

Title

Perioperative characteristics of dogs undergoing open versus laparoscopic-assisted cystotomy for treatment of cystic calculi: 89 cases (2011-2015).

Source

Journal of the American Veterinary Medical Association; 2016. 249(12):1401-1407. 17 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

**OBJECTIVE:** To compare perioperative characteristics of dogs with cystic calculi treated via open versus laparoscopic-assisted cystotomy (LAC). **DESIGN:** Retrospective case series. **ANIMALS:** 89 client-owned dogs that underwent open cystotomy (n=39) or LAC (50). **PROCEDURES:** Medical records of dogs that underwent cystotomy between 2011 and 2015 were reviewed. History, signalment, surgery date, results of physical examination, results of preoperative diagnostic testing, details of surgical treatment, duration of surgery, perioperative complications, treatment costs, and duration of hospitalization were recorded. **RESULTS:** 5 of 50 (10%) dogs required conversion from LAC to open cystotomy (OC). There was no significant difference between the LAC (1/50) and OC (2/39) groups with regard to percentage of patients with incomplete removal of calculi. Duration of surgery was not significantly different between the LAC (median, 80 min; range, 35 to 145 min) and OC (median, 70 min; range, 45 to 120 min) groups. Postoperative duration of hospitalization was significantly shorter for dogs that underwent LAC (median, 24 hours; range, 12 to 48 hours) versus OC (median, 26 hours; range, 12 to 63 hours). Surgical and total procedural costs were significantly higher for patients undergoing LAC. **CONCLUSIONS AND CLINICAL RELEVANCE:** Results suggested that LAC may be an acceptable minimally invasive technique for treatment of cystic calculi in dogs. Surgery times were similar to those for dogs undergoing OC; however, surgical and total procedural costs were higher. Further investigation is suggested to determine which patients may benefit from LAC versus traditional OC.

Publication Type

Journal article.

<36>

Accession Number

20173011731

Author

Manassero, M.; Decambron, A.; Maurey-Guenec, C.

Title

Ureteral lithiasis in cats: surgical approach. (Urologie et nephrologie en pratique chez le chien et le chat) [French]

Source

Point Veterinaire; 2016. 47(Numero Special):72-79. 21 ref.

Publisher

Newsmed

Location of Publisher

Paris  
Country of Publication  
France  
Abstract

Ureteral obstructions are more and more frequently diagnosed in cats and the most common cause is the presence of calcium oxalate calculi. Medical treatment is mainly used preoperatively to stabilise the animal before surgical intervention to make the ureter patent. When the obstruction is focal and associated with a limited number of calculi, conventional surgical techniques such as ureterotomy or even ureteral reimplantation may be considered. Despite limited current data, extra-ureteral pyelovesical bypass appears to be a promising treatment, particularly when multiple sites of obstruction or stenosis are suspected. Whatever the method, the morbidity and mortality remains high, with around 10 to 20% preoperative mortality.

Publication Type  
Journal article.

<37>

Accession Number  
20173011730

Author  
Maurey-Guenec, C.; Decambon, A.; Manassero, M.

Title  
Ureteral lithiasis in cats: diagnosis and medical treatment. (Urologie et nephrologie en pratique chez le chien et le chat) [French]

Source  
Point Veterinaire; 2016. 47(Numero Special):64-70. 26 ref.

Publisher  
Newsmed  
Location of Publisher  
Paris

Country of Publication  
France

Abstract

During the past few years, upper urinary tract calculi are become more frequently seen, especially in cats. These calculi are predominantly calcium oxalate stones. The presence of calculi should be systematically suspected when presented with cases of renal failure especially in middle-aged animals. Medical imaging tests are used to determine the obstructive nature of the condition. Medical treatment is essential in the first instance but if the obstruction persists beyond a few days, surgical treatment is recommended in order to preserve renal function.

Publication Type  
Journal article.

<38>

Accession Number  
20173011720

Author  
Bismuth, C.

Title  
Lower urinary tract surgery. (Urologie et nephrologie en pratique chez le chien et le chat) [French]

Source

Point Veterinaire; 2016. 47(Numero Special):146-151. 17 ref.

Publisher

Newsmed

Location of Publisher

Paris

Country of Publication

France

Abstract

Surgery of the lower urinary tract includes procedures of the bladder and the urethra. The main indication is the removal of obstructive or non-obstructive bladder and urethral calculi. Cystotomy is the most commonly performed operation for the removal of bladder stones and/or urethral stones after retrograde hydropulsion. In cases of persistent urinary obstruction in dogs (mass, stenosis or, more rarely, urethral calculi that cannot be dislodged), surgical intervention such as uretrotomy or urethrostomy is possible. Perineal urethrostomy is performed in cats in cases of persistent or recurrent urinary obstruction. It is important that the fundamental principles of atraumatic surgery and the surgical technique are followed for these different procedures.

Publication Type

Journal article.

<39>

Accession Number

20173011719

Author

Queau, Y.

Title

Urolithiasis in dogs and cats: nutritional approach. (Urologie et nephrologie en pratique chez le chien et le chat) [French]

Source

Point Veterinaire; 2016. 47(Numero Special):140-145. 30 ref.

Publisher

Newsmed

Location of Publisher

Paris

Country of Publication

France

Abstract

STEP 1: Know the exact composition of the calculus: Any calculus removed from the animal must be analysed to provide the overall quantitative composition of the calculus and the composition of the different layers of the stone, except in cases of suspected of struvite stones for which dissolution can be attempted. STEP 2: Identify and correct risk factors if necessary: For some types of calculi, the predisposing factors should be treated if possible, to avoid failure of the nutritional strategy. STEP 3: Select a suitable ration: The diet is selected, depending on the animal and the calculus, to dissolve or prevent the recurrence of stones. Dilution of urine is a priority, regardless of the type of calculus. STEP 4: Monitor the animal and adjust or maintain nutritional plan accordingly: The success and modification of the therapy implemented can be objectively assessed using urinalysis and medical imaging. Depending on the type of calculus, the diet can reduce the risk of recurrence of the stone, but not always elimination.

Publication Type

Journal article.

<40>

Accession Number

20173011717

Author

Faucher, M.

Title

Medical treatment of urolithiasis. (Urologie et nephrologie en pratique chez le chien et le chat) [French]

Source

Point Veterinaire; 2016. 47(Numero Special):134-139. 27 ref.

Publisher

Newsmed

Location of Publisher

Paris

Country of Publication

France

Abstract

In cases of urolithiasis, the type of calculus is established in the first instance in order to determine the conditions favouring the formation and, where appropriate, treatment. Next, a protocol for medical dissolution may be selected for struvite, urate or cystine stones. Once the calculi are eliminated physically or medically dissolved, recurrence prevention should be put in place using dietary measures and possibly medication. Regular monitoring is required to detect early relapse.

Regular monitoring is required to detect early relapse.

Publication Type

Journal article.

<41>

Accession Number

20173011716

Author

Dufayet, C.

Title

Urinary tract endoscopy in dogs. (Urologie et nephrologie en pratique chez le chien et le chat) [French]

Source

Point Veterinaire; 2016. 47(Numero Special):128-132. 21 ref.

Publisher

Newsmed

Location of Publisher

Paris

Country of Publication

France

Abstract

Endoscopy of the urinary tract is becoming more accessible in veterinary medicine because of the reduction in the size and cost of equipment. It is the examination of choice for the evaluation of the lower urinary tract and, in particular, the urethra. In addition to its diagnostic value, cystoscopy also offers good access to the urethra and the bladder for biopsies, treatment of urinary calculi and some minimally invasive surgical procedures.

Publication Type

Journal article.

<42>

Accession Number

20173011715

Author

Rault, D.

Title

Medical imaging in uronephrology: does radiography still play a part in 2016? (Urologie et nephrologie en pratique chez le chien et le chat) [French]

Source

Point Veterinaire; 2016. 47(Numero Special):122-127. 25 ref.

Publisher

Newsmed

Location of Publisher

Paris

Country of Publication

France

Abstract

Standard radiography provides an overall picture of the abdomen, which is necessary after an injury. Radiography facilitates the assessment of organ malposition, and changes in opacity of retroperitoneal and peritoneal spaces. It usefully supplements ultrasonography in the detection of urinary calculi and allows quick and easy monitoring of lithiasis. Contrast radiography (intravenous urography, cystography, ureterography) is indicated to observe rupture of the bladder or urinary tracts, and stenosis. Bladder malposition can be diagnosed using cystography. Retrograde urethrography is the medical imaging examination of choice for the evaluation of the urethra.

Publication Type

Journal article.

<43>

Accession Number

20173018381

Author

Pantke, P.; Flaig, K.

Title

Intracorporeal fragmentation of urinary stones with pneumatic lithotripter (StoneBreakerTM). [German]

Source

Kleintierpraxis; 2017. 62(1):4...14. 27 ref.

Publisher

Verlag M. & H, Schaper Gmbh

Location of Publisher

Hannover

Country of Publication

Germany

Abstract

Urolithiasis often requires surgical treatment. Alternative methods of minimally invasive laser-assisted stone fragmentation are rarely offered because of equipment expenses and a flat learning curve. The aim of this clinical pilot study was evaluation of a pneumatic lithotripter (StoneBreakerTM) for the treatment of urinary stones as an alternative to laser lithotripsy. Fragmentation of uroliths by pneumatic lithotripsy is achieved by transmission of a pneumatic shock pulse by a semirigid fragmentation probe in contact mode on the stone. Fragmentation energy is provided by a replaceable high pressure carbon dioxide cartridge. For application of the lithotripter probe a rigid endoscope with a straight working channel is required. The StoneBreakerTM was applied successfully in four of four bitches carrying 16-55 bladder stones up to a maximum diameter of 9

mm. In four of six male dogs weighing at least 7 kg and carrying 1-11 urethral stones up to a maximum diameter of 4 mm, urethral obstruction could be resolved. Two of six male dogs were presented with deeply impacted urethral stones. Further damage to the urethra using pneumatic shock pulse energy could not be excluded. In these two patients, urethral obstruction was dissolved by laser lithotripsy. Pneumatic lithotripsy using StoneBreaker™ showed promise as a low cost, effective, safe and easy to learn procedure. Further application in clinical cases will show to what extent this method may replace laser lithotripsy in the canine urinary tract.

Publication Type  
Journal article.

<44>

Accession Number  
20173018365

Author  
Caney, S.

Title  
Maintenance and treatment of feline lower urinary tract disease.

Source  
Veterinary Times; 2017. 47(1):12-14. 9 ref.

Publisher  
Veterinary Business Development Ltd

Location of Publisher  
Peterborough

Country of Publication  
UK

Abstract

Feline lower urinary tract disease (FLUTD) affects up to 10 per cent of pet cats worldwide and is most often characterised by episodes of cystitis. Affected cats typically pass small amounts of bloody urine, often showing pain and difficulty when doing so. FLUTD can be caused by many conditions, including urolithiasis, bacterial urinary tract infection, bladder neoplasia and idiopathic cystitis. Successful treatment depends on identifying and treating the cause of the problem. However, the majority of affected cats suffer from idiopathic FLUTD, also known as feline idiopathic cystitis (FIC). Management of FIC cases requires a multimodal approach with attention to identifying and addressing sources of stress to the cat, encouraging water intake, good litter tray hygiene and other strategies that will be discussed in this article.

Publication Type  
Journal article.

<45>

Accession Number  
20173055856

Author  
Sanchez Rojas, I. C.; Zea Cruz, P.; Alvarez Charry, T. M.; Monje Sandoval, J. F.; Parra Salguero, K. L.

Title  
Bladder urolithiasis in a French Poodle canine Florencia township of Caqueta Colombia: description of a clinical case. [Spanish]

Source  
REDVET; 2016. 17(11):111621. 13 ref.

Publisher

Veterinaria Organizacion S.L.  
Location of Publisher  
Malaga  
Country of Publication  
Spain

Abstract

An approach in case of a canine patient poodle with frequency and apparent pain when urinating described. In a full-fledged clinical examination with abnormal bladder is palpable contents inside so an ultrasound study of the structure in question is requested, this is thickening of the walls and a hyperechoic content is observed abnormal so diagnosed urolithiasis bladder. We proceed to the surgical removal of urolith by cystotomy; extracted urolith diameter it was 4 cm and morphologically thickening of the walls of the urinary bladder was evident. The patient regained normal voiding in the process and kept on a special diet with food protein-based low density which maintains a stable quality of life.

Publication Type  
Journal article.

<46>

Accession Number  
20173038152

Author  
Knutsen, A. M.

Title

Transurethral cystoscopy (TUC) in the diagnosis of lower urinary tract disorders in female dogs and cats.  
[Norwegian]

Source

Norsk Veterinaertidsskrift; 2016. 128(7):458-464. 14 ref.

Publisher

Den Norske Veterinaerforening

Location of Publisher

Oslo

Country of Publication

Norway

Abstract

Transurethral cystoscopy (TUC) is the only diagnostic tool that enables direct visualization of the urethra and bladder. The procedure is minimally invasive, and the risk of complications is small. Moreover, TUC offers the opportunity to collect mucosal biopsies for culture and histopathology. Indications for cystoscopy include chronic urinary tract infections, haematuria, urinary incontinence and dysuria. TUC can be used to detect anatomical anomalies, tumours, uroliths and obstructions. Signs of urethritis and cystitis such as increased vascularisation and petechial haemorrhage may be visualized, and the source of haematuria can be identified. TUC can also assist removal of uroliths.

Publication Type  
Journal article.

<47>

Accession Number  
20173096219

Author  
Sumner, J. P.; Rishniw, M.

Title

Urethral obstruction in male cats in some Northern United States shows regional seasonality.

Source

Veterinary Journal; 2017. 220:72-74. 9 ref.

Publisher

Elsevier Ltd

Location of Publisher

Oxford

Country of Publication

UK

Abstract

Feline lower urinary tract disease (FLUTD) is a term encompassing several different conditions affecting the feline lower urinary tract. Certain FLUTD aetiologies, such as idiopathic cystitis, urethral plugs or urolithiasis, commonly produce urethral obstruction (UO) in male cats. It is widely accepted that environmental, behavioural and dietary factors can play a role in the aetiopathogenesis of these conditions. We investigated the seasonal prevalence of UO by analysing admission dates of 2443 male cats with UO from eight practices in the Northern USA over a 4-year period. A significantly greater number of cats presented for UO in April and May ( $P < 0.025$ ). When stratified by geographic location, a spring peak was found in cats from the North-Eastern United States, but no peak was demonstrable in cats from the North-West coast. This suggests that UO might depend, at least in part, on geographical climatic variations.

Publication Type

Journal article.

<48>

Accession Number

20173094291

Author

Oh, K. S.; Son, C. H.; Park, C. H.

Title

Spontaneous nephro-cutaneous fistula with pyonephrosis in two dogs: two case reports.

Source

Veterinari Medicina; 2017. 62(1):44-47. 12 ref.

Publisher

Institute of Agricultural Economics and Information

Location of Publisher

Prague

Country of Publication

Czech Republic

Abstract

This report describes the case of spontaneous nephro-cutaneous fistula with pyonephrosis due to renal calculi and obstructive nephropathy without renal surgery or trauma history in two dogs. A five-year-old, female, Shih-tzu and a seven-year-old, female, Maltese were presented with erythematous swelling, and subcutaneous abscess formation in their flanks. Complementary exams were performed and ultrasonography revealed marked enlargement of the kidneys with hyperechoic purulent debris filling, subcutaneous abscesses and the formation of draining sinus tracts between renal abscesses and subcutaneous tissue. At surgery, kidneys were grossly dilated and contained purulent material, which was visible in the draining sinus tract in the abdominal wall. Thus, a nephrectomy was performed. The dogs recovered uneventfully and three months later there were no further specific problems.

Publication Type

Journal article.

<49>

Accession Number

20173094223

Author

Feranti, J. P. S.; Oliveira, M. T. de; Pastore, L. L.; Hartmann, H. F.; Linhares, M. T.; Chaves, R. O.; Correa, L. F. D.; Brun, M. V.

Title

Laparoscopic nephrotomy to removal of staghorn calculus in a canine. [Portuguese]

Source

Acta Scientiae Veterinariae; 2016. 44(Supplement):119. 10 ref.

Publisher

Universidade Federal do Rio Grande do Sul, Faculdade de Veterinaria

Location of Publisher

Porto Alegre

Country of Publication

Brazil

Abstract

A six-year-old female Schnauzer, 6 kg, with history of polydipsia and will be eventually spayed is reported. Complete blood count, serum biochemistry, radiography and abdominal ultrasound were also performed, and showed that haematological examinations were within normal values for the species. Ultrasound revealed asymmetric kidneys with the right kidney with preserved cortical layer and hyperechoic corticomedullary line interface with posterior acoustic shadow, while the left kidney with relative or corticomedullary differentiation and pelvis preserved without alteration. Kidney stones was observed in the right kidney of the dog. Abdominal radiographs showed radiopaque mass at the right kidney compatible with renal staghorn stones. Excretory urography was done and demonstrated doubtful evidence of excretion of contrast material in the left kidney and the right kidney. Exploratory laparoscopy was performed on the dog, followed by laparoscopic nephrectomy or nephrotomy for the removal of urolithiasis, depending of the lesions visualized during the procedure. All procedure were performed using a minimally invasive approach without the need for conversion to open or videoassisted procedures. The most complex and delicate step was the stone removal due to the little time for suturing to avoid renal ischaemia. Eight months after the surgery, the owner is contacted, and said that the animal was well without clinical signs of kidney disease. Ultrasound and excretory urography revealed that the right kidney had atrophied, but there was still draining contrast shown by excretory urography. The present report demonstrates that laparoscopic surgery can be considered viable for the management of renal staghorn stones in dogs.

Publication Type

Journal article.

<50>

Accession Number

20173088452

Author

Thierry, F.; Drew, S.; Del-Pozo, J.; Fernandez-Salesa, N.; Woods, S.; Stanzani, G.; Liuti, T.

Title

Incomplete urethral duplication associated with a dermoid cyst in a dog with urinary obstruction.

Source

Journal of Comparative Pathology; 2017. 156(1):29-32. 13 ref.

Publisher

Elsevier Ltd

Location of Publisher

Oxford  
Country of Publication  
UK

Abstract

A 20-month-old male miniature dachshund was evaluated for a 10-week history of intermittent stranguria, pollakiuria, haematuria and obstructive urolithiasis. Retrograde urethrocytography revealed a subcutaneous saccular structure in the perineal area connected to the intrapelvic urethra associated with urolithiasis. After excision of the perineal saccular structure, microscopical examination confirmed the presence of transitional epithelium lining the diverticulum, with isolated submucosal smooth muscle bundles. This structure was attached to another saccular structure lined by stratified squamous keratinizing epithelium with hair follicles, sebaceous glands and apocrine glands. An incomplete urethral duplication with dermoid cyst was diagnosed. The dog recovered uneventfully from surgery and was still urinary continent and free from clinical signs 5 months after surgery. To the authors' knowledge this is the first report of an incomplete urethral duplication with a dermoid cyst and concurrent obstructive urolithiasis in a dog.

Publication Type  
Journal article.

<51>

Accession Number  
20173104130

Author

Westropp, J. L.; Larsen, J. A.; Johnson, E. G.; Bannasch, D.; Fascetti, A. J.; Biourge, V.; Queau, Y.

Title

Evaluation of dogs with genetic hyperuricosuria and urate urolithiasis consuming a purine restricted diet: a pilot study.

Source

BMC Veterinary Research; 2017. 13(45):(8 February 2017). 21 ref.

Publisher

BioMed Central Ltd

Location of Publisher

London

Country of Publication

UK

Abstract

Background: Urate urolithiasis is a common problem in breed homozygous for the mutation that results in hyperuricosuria. Low purine diets have been recommended to reduce purine intake in these dogs. Methods: A higher protein, purine restricted diet with water added was evaluated in dogs with genetic hyperuricosuria and a history of clinical urate urolithiasis over a one year time period. Dogs were evaluated at baseline and 2, 6, and 12 months after initiating the test diet. Bloodwork, urinalysis, abdominal ultrasound, body composition, and 24-h urinary purine metabolite analyses were performed. Results: Transient, mild, self-limited lower urinary tract signs were noted in only one dog on a single day, despite variable but usually mild and occasionally moderate amounts of echogenic bladder stones (<2-3 mm in size) in almost every dog at each visit. No significant differences were noted in urine specific gravity, urine pH, lean body condition score or body composition. Urinary uric acid concentration was lower on the test diet ( $p=0.008$ ), but 24-h uric acid excretions were similar ( $p=0.220$ ) compared to baseline. Significant differences between least squares mean plasma amino acid concentrations measured at the 0 and 12-month visits were found only for valine ( $p=0.0119$ ) and leucine ( $p=0.0017$ ). Conclusion: This study suggests the use of a low purine, higher protein diet with added water may be beneficial as part of the management of dogs with genetic hyperuricosuria and history of clinical urate urolithiasis.

Publication Type  
Journal article.

<52>

Accession Number

20173146271

Author

Cleroux, A.; Alexander, K.; Beauchamp, G.; Dunn, M.

Title

Evaluation for association between urolithiasis and chronic kidney disease in cats.

Source

Journal of the American Veterinary Medical Association; 2017. 250(7):770-774. 21 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

**OBJECTIVE:** To determine whether urolithiasis is associated with chronic kidney disease (CKD) in cats. **DESIGN:** Retrospective case-control study. **ANIMALS:** 126 cats (59 and 67 with and without urolithiasis, respectively). **PROCEDURES:** Medical records from June 2006 to July 2013 were searched to identify cats that underwent abdominal or focal urinary tract ultrasonography and for which serum creatinine concentration and urine specific gravity data were obtained  $\leq 14$  days before or after the examination. In cats with (urolithiasis group) and without (control group) urolithiasis, the presence of CKD was determined according to International Renal Interest Society guidelines. Information recorded included signalment, body weight, serum creatinine concentration, and urine specific gravity; when present, the location and number of uroliths were noted. Differences between groups and associations between group and categorical variables were analyzed statistically. **RESULTS:** Age, weight, sex, and breed did not differ between groups. The prevalence of CKD was significantly higher in cats with urolithiasis than in the control group. Among cats with urolithiasis, there was a negative association between CKD and presence of cystoliths. There was no association between urolithiasis and the stage of CKD or between presence of CKD and location of nephroliths in the kidney. **CONCLUSIONS AND CLINICAL RELEVANCE:** Results confirmed a positive association between urolithiasis and CKD in the feline population studied and suggested that cats with urolithiasis should be evaluated for CKD. Further research is warranted to assess the nature of the relationship between CKD and urolithiasis in cats.

Publication Type

Journal article.

<53>

Accession Number

20173127097

Author

Muhlen, F. von und zur; Ratert, C.; Kolln, M.; Kamphues, J.

Title

Struvite urolithiasis in a dog - a case of pet owner's compliance.

Source

Proceedings of the Society of Nutrition Physiology; 2017. 26:148. 1 ref.

Publisher

DLG-Verlag

Location of Publisher

Frankfurt am Main  
Country of Publication  
Germany  
Publication Type  
Journal article  
Conference paper.

<54>

Accession Number  
20173171662

Author  
Kamiloglu, A.; Klcoglu, D.

Title

Clinical, laboratory, radiographic, ultrasonographic diagnosis and surgical treatment of feline lower urinary tract urolithiasis: study carried out of ten cats.

Source

Ataturk Universitesi Veteriner Bilimleri Dergisi; 2017. 12(1):14-21. 20 ref.

Publisher

Ataturk Universitesi Veteriner Fakultesi Yayinidir

Location of Publisher

Erzurum

Country of Publication

Turkey

Abstract

In this study, it was aimed to present the results of diagnosis and treatment of urinary tract urolithiasis in 10 cats brought to our clinic. Ten cats with urinary tract complaint used for the study. Urolithiasis diagnosis was made through urine analysis, direct and indirect radiography and ultrasonographic findings. Eight cases were applied operative procedure and two cases were administered medical treatment. Accomplishment was gained with chalcolithic diet and infection control along with operative procedure in two of four cats with struvite urolith. Urethrotomy, cystotomy and urohydropropulsion were performed to remove calcium oxalate, calcium carbonate, calcium phosphate and ammonium urate urolith. Pets were postoperatively controlled on the 30th day in order to check whether uroliths were reappeared. In this study, it was found that frequency of uroliths in descending order may be sorted as struvite, calcium oxalate, ammonium urate, calcium carbonate and calcium phosphate. Consequently for the diagnosis of urolithiasis, it is required to evaluate urine pH, crystalluria, hematuria, urine leukocyte values and stone analysis along with the results obtained from direct positive contrast radiography and ultrasonography. Operative approach is indicated for urolith cases and post-operative special diets and medical treatment according to urolith type prevent relapse.

Publication Type

Journal article.

<55>

Accession Number  
20173179514

Author

Liu ZhanJiang; Du Shan; Wang Yu; Liu JunPing

Title

Clinical survey of canine urolithiasis in Hohhot. [Chinese]

Source

Animal Husbandry and Feed Science (Inner Mongolia); 2017. 38(4):94-96. 16 ref.

Publisher

Inner Mongolia Academy of Agriculture and Animal Husbandry Science

Location of Publisher

Hohhot

Country of Publication

China

Abstract

A clinical survey was conducted on 52 cases of canine urolithiasis in Hohhot collected from December 2013 to February 2017, and the constituents of urinary calculi were analyzed. The result showed that high incidence of urolithiasis was observed in dog breeds of Teddy, mastiff and schnauzer; 1- to 5-year-old dogs accounted for 65% of the incidence of urolithiasis; higher incidence of urolithiasis was observed in females (54%) than males (46%); most of the calculi were found in bladder, accounting for 71% of the cases; phosphate, oxalate and urate accounted for 44%, 35% and 17% of the constituents of urinary calculi, respectively. The results obtained in this study provide clinical data for further understand of influencing factors associated with canine urolithiasis and their correlation, and provide references for the prevention and control of this disease in Hohhot.

Publication Type

Journal article.

<56>

Accession Number

20173179416

Author

Wu PingPing

Title

Diagnosis and treatment of a case of acute renal failure in cat caused by urinary closure. [Chinese]

Source

Animal Husbandry and Feed Science (Inner Mongolia); 2017. 38(1):106-108.

Publisher

Inner Mongolia Academy of Agriculture and Animal Husbandry Science

Location of Publisher

Hohhot

Country of Publication

China

Abstract

Urinary closure is a commonly observed urologic disease in cats. This disease is usually caused by lower urinary tract syndrome (spontaneous cystitis) and bladder stones. There is higher risk for male cats for this disease due to their special anatomical structure. Urinary closure always results in acute renal failure. Here, we introduces the clinical diagnosis, laboratory diagnosis and treatment of a case of acute renal failure in cat caused by urinary closure with emphasis on treatment protocols, so as to provide references for other pet veterinarians.

Publication Type

Journal article.

<57>

Accession Number

20153437389

Author

Fracassi, F.; Malerba, E.; Furlanello, T.; Caldin, M.

Title

Urinary excretion of calcium and phosphate in dogs with pituitary-dependent hypercortisolism: case control study in 499 dogs.

Source

Veterinary Record; 2015. 177(24):625.

Publisher

BMJ Publishing Group

Location of Publisher

London

Country of Publication

UK

Abstract

Pituitary-dependent hypercortisolism (PDH) in dogs is frequently associated with high serum phosphate and parathormone concentrations which are in turn associated with prognosis and clinical presentation. The pathogenesis of such abnormalities remains unknown. The aim of the present study was to evaluate the serum and urinary concentrations and the urinary fractional excretion of phosphate and calcium in dogs with PDH. Medical records of newly diagnosed PDH dogs before treatment from one referral centre were retrospectively evaluated. One clinically normal and one sick dog for each dog with PDH were included as controls. One hundred and sixty-seven dogs with PDH were included. The serum phosphate concentration in PDH dogs was significantly ( $P < 0.0001$ ) higher compared with clinically normal control dogs (CNDs) and sick control dogs (SCDs). The serum calcium concentration in PDH dogs was significantly higher compared with SCDs but not different compared with CNDs. Urinary fractional excretion of phosphate in PDH dogs was significantly lower compared with CNDs and SCDs. Urinary fractional excretion of calcium in PDH dogs was significantly higher compared with CNDs and SCDs. In conclusion, PDH dogs have lower phosphaturia and higher calciuria compared with control dogs. These findings suggest that, at least in part, high serum phosphate concentrations are related to the renal retention of phosphate.

Publication Type

Journal article.

<58>

Accession Number

20163023481

Author

Takayanagi, A.; Mishina, M.; Watanabe, T.

Title

Feline breed predispositions for ureterolithiasis: a retrospective study at Azabu University Veterinary Teaching Hospital. [Japanese]

Source

Journal of the Japan Veterinary Medical Association; 2015. 68(12):761-764. 17 ref.

Publisher

Japan Veterinary Medical Association

Location of Publisher

Tokyo

Country of Publication

Japan

Abstract

Feline breed predisposition for ureterolithiasis was determined by calculating the odds ratios in 64 cats that were diagnosed with ureteral stones between April 2007 and March 2014 at Azabu University Veterinary Teaching Hospital. Mixed breeds were most frequently presented to the hospital, but they had significantly low odds ratios for ureterolithiasis, whereas purebred cats had higher odds ratios. Specifically, the odds

ratios were significantly high in the Himalayan, American Shorthair and Scottish Fold breeds, indicating that these breeds were more likely predisposed to the disease. Other breeds did not show statistically significant results. These results suggest that breed can be a risk factor for ureterolithiasis in certain purebred cats.

Publication Type

Journal article.

<59>

Accession Number

20163049077

Author

Grano, C. G.; Zanutto, M. de S.

Title

Nutritional management in major canine urolithiasis - a review. [Portuguese]

Source

Clinica Veterinaria; 2015. 20(119):32-43. 62 ref.

Publisher

Editora Guara

Location of Publisher

Sao Paulo

Country of Publication

Brazil

Abstract

Urolithiasis is defined as the formation of poorly soluble sediments anywhere in the urinary tract. Medical treatment aims to prevent further growth and promote the dissolution of the stone. Dietary changes may lead to the dissolution of the calculus or prevent recurrence. The diet can alter the urinary pH and volume, as well as the amount of lithogenic substances in the urine. Due to the importance of dietary intake in the treatment of urolithiasis, this paper aims to review the influence of nutrition in the treatment and prevention of canine uroliths composed of struvite, calcium oxalate, urate, cystine, and silica. Periodic urinalysis and imaging allow assessing the dissolution protocol and the emergence of new calculi.

Publication Type

Journal article.

<60>

Accession Number

20143322812

Author

Bende, B.; Nemeth, T.; Manczur, F.; Magdus, M.; Toth-Sandorfi, G.; Biro, O.

Title

Roundtable on urolithiasis in dogs and cats II. Treatment (surgery, conservative therapy, novel techniques) and prevention (management, nutritional strategy). [Hungarian]

Source

KisallatPraxis; 2014. 15(4):136...144. 2 ref.

Publisher

BetuVet

Location of Publisher

Budapest

Country of Publication

Hungary

Publication Type  
Journal article.

<61>

Accession Number  
20163070768

Author

Ogaya, H.; Katayama, M.; Sato, T.; Kawamata, J.; Okamura, Y.; Shimamura, S.; Uzuka, Y.

Title

Use of antegrade pyelography for the diagnosis of ureterolithiasis in a cat. [Japanese]

Source

Journal of Animal Clinical Medicine; 2014. 23(2):79-84. 14 ref.

Publisher

Japanese Society of Clinical Veterinary Medicine

Location of Publisher

Tottori

Country of Publication

Japan

Abstract

A six-year-old castrated american shorthair cat was brought to us with the main complaint of hydronephrosis of the left kidney. Radiography and ultrasonography revealed dilatation of the left renal pelvis and proximal ureter, and the presence of a urolith in the right renal pelvis. Suspecting obstruction of the left ureter, we performed intravenous urography, but the contrast images were unclear. Therefore, antegrade pyelography from the left kidney was performed. This showed partial obstruction of the left ureter by uroliths, and identified the sites of these uroliths. The uroliths were successfully removed by ureterotomy, and the cat has been in good condition without any urinary problems for one year after surgery. From this, antegrade pyelography was thought to be effective in diagnosing ureterolithiasis and localization of uteliths.

Publication Type

Journal article.

<62>

Accession Number  
20163069031

Author

Hong SuBin; Kim MinKyung; Kim TaeHwan; Kim KeunYung; Kim HyoYeon; Lee JaeHoon

Title

Surgical management of urethral plugs in a male Shih-Tzu dog.

Source

Journal of Veterinary Clinics; 2015. 32(6):519-522. 10 ref.

Publisher

Korean Society of Veterinary Clinics

Location of Publisher

Seoul

Country of Publication

Korea Republic

Abstract

A 6-year-old castrated male Shih-Tzu was admitted to the Gyeongsang Animal Medical Center with hematuria and vomiting. Serum chemistry indicated increases in blood urea nitrogen and creatinine values.

Radiography showed radiopaque materials attached to the ventralis of the inner bladder wall. Penile urethra also was filled with radiopaque materials. Ultrasonography revealed bilateral perineal effusion in the kidney, thinned bladder wall, and materials with acoustic shadowing at the caudal extremity of the os penis. Because urination was not identified by urinary obstruction, cystocentesis was performed. Hematuria was diagnosed by urinalysis, but clear crystals were not identified. Owing to failure of securing patency to the bladder using retrohydropropulsion, cystotomy and urethrotomy with retrohydropropulsion were performed. In this report, we describe the clinical and radiographic findings of urethral plugs in a male Shih-Tzu dog, wherein the urethral plugs were treated successfully with hydropropulsion, cystotomy, and urethrotomy. It provides an option for the treatment of urethral plugs in a dog.

Publication Type

Journal article.

<63>

Accession Number

20163058668

Author

Silva, C. R. A. da; Silva, F. L.; Sa, E. de; Nunes, M. H. V.; Silva, H. M. O. G. da; Santos, P. V. G. R. dos; Rodrigues, H. W. S.; Oliveira, J. R. de A.; Silva, L. M. O. G. da

Title

Bladder calculus and bilateral nephrolithiasis in dog: a case report. [Portuguese]

Source

PUBVET; 2015. 9(2):76-78. 10 ref.

Publisher

PubVet

Location of Publisher

Maringa

Country of Publication

Brazil

Abstract

Urolithiasis is a disease that affects dogs and cats, as a result of multifactorial processes for their development causing urinary outflow obstruction, presence of urinary tract infection and even evolve to death if the animal if left untreated. The formation of crystals and has as calculation causes a decrease in urinary frequency associated with a change in pH and supersaturation of urine, which may be the dietary factors involved in the management or even. Nutrition may be related to training, prevention and treatment of urolithiasis.

Publication Type

Journal article.

<64>

Accession Number

20163126746

Author

He DingLing; Hu FangFang; Su YongKang; Pan Huan; Li Ying; Pan JiaQiang

Title

Effect of traditional Chinese medicine compound potion on the formation of calcium oxalate crystal in the urine of canine. [Chinese]

Source

Chinese Journal of Veterinary Science; 2016. 36(1):157-161. 15 ref.

Publisher

Editorial Board Chinese Journal of Veterinary Science

Location of Publisher

Changchun

Country of Publication

China

Abstract

The experiment was designed to study the effect of traditional Chinese medicine (TCM) compound potion on the formation of calcium oxalate crystal in the urine of dogs. 12 healthy male canis lupus familiaris were randomly divided into 3 groups, which were the control group, the model group and the treatment group. The dogs in control group were fed with basal diet. The dogs in model group and treatment group were fed with basal diet plus glycol, ammonium chloride, calcium carbonate and vitamin D. Once a large number of calcium oxalate crystals appeared in the urine of the experimental dogs, the potion of TCM compound was orally administered to the dogs of treatment group. During the experiment, the blood biochemistry index (including the content of calcium, magnesium and phosphorus) and the urine index (including the number of crystals, special gravity, protein and pH) were detected. At 21 d post-experiment, a large number of calcium oxalate crystals appeared in the urine sediment of model group and treatment group. By treating with TCM, the quantity of crystals in the treatment group was less than that of the model group. Compared with the model group, the treatment group reduced content of serum calcium, and phosphate, reduced urine special gravity, and increased urine pH. Continuous administration of TCM compound can reduce urine saturation, reduce the formation of urine crystals, therefore inhibit the formation of urinary calculi in different degrees.

Publication Type

Journal article.

<65>

Accession Number

20163178797

Author

Bhatt, P. A.; Laiya, R. P.; Patil, D. B.; Parikh, P. V.; Parimal Paul

Title

Analysis of the constituents of urinary calculi of dog using various scientific techniques.

Source

Current Science; 2016. 110(5):863-867. 26 ref.

Publisher

Current Science Association

Location of Publisher

Bangalore

Country of Publication

India

Abstract

Analytical techniques have been used to determine constituents of urinary stones of different breeds of dogs obtained from the College of Veterinary Science and Animal Husbandry, Anand Agricultural University, India. Analysis by powder XRD, FTIR and TGA suggests the presence of pure phases such as calcium oxalate monohydrate, struvite and calcium carbonate, and also mixed phases containing calcium oxalate hydrate, struvite, whewellite and weddellite in the urinary calculi. The morphology of the constituents has been studied by optical and scanning electron microscope. Activation energy and order of reaction for thermal elimination of H<sub>2</sub>O, CO and CO<sub>2</sub> have been determined.

Publication Type

Journal article.

<66>

Accession Number

20163199899

Author

Ackerman, N.

Title

Urinalysis in prevention, monitoring and diagnosis.

Source

The Veterinary Nurse; 2016. 7(2):72-74.

Publisher

MA Healthcare Limited

Location of Publisher

London

Country of Publication

UK

Abstract

Urinary tract issues may result from a number of different aetiologies including infection, neoplasia, urolithiasis, neurological disorders, anatomic abnormalities and inflammatory conditions. The name feline lower urinary tract disease (FLUTD) may not be wholly representative of the condition. The role that stress has on the urinary system is starting to become more fully understood.

Publication Type

Journal article.

<67>

Accession Number

20163196495

Author

Bueno, C. M.; Rolemberg, D. S.; Kihara, M. T.; Filgueira, F. G. F.; Minto, B. W.; Nardi, A. B. de; Dias, L. G. G. G.; Moraes, P. C.

Title

Ureterotomy as treatment of ureter calculi in feline - case report. [Portuguese]

Source

Revista Brasileira de Medicina Veterinaria; 2016. 38(1):49-52. 14 ref.

Publisher

Sociedade de Medicina Veterinaria do Estado do Rio de Janeiro

Location of Publisher

Rio de Janeiro

Country of Publication

Brazil

Abstract

The aim of this study was to report a case of ureteral calculi in a cat which was successfully treated with surgical therapy ureterotomy. A 13 years old female cat, with clinical findings of cystitis for three years and presenting apathy, vomiting, reduced appetite, hypodipsia and normality in urination was referred to the Veterinary Hospital of Unesp-FCAV. Laboratory tests were performed (blood count and biochemical), and radiographic examination showed the presence of radiopaque structure in the left ureter, characterizing a partial ureterolithiasis. The animal was submitted to ureterotomy surgery for removal of uroliths. The removed material was sent for laboratory analysis, but could not be identified due to the sample size being insufficient. The patient continued with ureteral dilatation and hydronephrosis after surgery, presenting remission of clinical signs and normality of blood count and biochemical seven days after the operative procedure, occurring a reversal of the signs of chronic kidney disease, because the surgery was performed

as soon as it was observed the presence of ureteral calculi. Medical treatment was important to give initial support for the patient, regulating the renal function and preventing serious injury. However, the ureterotomy was essential for the recovery of the patient, since it was observed remission of the clinical signs after the surgery and there were no postoperative complications.

Publication Type  
Journal article.

<68>

Accession Number  
20163206641

Author

Junkee, L.; Taulescu, M. A.

Title

Leucine urolithiasis in a 3 weeks old mixed German Shepherd puppy.

Source

Scientific Works. Series C. Veterinary Medicine; 2015. 61(2):161-164. 5 ref.

Publisher

University of Agronomic Sciences and Veterinary Medicine of Bucharest

Location of Publisher

Bucharest

Country of Publication

Romania

Abstract

Canine urolithiasis is a common disorder of the urinary tract, characterized by stones located anywhere within the urinary tract, which is mostly encountered in middle-aged to older dogs. Urolithiasis is influenced by familial, congenital and pathophysiological factors including urinary pH, dehydration, urinary infection, anatomical abnormalities and drug administration. A 3 weeks old mixed German Shepherd male puppy with no antecedent clinical signs (sudden death) was submitted to the Pathology Department for necropsy. The animal was suspected of bronchopneumonia ab ingestis due to milk aspiration. Necropsy, cytological and histological exams were performed. Grossly, a large amount of urine was found within the peritoneal cavity (uroperitoneum) secondary to urinary bladder rupture, severe bilateral hydronephrosis and hydroureter, and urethral obstruction with numerous large white to gray calculi varying in size from 2-10 mm were identified. The cytological exam showed several large, white to yellow spheroids with radial concentric laminations consistent with leucine crystals. Histologically, the renal tubules were diffusely dilated and contained pale eosinophilic hyaline casts, sloughed necrotic epithelial cells and lamellated concretions of amorphous radiating structures. A diagnosis of urethral obstruction due to leucine urolithiasis was made, and it was associated with hydronephrosis, hydroureter and urinary bladder rupture. To the best of the authors' knowledge this is the first report of leucine urolithiasis in a dog in Romania.

Publication Type  
Journal article.

<69>

Accession Number  
20163197112

Author

Baciero, G.

Title

Urinary dilution is key in the nutritional management of urolithiasis. [Spanish]

Source

Argos - Informativo Veterinario; 2016. (178):88.

Publisher

ASIS Biomedica s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Publication Type

Journal article.

<70>

Accession Number

20163230586

Author

Heilmann, R. M.; Pashmakova, M.; Lamb, J. H.; Spaulding, K. A.; Cook, A. K.

Title

Subcutaneous ureteral bypass devices as a treatment option for bilateral ureteral obstruction in a cat with ureterolithiasis. [German]

Source

Tierärztliche Praxis. Ausgabe K, Kleintiere/Heimtiere; 2016. 44(3):180-188. 15 ref.

Publisher

Schattauer GmbH

Location of Publisher

Stuttgart

Country of Publication

Germany

Abstract

A 6-year-old female spayed Domestic Shorthair cat was presented with acute lethargy, dehydration, marked azotemia, metabolic acidosis, left-sided renomegaly, and bilateral hydronephrosis. Ureterolithiasis and ureteral obstruction were suspected based on further diagnostics including abdominal sonography. Medical treatment was not successful. Fluoroscopically guided antegrade pyelography confirmed the diagnosis of bilateral ureteral obstruction due to ureterolithiasis. Subcutaneous ureteral bypass (SUB) devices were placed bilaterally, followed by close patient monitoring. Frequent reassessment of patient parameters and blood work served to adjust the fluid needs of the patient and to ensure proper hydration, correction of azotemia at an appropriate rate, and cardiovascular stability. After significant improvement of all patient parameters within 5 days, the patient was discharged from the hospital. Treatment included a dietary change to reduce the risk of stone formation as well as a phosphorus binder. Clinical and clinicopathologic parameters were unchanged at the 1-and 4- and 7-month rechecks (consistent with IRIS CKD stage II-NP-AP0), and both SUB devices continued to provide unobstructed urine flow. Bilateral placement of subcutaneous ureteral bypass devices may be a safe and potentially effective treatment option for acute bilateral ureteral obstruction in cats with ureterolithiasis. Strict patient monitoring and patient-centered postoperative treatment decisions are crucial to successful treatment outcomes.

Publication Type

Journal article.

<71>

Accession Number

20163204176

Author

Boursier, J. F.; Leperlier, D.; Bedu, A. S.

Title

Management of ureteral stones by stent placement under fluoroscopic control. [French]

Source

Point Veterinaire; 2016. 47(366(Part 1)):10-13. 8 ref.

Publisher

Newsmed

Location of Publisher

Paris

Country of Publication

France

Abstract

This article describes the surgical equipment and procedure to treat ureter stones in cats and dogs.

Publication Type

Journal article.

<72>

Accession Number

20163248393

Author

Torres, M.; Pastor, J.; Roura, X.; Tabar, M. D.; Espada, Y.; Font, A.; Balasch, J.; Planellas, M.

Title

Adverse urinary effects of allopurinol in dogs with leishmaniasis.

Source

Journal of Small Animal Practice; 2016. 57(6):299-304. 46 ref.

Publisher

Wiley-Blackwell

Location of Publisher

Oxford

Country of Publication

UK

Abstract

**OBJECTIVE:** The objective of this study was to describe the adverse effects of allopurinol on the urinary system during treatment of canine leishmaniasis. **METHODS:** Retrospective case series of 42 dogs that developed xanthinuria while receiving allopurinol treatment for leishmaniasis. **RESULTS:** Of 320 dogs diagnosed with leishmaniasis, 42 (13%) developed adverse urinary effects. Thirteen (of 42) dogs (31%) developed xanthinuria, renal mineralisation and urolithiasis; 11 (26.2%) showed xanthinuria with renal mineralisation; 9 (21.4%) had xanthinuria with urolithiasis and 9 (21.4%) developed xanthinuria alone. Urinary clinical signs developed in 19 dogs (45.2%). **CLINICAL SIGNIFICANCE:** This study demonstrates that urolithiasis and renal mineralisation can occur in dogs receiving allopurinol therapy. Dogs receiving therapy should be monitored for the development of urinary adverse effects from the beginning of treatment.

Publication Type

Journal article.

<73>

Accession Number

20163283021

Author

Dhakate, M. S.; Mrunali Kamble; Akhare, S. B.

Title

Surgical management of urinary obstruction in a dog.

Source

Intas Polivet; 2016. 17(1):173-174. 7 ref.

Publisher

Intas Pharmaceuticals Ltd

Location of Publisher

Ahmedabad

Country of Publication

India

Abstract

A seven years old dog was reported with complaint of discomfort during urination, straining frequent and prolonged futile attempts to urinate. After clinical findings and radiography, laprocystotomy was performed under general anaesthesia and remove large stones from bladder with uneventful recovery marked the successful surgical intervention.

Publication Type

Journal article.

<74>

Accession Number

20163283020

Author

Anuj Synghal; Khalid Omer; Anju Synghal

Title

Cystotomy for management of cystolithiasis in a bitch.

Source

Intas Polivet; 2016. 17(1):170-172. 5 ref.

Publisher

Intas Pharmaceuticals Ltd

Location of Publisher

Ahmedabad

Country of Publication

India

Abstract

A nine year old Labrador crossbred bitch was presented with history of hematuria and dysuria. The patient was mildly dehydrated and dull. Palpation of ventral abdomen elicited discomfort. Observation at micturition revealed that blood was voided at the end of micturition. Hematological examination revealed thrombocytopenia, normal TLC and hemoglobin. Biochemical parameters were within the normal range. Urinalysis revealed decreased specific gravity, proteinuria, full field of RBCs, 35-40/hpf of pus cells and triple phosphate crystals. Lateral radiographic abdominal views revealed presence of big sized bladder calculi. The calculi were removed by cystotomy and sent for analysis which revealed 90% Magnesium Ammonium phosphate hexahydrate and 10% Carbonate apatite. The bitch recovered fully with no reoccurrence in next six months.

Publication Type

Journal article.

<75>

Accession Number

20163283019

Author

Ravikumar, S.; Ranganath, L.; Nagaraja, B. N.

Title

Surgical management of cystic and urethral calculi in a pug.

Source

Intas Polivet; 2016. 17(1):167-169. 10 ref.

Publisher

Intas Pharmaceuticals Ltd

Location of Publisher

Ahmedabad

Country of Publication

India

Abstract

A six year old sexually intact male Pug was presented with history of anuria. On clinical examination, abdomen was distended. CBC and serum chemistry profile revealed neutrophilia, increased serum creatinine and BUN. Right lateral survey radiograph revealed multiple radiodense calculi in urinary bladder and urethra. Ultrasonography revealed calculi in bladder and thickened bladder wall. The condition was diagnosed as urolithiasis. Cystotomy and urethrotomy was performed to remove calculi. The chemical analysis of calculi revealed struvite. Animal made uneventful recovery.

Publication Type

Journal article.

<76>

Accession Number

20163283018

Author

Dinesh Kumar; Behl, S. M.; Prem Singh; Madan Pal; Chandolia, R. K.

Title

Diagnosis and surgical management of urolithiasis in dogs.

Source

Intas Polivet; 2016. 17(1):164-166. 7 ref.

Publisher

Intas Pharmaceuticals Ltd

Location of Publisher

Ahmedabad

Country of Publication

India

Abstract

Three dogs of age 6-12 years were presented with history of urine incontinence, anorexia and frequent straining for micturition since two to three days. The condition was diagnosed as urolithiasis after radiography and ultrasonography. The blood urea and serum creatinine levels were elevated in two dogs. In ultrasonography, acoustic shadowing distal to calculi confirmed the diagnosis. In one case ultrasonography showed hypoechoic pus along with anechoic urine. The calculi were removed after cystotomy and obstruction to urine was relieved. The dog with pus filled urinary bladder didn't survive. Rest two dogs showed uneventful recovery and restoration of normal urination in 12 days.

Publication Type

Journal article.

<77>

Accession Number

20163282868

Author

Dinesh Dehmiwal; Behl, S. M.; Prem Singh; Rishi Tayal; Madan Pal; Sandeep Saharan; Chandolia, R. K.

Title

Diagnosis and surgical management of cystolith in dogs.

Source

Haryana Veterinarian; 2016. 55(1):103-105. 6 ref.

Publisher

College of Veterinary Sciences, Haryana Agricultural University

Location of Publisher

Hisar

Country of Publication

India

Abstract

A study was conducted on three dogs of 6 to 12 years of age that were presented to the Teaching Veterinary Clinical Complex of this university with the history of urine incontinence, anorexia and stranguria since two to three days. Based on radiography and ultrasonography, the dogs were diagnosed to be suffering from cystoliths. On ultrasonography acoustic shadowing distal to the calculi confirmed the diagnosis in all cases. In one case ultrasonography revealed hypoechoic pus along with anechoic urine. Blood urea and serum creatinine levels were elevated in two of the three dogs. The calculi were removed after cystotomy and obstruction to urine was relieved. The dog with pus filled urinary bladder did not survive. Remaining two dogs showed uneventful recovery and restoration of normal urination in 12 days.

Publication Type

Journal article.

<78>

Accession Number

20163255212

Author

Brisson, B. A.; Defarges, A.

Title

Ureteral obstructions in dogs and cats... something old, something new.

Source

Ontario Veterinary Medical Association Conference Proceedings, 29-31 January 2015, Toronto, Canada; 2015. :221-224. 10 ref.

Publisher

Ontario Veterinary Medical Association (OVMA)

Location of Publisher

Milton

Country of Publication

Canada

Publication Type

Conference paper.

<79>

Accession Number

20163321394

Author

Ameet Singh

Title

Canine and feline cystotomy: never leave a stone behind again!

Source

Proceedings of the NAVC Conference, 16-20 January 2016, Orlando, Florida, USA. Volume 30, Small Animal and Exotics; 2016. :1226-1227. 2 ref.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<80>

Accession Number

20163321393

Author

Radlinsky, M.

Title

Ureteral stones: what should I do?

Source

Proceedings of the NAVC Conference, 16-20 January 2016, Orlando, Florida, USA. Volume 30, Small Animal and Exotics; 2016. :1225. 5 ref.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<81>

Accession Number

20163321175

Author

Queau, Y.

Title

How I treat: urate urolithiasis.

Source



Proceedings of the NAVC Conference, 16-20 January 2016, Orlando, Florida, USA. Volume 30, Small Animal and Exotics; 2016. :594.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<82>

Accession Number

20163316090

Author

Bartges, J. W.

Title

Feline calcium oxalate urolithiasis: risk factors and rational treatment approaches.

Source

Journal of Feline Medicine and Surgery; 2016. 18(9):712-722. 61 ref.

Publisher

Sage Publications

Location of Publisher

Thousand Oaks

Country of Publication

USA

Abstract

Practical relevance: Uroliths occur commonly in the bladder and/or urethra of cats and can be life-threatening if urethral obstruction occurs. Calcium oxalate accounts for 40-50% of urocystoliths and these stones are not amenable to medical dissolution; therefore, removal by surgery or minimally invasive techniques is required if uroliths must be treated. Medical protocols for prevention involve decreasing urine saturation for minerals that form uroliths. Etiopathogenesis: Formation of uroliths is not a disease, but rather a complication of several disorders. Some disorders can be identified and corrected (such as infection-induced struvite urolith formation); others can be identified but not corrected (such as idiopathic hypercalcemia). In most cats with calcium oxalate urolith formation the underlying etiopathogenesis is not known. A common denominator of all these disorders is that they can from time to time create oversaturation of urine with one or more crystal precursors, resulting in formation of crystals. Basic concepts: In order to develop rational and effective approaches to treatment, abnormalities that promote urolith formation must be identified, with the goal of eliminating or modifying them. It is important, therefore, to understand several basic concepts associated with urolithiasis and the factors that promote urolith formation that may be modified with medical treatment; for example, the state of urinary saturation, modifiers of crystal formation, potential for multiple crystal types, and presence of bacterial infection or urinary obstruction.

Publication Type

Journal article.

<83>

Accession Number

20163336846

Author

Costello, M.

Title

Feline big kidney, little kidney: acute renal failure in the cat.

Source

40th World Small Animal Veterinary Association Congress, Bangkok, Thailand, 15-18 May, 2015.

Proceedings book; 2015. :561-562.

Publisher

World Small Animal Veterinary Association

Location of Publisher

Bangkok

Country of Publication

Thailand

Abstract

The pathophysiology, history, clinical signs, clinicopathologic changes, diagnostic testing, treatment options, and prognosis in cats with acute renal failure secondary to ureterolithiasis were discussed.

Publication Type

Conference paper.

<84>

Accession Number

20163336704

Author

Lekcharoensuk, C.

Title

Urolith in Thailand vs global perspective and how to manage them.

Source

40th World Small Animal Veterinary Association Congress, Bangkok, Thailand, 15-18 May, 2015.

Proceedings book; 2015. :196-197. 7 ref.

Publisher

World Small Animal Veterinary Association

Location of Publisher

Bangkok

Country of Publication

Thailand

Abstract

The epidemiology, prevalence, clinical signs, diagnosis and treatment of urolithiasis in cats and dogs in Thailand are presented.

Publication Type

Conference paper.

<85>

Accession Number

20163298276

Author

Ruggerone, B.; Marelli, S. P.; Scarpa, P.; Polli, M.

Title

Genetic evaluation of English bulldogs with cystine uroliths.



Source

Veterinary Record; 2016. 179(7):174.

Publisher

BMJ Publishing Group

Location of Publisher

London

Country of Publication

UK

Abstract

This study aimed to investigate the association between cystine uroliths and gene mutations in 24 English Bulldogs in Italy with or without clinical signs of urinary tract diseases [date not given]. The DNA test showed an association between mutations in the SLC3A1 and SLC7A9 genes and the presence of cystine uroliths in 5 affected dogs. The homozygous mutation was at exons 2 and 10 of the SLC3A1 gene. Four dogs also had a heterozygous mutation in the SLC7A9 gene. These results can be used to develop a genetic test to identify carrier and potentially affected dogs.

Publication Type

Journal article.

<86>

Accession Number

20163340576

Author

Sharifzad, S.; Malmasi, A.; Amin, G. H.; Bokaie, S.; Molazem, M.; Sharifi, R.

Title

Effects of Tribulus terrestris extract on excretion of calcium oxalate crystals in hyperoxaluria in cats. an experimental study. [Persian]

Source

Journal of Veterinary Research; 2016. 71(3):Pe359-Pe364. 10 ref.

Publisher

Faculty of Veterinary Medicine, University of Tehran

Location of Publisher

Tehran

Country of Publication

Iran

Abstract

**BACKGROUND:** Recurrence and side effects of current treatments for urolithiasis confine their application, so other options using traditional herbal therapy are being sought. **OBJECTIVES:** In this experimental study we have tried to evaluate the antilithiatic effects of herbal extract of Tribulus terrestris which is often used to treat different kinds of urinary diseases such as urolithiasis in human on cats. **METHODS:** To evaluate the therapeutic effect of plant, the hydro alcoholic extract of T. terrestris was assessed for activity against induced urolithiasis in cats. The extract of such herb was administered at daily oral doses of 200 mg/kg for 30 days. **RESULTS:** Microscopic analysis of urine sediments and ultrasonographic study of kidneys and urinary bladder confirmed inhibition of crystal formation in tested cats. **CONCLUSIONS:** Our results indicate this herbal extract could be a potential candidate for prevention of urolithiasis in cats. Further studies are needed to clarify the precise anti-crystallization mechanism of T. terrestris in cats.

Publication Type

Journal article.

<87>

Accession Number

20163352097

Author

Mikolenko, O. N.; Vatnikov, Y. A.; Kulikov, E. V.; Sahno, N. V.

Title

Methods for state correction of cats with urolithiasis. [Russian]

Source

Russian Journal of Agricultural and Socio-Economic Sciences; 2016. 9(57):105-111. 27 ref.

Publisher

Russian Journal of Agricultural and Socio-Economic Sciences

Location of Publisher

Orel City

Country of Publication

Russia

Abstract

This article discusses the treatment methods for cats suffering from tripolyphosphate type of urolithiasis by applying ethylmethylhydroxypyridine succinate (Mexidol-vet) and the antibiotic cefovecin (Convenia). It was shown that Convenia and Mexidol-vet alleviated the oxidative stress in the kidney tissue which in turn rapidly decreased the concentration of creatinine in the blood in comparison with other treatment groups. Furthermore, there was a rapid liquidation of urological syndrome for cats treated with these medications, as well as related changes in urinalysis. Long-term monitoring showed that the recurrence rate in groups treated by Convenia and Mexidol-vet was significantly lower in comparison with other groups.

Publication Type

Journal article.

<88>

Accession Number

20163347278

Author

Lulich, J. P.; Berent, A. C.; Adams, L. G.; Westropp, J. L.; Bartges, J. W.; Osborne, C. A.

Title

ACVIM small animal consensus recommendations on the treatment and prevention of uroliths in dogs and cats.

Source

Journal of Veterinary Internal Medicine; 2016. 30(5):1564-1574. 78 ref.

Publisher

Wiley-Blackwell

Location of Publisher

Boston

Country of Publication

USA

Abstract

In an age of advancing endoscopic and lithotripsy technologies, the management of urolithiasis poses a unique opportunity to advance compassionate veterinary care, not only for patients with urolithiasis but for those with other urinary diseases as well. The following are consensus-derived, research and experience-supported, patient-centered recommendations for the treatment and prevention of uroliths in dogs and cats utilizing contemporary strategies. Ultimately, we hope that these recommendations will serve as a foundation for ongoing and future clinical research and inspiration for innovative problem solving.

Publication Type

Journal article.

<89>

Accession Number

20153004795

Author

Sharma, R.; Kumar, A.; Razvi, R.

Title

Prevention of urinary calculi in dogs.

Source

North-East Veterinarian; 2014. 14(1):9-10. 5 ref.

Publisher

North-East Veterinarian

Location of Publisher

Guwahati

Country of Publication

India

Abstract

Important points that should be followed to prevent the formation of urinary calculi in dogs are presented. The aetiology and symptoms of urinary calculi in dogs are discussed as well as the predisposing factors like breed, sex and age.

Publication Type

Journal article.

<90>

Accession Number

20153017212

Author

Samy, A.; Rizk, A.; Mosbah, E.; Karrouf, G.; Zaghloul, A.

Title

Critical urogenital disorders causing abdominal pain in intact cats.

Source

Global Veterinaria; 2014. 13(5):906-917. 51 ref.

Publisher

IDOSI Publications

Location of Publisher

Dubai

Country of Publication

United Arab Emirates

Abstract

This study aimed to evaluate, diagnosis and management of series cases in cats suffered from some critical urogenital problems causing abdominal pain. Forty-seven cats (21 Shiraz, 22 Siamese and 4 Egyptian Mau) were included. Diagnosis was based on history, clinical signs, cardiovascular and respiratory monitoring, radiography, abdominal ultrasonography, hematological and biochemical analysis. Feline Urologic Syndrome (FUS) was diagnosed in 18/47 cats (38.3%); urinary bladder rupture (UBR) 2/47 (4.3%); polycystic kidney (PKD) 1/47 (2.1%); uterine rupture (UtR) 1/47 (2.1%) and closed cervix pyometra (CP) 25/47 (53.2%). Cats were subjected to resuscitation and medical management before surgical intervention. Animals suffered FUS were treated using retrograde urohydropulsion with cystocentesis and/or tube cystostomy with successful recovery. Percutaneous cystic aspiration was performed in the case of PKD. Ovariohysterectomy was the radical treatment in cats suffered from both CP and UtR. Cats with UBR were

treated with cystorrhaphy. Results revealed successful recovery and good outcome inspite a case of FUS was died before treatment.. In conclusion, tube cystostomy is a successful method for treatment of refractory cases of obstructed FUS. Hyperkalemia and azotemia should be considered in cats suffering FUS, uroabdomen and PKD. Relevance rapid resuscitation, prompt diagnosis and accurate treatment are the corner stone for management of critical urogenital disorders causing abdominal pain.

Publication Type  
Journal article.

<91>

Accession Number  
20153078784

Author

Furrow, E.; Patterson, E. E.; Armstrong, P. J.; Osborne, C. A.; Lulich, J. P.

Title

Fasting urinary calcium-to-creatinine and oxalate-to-creatinine ratios in dogs with calcium oxalate urolithiasis and breed-matched controls.

Source

Journal of Veterinary Internal Medicine; 2015. 29(1):113-119. 24 ref.

Publisher

Wiley-Blackwell

Location of Publisher

Boston

Country of Publication

USA

Abstract

Background: Hypercalciuria and hyperoxaluria are risk factors for calcium oxalate (CaOx) urolithiasis, but breed-specific reports of urinary metabolites and their relationship with stone status are lacking. Objective: To compare urinary metabolites (calcium and oxalate) and blood ionized calcium (iCa) concentrations between CaOx stone formers and breed-matched stone-free controls for the Miniature Schnauzer, Bichon Frise, and Shih Tzu breeds. Animals: Forty-seven Miniature Schnauzers (23 cases and 24 controls), 27 Bichons Frise (14 cases and 13 controls), and 15 Shih Tzus (7 cases and 8 controls). Methods: Prospective study. Fasting spot urinary calcium-to-creatinine and oxalate-to-creatinine ratios (UCa/Cr and UOx/Cr, respectively) and blood iCa concentrations were measured and compared between cases and controls within and across breeds. Regression models were used to test the effect of patient and environmental factors on these variables. Results: UCa/Cr was higher in cases than controls for each of the 3 breeds. In addition to stone status, being on a therapeutic food designed to prevent CaOx stone recurrence was associated with higher UCa/Cr. UOx/Cr did not differ between cases and controls for any of the breeds. Blood iCa was higher in cases than controls in the Miniature Schnauzer and Bichon Frise breeds and had a moderate correlation with UCa/Cr. Conclusions and Clinical Importance: Hypercalciuria is associated with CaOx stone status in the Miniature Schnauzer, Bichon Frise, and Shih Tzu breeds. UOx/Cr did not correlate with stone status in these 3 breeds. These findings may influence breed-specific stone prevention recommendations.

Publication Type  
Journal article.

<92>

Accession Number  
20153057110

Author

Janitabar, S.; Malmasi, A.; Amin, G. R.; Bokaie, S.; Molazem, M.; Naderinezhad, F.; Sharifi, R.

Title

Urinary oxalate, citrate, and gamma glutamyl transferase alterations after administration of Cynodon dactylon extract in cats.

Source

Iranian Journal of Veterinary Medicine; 2014. 8(3):193-198, 229. 22 ref.

Publisher

Faculty of Veterinary Medicine, University of Tehran

Location of Publisher

Tehran

Country of Publication

Iran

Abstract

**BACKGROUND:** Urinary oxalate and citrate are the key factors in CaOx urolithiasis of cats and Gamma Glutamyl Transferase is a good test for assessment of kidney damage. Favorable effects of Cynodon dactylon on calcium oxalate stone formation have recently been proved in rats. **OBJECTIVES:** The present study was designed to investigate the alteration of urinary oxalate, citrate, and GGT after administration of the hydroalcoholic extract of Cynodon dactylon to experimental hyperoxaluric cats. No scientific study has been done so far to demonstrate the beneficial effect of this plant in cats. **METHODS:** 13 mature male cats were randomly divided into 3 groups: group A received standard diet and drinking water while, group B and C also received ethylene glycol at sub-toxic dose (130 mg/kg) daily for 30 days. Group C received hydroalcoholic extract of C. dactylon (400 mg/kg) from day 0 to 30, as well. Urine samples were collected on days 0, 15, and 30 and were analyzed for oxalate, citrate, and GGT levels. **RESULTS:** Urine oxalate level in group B was significantly higher than group C on days 15 and 30. Urinary citrate excretion was significantly higher in group C compared to the other groups on day 15; however, it decreased during the entire experiment in groups B and C. Urinary Gamma Glutamyl Transferase level was increased in hyperoxaluric cats and decreased in the treated group during the experiment. **CONCLUSIONS:** Based on our results, C. dactylon extract could reduce the hyperoxaluria and has beneficial effects on preventing the renal damage in cats. Such findings provide a scientific explanation for applying C. dactylon in prevention and possible treatment of CaOx kidney stones in cats and humans.

Publication Type

Journal article.

<93>

Accession Number

20153099773

Author

Tion, M. T.; Dvorska, J.; Saganuwan, S. A.

Title

A review on urolithiasis in dogs and cats.

Source

Bulgarian Journal of Veterinary Medicine; 2015. 18(1):1-18. many ref.

Publisher

Faculty of Veterinary Medicine, Trakia University

Location of Publisher

Stara Zagora

Country of Publication

Bulgaria

Abstract

Urolithiasis is a nutritional disease that affects domestic carnivores. Past and recent literature on urolithiasis was reviewed for information on anatomical occurrence, physiology of urine formation, prevalence, mineral composition, clinical signs, laboratory findings, dissolution therapy, surgery and prevention of urolithiasis.

The acquired knowledge of complexed and multifaceted urolithiasis is a tremendous achievement towards the treatment and control of the disease. However, eradication of the disease is the most challenging as it requires total overhaul of all the factors that are responsible for the formation of uroliths.

Publication Type

Journal article.

<94>

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.

Publisher

Wiley-Blackwell

Location of Publisher

Oxford

Country of Publication

UK

Abstract

Objective: To discuss areas of differing opinion in the management of feline urethral obstruction and present current evidence to either support or refute common practices. Etiology: Urethral obstruction may occur as a result from a functional obstruction (idiopathic obstruction) or a physical obstruction, such as mucous plugs or calculi within the urethra. Potential risk factors for obstruction in cats include predominantly indoor status, decreased water intake, and increased body weight. Diagnosis: The diagnosis is most commonly made based on history and initial physical exam-straining to urinate, vocalizing, signs of systemic illness, moderate to large firm bladder on abdominal palpation. Therapy: Treatment is based on available evidence. The type of IV isotonic crystalloid used does not seem to matter and rate should be determined by need for fluid resuscitation, and replacement of deficit and ongoing losses. Though controversial, cystocentesis appears to be safe and may offer some benefits in initial management. There is evidence to suggest a smaller urethral catheter (3.5 Fr) may be associated with decreased risk of reobstruction. Routine use of antimicrobial agents in hospital is not recommended; they should be dispensed based on culture performed at the time of catheter removal. Though commonly used, evidence in support of antispasmodics is limited and further prospective investigation is needed. Prognosis: Feline urethral obstruction is associated with 90-95% survival, with reported recurrence rates of 15-40%. Potential factors affecting recurrence include size or duration of indwelling urinary catheter, use of antispasmodic agents, patient age, and indoor-outdoor lifestyle; however, different studies offer conflicting results. Increased water intake and environmental modification do seem to decrease risk of recurrence.

Publication Type

Journal article.

<95>

Accession Number

20153065877

Author

Hattersley, R.  
Title  
Ureteral obstruction in cats.  
Source  
Veterinary Times; 2015. 45(8):8, 10. 6 ref.  
Publisher  
Veterinary Business Development Ltd  
Location of Publisher  
Peterborough  
Country of Publication  
UK

Abstract

Recognition of nephroureterolithiasis in cats is increasing as the profession becomes more attuned to recognition of clinical signs and newer techniques emerge for management of this disease process. More than 98 per cent of uroliths identified in the upper urinary tract are calcium oxalate stones in cats (Kyles et al, 2005a). Medical dissolution is therefore not an option for the vast majority of such cases. These stones must either pass spontaneously, be surgically removed or urinary diversion needs to be established. Ureteral stricture formation (usually occurring secondary to previous urolith obstruction) is the cause of obstruction in up to 20 per cent of cases. This article aims to review diagnosis of this condition and discuss available management options.

Publication Type  
Journal article.

<96>

Accession Number  
20153057229  
Author  
Westropp, J. L.  
Title  
Management and prevention of canine and feline calcium oxalate urolithiasis.  
Source  
2013 Ontario Veterinary Medical Association Conference Proceedings. January 24-26, 2013, Toronto, Canada; 2013. :88-91. 14 ref.  
Publisher  
Ontario Veterinary Medical Association (OVMA)  
Location of Publisher  
Milton  
Country of Publication  
Canada  
Publication Type  
Conference paper.

<97>

Accession Number  
20153116736  
Author  
Caporali, E. H. G.; Phillips, H.; Underwood, L.; Selmic, L. E.  
Title

Risk factors for urolithiasis in dogs with congenital extrahepatic portosystemic shunts: 95 cases (1999-2013).

Source

Journal of the American Veterinary Medical Association; 2015. 246(5):530-536. 55 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

**Objective** - To identify risk factors for urolithiasis in dogs with congenital extrahepatic portosystemic shunts (EHPSSs) and to determine whether portoazygos shunts were associated with increased risk of urolithiasis at the initial evaluation for EHPSS. **Design** - Retrospective case series. **Animals** - Dogs (n=95) with EHPSSs confirmed via CT angiography or surgery. **Procedures** - Medical records from 1999 to 2013 were reviewed. **Variables of interest** included signalment, previous medical management, and results of urinalysis, urolith analyses, and diagnostic imaging. **Univariable and multivariable logistic regression analyses** for assessment of risk factors for urolithiasis at the time of initial EHPSS evaluation were performed. **Results** - The dogs' median age was 0.9 years (range, 0.2 to 12.6 years). Among the 95 dogs, 27 (28.4%) and 68 (71.6%) had portoazygos and portocaval shunts, respectively. Urinalysis was performed for 79 (83.2%) dogs, 29 (36.7%) of which had crystalluria (mainly ammonium urate and struvite crystals). Uroliths were present in 34 of 95 (35.8%) dogs; 16 of 17 uroliths analyzed were composed of ammonium urate. Portoazygos shunts were not associated with significantly increased odds of urolithiasis at the time of the initial evaluation for EHPSS. However, the odds of urolithiasis was significantly increased for male dogs, older dogs, and dogs that received previous medical treatment. **Conclusions and Clinical Relevance** - In dogs with EHPSS, shunt morphology was not associated with increased odds of urolithiasis at the initial evaluation. Male dogs, older dogs, and dogs having received medical management for EHPSS prior to initial evaluation should be considered at increased risk for development of urolithiasis.

Publication Type

Journal article.

<98>

Accession Number

20153132759

Author

Loiarte Azcue, A.; Coromoto Verdugo, B.

Title

Insidious urinary stones. [Spanish]

Source

Argos - Informativo Veterinario; 2015. (166):44-46, 48. 5 ref.

Publisher

ASIS Biomedica s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Abstract

This article reports on two cases of urinary stones in dogs focusing on their diagnosis and treatment.

Publication Type

Journal article.

<99>

Accession Number

20153132757

Author

Dessal Marino, F.

Title

Treatment options feline ureterolithiasis. [Spanish]

Source

Argos - Informativo Veterinario; 2015. (166):34, 36. 8 ref.

Publisher

ASIS Biomedica s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Abstract

The clinical aspects, diagnosis, prevention and control of ureterolithiasis in cats are discussed.

Publication Type

Journal article.

<100>

Accession Number

20153171776

Author

Srikanth Kandula; Karlapudi, S. K.

Title

Urinalysis: a critical laboratory test for diagnosis of renal insufficiency in dogs.

Source

Animal Science Reporter; 2015. 9(2):75-80. 12 ref.

Publisher

Dr. R. K. Misra

Location of Publisher

Bhubaneswar

Country of Publication

India

Abstract

Renal dysfunction is usually a geriatric phenomenon in dogs with poor prognosis. However, timely detection of renal dysfunction can avert casualty. Urinalysis is a simple, rapid, non-invasive, and economical laboratory test that can provide insight into renal insufficiency. This paper describes the urine profile of dogs with symptomatic renal insufficiency. The study was undertaken on 29 adult sick dogs with primary symptoms, analogous to renal insufficiency, such as, chronic vomiting, polyuria/oliguria, pigmented urine, oral ulceration, anorexia, and emaciation. The urine samples from apparently healthy dogs were used as control to establish normal values. Urine samples from the dogs, suspected for renal dysfunction were collected by catheterization, and were subjected to physical, chemical, microscopic, and biochemical examinations. The samples were also subjected to dipstick test using Uri plus 200 urine analyzer and urinalysis reagent strips. Physico-chemical examination of urine revealed that the urine of the dogs suspected for renal insufficiency was dark yellow in colour or blood tinged, ammoniac in odour, hazy in appearance, and the specific gravity ranged between 1.024 and 1.034, indicating that it was non-proteinuric. Microscopic examination and dipstick test revealed heavy presence of erythrocytes (8/hpf), leucocytes (5/hpf), epithelial cells (5/hpf), pus



cells (4/hpf), and crystals of various types (22/hpf) suggesting renal insufficiency. A few spermatozoa were also observed in male urine of suspected dogs. Urine culture revealed involvement of *E. coli*, *Staphylococcus*, and *Pseudomonas* bacteria. Antibiogram revealed that all these bacteria were highly sensitive to enrofloxacin, followed by amoxicillin, ceftriaxone, and amikacin, in descending order. There was significant increase ( $P \leq 0.01$ ) in urine enzyme indices, such as, urine protein-creatinine (UPC) ratio and urine albumin-creatinine (UAC) ratio, ALP, LDH, GGT, and NAG, suggestive of renal insufficiency. It is concluded that urinalysis is a fairly reliable test for diagnosis of renal insufficiency in dogs. Urine enzyme indices are of special significance in detecting early renal damage.

Publication Type  
Journal article.

<101>

Accession Number  
20153192739

Author  
Raditic, D. M.

Title  
Complementary and integrative therapies for lower urinary tract diseases. (Special Issue: Urology.)

Source  
Veterinary Clinics of North America, Small Animal Practice; 2015. 45(4):857-878.

Publisher  
Saunders, An Imprint of Elsevier

Location of Publisher  
Philadelphia

Country of Publication  
USA

Abstract

Consumer use of integrative health care is growing, but evidence-based research on its efficacy is limited. Research of veterinary lower urinary tract diseases could be translated to human medicine because veterinary patients are valuable translational models for human urinary tract infection and urolithiasis. An overview of complementary therapies for lower urinary tract disease includes cranberry supplements, mannose, oral probiotics, acupuncture, methionine, herbs, or herbal preparations. Therapies evaluated in dogs and cats, in vitro canine cells, and other relevant species, in vivo and in vitro, are presented for their potential use as integrative therapies for veterinary patients and/or translational research.

Publication Type  
Journal article.

<102>

Accession Number  
20153192738

Author  
Berent, A. C.

Title  
Interventional urology: endourology in small animal veterinary medicine. (Special Issue: Urology.)

Source  
Veterinary Clinics of North America, Small Animal Practice; 2015. 45(4):825-855.

Publisher  
Saunders, An Imprint of Elsevier



Location of Publisher  
Philadelphia  
Country of Publication  
USA

Abstract

The use of novel image-guided techniques in veterinary medicine has become more widespread, especially in urologic diseases. With the common incidence of urinary tract obstructions, stones disease, renal disease, and urothelial malignancies, combined with the recognized invasiveness and morbidity associated with traditional surgical techniques, the use of minimally invasive alternatives using interventional radiology and interventional endoscopy techniques has become incredibly appealing to owners and clinicians. This article provides a brief overview of some of the most common procedures done in endourology in veterinary medicine to date, providing as much evidence-based medicine as possible when comparing with traditional surgical alternatives.

Publication Type  
Journal article.

<103>

Accession Number  
20153192734

Author

Bartges, J. W.; Callens, A. J.

Title

Urolithiasis. (Special Issue: Urology.)

Source

Veterinary Clinics of North America, Small Animal Practice; 2015. 45(4):747-768.

Publisher

Saunders, An Imprint of Elsevier

Location of Publisher

Philadelphia

Country of Publication

USA

Abstract

Uroliths occur commonly in the bladder and/or urethra of dogs and cats and can be life-threatening if urethral obstruction occurs. The majority of uroliths are composed of struvite or calcium oxalate; however, other minerals such as urate and cystine occur. Uroliths may be composed of more than one mineral. Some uroliths are amenable to medical dissolution (eg, struvite, urate, and cystine) while others (eg, calcium oxalate) are not. Medical management involves decreasing urine saturation for the minerals that form uroliths.

Publication Type  
Journal article.

<104>

Accession Number  
20153192730

Author

Hecht, S.

Title

Diagnostic imaging of lower urinary tract disease. (Special Issue: Urology.)

Source

Veterinary Clinics of North America, Small Animal Practice; 2015. 45(4):639-663.

Publisher

Saunders, An Imprint of Elsevier

Location of Publisher

Philadelphia

Country of Publication

USA

Abstract

Diagnostic imaging is routinely performed in small animals with lower urinary tract disease. Survey radiographs allow identification of radiopaque calculi, gas within the urinary tract, and lymph node or bone metastases. Cystography and urethrography remain useful in the evaluation of bladder or urethral rupture, abnormal communication with other organs, and lesions of the pelvic or penile urethra. Ultrasonography is the modality of choice for the diagnosis of most disorders. Computed tomography and magnetic resonance imaging are useful in evaluating the ureterovesical junction and intrapelvic lesions, monitoring the size of lesions, and evaluating lymph nodes and osseous structures for metastases.

Publication Type

Journal article.

<105>

Accession Number

20153192729

Author

Callens, A. J.; Bartges, J. W.

Title

Urinalysis. (Special Issue: Urology.)

Source

Veterinary Clinics of North America, Small Animal Practice; 2015. 45(4):621-637.

Publisher

Saunders, An Imprint of Elsevier

Location of Publisher

Philadelphia

Country of Publication

USA

Abstract

Performing a urinalysis should be part of a minimum database in addition to physical examination, historical information gathering, complete blood cell counts, and serum/plasma biochemical analysis. Urinalysis provides information on function of various organs and information on renal function. It is necessary to interpret blood urea nitrogen and serum/plasma creatinine concentrations and is useful in assessing urine concentrating and diluting ability, glomerular barrier function, tubular function, proteinuria, discolored urine, urolithiasis, and neoplasia. Performing a urinalysis is technically easy and does not require expensive equipment or disposable supplies.

Publication Type

Journal article.

<106>

Accession Number

20153192728

Author

Bartges, J. W.

Title

Special Issue: Urology. (Special Issue: Urology.)

Source

Veterinary Clinics of North America, Small Animal Practice; 2015. 45(4):i-ix + 621-878.

Publisher

Saunders, An Imprint of Elsevier

Location of Publisher

Philadelphia

Country of Publication

USA

Abstract

This special issue contains articles on the aetiology, clinical signs, diagnosis and treatment of urinary tract diseases in cats and dogs.

Publication Type

Journal issue.

<107>

Accession Number

20153215201

Author

Allen, H. S.; Swecker, W. S.; Becvarova, I.; Weeth, L. P.; Werre, S. R.

Title

Associations of diet and breed with recurrence of calcium oxalate cystic calculi in dogs.

Source

Journal of the American Veterinary Medical Association; 2015. 246(10):1098-1103. 17 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

Objective - To evaluate the long-term risk of recurrence of calcium oxalate (CaOx) cystic calculi in dogs of various breeds fed 1 of 2 therapeutic diets. Design - Retrospective cohort study. Animals - 135 dogs with a history of CaOx cystic calculi. Procedures - Medical records for 4 referral hospitals were searched to identify dogs that had had CaOx cystic calculi removed. Owners were contacted and medical records evaluated to obtain information on postoperative diet, recurrence of signs of lower urinary tract disease, and recurrence of cystic calculi. Dogs were grouped on the basis of breed (high-risk breeds, low-risk breeds, and Miniature Schnauzers) and diet fed after removal of cystic calculi (diet A, diet B, and any other diet [diet C], with diets A and B being therapeutic diets formulated to prevent recurrence of CaOx calculi). Results - Breed group was a significant predictor of calculi recurrence (as determined by abdominal radiography or ultrasonography), with Miniature Schnauzers having 3 times the risk of recurrence as did dogs of other breeds. Dogs in diet group A had a lower prevalence of recurrence than did dogs in diet group C, but this difference was not significant in multivariable analysis. Conclusions and Clinical Relevance - Results indicated that Miniature Schnauzers had a higher risk of CaOx cystic calculi recurrence than did dogs of other breeds. In addition, findings suggested that diet may play a role in decreasing recurrence, but future prospective studies are needed to validate these observations.

Publication Type

Journal article.

<108>

Accession Number

20153214574

Author

Brabson, T. L.; Bloch, C. P.; Johnson, J. A.

Title

Correlation of gross urine color with diagnostic findings in male cats with naturally occurring urethral obstruction.

Source

Journal of Feline Medicine and Surgery; 2015. 17(6):453-457. 17 ref.

Publisher

Sage Publications

Location of Publisher

Thousand Oaks

Country of Publication

USA

Abstract

Seventy-five male cats with urethral obstruction were prospectively enrolled to evaluate gross urine color at urinary catheter placement for correlation with diagnostic findings. Cats with darker red urine were more likely to be azotemic (serum creatinine concentration  $>2.0$  mg/dl [177 micro mol/l]), and urine color correlated well with serum creatinine and serum potassium concentrations. Darker urine color was negatively correlated with urine specific gravity. Urine color was not associated with the presence or absence of lower urinary tract stones on radiographs or ultrasound. Cats with darker red urine at the time of urinary catheter placement are likely to have more significant metabolic derangements and may require more aggressive supportive care.

Publication Type

Journal article.

<109>

Accession Number

20153198762

Author

Caney, S.

Title

Idiopathic cystitis in cats: treatment and management.

Source

Veterinary Times; 2015. 45(22):20-21. 15 ref.

Publisher

Veterinary Business Development Ltd

Location of Publisher

Peterborough

Country of Publication

UK

Publication Type

Journal article.

<110>

Accession Number

20153170759

Author

Cline, M. G.

Title

Uncommon uroliths - nutritional management of urate, cystine, and rare crystals and stones.

Source

Proceedings of the NAVC Conference, 17-21 January 2015, Orlando, Florida, USA. Volume 29, Small animal and exotics edition, Book 1 & Book 2; 2015. :561-564. 27 ref.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<111>

Accession Number

20153170747

Author

Westropp, J. L.

Title

Diagnosis and management for feline ureterolithiasis.

Source

Proceedings of the NAVC Conference, 17-21 January 2015, Orlando, Florida, USA. Volume 29, Small animal and exotics edition, Book 1 & Book 2; 2015. :534-535. 9 ref.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<112>

Accession Number

20153170744

Author

Westropp, J. L.; Gaschen, L.

Title

Diagnostic and therapeutic approach of dogs and cats with lower urinary tract disease.

Source

Proceedings of the NAVC Conference, 17-21 January 2015, Orlando, Florida, USA. Volume 29, Small animal and exotics edition, Book 1 & Book 2; 2015. :526-529. 14 ref.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<113>

Accession Number

20153244601

Author

Passlack, N.; Burmeier, H.; Brenten, T.; Neumann, K.; Zentek, J.

Title

Relevance of dietary protein concentration and quality as risk factors for the formation of calcium oxalate stones in cats.

Source

Journal of Nutritional Science; 2014. 3:e51. 45 ref.

Publisher

Cambridge University Press

Location of Publisher

Cambridge

Country of Publication

UK

Abstract

The role of dietary protein for the development of feline calcium oxalate (CaOx) uroliths has not been conclusively clarified. The present study evaluated the effects of a varying dietary protein concentration and quality on critical indices for the formation of CaOx uroliths. Three diets with a high protein quality (10-11% greaves meal/diet) and a varying crude protein (CP) concentration (35, 44 and 57% in DM) were compared. Additionally, the 57% CP diet was compared with a fourth diet that had a similar CP concentration (55% in DM), but a lower protein quality (34% greaves meal/diet). The Ca and oxalate (Ox) concentrations were similar in all diets. A group of eight cats received the same diet at the same time. Each feeding period was divided into a 21 d adaptation period and a 7 d sampling period to collect urine. There were increases in urinary volume, urinary Ca concentrations, renal Ca and Ox excretion and urinary relative supersaturation (RSS) with CaOx with increasing dietary protein concentrations. Urinary pH ranged between 6.34 and 6.66 among all groups, with no unidirectional effect of dietary protein. Lower renal Ca excretion was observed when feeding the diet with the lower protein quality, however, the underlying mechanism needs further evaluation. In conclusion, although the observed higher urinary volume is beneficial, the increase in urinary Ca concentrations, renal Ca and Ox excretion and urinary RSS CaOx associated with a high-protein diet may be critical for the development of CaOx uroliths in cats.

Publication Type

Journal article.

<114>

Accession Number

20153256354

Author

Nevins, J. R.; Mai, W.; Thomas, E.

Title

Associations between ultrasound and clinical findings in 87 cats with urethral obstruction.

Source

Veterinary Radiology & Ultrasound; 2015. 56(4):439-447. 33 ref.

Publisher

Wiley-Blackwell

Location of Publisher

Oxford

Country of Publication

UK

Abstract

Urethral obstruction is a life-threatening form of feline lower urinary tract disease. Ultrasonographic risk factors for reobstruction have not been previously reported. Purposes of this retrospective cross-sectional study were to describe urinary tract ultrasound findings in cats following acute urethral obstruction and determine whether ultrasound findings were associated with reobstruction. Inclusion criteria were a physical examination and history consistent with urethral obstruction, an abdominal ultrasound including a full evaluation of the urinary system within 24 h of hospitalization, and no cystocentesis prior to ultrasound examination. Medical records for included cats were reviewed and presence of azotemia, hyperkalemia, positive urine culture, and duration of hospitalization were recorded. For medically treated cats with available outcome data, presence of reobstruction was also recorded. Ultrasound images were reviewed and urinary tract characteristics were recorded. A total of 87 cats met inclusion criteria. Common ultrasound findings for the bladder included echogenic urine sediment, bladder wall thickening, pericystic effusion, hyperechoic pericystic fat, and increased urinary echoes; and for the kidneys/ureters included pyelectasia, renomegaly, perirenal effusion, hyperechoic perirenal fat, and ureteral dilation. Six-month postdischarge outcomes were available for 61 medically treated cats and 21 of these cats had reobstruction. No findings were associated with an increased risk of reobstruction. Ultrasonographic perirenal effusion was associated with severe hyperkalemia ( $P=0.009$ , relative risk 5.75, 95% confidence interval [1.54-21.51]). Findings supported the use of ultrasound as an adjunct for treatment planning in cats presented with urethral obstruction but not as a method for predicting risk of reobstruction.

Publication Type

Journal article.

<115>

Accession Number

20153247897

Author

Brashear, M.

Title

Urinalysis: top tips for consistent results.

Source

BSAVA Congress 2015: Scientific Proceedings, Birmingham, UK, 9-12 April 2015; 2015. :295-296.

Publisher

British Small Animal Veterinary Association

Location of Publisher

Quedgeley

Country of Publication

UK

Publication Type

Conference paper.

<116>

Accession Number

20153281941

Author

Pineda, C.; Aguilera-Tejero, E.; Raya, A. I.; Montes de Oca, A.; Rodriguez, M.; Lopez, I.

Title

Effects of two calculolytic diets on parameters of feline mineral metabolism.

Source

Journal of Small Animal Practice; 2015. 56(8):499-504. 24 ref.

Publisher

Wiley-Blackwell

Location of Publisher

Oxford

Country of Publication

UK

Abstract

**Objectives:** To evaluate the influence of two feline calculolytic diets on selected parameters of mineral metabolism. **Materials and Methods:** Two dry commercial diets designed for struvite urolith dissolution were evaluated in 14 cats. The study was designed as a two-sequence, four-period crossover protocol with a baseline period, two 60-day "run-in" periods in which calculolytic diets (Diet 1 and Diet 2) were fed and one 30-day "wash-out" period. Data are expressed as median (range). **Results:** Feeding the calculolytic diets for two months did not alter plasma concentrations of calcium, phosphorus, magnesium and parathyroid hormone. A significant ( $P < 0.05$  in each case) decline in calcitriol was observed after administering both diets from 236.4 (122.4-429.6) to 170.4 (108.0-394.3) pmol/L (Diet 1) and from 278.4 (153.6-492.0) to 177.1 (87.6-392.4) pmol/L (Diet 2). Cats fed Diet 1 showed a significant increase in urine calcium concentration (from 0.3 (0.2-0.5) to 0.4 (0.3-0.7) mmol/L). Magnesium concentration in urine was significantly increased with both diets, from 1.4 (0.1-1.7) to 1.5 (1.3-2.4) mmol/L (Diet 1) and from 1.1 (0.4-1.9) to 2.0 (0.1-3.1) mmol/L (Diet 2). **Clinical Significance:** Both diets resulted in an increased urinary concentration of magnesium, through different mechanisms: urine acidification (Diet 1) and increased sodium load (Diet 2).

Publication Type

Journal article.

<117>

Accession Number

20153247589

Author

Pimenta, M. M.

Title

Occurrence of nephrolithiasis and/or ureterolithiasis in cats with chronic kidney disease attended at The Veterinary Hospital of the University of Sao Paulo. [Portuguese]

Source

Ocorrência de calculo renal e/ou ureteral em gatos com doença renal crônica atendidos no Hospital Veterinário da Universidade de São Paulo; 2013. :114 pp. 70 ref.

Publisher

Faculdade de Medicina Veterinária e Zootecnia, Universidade de São Paulo

Location of Publisher

São Paulo

Country of Publication

Brazil

Abstract

Kidney stone in cats have become a major concern in feline practice. Calcium oxalate stone (CaOx) located in the kidneys and/or ureters started to compose a new profile of urolithiasis in contrast to struvite stones often found in the urinary bladder. A cross-sectional clinical study with 96 cats was performed in order to determine the prevalence of renal origin lithiasis (nephrolithiasis and ureterolithiasis) in cats with CKD and a possible association between them. Twenty-four of these patients did not meet the classification criteria and were excluded. Cats with CKD (n=72) were divided into two groups, CKD with evidence of nephrolithiasis or ureterolithiasis (n=47) and CKD without evidence of nephrolithiasis or ureterolithiasis (n=25). Homogeneity was observed regarding the classification of CKD according to the stages proposed by IRIS - International Renal Interest Society (p=0.5613), also noted in relation to age (p=0.274). Cats classified as CKD stage two were over-represented in both groups. The size of the left and right kidney and urinary gravity (p=0.013) was marked by a significant statistically difference between the two groups. In terms of length size, according to longitudinal plane, the right kidney with lithiasis measured 3.25 cm and 3.61 cm without lithiasis (p=0.009). The same size relation was noticed for the left kidney (p=0.048), where the average volume observed was 3.21 cm for the calculi group and 3.69 cm for the group without calculi. The intact parathyroid hormone (iPTH) was assessed in all animals, as for total calcium, ionized calcium, phosphorus and potassium plasma concentrations. No difference were found for any of these parameters between the two groups. However, the ionized calcium median values were near the normal upper limit in both groups (1.39 mmol/L). Bicarbonate blood concentration (HCO<sub>3</sub><sup>-</sup>) evaluated in both groups were different (P=0.037), but without any clinical significance. Urinary creatinine, calcium: creatinine ratios and calcium urinary fractional excretion (FE<sub>Ca</sub>) were altered between groups, with p=0.039, p=0.037 and p=0.043, respectively. Bacteriuria was a common factor in cats with calculi and without calculi (p=0.162), however, infection was confirmed by urine culture in only 4/47 cats with calculi and 2/25 cats without calculi (p=1.00). Arterial blood pressure was also performed and remained unchanged when compared between both groups. There are strong evidence that cats fed with only dry food showed higher tendency to form calculi (p=0.052). Another group of 23 cats free from CKD and calculi composed a complementary group, enabling further study. The results of this study support the high prevalence of nephrolithiasis and ureterolithiasis in cats with CKD. Either a cause or consequence of CKD, cats with calculi have an increased evidence of kidney damage.

Publication Type

Thesis.

<118>

Accession Number

20153323099

Author

Wang Heng; Zhang ShengWen; Zhang XinJun; Meng Xia; Zhu JiaQiao; Liu ZongPing; Li JianJi

Title

Investigation on the pathogenesis of urolithiasis and component analysis of urinary calculus in dogs.

[Chinese]

Source

Chinese Journal of Veterinary Science; 2015. 35(5):819-823. 14 ref.

Publisher

Editorial Board Chinese Journal of Veterinary Science

Location of Publisher

Changchun

Country of Publication

China

Abstract

The research introduced the component analysis of urinary calculus in dogs by urinary sediment examination, X-ray energy spectrum analysis and Fourier transform infrared spectrum methods. In the

meanwhile, pathogenesis of urolithiasis was analyzed, combining with the feeding management. Thirty nine samples were collected by surgeries, including kidney calculi (1 case), cystolith (33 cases), urethral calculus (2 cases), and both cystolith and urethral calculus (3 cases). Examination revealed that there were three types of calculus, including calcium oxalate calculus (4, 10.3%), urate calculus (9, 23.1%), mixed calculus with magnesium ammonium phosphate and calcium carbonate (26, 66.6%). Characteristics of morphology, energy spectrum and infrared spectrum were all observed and the relationship between disease and diets was also analyzed, which provide credible data for diagnoses, treatments and prevention.

Publication Type  
Journal article.

<119>

Accession Number  
20153305977

Author  
Kucera, J.

Title  
Urinary tract infections with urolithiasis in dogs. [Czech]

Source  
Veterinarstvi; 2015. 65(8):583-586. 17 ref.

Publisher  
Profi Press, s.r.o.

Location of Publisher  
Praha 2

Country of Publication  
Czech Republic

Abstract

Hundred of canine patients with urolithiasis was assessed by mineralogical analysis of concrements and/or urine culture. Uroinfects occurred in a total of 39% bacteriologic examined dogs with lithiasis. From the mineralogical aspects were uroinfects identified in 100% dogs with struvite lithiasis, in 12% dogs with calciumoxalate lithiasis, and 14% dogs with cystine lithiasis. Most commonly found uropathogens were staphylococci, to the second most frequent findings belonged enterococci. In the discussion were the observed results compared with foreign knowledge.

Publication Type  
Journal article.

<120>

Accession Number  
20153349140

Author  
Grauer, G. F.

Title  
Feline struvite & calcium oxalate urolithiasis.

Source  
Today's Veterinary Practice; 2015. 5(5):14-20. 18 ref.

Publisher  
VetMed Communications

Location of Publisher  
Glen Mills

Country of Publication

USA

Publication Type

Journal article.

<121>

Accession Number

20153348538

Author

Bende, B.; Kovacs, K. B.; Solymosi, N.; Nemeth, T.

Title

Characteristics of urolithiasis in the dog population of Hungary from 2001 to 2012.

Source

Acta Veterinaria Hungarica; 2015. 63(3):323-336. 30 ref.

Publisher

Akademiai Kiado

Location of Publisher

Budapest

Country of Publication

Hungary

Abstract

The objective of this study was to describe the epidemiology of canine urolithiasis in Hungary in order to determine the annual incidence of urolithiasis and to identify breeds at risk for different types of urolithiasis. Data of a total of 2,543 canine uroliths analysed in the laboratory of the Budapest Urolith Centre were evaluated retrospectively from 2001 to 2012. Logistic regression was used to assess odds ratios for the proportion of each affected breed compared to those of crossbreeds. The annual incidence of urolithiasis was evaluated by the number of submissions compared to the estimated number of dogs in the population from which the samples originated. Epidemiologic data revealed a relatively high and increasing proportion of struvite urolithiasis. Statistical analysis of breed predispositions resulted in the detection of breeds not having been reported at risk (e.g. Bernese Mountain dog - struvite, Bichon Frise, Bolognese, Tibetan Terrier - purine, French Bulldog - cystine). Conflicting results were revealed for some other breeds previously described as being affected by certain types of urolithiasis (Chihuahua, Pekingese, Shih Tzu, English Cocker Spaniel). Regardless of the type of urolithiasis, its average cumulative incidence in the dog population of Hungary was found to be 1.76/10,000/year.

Publication Type

Journal article.

<122>

Accession Number

20153356277

Author

Taksande, P. E.; Saini, N. S.; Tarunbir Singh; Singh, S. S.; Mahajan, S. K.

Title

Medical dissolution of cystic calculi in dogs.

Source

Indian Journal of Veterinary Surgery; 2015. 36(1):25-28. 15 ref.

Publisher

Indian Society for Veterinary Surgery

Location of Publisher

Hisar

Country of Publication

India

Abstract

The present study included 16 male dogs suffering from complete or partial urinary tract obstruction. The animals were divided into two groups (I and II); group I consisted of 11 dogs (age 40.00±or-11.65 m), having alkaline urine (pH: 7.5-8.5), and group II of five dogs (age 58.80±or-16.14 m) having acidic urine (pH: 6.5-7.0). Diagnosis was made based on clinical signs, radiography and B-mode ultrasonography. Urinalysis and haemato-biochemical examinations were carried out. Staphylococcus was found to be the most prevalent bacterium predisposing the formation of uroliths. A dissolution protocol containing oral administration of Ammonium chloride 5 mg/kg b.wt as urinary acidifier in group I animals and disodium hydrogen citrate 0.03 mg/kg b.wt as urinary alkalizer in group II animals was adopted. Based on the results, it can be concluded that, dissolution protocol using Ammonium chloride as urinary acidifier and Alkasol as urinary alkalizer can successfully be used in canine urolith patients based on urine pH and crystal composition.

Publication Type

Journal article.

<123>

Accession Number

20153379070

Author

Furman, E.; Hooijberg, E. H.; Leidinger, J.; Zedinger, C.; Leidinger, E.; Giger, U.

Title

Hereditary xanthinuria and urolithiasis in a domestic shorthair cat.

Source

Comparative Clinical Pathology; 2015. 24(6):1325-1329. 29 ref.

Publisher

Springer Science + Business Media

Location of Publisher

London

Country of Publication

UK

Abstract

A 2-year-old domestic shorthair cat was presented with a history of hematuria, stranguria, and intermittent urethral obstruction. Urine sedimentation showed hematuria, pyuria, and yellow-brown, amorphous, and spherical crystals. Upon surgical correction of the obstructed urethra by perineal urethrostomy, many dark yellow to grey, irregular, gravel-like to millet grain-sized uroliths were found. These uroliths were shown to consist of 100% xanthine by crystallography. The urinary xanthine concentration was high. The cat subsequently developed bilateral nephroliths, recurrent urinary tract infections, and chronic kidney failure. Dietary management with a low-purine diet failed in part due to poor compliance, and the cat was euthanized at 6 years of age. Xanthinuria is a rare inborn error of metabolism in cats and some other species but should be considered as a differential diagnosis in cases of feline urolithiasis. No associated molecular genetic defect has been elucidated, and management of these cases is difficult. In the absence of calculi for analysis, measuring urinary xanthine concentration can help in diagnosing this metabolic defect.

Publication Type

Journal article.

<124>

Accession Number

20153420897

Author

Robertson, E.

Title

Feline cystitis: a case presenting with LUTS in a young female cat.

Source

Companion Animal; 2014. 19(6):284-287. 17 ref.

Publisher

MA Healthcare Limited

Location of Publisher

London

Country of Publication

UK

Abstract

Feline lower urinary tract disease (FLUTD) is a term often given to cats exhibiting certain clinical signs, including straining to urinate, haematuria, pollakiuria, and periuria. Although periuria (urinating inappropriately around the house) is the clinical sign that most often initiates the visit to a veterinarian, the clinician must differentiate cats with lower urinary tract signs (LUTS) indicative of underlying disease from those with behavioural issues. Despite extensive diagnostics, at least 70% of cats presenting with LUTS will have no identifiable cause (e.g. urinary stones, urinary tract infection), and are thus categorised as having feline idiopathic cystitis.

Publication Type

Journal article.

<125>

Accession Number

20153420228

Author

He DingLing; Hu FangFang; Su YongKang; Qiu XianShuai; Xiao XiYu; Pan JiaQiang

Title

Effect of Jinqiancao compound potion on the formation of calcium oxalate stones in the urine of canine.

[Chinese]

Source

Acta Veterinaria et Zootechnica Sinica; 2015. 46(10):1867-1874. 15 ref.

Publisher

Guoji Shudian (Institute of Scientific and Technological Information of China, China Publications Centre)

Location of Publisher

Beijing

Country of Publication

China

Abstract

The experiment was designed to preliminary study on the effect of Jinqiancao compound potion to the formation of calcium oxalate stones in the urine of canine. Twelve healthy male Canis Lupus familiaris were randomly divided into 3 groups, which were the control group, the model group and the treatment group. The dogs in control group were fed with basal diet. The dogs in model group and treatment group were fed with basal diet plus glycol, ammonium chloride, calcium carbonate and vitamin D. Once 80% of the microscope view appeared calcium oxalate crystals in the urine of the experimental dogs, the Jinqiancao compound potion was orally administrated to the dogs of treatment group. During the experiment, the urine index (including the content of microalbumin, the enzymatic activity of N-acetyl- beta -D-Glucosaminidase and gamma -glutamyltransferase) and the serum index (including the content of creatinine, blood urea nitrogen,

uric acid and malondialdehyde, the enzymatic activity of lactate dehydrogenase and superoxide dismutase) were detected. Results were as follows: compared with model group, by treating Jinqiancao compound potion, the treatment group appeared lower activity of N-acetyl- beta -D-Glucosaminidase, lower activity of gamma -glutamyltransferase, lower concent of serum uric acid, lower malondialdehyde, lower activity of lactate dehydrogenase and higher activity of serum superoxide dismutase than that of modle group. Our study demonstrates that Jinqiancao compound can effectively reduce the damage to renal during the formation of calcium oxalate calculus, improve the enzyme activity of blood antioxidant. In other words, kidney cells were effectively repaired to ensure the function of kidney by the Jinqiancao compound, which to prevent the formation of calcium oxalate calculus in the urine of canine.

Publication Type

Journal article.

<126>

Accession Number

20133411371

Author

Garcia Roldan, L. M.; Barcena Diaz, M.

Title

Main pathologies of the feline lower urinary tract. [Spanish]

Source

Argos - Informativo Veterinario; 2013. (153):42, 44, 46. 6 ref.

Publisher

ASIS Biomedica s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Abstract

This article gives an overview of the most common lower urinary tract diseases in cats. Focus is given on aetiology, risk factors, diagnosis and therapy (drug therapy, surgery and diet modification). The diseases discussed include urinary tract infections, urolithiasis (struvite and calcium oxalate), urethral plugs, obstructive uropathy and feline idiopathic cystitis.

Publication Type

Journal article.

<127>

Accession Number

20133411369

Author

Baciero, G.

Title

Nutritional management of canine urolithiasis. [Spanish]

Source

Argos - Informativo Veterinario; 2013. (153):60.

Publisher

ASIS Biomedica s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Publication Type

Journal article.

<128>

Accession Number

20143026835

Author

Berent, A.

Title

New techniques on the horizon: interventional radiology and interventional endoscopy of the urinary tract ('endourology'). (Special Issue: Endoscopy and endosurgery, part 2.)

Source

Journal of Feline Medicine and Surgery; 2014. 16(1):51-65. 41 ref.

Publisher

Sage Publications

Location of Publisher

Thousand Oaks

Country of Publication

USA

Abstract

Practical relevance: Interventional radiology and interventional endoscopy (IR/IE) uses contemporary imaging modalities, such as fluoroscopy and endoscopy, to perform diagnostic and therapeutic procedures in various body parts. The majority of IR/IE procedures currently undertaken in veterinary medicine pertain to the urinary tract, and this subspecialty has been termed 'endourology'. This technology treats diseases of the renal pelvis, ureter(s), bladder and urethra. In human medicine, endourology has overtaken traditional open urologic surgery in the past 20-30 years, and in veterinary medicine similar progress is occurring. Aim: This article presents a brief overview of some of the more common IR/IE procedures currently being performed for the treatment of urinary tract disease in veterinary patients. These techniques include percutaneous nephrolithotomy for lithotripsy of problematic nephrolithiasis, mesenchymal stem cell therapy for chronic kidney disease, sclerotherapy for the treatment of idiopathic renal hematuria, various diversion techniques for ureteral obstructions, laser lithotripsy for lower urinary tract stone disease, percutaneous cystolithotomy for removal of bladder stones, hydraulic occluder placement for refractory urinary incontinence, percutaneous cystostomy tube placement for bladder diversion, urethral stenting for benign and malignant urethral obstructions, and antegrade urethral catheterization for treatment of urethral tears. Evidence base: The majority of the data presented in this article is solely the experience of the author, and some of this has only been published and/or presented in abstract form or small case series. For information on traditional surgical approaches to these ailments readers are encouraged to evaluate other sources.

Publication Type

Journal article.

<129>

Accession Number

20143035327

Author

Okafor, C. C.; Pearl, D. L.; Lefebvre, S. L.; Wang ManSen; Yang MingYin; Blois, S. L.; Lund, E. M.; Dewey, C. E.

Title

Risk factors associated with struvite urolithiasis in dogs evaluated at general care veterinary hospitals in the United States.

Source

Journal of the American Veterinary Medical Association; 2013. 243(12):1737-1745. 32 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

Objective - To identify factors associated with development of struvite urolithiasis in dogs evaluated at general care veterinary hospitals in the United States. Design - Retrospective case-control study. Animals - 508 dogs with a first-time diagnosis of struvite urolithiasis and 7,135 control dogs. Procedures - Electronic medical records of all dogs evaluated at 787 general care veterinary hospitals in the United States between October 2007 and December 2010 were reviewed to identify dogs that developed struvite urolithiasis and 2 groups of control dogs with no history of urolithiasis. Information extracted included diet, age, sex, neuter status, breed size category, hospital location, and date of diagnosis. Urinalysis results, urolith composition, and other disease conditions were recorded if applicable. Potential risk factors were assessed with univariable and multivariable regression analysis. Results - Toy- or small-sized breeds had significantly greater odds of struvite urolithiasis, compared with medium- or large-sized breeds. Neutering significantly increased the odds of this outcome in females only; sexually intact females were more likely to develop struvite urolithiasis than were sexually intact males, but only up to 5 years of age. Urinary factors significantly associated with the outcome were basic (vs acidic) pH, presence of RBCs or WBCs, protein concentration >30 mg/dL, and ketone concentration  $\geq$ 5 mg/dL. Conclusions and Clinical Relevance - Evaluation of demographic characteristics and urinalysis results may be useful in the early identification of struvite urolithiasis in dogs. Periodic urinalysis in dogs is recommended because of the potential health impact of a late diagnosis of urolithiasis.

Publication Type

Journal article.

<130>

Accession Number

20143048553

Author

Sarada Amma, T.; Sheeja, V. M.; Rajankutty, K.; Martin, K. D. J.; Pillai, U. N.

Title

Obstructive urolithiasis in dogs: advances in diagnosis and management.

Source

Journal of Indian Veterinary Association, Kerala (JIVA); 2011. 9(1):56-59. 12 ref.

Publisher

Indian Veterinary Association, Kerala

Location of Publisher

Thiruvananthapuram

Country of Publication

India

Publication Type

Journal article.

<131>

Accession Number

20143064613

Author

Buttin, P.; Collard, F.; Cachon, T.; Fau, D.; Goy-Thollot, I.; Carozzo, C.; Viguier, E.

Title

Use of nephroscopy and ureteral retrograde hydroplulsion for urolith removal from the upper urinary tract in 11 patients.

Source

Revue de Medecine Veterinaire; 2014. 165(1/2):2-11. 39 ref.

Publisher

Ecole Nationale Veterinaire de Toulouse

Location of Publisher

Toulouse

Country of Publication

France

Abstract

Renal and ureteral calculi are uncommonly diagnosed and present a challenge, requiring surgery in some cases. This retrospective study describes the use of nephroscopy and ureteral hydropulsion via cystotomy for the removal of renal and ureteral calculi from nine cats and two dogs, over a three-year period. The data recorded included signalment, clinical signs, blood test results, radiographic and ultrasound findings, surgical procedure and outcome. Preoperative, postoperative, predischage and one-month postoperative serum creatinine (SCr) and blood urea nitrogen (BUN) concentrations were monitored. Most of the clinical signs associated with postrenal insufficiency (depression, anorexia, vomiting) were present in all the animals. All patients had nephroliths and ureteroliths. Nephroscopy was performed in all cases (unilateral in five cases, bilateral in six). A mortality rate of 18.8% was recorded before discharge, with the observed deaths due to ureterotomy leakage and disseminated intravascular coagulation. In two-tailed student's t tests, postoperative and pre-discharge mean SCr and BUN concentrations were found to be significantly lower than their respective preoperative means. Surgically assisted nephroscopy and ureteral hydropulsion were found to be useful for the removal of renal and ureteral calculi in cats and dogs, and for limiting ureterotomy procedures. No nephroscopy-related complication was observed. Nevertheless, consequences of nephroscopy for renal function remain to be determined.

Publication Type

Journal article.

<132>

Accession Number

20143076125

Author

Dijcker, J. C.; Hagen-Plantinga, E. A.; Thomas, D. G.; Queau, Y.; Biourge, V.; Hendriks, W. H.

Title

The effect of dietary hydroxyproline and dietary oxalate on urinary oxalate excretion in cats.

Source

Journal of Animal Science; 2014. 92(2):577-584.

Publisher

American Society of Animal Science

Location of Publisher

Savoy

Country of Publication

USA

#### Abstract

In humans and rodents, dietary hydroxyproline (hyp) and oxalate intake affect urinary oxalate (Uox) excretion. Whether Uox excretion occurs in cats was tested by feeding diets containing low oxalate (13 mg/100 g DM) with high (Hhyp-Lox), moderate (Mhyp-Lox), and low hyp (Lhyp-Lox) concentrations (3.8, 2.0, and 0.2 g/100 g DM, respectively) and low hyp with high oxalate (93 mg/100 g DM; Lhyp-Hox) to 8 adult female cats in a 48-d study using a Latin square design. Cats were randomly allocated to one of the four 12-d treatment periods and fed according to individual energy needs. Feces and urine were collected quantitatively using modified litter boxes during the final 5 d of each period. Feces were analyzed for oxalate and Ca, and urine was analyzed for specific density, pH, oxalate, Ca, P, Mg, Na, K, ammonia, citrate, urate, sulfate, and creatinine. Increasing hyp intake (0.2, 2.0, and 3.8 g/100 g DM) resulted in increased Uox excretion (Lhyp-Lox vs. Mhyp-Lox vs. Hhyp-Lox;  $P < 0.05$ ), and the linear dose-response equation was  $Uox (mg/d) = 5.62 + 2.10 \times g \text{ hyp intake/d}$  ( $r^2 = 0.56$ ;  $P < 0.001$ ). Increasing oxalate intake from 13 to 93 mg/100 g DM did not affect Uox excretion but resulted in an increase in fecal oxalate output ( $P < 0.001$ ) and positive oxalate balance ( $32.20 \pm 2.06 \text{ mg/d}$ ). The results indicate that the intestinal absorption of the supplemental oxalate, and thereby its contribution to Uox, was low ( $5.90\% \pm 5.24\%$ ). Relevant increases in endogenous Uox excretion were achieved by increasing dietary hyp intake. The hyp-containing protein sources should be minimized in Ca oxalate urolith preventative diets until their effect on Uox excretion is tested. The oxalate content (up to 93 mg/100 g DM) in a diet with moderate Ca content does not contribute to Uox content.

Publication Type

Journal article.

<133>

Accession Number

20143084364

Author

Maier, R.; Lutter, F. X.; Lohss-Baumgartner, E.

Title

Pyonephrosis due to xanthine stones in a bitch treated with allopurinol. [German]

Source

Tierärztliche Praxis. Ausgabe K, Kleintiere/Heimtiere; 2014. 42(1):49-54. 17 ref.

Publisher

Schattauer GmbH

Location of Publisher

Stuttgart

Country of Publication

Germany

Abstract

A 2-year-old, neutered, crossbreed bitch was presented as an emergency with painful abdomen, fever and vomiting. The cause of the acute abdomen was a pyonephrosis of the left kidney, caused by four xanthine stones, which had blocked the ureter. After surgical removal of the heavily altered left kidney, the bitch recovered rapidly. Because of a leishmaniasis the bitch had been treated with allopurinol over an extended period, the xanthine stone formation is likely to have resulted from allopurinol usage. Because there were additionally small concrements in the right kidney, the medication was stopped. Subsequently, the dog has received a low purine diet, and the leishmaniasis titer and renal function have been monitored regularly.

Publication Type

Journal article.

<134>

Accession Number

20143102475

Author

Park ChulHo; Oh KiSeok; Son ChangHo

Title

Treatment of prostatic calculus causing urinary retention in a dog.

Source

Journal of Veterinary Clinics; 2013. 30(6):503-505. 8 ref.

Publisher

Korean Society of Veterinary Clinics

Location of Publisher

Daejeon

Country of Publication

Korea Republic

Abstract

A cross breed dog (6-year-old, 6 kg, intact male) was referred with hematuria. The dog had been treated for years owing to the urinary bladder calculi. On abdominal radiography, prostatic calculus was demonstrated in the prostatic area. In addition, ultrasonography and computed tomography (CT) scan would confirm that the part of calculus protruded within the prostatic urethra. The patient underwent a prostatolithotomy and traumatic prostatic urethra was carefully sutured and the omentum was filled with the prostate lumen. A crystallographic analysis of the stone showed 80% magnesium ammonium phosphate (struvite) and 20% carbonate apatite. The leakage of the urine was not observed post-operation and the hematuria improved and there was no specific problem at the 6 months follow-up.

Publication Type

Journal article.

<135>

Accession Number

20143115658

Author

Dijcker, J. C.; Hagen-Plantinga, E. A.; Everts, H.; Queau, Y.; Biourge, V.; Hendriks, W. H.

Title

Factors contributing to the variation in feline urinary oxalate excretion rate.

Source

Journal of Animal Science; 2014. 92(3):1029-1036.

Publisher

American Society of Animal Science

Location of Publisher

Savoy

Country of Publication

USA

Abstract

This study aimed to identify factors (season, animal, and diet) contributing to the variation in urinary oxalate (Uox) excretion rate, Uox concentration, and urine volume in healthy adult cats. A data set (1,940 observations) containing information on Uox excretion rate of 65 cats fed 252 diets (i.e., each diet was fed to a group of 6 to 8 cats), with known dietary oxalate concentrations, collected over a 6 yr period at a feline nutrition facility, were retrospectively analyzed. Data related to season, animal (i.e., age, gender, body weight, and breed), and diet (i.e., nutrient content) characteristics were subjected to stepwise multivariate regression analysis to identify factors significantly correlated to Uox excretion rate (micro mol/(kg BW<sup>0.67</sup>.d)) and concentration (mmol/L) as well as urine volume (mL/(kg BW<sup>0.67</sup>.d)). Independent factors significantly (P<0.05) associated with lower Uox concentration (mmol/L) included greater ash, Ca, and Na intake and lower nitrogen-free extract, total dietary fiber, P, and oxalate intake, and a body weight <5 kg.

Factors significantly associated with lower Uox excretion rate (  $\mu\text{mol}/(\text{kg BW}^{0.67}\cdot\text{d})$ ) included greater crude fat and Ca intake and lower CP, total dietary fiber, P, and oxalate intake. However, a considerable part of the variation in Uox excretion rate remained unexplained. The majority of the unexplained variation in Uox excretion rate is likely to be related to factors involved in endogenous oxalate synthesis, as the majority of the dietary factors involved in intestinal oxalate absorption were included in the model. Apparent intestinal oxalate absorption was estimated to be 6.2% on average; however, much variation was present. Future research on Uox excretion rate in cats should focus on the influence of dietary protein sources, amino acid composition, vitamin C (that was not included in the present study), and variations in apparent intestinal oxalate absorption.

Publication Type

Journal article.

<136>

Accession Number

20143130239

Author

Queau, Y.; Biourge, V.

Title

Urinary relative supersaturation and urolithiasis risk.

Source

Veterinary Focus; 2014. 24(1):24-29. 25 ref.

Publisher

Royal Canin Ltd (UK and Ireland)

Location of Publisher

Castle Cary

Country of Publication

UK

Abstract

This article reviews the relationship between urinary relative supersaturation (RSS) and the risk of urolithiasis in dogs and cats, and identifies recent advances in this area. It is suggested that urinary pH is an important determinant of struvite RSS, but not calcium oxalate RSS. Increasing the dietary sodium or moisture to effectively decrease RSS of both struvite and calcium oxalate, and the utilization of urine specific gravity to monitor patients at risk of urolithiasis are highlighted.

Publication Type

Journal article.

<137>

Accession Number

20143162134

Author

Grauer, G. F.

Title

Urolithiasis.

Source

NAVC Clinician's Brief; 2014. (April):27-29.

Publisher

Educational Concepts LLC

Location of Publisher

Tulsa  
Country of Publication  
USA  
Publication Type  
Journal article.

<138>

Accession Number  
20143141691

Author  
Ruiz, M.; Seguela, J.

Title  
Medical management of bilateral nephrolithiasis in a Collie. [French]

Source  
Point Veterinaire; 2014. 45(344(Part 2)):62-67. 27 ref.

Publisher  
Wolters Kluwer France

Location of Publisher  
Rueil-Malmaison

Country of Publication  
France

Abstract

Kidney stones are more common in dogs than in cats. The nature of the calculi can often be determined by the epidemiological context, medical imaging examinations and cytochemical examination of the urine. Struvite calculi, especially those that are infected, may be managed therapeutically. However, surgical options do exist.

Publication Type  
Journal article.

<139>

Accession Number  
20143170994

Author  
Stiller, A. T.; Lulich, J. P.; Furrow, E.

Title  
Urethral plugs in dogs.

Source  
Journal of Veterinary Internal Medicine; 2014. 28(2):324-330. 14 ref.

Publisher  
Wiley-Blackwell

Location of Publisher  
Boston

Country of Publication  
USA

Abstract

Background: Crystalline-matrix urethral plugs have not been previously reported in dogs. Hypothesis/Objectives: To report the composition of urethral plugs in dogs, describe clinical features of the disease, and identify overrepresented breeds. Methods: Retrospective case series. A Minnesota Urolith

Center (MUC) record search was performed for urethral plugs in dogs submitted during a 6-year period. The composition of the plugs and signalment of affected dogs were recorded. Breed risk analysis was performed using a control group without plugs from the Veterinary Medical Center, University of Minnesota (VMC UMN). Breed risk was also calculated for a group of dogs with struvite (plugs and uroliths). Medical records for the subset of plug cases from the VMC UMN were reviewed and described. Results: Between 2006 and 2011, 42 urethral plugs from dogs were submitted to the MUC. All came from male dogs, and the mineral component of the majority (83%) was struvite. Thirty (71%) samples were from Pugs. Pugs were overrepresented in plug submissions (OR 179; CI 88-389;  $P < .001$ ), and for struvite in general (OR 14.3; CI 7.9-24.4;  $P < .001$ ). Nine of the dogs were treated at VMC UMN; all were castrated male Pugs. None of these cases had bacteriuria or positive urine cultures, and no underlying cause of plug formation was identified. Conclusions and Clinical Importance: When evaluating dogs with urethral obstruction, plugs need to be considered, especially in male Pugs. Further investigation into the underlying cause of plug formation in dogs is warranted.

Publication Type  
Journal article.

<140>

Accession Number  
20143188760

Author

Bahador, M. M. B.; Tabrizi, A. S.; Kozachok, V. S.

Title

Effects of diet on the management of struvite uroliths in dogs and cats.

Source

Comparative Clinical Pathology; 2014. 23(3):557-560. 6 ref.

Publisher

Springer Science + Business Media

Location of Publisher

London

Country of Publication

UK

Abstract

Results of experimental and clinical investigations have confirmed the importance of dietary modifications in medical protocols designed to promote dissolution and prevention of some kinds of uroliths. Change in the composition of dietary ingredients is one example of a method to reduce the quantity of lithogenic crystalloids in urine. The current study shows evidence of the positive effects of one of the commercial therapeutic foods on improvement of struvite urolithiasis, in different cases of cats and dogs performed at Kiev University, Ukraine.

Publication Type

Journal article.

<141>

Accession Number  
20143185236

Author

Datz, C.

Title

Update on preventing calcium oxalate urolithiasis in dogs.

Source

Proceedings of the NAVC Conference, 18-22 January 2014, Orlando, Florida, USA. Volume 28, Small Animal & Exotics; 2014. :unpaginated.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<142>

Accession Number

20143185233

Author

Buffington, C. A. T.

Title

Diets for bladder stones.

Source

Proceedings of the NAVC Conference, 18-22 January 2014, Orlando, Florida, USA. Volume 28, Small Animal & Exotics; 2014. :unpaginated. 4 ref.

Publisher

North American Veterinary Community (NAVC)

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<143>

Accession Number

20143168706

Author

Chandler, M.

Title

Dietary management of the feline urinary tract.

Source

BSAVA Congress 2014, Birmingham, UK, 3-6 April, 2014. Scientific Proceedings Nursing Programme; 2014. :129-130.

Publisher

British Small Animal Veterinary Association

Location of Publisher

Quedgeley

Country of Publication

UK

Publication Type

Conference paper.

<144>

Accession Number

20143159710

Author

Halfacree, Z.

Title

Ureteroliths in cats: an emerging problem?

Source

BSAVA Congress 2014, Birmingham, UK, 3-6 April, 2014. Scientific Proceedings Veterinary Programme; 2014. :122-124.

Publisher

British Small Animal Veterinary Association

Location of Publisher

Quedgeley

Country of Publication

UK

Publication Type

Conference paper.

<145>

Accession Number

20143159709

Author

Friend, E.

Title

Update on treatment for USMI (urinary sphincter mechanism incompetence).

Source

BSAVA Congress 2014, Birmingham, UK, 3-6 April, 2014. Scientific Proceedings Veterinary Programme; 2014. :119-122.

Publisher

British Small Animal Veterinary Association

Location of Publisher

Quedgeley

Country of Publication

UK

Publication Type

Conference paper.

<146>

Accession Number

20143196305

Author

Tipisca, V.; Meomartino, L.; Cortese, L.; Mennonna, G.; Barbazan-Serban, C.; Baisan, A.; Daraban, C.; Gavrilas, E.; Vulpe, V.

Title

Radiographical assessment of the urinary system diseases in cats.

Source

Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Veterinary Medicine; 2014. 71(1):225-233. 6 ref.

Publisher

University of Agricultural Sciences and Veterinary Medicine

Location of Publisher

Cluj-Napoca

Country of Publication

Romania

Abstract

The urinary system is frequently diseased in cats. Although the radiographical technique is not the best choice for studying most of the urinary organs, it still remains a valuable tool particularly for ureteral, urinary bladder and urethral disorders. This study aims to describe the aspects of urinary tract pathologies in cats with different urinary diseases, radiographically diagnosed. Twenty-two cats were included in the study after a revision of the database of Interdepartmental Veterinary Radiology Centre of Naples and of Veterinary Radiological Laboratory of Iasi, in the period 2000-2012. Survey and contrast medium radiographs were taken in consideration. The diagnosis of the subjects included was also confirmed with other techniques (i.e. ultrasonography, surgery and/or necropsy). Pathological findings that were diagnosed on survey radiographs included: changes in kidney size (2), renal and ureteral lithiasis (3), urinary bladder distension (4), and urinary bladder lithiasis (2). With contrast radiography (i.e. excretory urography and cystography), it was possible to diagnose renal ectopia with fusion (1), cysts (1), and hydronephrosis (1), dilatation (2), and incompetence (1), urinary bladder cystitis (4) and tumors (2), and urethral stenosis (2). Considering the relative small number of cases, the present study, confirmed that the radiographical technique is not the best choice to image the urinary tract diseases. However, especially when accompanied by contrast studies, radiography demonstrates to be a reliable tool to diagnose urinary pathologies and it still maintains its importance, particularly when other techniques are not available.

Publication Type

Journal article.

<147>

Accession Number

20143176376

Author

Rowley, S. L.

Title

Urolithiasis and dietary considerations.

Source

Feed Compounder, Pet Food Supplement; 2014. (16):38-40.

Publisher

Pentlands Publishing Ltd

Location of Publisher

Bakewell

Country of Publication

UK

Publication Type

Journal article.

<148>

Accession Number

20143226285

Author

Rizzi, T. E.

Title

Urinalysis in companion animals: Part 2: evaluation of urine chemistry & sediment.

Source

Today's Veterinary Practice; 2014. 4(3):86-91. 3 ref.

Publisher

VetMed Communications

Location of Publisher

Glen Mills

Country of Publication

USA

Publication Type

Journal article.

<149>

Accession Number

20143225905

Author

Mohamaden, W. I.; Heng Wang; Guan HuaWei; Meng Xia; Li JianJi

Title

Electron imaging of calcium oxalate crystals in beagle dogs' urine.

Source

International Journal of Veterinary Science and Medicine; 2014. 2(1):83-88. 27 ref.

Publisher

Elsevier B. V.

Location of Publisher

Amsterdam

Country of Publication

Netherlands

Abstract

Calcium oxalate crystalluria appears to be a common problem in most of small animal clinics. This current study aimed at inducing a condition of oxalate crystalluria in beagles and record the primary changes in canine blood and urine on response to oxalates injection. 15 dogs were divided into two groups; those in the treatment group were injected intravenously with 0.5 M potassium oxalate and the dogs of control group were injected with physiological saline for five successive days. Urine test revealed a significant decrease in urinary creatinine and urinary urea nitrogen levels. The ultrastructural examination of urine sediment showed typical and atypical phases of calcium oxalate crystals and the X-ray defractionation of these crystals showed high content of calcium in addition to other minerals. Therefore potassium oxalate injection may provide an example of calcium oxalate crystalluria which may answer some question around the pathogenesis of this problem in dogs.

Publication Type

Journal article.

<150>

Accession Number

20143236336

Author

Ren ZhiHua; Deng JunLiang; Huang KeHe

Title

The investigation of urolithiasis and composition analysis of canine urinary calculi in Nanjing area.

[Chinese]

Source

Chinese Journal of Veterinary Science; 2014. 34(3):492-495, 499. 23 ref.

Publisher

Editorial Board Chinese Journal of Veterinary Science

Location of Publisher

Changchun

Country of Publication

China

Abstract

The investigation of field cases of canine urolithiasis was obtained from 3 representative animal hospitals in Nanjing area in recent two years. The composition of 146 canine urinary stones was studied by chemical qualitative analysis. The results indicated that four types of calculi were found on the basis of their main constituent: 52.55% (76/146) were magnesium ammonium phosphate (struvite), 17.81% (26/146) were uric acid, 2.74% (4/146) were calcium phosphate, 23.29% (34/146) were calcium oxalate, 4.11% (6/146) were composite stone. It was analyzed that the characters on the location of the calculi, breed, average age, infected age, genders and food about the canine with urolithiasis, which provided clinical basis for controlling and preventing urolithiasis in Nanjing areas.

Publication Type

Journal article.

<151>

Accession Number

20143214633

Author

Gunn-Moore, D.

Title

Managing feline cystitis long-term.

Source

Veterinary Times; 2014. 44(25):20-21. 26 ref.

Publisher

Veterinary Business Development Ltd

Location of Publisher

Peterborough

Country of Publication

UK

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.

Publication Type

Journal article.



<152>

Accession Number

20143252582

Author

Grauer, G. F.

Title

Struvite urolithiasis.

Source

NAVCC Clinician's Brief; 2014. (June):unpaginated.

Publisher

Educational Concepts LLC

Location of Publisher

Tulsa

Country of Publication

USA

Publication Type

Journal article.

<153>

Accession Number

20143252578

Title

Research demonstrates nutritional dissolution of struvite uroliths in as few as 7 days.

Source

NAVCC Clinician's Brief; 2014. (June):unpaginated.

Publisher

Educational Concepts LLC

Location of Publisher

Tulsa

Country of Publication

USA

Publication Type

Journal article.

<154>

Accession Number

20143231183

Author

Ackerman, N.

Title

Feline idiopathic cystitis - nursing role in treatment and management.

Source

VN Times; 2014. 14(7):8-10. 9 ref.

Publisher  
Veterinary Business Development Ltd  
Location of Publisher  
Peterborough  
Country of Publication  
UK  
Publication Type  
Journal article.

<155>

Accession Number  
20143258602

Author

Okafor, C. C.; Lefebvre, S. L.; Pearl, D. L.; Yang, M. Y.; Wang, M. S.; Blois, S. L.; Lund, E. M.; Dewey, C. E.

Title

Risk factors associated with calcium oxalate urolithiasis in dogs evaluated at general care veterinary hospitals in the United States.

Source

Preventive Veterinary Medicine; 2014. 115(3/4):217-228. 47 ref.

Publisher

Elsevier B.V.

Location of Publisher

Amsterdam

Country of Publication

Netherlands

Abstract

Calcium oxalate urolithiasis results from the formation of aggregates of calcium salts in the urinary tract. Difficulties associated with effectively treating calcium oxalate urolithiasis and the proportional increase in the prevalence of calcium oxalate uroliths relative to other urolith types over the last 2 decades has increased the concern of clinicians about this disease. To determine factors associated with the development of calcium oxalate urolithiasis in dogs evaluated at general care veterinary hospitals in the United States, a retrospective case-control study was performed. A national electronic database of medical records of all dogs evaluated between October 1, 2007 and December 31, 2010 at 787 general care veterinary hospitals in the United States was reviewed. Dogs were selected as cases at the first-time diagnosis of a laboratory-confirmed urolith comprised of at least 70% calcium oxalate (n=452). Two sets of control dogs with no history of urolithiasis diagnosis were randomly selected after the medical records of all remaining dogs were reviewed: urinalysis examination was a requirement in the selection of one set (n=1808) but was not required in the other set (n=1808). Historical information extracted included urolith composition, dog's diet, age, sex, neuter status, breed size category, hospital location, date of diagnosis, and urinalysis results. Multivariable analysis showed that the odds of first-time diagnosis of calcium oxalate urolithiasis were significantly ( $P<0.05$ ) greater for dogs <7 years, males (OR: 7.77, 95% CI: 4.93-12.26), neutered (OR: 2.58, 1.44-4.63), toy- vs. medium-sized breeds (OR: 3.15, 1.90-5.22), small- vs. medium-sized breeds (OR: 3.05, 1.83-5.08), large- vs. medium-sized breeds (OR: 0.05, 0.01-0.19), and those with a diagnosis of cystitis within the previous year (OR: 6.49, 4.14-10.16). Urinary factors significantly associated with first-time diagnosis of calcium oxalate urolithiasis were acidic vs. basic pH (OR: 1.94, 1.22-3.10), presence of RBCs (OR: 6.20, 3.91-9.83) or WBCs (OR: 1.62, 1.03-2.54), and protein concentration >30 mg/dL (OR: 1.55, 1.04-2.30). Patient demographics and urinalysis results are important factors that can support risk assessment and early identification of canine oxalate urolithiasis. Therefore, periodic urolith screening and monitoring of urine parameters should be encouraged for dogs at risk of developing these uroliths.

Publication Type  
Journal article.

<156>

Accession Number

20143276288

Author

Weeden, A. L.; Wamsley, H. L.

Title

Struvite crystalluria: three cases.

Source

NAVC Clinician's Brief; 2014. (July):83-89.

Publisher

Educational Concepts LLC

Location of Publisher

Tulsa

Country of Publication

USA

Publication Type

Journal article.

<157>

Accession Number

20143275800

Author

Mireaux, M.; Villaverde, C.; Hervera, M.; Roura, X.; Causse, E.; Feugier, A.; Biourge, V.; Mougeot, I.

Title

Canine leishmaniasis and xanthine urolithiasis: interest of a low purine diet, preliminary study on 13 dogs.

[French]

Source

Revue Veterinaire Clinique; 2014. 49(1):23-29. 35 ref.

Publisher

Elsevier Masson

Location of Publisher

Issy-les Moulineaux Cedex

Country of Publication

France

Abstract

Allopurinol is conventionally used in the therapeutic management of dogs with leishmaniasis. Allopurinol potentially increases the risk of xanthine uroliths by limiting the degradation of hypoxanthine into xanthine and then into uric acid and allantoin. The purpose of this study was to evaluate the influence of a low purine moderate protein diet on the urinary excretions of xanthine and other purine metabolites in dogs diagnosed with leishmaniasis and treated with allopurinol. Methods: Dogs diagnosed with leishmaniasis, without liver or kidney disease, treated with allopurinol were included. The dogs were fed for one month with a low purine (59 mg EqUA/100 g) moderate protein (18%) diet. Twelve-hour urine collections, preceded and followed by a catheterization were performed at the beginning and at the end of study. The urinary concentrations of hypoxanthine, xanthine, uric acid, allantoin and creatinine as well as the pH were measured. An ultrasound exam of the bladder also allowed to verifying the presence of calculi in the bladder at the beginning and at the end of the study. Results: Thirteen dogs were included (six males and seven females), one had to be excluded from the analysis. A significant reduction in the number of dogs presenting calculi in the bladder

was observed: six at the beginning but only two at the end of the study,  $P=0.046$ . Urinary excretions (micro mol/12 h) of xanthine ( $P=0.041$ ) and uric acid ( $P=0.026$ ) also decreased significantly. Urinary excretions of hypoxanthine ( $P=0.075$ ) and allantoin ( $P=0.062$ ) tended to decrease. Conclusion: A low purine moderate protein diet is beneficial for long-term dietary support of dogs with leishmaniasis treated by allopurinol by reducing the risk of xanthine urolithiasis.

Publication Type  
Journal article.

<158>

Accession Number  
20143255955

Author  
Neiger, R.; Stengel, C.

Title  
Bladder stones due to case of bacterial UTI.

Source  
Veterinary Times; 2014. 44(30):13. 2 ref.

Publisher  
Veterinary Business Development Ltd

Location of Publisher  
Peterborough

Country of Publication  
UK

Publication Type  
Journal article.

<159>

Accession Number  
20143273918

Author  
Kaymaz, A. A.; Bahceli, T.; Ozer, K.

Title  
The urine bladder stone in five-month tabby cat.

Source  
Book of Proceedings, Days of Veterinary Medicine 2012, 3rd International Scientific Meeting, Macedonia, 2-4 September 2012; 2012. :296.

Publisher  
University "Ss Cyril and Methodius" in Skopje, Faculty of Veterinary Medicine in Skopje

Location of Publisher  
Skopje

Country of Publication  
Republic of Macedonia

Publication Type  
Conference paper.

<160>

Accession Number

20143365944

Author

Possebom, J.; Sechi, G. V.; Oliveira, L. F. de; Ditrach, G.; Cavalcante, C. Z.; Quitzan, J. G.

Title

Quantitative evaluation of uroliths in dogs and cats. [Portuguese]

Source

Acta Veterinaria Brasilica; 2013. 7(Suppl. 1):313-315. 6 ref.

Publisher

Universidade Federal Rural do Semi-Arido (UFERSA)

Location of Publisher

Mossoro

Country of Publication

Brazil

Abstract

There are several factors involved in the formation of uroliths, as the supersaturation of salts found in urine, a decrease of the crystallization inhibitors and the presence of matrix that contribute to the aggregation of crystals. There are different types of uroliths composition and each requires a different treatment. In this study were analyzed 43 uroliths of dogs and cats, by quantitative method by Minnesota Urolith Center, with the goal to correlate the uroliths composition and epidemiology of animals, and that could help especially in establishing a correct therapy and also prevent recurrence.

Publication Type

Journal article

Conference paper.

<161>

Accession Number

20143370617

Author

Passlack, N.; Burmeier, H.; Brenten, T.; Neumann, K.; Zentek, J.

Title

Short term effects of increasing dietary salt concentrations on urine composition in healthy cats.

Source

Veterinary Journal; 2014. 201(3):401-405. 29 ref.

Publisher

Elsevier Ltd

Location of Publisher

Oxford

Country of Publication

UK

Abstract

High dietary salt (NaCl) concentrations are assumed to be beneficial in preventing the formation of calcium oxalate (CaOx) uroliths in cats, since increased water intake and urine volume have been observed subsequent to intake. In human beings, dietary NaCl restriction is recommended for the prevention of CaOx urolith formation, since high NaCl intake is associated with increased urinary Ca excretion. The aim of the present study was to clarify the role of dietary NaCl in the formation of CaOx uroliths in cats. Eight cats received four diets that differed in Na and Cl concentrations (0.38-1.43% Na and 0.56-2.52% Cl dry matter, DM). Each feeding period consisted of a 21 day adaptation period, followed by a 7 day sampling period for urine collection. Higher dietary NaCl concentrations were associated with increased urine volume and renal Na excretion. Urinary Ca concentration was constant, but renal Ca excretion increased from 0.62 to 1.05



mg/kg bodyweight (BW)/day with higher dietary NaCl concentrations ( $P \leq 0.05$ ). Urinary oxalate (Ox), citrate, P and K concentrations decreased when NaCl intake was high ( $P \leq 0.05$ ), and urinary pH was low in all groups (6.33-6.45;  $P > 0.05$ ). Relative supersaturation of CaOx in the urine was unaffected by dietary NaCl concentrations. In conclusion, the present study demonstrated several beneficial effects of high dietary NaCl intake over a relatively short time period. In particular, urinary Ca concentration remained unchanged because of increased urine volume. Decreased urinary Ox concentrations might help to prevent the formation of CaOx uroliths, but this should be verified in future studies in diseased or predisposed cats.

Publication Type  
Journal article.

<162>

Accession Number  
20143385862

Author  
Grauer, G. F.

Title  
Calcium oxalate urolithiasis.

Source  
NAVC Clinician's Brief; 2014. (October):51-55.

Publisher  
Educational Concepts LLC

Location of Publisher  
Tulsa

Country of Publication  
USA

Publication Type  
Journal article.

<163>

Accession Number  
20143375129

Author  
Simpson, K.

Title  
How to approach feline: lower urinary tract disease.

Source  
Companion; 2014. (November):14-19.

Publisher  
British Small Animal Veterinary Association

Location of Publisher  
Quedgeley

Country of Publication  
UK

Publication Type  
Journal article.

<164>

Accession Number

20143408635

Author

Sravanthi, P.; Sekhar, E. L. C.; Raghavender, K. B. P.; Kumar, D. P.

Title

Studies on electron microscopy of uroliths in dogs.

Source

International Journal of Veterinary Science; 2014. 3(4):177-180. 9 ref.

Publisher

Faculty of Agriculture, Nnamdi Azikiwe University

Location of Publisher

Anambra

Country of Publication

Nigeria

Abstract

A study on Electron Microscopy of the uroliths was conducted in 9 clinical cases in dogs. Analysis of the calculi revealed calcium oxalate calculi in 55.56 per cent of the dogs, magnesium ammonium phosphate calculi in 33.33 per cent and calcium oxalate plus urate calculi in 11.11 per cent of the dogs. Scanning electron microscopy revealed bar shaped crystals in calcium oxalate calculi, rock like crystals in magnesium ammonium phosphate calculi and spindle shaped crystals in calcium oxalate plus urate calculi.

Publication Type

Journal article.

<165>

Accession Number

20143422606

Author

Rafee, M. A.; Sexena, A. C.; Mahendra Baghel; Suvarna, A.

Title

Surgical management of cystic calculi and testicular tumour in dog.

Source

Journal of Advanced Veterinary Research; 2014. 4(4):189-190. 5 ref.

Publisher

Faculty of Veterinary Medicine, Assiut University

Location of Publisher

Assiut

Country of Publication

Egypt

Abstract

A ten year old male uncastrated spitz dog weighing 10 kg was presented with a history of straining to urinate, dribbling blood tinged urine from the prepuce, anorexia and distended abdomen since 4 days and enlargement of scrotum since one month. The physical examination showed asymmetrical testicles and tense abdomen. Radiography and ultrasonography diagnosed cystic calculi. Cystotomy and retropulsion was done to remove all the calculi from the urinary bladder and removal of testis along with scrotal ablation was performed for testicular tumour. After 6 months, animal was presented with tumour between phalanges which was removed surgically.

Publication Type

Journal article.

<166>

Accession Number

20133009304

Author

Houston, D. M.; Moore, A. E.; Mendonca, S. Z.; Taylor, J. A.

Title

2,8-dihydroxyadenine uroliths in a dog.

Source

Journal of the American Veterinary Medical Association; 2012. 241(10):1348-1352. 15 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

Case Description: A 43-kg (95-lb) 4-year-old neutered male mixed-breed dog was evaluated because of a 2-day history of dysuria. Clinical Findings: Radiography and ultrasonography revealed hydronephrosis, hydroureter, and radiolucent, hyperechoic uroliths in the right kidney and ureter and the urinary bladder. Serum bile acids concentration was within the reference interval. Treatment and Outcome: The uroliths in the bladder and right ureter were surgically removed and submitted for analysis. They were initially identified as urate uroliths; however, results of further analysis indicated uroliths were composed of 2,8-dihydroxyadenine (2,8-DHA), and 2,8-DHA was identified in a urine sample of the dog. Allopurinol was prescribed for the dog, and a purine-restricted diet was recommended. Clinical Relevance: 2,8-DHA uroliths are extremely rare in humans and dogs. Such uroliths may be underdiagnosed in humans because of variability of clinical signs and difficulty in differentiating 2,8-DHA and urate uroliths and crystalluria. Uroliths composed of 2,8-DHA may be misdiagnosed as urate uroliths in dogs.

Publication Type

Journal article.

<167>

Accession Number

20133009219

Author

Dijcker, J. C.; Hagen-Plantinga, E. A.; Hendriks, W. H.

Title

Changes in dietary macronutrient profile do not appear to affect endogenous urinary oxalate excretion in healthy adult cats.

Source

Veterinary Journal; 2012. 194(2):235-239. 35 ref.

Publisher

Elsevier Ltd

Location of Publisher

Oxford

Country of Publication

UK

Abstract

The progressive increase in calcium oxalate uroliths reported in cats diagnosed with urolithiasis may partly be due to changes in nutrition. Since cats have a predominant mitochondrial alanine:glyoxylate aminotransferase 1 (AGT1) location, high carbohydrate intake may induce endogenous oxalate synthesis. This hypothesis was tested by feeding 12 adult, female cats three diets differing in macronutrients, namely, high protein (HP), high carbohydrate (HC) and high fat (HF), using a randomised Latin square design in a 36-day study. In addition to plasma, urine was collected quantitatively using modified litter boxes. A pilot study with four cats, conducted to determine the adaptation time of urinary oxalate (Uox) excretion to a dietary change, indicated a mean (+or-SEM) adaptation time of 5.9+or-0.7 days, with the urinary oxalate:creatinine (Ox:Cr) ratio increasing from 36.1+or-3.7 to 81.6+or-2.3 mmol/mol. In the main study, plasma oxalate concentration was significantly lower when feeding the HP compared to the HF (P=0.003) diet, whereas Uox excretion (micro mol/kg BW<sup>0.75</sup>/day) and the urinary Ox:Cr ratio were unaffected by diet. The Uox concentration (mmol/L) was significantly lower when feeding the HP compared to the HC (P=0.004) and HF (P=0.001) diets. The results indicate that changes in macronutrient profile may not influence endogenous Uox excretion in cats but high dietary protein did reduce Uox concentration and may therefore help to lower the risk of calcium oxalate formation.

Publication Type

Journal article.

<168>

Accession Number

20133008688

Author

Hesse, A.; Orzekowsky, H.; Neiger, R.

Title

Urolithiasis in dogs - 15,494 cases (1979-2007). [German]

Source

Kleintierpraxis; 2012. 57(12):633-639. 23 ref.

Publisher

Verlag M. & H, Schaper Gmbh

Location of Publisher

Hannover

Country of Publication

Germany

Abstract

The aim of this study was to summarise all analysed canine uroliths from 29 years (1979 to 2007) in relation to the signalement. During this time period, 15,494 stones, mainly from Germany, were submitted. The type of stone was evaluated in relation to the available information on the submission form, i.e. breed, age, gender, body weight and localisation of the urolith. The analysis was performed by infrared spectroscopy and stones with at least 70% of a certain mineral were classified as being this mineral stone type. Uroliths from 187 breeds were analysed. The vast majority of uroliths were retrieved from the urinary bladder and/or urethra (99.2%). The most common breeds besides mongrels (17.1%) were the Dachshund (12.4%), Yorkshire Terrier (9.9%), Poodle (4.1%), Dalmatian (3.1), Cocker Spaniel (3.7%) and Shi Tsu (3.1%). Most dogs were intact (79.2%). It was found that male dogs (61.2%) had significantly more common uroliths than female dogs (38.8%). The mean age was basically identical in both sexes (7.3 years); however, there was some variation between the different stone types. Dogs with ammonium urate, cystine and struvite stones were significantly younger than dogs with calcium oxalate stones. During the entire period, struvite (53.0%) and calcium oxalate stones (25.8%) were the two most common stone types. However, the percentage of calcium oxalate stones significantly increased over time and these stones were seen in the last quarter (2000-2007) in 38.6% of the dogs, while the percentage of struvite stones decreased during the same period and was seen in the last quarter in 48.2% of dogs. Other commonly analysed stone types were cystine (9.9%), ammonium urate (6.0%), brushite (1.1%) and xanthine (0.2%). Struvite and calcium oxalate stones were found to be the two most common urolith types seen in dogs occurring at present almost equally.

However, the most commonly analysed stone types seen in humans can also be found in dogs. The epidemiological data retrieved from this study can give a large amount of information regarding pathogenic causes and changes over time. This can be used to give advice on specific therapy and successful prophylaxis in a given animal.

Publication Type  
Journal article.

<169>

Accession Number  
20133008579

Author

Dijcker, J. C.; Kummeling, A.; Hagen-Plantinga, E. A.; Hendriks, W. H.

Title

Urinary oxalate and calcium excretion by dogs and cats diagnosed with calcium oxalate urolithiasis.

Source

Veterinary Record; 2012. 171(25):646.

Publisher

BMJ Publishing Group

Location of Publisher

London

Country of Publication

UK

Abstract

Urine samples were collected from 11 dogs and three cats diagnosed with urolithiasis to determine the aetiopathophysiology of calcium oxalate (CaOx) urolith formation. Results revealed that the calcium to oxalate ratio in the urine was on the average three to four times higher in animals with CaOx urolithiasis than healthy subjects. The urine calcium:creatinine ratio was high in four animals, whereas normal values were observed in 10 animals. It was observed that all urine oxalate:creatinine values were similar to those reported for healthy dogs and cats. It is concluded that hypercalciuria rather than hyperoxaluria maybe a predisposing factor of CaOx urolith formation in individual dogs and cats. It is also suggested that other urolith promoting factors may be involved as well.

Publication Type  
Journal article.

<170>

Accession Number  
20133010288

Author

Vladulescu, C.; Safta, D.

Title

The pathological aspects of the dog urinary system caused by the urolithiasis.

Source

Analele Universitatii din Craiova - Biologie, Horticultura, Tehnologia Prelucrarii Produselor Agricole, Ingineria Mediului; 2012. 17:867-870. 4 ref.

Publisher

Annales of the University of Craiova

Location of Publisher

Craiova

Country of Publication

Romania

Abstract

The urate are the most common in Dalmatians dogs and dogs with portosystemic congenital vascular. The formation of urine and other factors. Dalmatians fail to convert their urate in allantoin metabolism, due to their liver is ammonium urate calculi depends on the concentration of ammonium urate and absolute normal. After hand feelings and ultrasound examination of the abdomen it has been only emphasized the bladder which presents stones. In order to analyses the chemical structure of calculus in bladder the following surgical conduct was performed: surgery performed in a medical cabinet-vet; to the bladder was found a number of 9 calculus; calculus were sent to the laboratory to analyze their chemical composition. After the lab analyses the structure of calculus showed: carbonate, at a rate of about 83% and urate, at a rate of about 17%.

Publication Type

Journal article.

<171>

Accession Number

20133026725

Author

Blavier, A.; Sulter, A.; Bogey, A.; Novelli, K.; Billiemaz, B.

Title

Results of infrared spectrophotometry analysis of 1131 canine urinary stones, collected in France from 2007 to 2010. [French]

Source

Pratique Medicale et Chirurgicale de l'Animal de Compagnie; 2012. 47(1):7-16.

Publisher

Elsevier Masson

Location of Publisher

Issy-les Moulineaux Cedex

Country of Publication

France

Abstract

This is the first study conducted in France allowing precise description and analysis of 1131 urinary canine stones. Samples are classified according to their mineral type, and also to breed, sex and age of the animals. Calcium oxalate and struvite are the main stones encountered. They are far more common than urate and cystine stones. Small breed dogs are over represented for oxalate and struvite and bichons and Poodles, Shih Tzu, Yorkshire terrier seem to be predisposed. Dalmatian is the most common breed producing urate stones. This study also discriminates monohydrated from dihydrated calcium oxalate stones, showing that some canine breeds are predisposed to one crystal form or the other.

Publication Type

Journal article.

<172>

Accession Number

20133094850

Author

Callens, A.

Title

Urinary calculi.

Source

Veterinary Technician; 2012. 33(7):unpaginated. 17 ref.

Publisher

Veterinary Learning Systems Inc.

Location of Publisher

Yardley

Country of Publication

USA

Abstract

The clinical signs, diagnosis, types, predisposing factors and treatment of urinary calculi in dogs and cats are discussed. Focus is given on determining the mineral composition of urinary calculi and its importance in preventing recurrence, new and minimally invasive approaches developed for urinary calculus removal and necessity of understanding treatment and prevention of urinary calculi for effective client education.

Publication Type

Journal article.

<173>

Accession Number

20133112175

Author

Saini, N. S.; Anand, A.; Sangwan, V.; Kumar, A.; Mahajan, S. K.

Title

Successful surgical treatment of renal, ureteral, cystic and urethral calculi in a Dachshund male dog.

Source

Indian Journal of Veterinary Surgery; 2012. 33(2):155. 2 ref.

Publisher

Indian Society for Veterinary Surgery

Location of Publisher

Hisar

Country of Publication

India

Publication Type

Journal article.

<174>

Accession Number

20133109040

Author

Tomsa, K.; Mascherbauer, C.

Title

Treatment of nine male dogs and one female dog with obstructive urethral stones using laser lithotripsy.

[German]

Source

Kleintierpraxis; 2013. 58(3):109...116. 24 ref.

Publisher

Verlag M. & H, Schaper Gmbh

Location of Publisher

Hannover

Country of Publication

Germany

Abstract

Endoscopic laser lithotripsy is a modern, minimally invasive treatment option for the management of urolithiasis. In this study, nine male and one female dog with partial or complete obstruction of the urethra due to urinary calculi were treated with laser lithotripsy. The urethral obstruction was successfully resolved in nine often patients, with the majority of the dogs being released on the day of procedure. In dogs with distal urethral stones, the shortest procedure time was less than 30 minutes with minimal complications. In two male dogs a permanent urethrostomy had to be performed eventually, because of severe local urethritis/urethral stricture. In carefully selected cases, laser lithotripsy offers a valuable alternative to standard surgical options like urethrotomy or permanent urethrostomy as it causes minimal damage and so protects the anatomy and physiology of the lower urinary tract.

Publication Type

Journal article.

<175>

Accession Number

20133182393

Author

Baciero, G.

Title

Greater accuracy in the nutritional management of canine urolithiasis. [Spanish]

Source

Argos - Informativo Veterinario; 2013. (148):70.

Publisher

ASIS Veterinaria s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Publication Type

Journal article.

<176>

Accession Number

20133211942

Author

Kerr, K. R.

Title

Dietary management of feline lower urinary tract symptoms.

Source

Journal of Animal Science; 2013. 91(6):2965-2975.

Publisher

American Society of Animal Science

Location of Publisher

Savoy

Country of Publication

USA

#### Abstract

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.

#### Publication Type

Journal article  
Conference paper.

<177>

#### Accession Number

20133225251

#### Author

Cowell, R. L.

#### Title

Urine sediment evaluation.

#### Source

Small Animal and Exotics Proceedings. North American Veterinary Conference, Orlando, Florida, USA, 19-23 January 2013.; 2013. :unpaginated.

#### Publisher

North American Veterinary Conference

#### Location of Publisher

Gainesville

#### Country of Publication

USA

#### Publication Type

Conference paper.

<178>

#### Accession Number

20133225123

#### Author

Schendel, P.

Title

Evaluation of urine sediment.

Source

Veterinary Technician and Practice Manager Proceedings. North American Veterinary Conference, Orlando, Florida, USA, 19-23 January 2013.; 2013. :unpaginated.

Publisher

North American Veterinary Conference

Location of Publisher

Gainesville

Country of Publication

USA

Publication Type

Conference paper.

<179>

Accession Number

20133244921

Author

Adams, L. G.

Title

Nephroliths and ureteroliths: a new stone age.

Source

New Zealand Veterinary Journal; 2013. 61(4):212-216. 9 ref.

Publisher

Taylor & Francis

Location of Publisher

Melbourne

Country of Publication

Australia

Abstract

Nephroliths may obstruct the renal pelvis or ureter, predispose to pyelonephritis, or result in compressive injury of the renal parenchyma leading to progressive chronic kidney disease. Indications for removal of nephroliths in dogs include obstruction, recurrent infection, progressive nephrolith enlargement, presence of clinical signs (renal pain), and patients with nephroliths in a solitary functional kidney. The most common indication for removal of upper tract uroliths in cats is ureteral obstruction caused by ureteroliths. Nonobstructive nephroliths in cats are not usually treated unless they move into the ureter resulting in ureteral obstruction. The treatment approach to nephroliths and ureteroliths is different for dogs versus cats. Surgical removal of nephroliths or ureteroliths by nephrotomy and ureterotomy respectively is associated with potential for complications in more than 30% of cats treated by ureterotomy; therefore, minimally invasive options should also be considered. Extracorporeal shock wave lithotripsy (ESWL) treatment of nephroliths results in small "passable" stone fragments in most dogs, whereas ESWL does not work effectively in cats. Ureteral stents are effective for relief of ureteral obstruction by ureteroliths in both dogs and cats. Ureteral stents may be left in place long-term to relieve ureteral obstruction by ureteroliths. Post-operative morbidity and mortality are substantially lower for ureteral stent placement compared to open surgical ureterotomy in cats.

Publication Type

Journal article

Conference paper.

<180>

Accession Number

20133244007

Author

Baciero, G.

Title

Effective diets for the prevention of struvite and calcium oxalate in dogs and cats. [Spanish]

Source

Argos - Informativo Veterinario; 2013. (149):64.

Publisher

ASIS Veterinaria s.l.

Location of Publisher

Zaragoza

Country of Publication

Spain

Publication Type

Journal article.

<181>

Accession Number

20133159033

Author

Houten, D. van

Title

Effect of nutrition on the formation of calcium oxalate stones in the urinary tract of cats is not as expected.

[Dutch]

Source

Tijdschrift voor Diergeneeskunde; 2013. 138(5):306-307.

Publisher

Koninklijke Nederlandse Maatschappij voor Diergeneeskunde

Location of Publisher

Houten

Country of Publication

Netherlands

Abstract

Dutch research has shown that the oxalate levels in cat feeds does not affect oxalate levels in cat urin. The endogenous oxalate production by liver and kidneys is much more important. The amino acid hydroxyproline (common in animal-based structures) increases oxalate levels in urin. Many other factors also influence calcium oxalate stones.

Publication Type

Journal article.

<182>

Accession Number

20133318518

Author

Rivara, C. M.; Johnson, C. R.; Lulich, J. P.; Osborne, C. A.; Murtaugh, M.

Title

The effect of disease on the urinary purine metabolite concentrations in dogs.

Source

Veterinary Record; 2013. 173(9):219.

Publisher

BMJ Publishing Group

Location of Publisher

London

Country of Publication

UK

Abstract

This prospective study was designed to determine the urinary concentrations of purine metabolites in healthy and diseased dogs. The goals were to test the hypothesis that urine concentrations of terminal purine metabolites will identify dogs with diseases that disturb purine degradation. Five hundred and sixty-three client-owned dogs admitted sequentially to the veterinary medical centre were included. Dogs were divided into groups on the basis of their disease. Urine concentrations of xanthine, uric acid, allantoin and creatinine were measured by high-pressure liquid chromatography. Xanthine and uric acid to creatinine ratios were significantly increased in dogs with chronic kidney disease ( $p=0.01$ ). The uric acid to creatinine ratio was significantly increased in dogs with cancer compared with clinically healthy dogs ( $p=0.04$ ), and significantly increased in dogs receiving chemotherapy for their disease ( $p<0.01$ ). Compared to clinically healthy dogs, xanthine and uric acid to creatinine ratios were significantly increased in dogs with hyperadrenocorticism ( $p<0.01$ , and  $0.04$ , respectively). Therefore, the results of this study found that the urinary concentrations of purine metabolites in dogs are significantly impacted by systemic disease. Cancer, chronic kidney disease, and hyperadrenocorticism are associated with altered concentrations of urinary purine metabolites in dogs.

Publication Type

Journal article.

<183>

Accession Number

20133357527

Author

Passlack, N.; Zentek, J.

Title

Urinary calcium and oxalate excretion in healthy adult cats are not affected by increasing dietary levels of bone meal in a canned diet.

Source

PLoS ONE; 2013. 8(8):e70530. 42 ref.

Publisher

Public Library of Sciences (PLoS)

Location of Publisher

San Francisco

Country of Publication

USA

Abstract

This study aimed to investigate the impact of dietary calcium (Ca) and phosphorus (P), derived from bone meal, on the feline urine composition and the urinary pH, allowing a risk assessment for the formation of calcium oxalate (CaOx) uroliths in cats. Eight healthy adult cats received 3 canned diets, containing 12.2 (A), 18.5 (B) and 27.0 g Ca/kg dry matter (C) and 16.1 (A), 17.6 (B) and 21.1 g P/kg dry matter (C). Each diet was fed over 17 days. After a 7 days adaptation period, urine and faeces were collected over 2x4 days (with a two-day rest between), and blood samples were taken. Urinary and faecal minerals, urinary oxalate (Ox), the urinary pH and the concentrations of serum Ca, phosphate and parathyroid hormone (PTH) were

analyzed. Moreover, the urine was microscopically examined for CaOx uroliths. The results demonstrated that increasing levels of dietary Ca led to decreased serum PTH and Ca and increased faecal Ca and P concentrations, but did not affect the urinary Ca or Ox concentrations or the urinary fasting pH. The urinary postprandial pH slightly increased when the diet C was compared to the diet B. No CaOx crystals were detected in the urine of the cats. In conclusion, urinary Ca excretion in cats seems to be widely independent of the dietary Ca levels when Ca is added as bone meal to a typical canned diet, implicating that raw materials with higher contents of bones are of subordinate importance as risk factors for the formation of urinary CaOx crystals.

Publication Type  
Journal article.

<184>

Accession Number  
20133353181

Author  
Bharti, B.; Pandey, S. S.; Sahu, M.; Patidar, A.

Title  
Surgical management of multiple cystic calculi in a dog.

Source  
Intas Polivet; 2013. 14(1):143-144. 3 ref.

Publisher  
Intas Pharmaceuticals Ltd

Location of Publisher  
Ahmedabad

Country of Publication  
India

Abstract

A Labrador retriever dog was presented with history of haematuria, painful urination and urine retention. Abdominal radiograph, revealed multiple stones inside the bladder. Cystotomy were performed and multiple calculi were removed.

Publication Type  
Journal article.

<185>

Accession Number  
20133352821

Author  
Mestrinho, L. A.; Goncalves, T.; Parreira, P. B.; Niza, M. M. R. E.; Hamaide, A. J.

Title  
Xanthine urolithiasis causing bilateral ureteral obstruction in a 10-month-old cat.

Source  
Journal of Feline Medicine and Surgery; 2013. 15(10):911-916. 12 ref.

Publisher  
Sage Publications  
Location of Publisher  
Thousand Oaks  
Country of Publication  
USA

#### Abstract

Xanthine urolithiasis was diagnosed in a 10-month-old intact female domestic shorthair cat presented with acute renal failure due to bilateral ureteral obstruction. Ultrasonography revealed the presence of multiple uroliths in both kidneys and ureters that were not detectable on previous survey radiographs. Medical management failed and ureteral obstruction persisted with no evidence of stone migration into the bladder. Bilateral ureterotomy with urolith removal was performed in order to relieve the obstruction. The cat recovered from surgery, and blood urea nitrogen and creatinine values decreased within normal limits 6 days postoperatively. Urolith analysis by infrared spectrometry determined xanthine composition, and a higher blood and urine concentration of hypoxanthine and xanthine was also found. At 1-year follow-up, the cat was free of clinical signs. However, ultrasonography of the abdomen revealed small-size calculi in both kidneys, despite the low protein diet intake. The very young age of the animal suggests a possible congenital xanthinuria.

Publication Type  
Journal article.

<186>

Accession Number  
20133352381

Author

Arulpragasam, S. P.; Case, J. B.; Ellison, G. W.

Title

Evaluation of costs and time required for laparoscopic-assisted versus open cystotomy for urinary cystolith removal in dogs: 43 cases (2009-2012).

Source

Journal of the American Veterinary Medical Association; 2013. 243(5):703-708. 22 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

Objective: To compare required time and costs of surgery and hospitalization as well as prevalence of incomplete urinary cystolith removal associated with laparoscopic-assisted cystotomy versus open cystotomy in dogs. Design: Retrospective case series. Animals: 20 dogs with urolithiasis treated by laparoscopic-assisted cystotomy and 23 dogs treated by open cystotomy. Procedures: Medical records were reviewed. Surgery cost, hospitalization cost, total cost, surgery time, days in hospital, incomplete cystolith removal, and number of doses of analgesic administered IV after surgery were compared between the laparoscopic-assisted cystotomy and open cystotomy groups. Results: Surgery cost and total cost were significantly higher in the laparoscopic-assisted cystotomy group. Hospitalization cost, days in hospital, and prevalence of incomplete cystolith removal did not differ significantly between groups. Number of doses of analgesic was significantly lower in the laparoscopic-assisted cystotomy group. Conclusions and Clinical Relevance: Laparoscopic-assisted cystotomy was more time-consuming and expensive but associated with fewer postoperative doses of injectable analgesics, compared with open cystotomy. Laparoscopic-assisted cystotomy is an acceptable, more expensive, and minimally invasive alternative to open cystotomy for the removal of urinary cystoliths in dogs.

Publication Type  
Journal article.

<187>

Accession Number

20133407766

Author

Lulich, J. P.; Kruger, J. M.; MacLeay, J. M.; Merrills, J. M.; Paetau-Robinson, I.; Albanan, H.; Osborne, C. A.

Title

Efficacy of two commercially available, low-magnesium, urine-acidifying dry foods for the dissolution of struvite uroliths in cats.

Source

Journal of the American Veterinary Medical Association; 2013. 243(8):1147-1153. 15 ref.

Publisher

American Veterinary Medical Association

Location of Publisher

Schaumburg

Country of Publication

USA

Abstract

Objective - To compare the efficacy and safety of using 2 commercially available, low-magnesium, urine-acidifying dry foods to dissolve sterile struvite uroliths in cats. Design - Prospective, multicenter, randomized clinical trial. Sample - 37 cats with presumed struvite uroliths. Procedures - Cats were randomly assigned to be fed 1 of 2 low-magnesium, urine-acidifying dry foods (food A or B). For each cat, physical examination, urinalysis, and abdominal radiography were performed weekly to assess treatment response. Results - 32 cats had complete urolith dissolution. Mean+or-SD times for a 50% reduction in urolith size (0.69+or-0.1 weeks) and complete urolith dissolution (13.0+or-2.6 days) were significantly shorter for cats fed food A, compared with those (1.75+or-0.27 weeks and 27.0+or-2.6 days, respectively) for cats fed food B. At study termination, mean+or-SD urine pH (6.083+or-0.105) for cats fed food A was lower than that (6.431+or-0.109) for cats fed food B. In 5 cats, uroliths did not dissolve and were subsequently determined to be composed of 100% ammonium urate (n=4) or 100% calcium oxalate (1). Adverse events associated with diet were not observed in any of the cats. Conclusions and Clinical Relevance - Results indicated that dietary dissolution is safe and effective for eradication of sterile struvite uroliths in cats. Cats fed food A had faster urolith dissolution than did cats fed food B. Lack of a reduction in urolith size at 2 weeks after diet initiation was indicative of misdiagnosis or noncompliance.

Publication Type

Journal article.

<188>

Accession Number

20133414508

Author

Lund, H. S.; Krontveit, R. I.; Halvorsen, I.; Eggertsdottir, A. V.

Title

Evaluation of urinalyses from untreated adult cats with lower urinary tract disease and healthy control cats: predictive abilities and clinical relevance.

Source

Journal of Feline Medicine and Surgery; 2013. 15(12):1086-1097. 43 ref.

Publisher

Sage Publications

Location of Publisher

Thousand Oaks

Country of Publication

USA

#### Abstract

This case-controlled study evaluated urinalyses from 111 primary cases diagnosed with feline lower urinary tract disease (FLUTD) and 101 healthy control cats. Urine samples were analysed by standardised procedures, and differences between the two groups were compared by multivariable logistic regression analysis, while controlling for age, body weight, gender and reproductive status. Further, the ability of using urine sediment findings to predict bacteriuria was evaluated. In addition, urinalyses from cats with bacterial cystitis, idiopathic cystitis, urolithiasis and urethral plugs were compared. The main findings were that increasing body weight was significantly associated with increased odds of FLUTD, while the influence of age and reproductive status was of less importance. Increasing amounts of red blood cells and epithelial cells were significantly associated with increased odds of FLUTD. The predictive ability of using bacterial sediment findings to predict bacterial growth was dependent on subjective grading of the amount of bacteria in the sediment and was, at best, only moderate. The few significant differences found between the different FLUTD diagnoses were of limited diagnostic value.

Publication Type

Journal article.

<189>

Accession Number

20133412920

Title

Effects of storage in formalin on composition of canine and feline uroliths.

Source

Advances in Small Animal Medicine and Surgery; 2013. 26(11):3.

Publisher

Elsevier Inc.

Location of Publisher

Philadelphia

Country of Publication

USA

Publication Type

Journal article.

<190>

Accession Number

20123041147

Author

Fromsa, A.; Saini, N. S.; Rai, T. S.

Title

Diagnosis, prediction and mineral analysis of uroliths in canines.

Source

Global Veterinaria; 2011. 7(6):610-617. 15 ref.

Publisher

IDOSI Publications

Location of Publisher

Faisalabad

Country of Publication

Pakistan

Abstract

The study was conducted on 21 clinical cases of dogs suffering from urinary tract calculi to compare radiography and ultrasonography in diagnosis of urinary tract stones. Also, to assess the possibility of predicting the composition of uroliths based on urinalysis, radiopacity, type of bacterial infection and blood biochemistry. Radiopacity, urinalysis, physical characteristics of stones and blood chemistry were used as guide in prediction of the types of uroliths. Under general anesthesia the uroliths were surgically retrieved by cystotomy and urethrotomy (n=18) and from kidney at necropsy (n=1). Out of these, the chemical composition of uroliths was predicted in ten randomly selected cases. Combined urinalysis, blood chemistry, radiography and ultrasonography were able to diagnose all cases of urolithiasis in the urinary bladder, urethra and kidney. Radiography diagnosed 19 out of 21 urolithiasis cases in the urinary bladder and 12 out of 13 in the urethra and 1/1 in the kidney while ultrasonography confirmed 17 out of 21 cases in the urinary bladder and 0/1 in the kidney. Majority of the cases were associated with bacterial infection and most common bacterial isolates found were Escherichia coli followed by Staphylococcus aureus. The prediction matched in 60% cases when compared with the results of uroliths analyzed by Fourier Transform Infra-red spectroscopy. The mineral analysis showed that most of the stones were composed of magnesium ammonium phosphate followed by calcium oxalate. Ultrasonography and radiography were complementary to each other for the diagnosis of urinary tract problems. Prediction can serve as an alternative to distinguish urolith mineral composition whenever performing surgery is difficult to retrieve the urolith in an unstable patient to choose method of medical treatment.

Publication Type  
Journal article.

<191>

Accession Number  
20123092798

Author  
Saroj Yadav; Shrestha, R. D.; Najuma Joshi

Title  
Bladder stones in a female dog and its surgical removal.

Source  
Intas Polivet; 2011. 12(2):372-374. 6 ref.

Publisher  
Intas Pharmaceuticals Ltd

Location of Publisher  
Ahmedabad

Country of Publication  
India

Abstract

A case of urolithiasis in a 10 year old female dog and the surgical intervention is reported and discussed. The urinary calculi were removed surgically and the dog was discharged after 3 days with antibiotics and Neeri tablets for 10 days. On follow up examination the dog was healthy and had normal urination. Surgical intervention and therapeutic management as a combination therapy was found effective.

Publication Type  
Journal article.

<192>

Accession Number  
20123092797

Author

Mrunali Kamble; Kale, V. D.; Raut, S. U.  
Title  
Urethral calculi in a dog and its surgical management.  
Source  
Intas Polivet; 2011. 12(2):369-371. 13 ref.  
Publisher  
Intas Pharmaceuticals Ltd  
Location of Publisher  
Ahmedabad  
Country of Publication  
India  
Abstract

A Doberman dog was reported with signs suspecting urinary calculi and obstruction. The palpation of abdomen indicated presence of full urine. Catheterization was used as a tool to locate the site of obstruction which was caudally to the os penis. Considering the emergency, performed the urethrotomy usually at prescrotal region by which the patient achieved uneventful recovery.

Publication Type  
Journal article.

<193>

Accession Number  
20123092796  
Author  
Rani, R. U.; Vairavasamy, K.; Puvarajan, B.; Muruganandan, B.  
Title  
Multiple urethral and cystic calculi in dogs and its surgical management.  
Source  
Intas Polivet; 2011. 12(2):366-368. 7 ref.  
Publisher  
Intas Pharmaceuticals Ltd  
Location of Publisher  
Ahmedabad  
Country of Publication  
India  
Abstract

Five dogs were referred with the symptoms of multiple urethral and cystic calculi. Lateral radiograph of the abdomen revealed the presence of multiple radio opaque calculi in the urinary bladder and urethra. The retrograde hydro-propulsion was not successful to dislodge the urethral calculi. The cases were successfully treated by urethrotomy and cystotomy under general anaesthesia for removal of multiple urethral and cystic calculi. Post operatively all the animals were maintained with low protein diet, ad libido drinking water and minimal salt intake resulted in uneventful recovery.

Publication Type  
Journal article.

<194>

Accession Number  
20123092795  
Author

Tripathi, S. D.; Coutinho, N. R.; Lokhande, D. U.; Khandekar, G. S.; Dharmaraj, R.

Title

Canine urolithiasis and its surgical management - a report of 3 cases.

Source

Intas Polivet; 2011. 12(2):363-365. 2 ref.

Publisher

Intas Pharmaceuticals Ltd

Location of Publisher

Ahmedabad

Country of Publication

India

Abstract

The present study was carried out on surgical management of urolithiasis in dogs as it is the most common cause of urinary distress to companion animals. Three dogs were used for the study out of which in one urethrotomy was performed and the on the other two cystotomy was carried out. It was observed that retrograde hydro propulsion was essential to dislodge the calculi in the male dogs. All three dogs recovered uneventfully.

Publication Type

Journal article.