
Paul Bloom.

Superficial bacterial folliculitis (SBF) is more common in the dog than other mammalian species. Until recently, a successful outcome in cases of canine SBF was possible by administering a potentiated amoxicillin, a first generation cephalosporin or a potentiated sulfonamide. Unfortunately, this predictable susceptibility has changed, because methicillin resistant Staphylococcus pseudintermedius (MRSP) and Staphylococcus aureus (MRSA) are becoming more prevalent in canine SBF cases. The increasing frequency of multidrug resistance complicates the selection of antimicrobial therapy. Antimicrobial agents that were once rarely used in cases of canine SBF, such as amikacin, rifampicin and chloramphenicol, are becoming the drugs of choice, based on bacterial culture and susceptibility testing. Furthermore, changes in antimicrobial susceptibility have helped to re-emphasize the importance of a multimodal approach to treatment of the disease, including topical therapy. Due to the increasing frequency of identification of highly resistant Staphylococcus spp., topical antimicrobial therapy, including the use of diluted sodium hypochlorite (bleach), is becoming necessary to successfully treat some cases of canine SBF. Other important antiseptics that can be used include chlorhexidine, benzoyl peroxide, ethyl lactate, triclosan and boric acid/acetoc acid. This review discusses the diagnostic and therapeutic management of canine SBF, with a special emphasis on treating methicillin resistant staphylococcal infections.

Evaluation of a technique to measure heart rate variability in anaesthetised cats

Kuan Hua Khor, Ian A. Shiels, Fiona E. Campbell, Ristan M. Greer, Annie Rose, Paul C. Mills.

Analysis of heart rate (HR) and heart rate variability (HRV) are powerful tools to investigate cardiac diseases, but current methods, including 24-h Holter monitoring, can be cumbersome and may be compromised by movement artefact. A commercially available data capture and analysis system was used in anaesthetised healthy cats to measure HR and HRV during pharmacological manipulation of HR. Seven healthy cats were subjected to a randomised crossover study design with a 7 day washout period between two treatment groups, placebo and atenolol (1 mg/kg, IV), with the efficacy of atenolol to inhibit β1 adrenoreceptors challenged by epinephrine. Statistical significance for the epinephrine challenge was set at P < 0.0027 (Holm–Bonferroni correction), whereas a level of significance of P < 0.05 was set for other variables. Analysis of the continuous electrocardiography (ECG) recordings showed that epinephrine challenge increased HR in the placebo group (P = 0.0003) but not in the atenolol group. The change in HR was greater in the placebo group than in the atenolol group (P = 0.0004). Therefore, compared to cats pre-treated with placebo, pre-treatment with atenolol significantly antagonised the tachycardia while not significantly affecting HRV. The increased HR in the placebo group following epinephrine challenge was consistent with a shift of the sympathovagal balance towards a predominantly sympathetic tone. However, the small (but not significant at the critical value) decrease in the normalised high-frequency component (HFnorm) in both groups of cats suggested that epinephrine induced a parasympathetic withdrawal in addition to sympathetic enhancement (increased normalised low frequency component or LFnorm). In conclusion, this model is a highly sensitive and repeatable model to investigate HRV in anaesthetised cats that would be useful in the laboratory setting for short-term investigation of cardiovascular disease and subtle responses to pharmacological agents in this species.
Prognostic significance of the expression levels of the p16, p15, and p14 genes in dogs with high-grade lymphoma.

Aki Fujiwara-Igarashi, Yuko Goto-Koshino, Masahiko Sato, Shingo Maeda, Hirotaka Igarashi, Masashi Takahashi, Yasuhiro Fujino, Koichi Ohno, Hajime Tsujimoto.

The prognostic significance of the inactivation of the p16, p15, and p14 genes has been reported in lymphoid malignancies in humans. To evaluate the relationship between inactivation of the p16, p15, and p14 genes and prognosis in canine high-grade lymphoma, primary tumor cell samples obtained from 71 dogs with high-grade lymphoma were examined for the expression levels of these genes. Quantitative and conventional reverse transcriptase–polymerase chain reaction (RT-PCR) analyses were used to measure the amounts of p16, p15, and p14 mRNAs. The methylation status of the CpG island of the p16 gene was evaluated using methylation-specific PCR. Overall survival (OS) was compared using the Kaplan–Meier method. The log-rank test and Cox proportional hazard model were used to evaluate factors that influenced OS. Of 62 dogs examined, p16, p15, and p14 mRNA levels were found to be undetectable in 21, 18, and 10 dogs, respectively. In 20/68 dogs analyzed, the CpG island of the p16 gene was shown to be methylated. The prognostic significance of inactivation of the p16, p15, and p14 genes as well as various conventional factors obtained from medical records was examined. p16 expression status and anatomic form/immunophenotype were found to correlate with OS in the dogs with high-grade lymphoma. p16 mRNA level over its cut-off value correlated with a poor prognosis; however, the expression levels of p15 and p14 mRNAs and p16 methylation status did not influence the prognosis in dogs with high-grade lymphoma.

American Journal of Veterinary Research

Effects of pentoxifylline on immediate and late-phase cutaneous reactions in response to anti–immunoglobulin E antibodies in clinically normal dogs.

Cherie M. Pucheu-Haston, Kaitlin A. Kasparek, Rhett W. Stout, Michael T. Kearney, Bruce Hammerberg. Objective—To characterize the effects of pentoxifylline on the gross and microscopic variables associated with immediate and late-phase inflammation following injection of IgE-specific antibodies in the skin of clinically normal dogs. Animals—6 healthy adult mixed-breed dogs. Procedures—Intradermal injections (0.1 mL each) of PBS solution, histamine phosphate, and cross-linking rabbit-origin anti-canine IgE antibodies (3 injections/dog) were administered at 0 hours on day 0; wheal sizes were evaluated at 20 minutes, 6 hours, and 24 hours. Biopsy specimens of injected and noninjected skin were collected 24 hours after injection. On day 2, treatment with pentoxifylline (20 mg/kg, PO, q 8 h) was initiated and continued until day 30. For each dog, injection, measurement, and biopsy procedures were repeated on days 30 to 31 and on days 37 to 38 (ie, after discontinuation of pentoxifylline administration). Results—Pentoxifylline administration was associated with a significant decrease in wheal size at 6 and 24 hours (but not at 20 minutes) after injection of anti-canine IgE. Repeated injections performed 1 week after drug discontinuation revealed partial recovery of the 6-hour cutaneous reaction and complete recovery of the 24-hour cutaneous reaction. Pentoxifylline administration was also associated with inhibition of mast cell degranulation and significant decreases in the total numbers of cutaneous inflammatory cells and eosinophils, compared with pretreatment findings. Conclusions and Clinical Relevance—In clinically normal dogs, pentoxifylline effectively impaired late-phase reactions but not immediate reactions at sites of intradermal injection of IgE-specific antibodies by inhibiting mast cell degranulation and recruitment of cutaneous inflammatory cells, especially eosinophils.

Regional variations and age-related changes detected with magnetic resonance spectroscopy in the brain of healthy dogs.
Kaori Ono, Masato Kitagawa, Daisuke Ito, Natsumi Tanaka, Toshihiro Watari.

Objective—To investigate age-related and regional differences in estimated metabolite concentrations in the brain of healthy dogs by means of magnetic resonance spectroscopy (MRS). Animals—15 healthy Beagles. Procedures—Dogs were grouped according to age as young (n = 5; all dogs were 2 months old), adult (5; mean age, 4.5 years), or geriatric (5; all dogs were 12 years old). Imaging was performed by use of a 1.5-T MRI system with T1- and T2-weighted spin-echo and fluid-attenuated inversion recovery sequences. Signal intensity measurements for N-acetyl aspartate, creatine, choline, and lactate-alanine (the spectroscopic peaks associated with alanine and lactate could not be reliably differentiated) were determined with MRS, and areas under the spectroscopic peaks (representing concentration estimates) were calculated. Ratios of these metabolite values were compared among age groups and among brain regions with regression analysis. Results—The choline-to-creatine ratio was significantly higher in young dogs, compared with other age groups. The N-acetyl aspartate-to-choline ratio was significantly lower in young dogs and geriatric dogs than in adult dogs. When all age groups were considered, the choline-to-creatine ratio was significantly higher and N-acetyl aspartate-to-choline ratio was significantly lower in the frontal lobe than in all other regions. The N-acetyl aspartate-to-creatine ratio was significantly lower in the cerebellum than in other regions. Conclusions and Clinical Relevance—Metabolite ratios varied significantly among age groups and brain regions in healthy dogs. Future studies should evaluate absolute concentration differences in a larger number of dogs and assess clinical applications in dogs with neurologic diseases.

Assessment of folate receptor expression and folate uptake in multicentric lymphomas in dogs.

Michael O. Childress, Deepika Dhawan, Christopher P. Leamon, Margaret A. Miller, José A. Ramos-Vara, James F. Naughton, Philip S. Low, Deborah W. Knapp.

Objective—To determine expression of folate receptors (FRs) and folate uptake in multicentric lymphomas in dogs. Sample—10 dogs with histopathologically confirmed multicentric lymphoma and 20 archival lymph node biopsy specimens from dogs with multicentric lymphoma. Procedures—Multicentric lymphomas in 10 dogs were prospectively evaluated for FR expression by use of immunohistochemical analysis and for in vivo folate uptake by use of nuclear scintigraphy. Dogs with FR-expressing tumors were eligible for FR-targeted chemotherapy. Twenty archival lymphoma biopsy specimens were also evaluated with immunohistochemical analysis. Results—FRs were not detected with immunohistochemical analysis in lymph node samples obtained from the 10 dogs or in archival biopsy specimens. However, nuclear scintigraphy revealed uptake of radioactive tracer in 6 of 10 dogs. Five of these 6 dogs were treated with an FR-targeted chemotherapeutic agent; results of treatment were complete remission in 1 dog, stable disease in 2 dogs, and progressive disease in 2 dogs. Treatment-related toxicoses generally were mild. Conclusions and Clinical Relevance—This study provided strong evidence for folate uptake in a substantial portion of multicentric lymphomas of dogs and indicated the antitumor activity of FR-targeted chemotherapeutics for these cancers. Use of FR-targeted chemotherapeutics may be promising for the treatment of FR-expressing multicentric lymphomas in dogs. Further studies are needed to determine reasons for lack of immunoreactivity to currently identified anti-FR antibodies and to develop improved methods for detecting FRs in lymphomas of dogs.

UK owner preferences for treatment of feline injection site sarcomas.

Objectives; Feline injection site sarcomas are therapeutically challenging because of their locally invasive nature. Several protocols recommend that the two perceived high-risk adjuvanted vaccines should be administered into distinct anatomical sites (“left hind leg leukaemia, right hind leg rabies”), which should aid surgical resection. This has resulted in a change in tumour distribution with an increased proportion situated caudal to the diaphragm when such a policy is adopted. The aim of this study was to determine UK cat owners’ attitudes towards surgical treatments of different anatomical regions. Methods; A cross-sectional study of an anonymous convenience sample of uk cat owners was conducted from september to december, 2012 using an internet-based survey. Results; There were a total of 208 respondents: 39% would pursue surgery regardless of tumour site. One percent would not pursue surgery. Of the remainder, respondents would not allow amputation of the forelimb (20%), hindlimb (15%) or tail (15%). Twenty-six, 32 and 27% would not have surgical treatment of the inter-scapular region, chest or abdomen, respectively. The majority of respondents were willing to travel up to 100 miles for radiotherapy or chemotherapy (66 and 69%, respectively). Clinical significance; The current feline vaccine site recommendations may not be appropriate for uk cat owners.

Use of preoperative computed tomography for surgical treatment of recurrent draining tracts.
R. Bouabdallah, p. Moissonnier, f. Delisle, p. De fornél, m. Manassero, m. Maouei, p. Fayolle and v. Viateau. Objectives; To evaluate a rational decision-making approach based on preoperative computed tomography for surgical planning in dogs and cats with recurrent draining tracts. Methods; Retrospective evaluation of case records of animals that underwent preoperative computed tomography for surgical treatment of thoracic/abdominal recurrent draining tracts. Cases were classified according to whether a source of inflammation and/or infection, in particular foreign bodies, was identified (group 1), suspected (group 2) or neither identified nor suspected (group 3) at computed tomography. Surgery consisted of removal of the source of inflammation and/or infection (group 1), debridement or abscess drainage (group 2) or en bloc resection of diseased tissues (group 3). Clinical outcome was evaluated at least 12 months after surgery. Results; A source of inflammation and/or infection was found in 100% (8 of 8), 41% (7 of 17) and 25% (3 of 12) of cases in groups 1, 2 and 3, respectively. Recurrent draining tracts resolved in 100% (8 of 8), 94% (16 of 17) and 92% (11 of 12) of cases in groups 1, 2 and 3, respectively. Clinical significance; The proposed strategy provided a 95% (35 of 37) cure rate, after a single procedure in 81% (30 of 37) of cases. Recovery of a foreign body at surgery was not a prerequisite for the resolution of the recurrent draining tracts.

Iron status and c-reactive protein in canine leishmaniasis.
P. Silvestrini, a. Zoia, m. Planellas, x. Roura, j. Pastor, j. J. Cerón and m. Caldin. Objective; To investigate the iron status, its relationship with c-reactive protein and the prognostic value of both in canine leishmaniasis. Method; Eighty-six dogs with leishmaniasis and two control groups (healthy dogs and dogs with diseases other than leishmaniasis) were selected. Iron status indicators and c-reactive protein were compared between the three groups. Correlations between c-reactive protein and iron, ferritin and total iron-binding capacity were evaluated in dogs with leishmaniasis. Iron, total iron-binding capacity and ferritin were compared between dogs stratified according to similar c-reactive protein concentrations. The mortality rate at 30 days post-diagnosis was compared between groups. Iron status indicators and c-reactive protein were compared between survivors and non-survivors. Results; Dogs with leishmaniasis had lower iron and total iron-binding capacity and higher ferritin and c-reactive protein. There was a significant but low correlation of c-reactive protein with iron, ferritin and total iron-binding capacity. Dogs with leishmaniasis had decreased iron and total iron-binding capacity and increased ferritin compared to other ill patients with similar c-reactive protein concentrations. Mortality was not significantly different between groups but non-survivor dogs with leishmaniasis had higher c-reactive protein and lower total iron-binding capacity. Clinical significance; Inflammation contributes to the iron status alterations found in canine
leishmaniasis but other mechanisms are likely involved. Low total iron-binding capacity and increased c-reactive protein are risk factors for outcome in canine leishmaniasis.

**Phenotypic characterisation of canine epileptoid cramping syndrome in the border terrier.**

V. Black, I. Garosi, M. Lowrie, R. J. Harvey and J. Gale

Objectives; To characterise the phenotype of border terriers suspected to be affected by canine epileptoid cramping syndrome and to identify possible contributing factors. Methods; Owners of border terriers with suspected canine epileptoid cramping syndrome were invited to complete an online questionnaire. The results of these responses were collated and analysed. Results; Twenty-nine border terriers were included. Most affected dogs had their first episode before 3 years of age (range: 0·2 to 7·0 years). The majority of episodes lasted between 2 and 30 minutes (range: 0·5 to 150 minutes). The most frequent observations during the episodes were difficulty in walking (27 of 29), mild tremor (21 of 29) and dystonia (22 of 29). Episodes most frequently affected all four limbs (25 of 29) and the head and neck (21 of 29). Borborygmi were reported during episodes in 11 of 29 dogs. Episodes of vomiting and diarrhoea occurred in 14 of 29, with 50% of these being immediately before or after episodes of canine epileptoid cramping syndrome (7 of 14). Most owners (26 of 29) had changed their dog’s diet, with approximately 50% (14 of 26) reporting a subsequent reduction in the frequency of episodes. Clinical significance; This study demonstrates similarities in the phenotype of canine epileptoid cramping syndrome to paroxysmal dystonic choreoathetosis, a paroxysmal dyskinesia reported in humans. This disorder appears to be associated with gastrointestinal signs in some dogs and appears at least partially responsive to dietary adjustments.

**Serum bromide concentrations following loading dose in epileptic dogs.**


Objective; To determine serum bromide concentrations following an oral loading dose in dogs. Methods; Retrospective review of clinical records of dogs suffering from seizures that were treated with bromide. A loading dose of 600 mg/kg potassium bromide was administered orally in 17 to 48 hours together with a maintenance dose of 30 mg/kg/day. Blood samples were collected within 24 hours after completing the protocol and serum bromide concentrations were determined by ultra-violet gold chloride colorimetric assay. Results; Thirty-eight dogs were included in the study. The median age was 3 (range, 0·2 to 10) years and bodyweight 21·8 (3·45 to 46·2) kg. The median serum bromide concentration was 1·26 (0·74 to 3·6) mg/ml. Thirty-two dogs (84·2%) had serum bromide concentrations within the therapeutic interval (1 to 3 mg/ml). The serum concentration in five dogs (13·2%) was just under the minimal therapeutic value and in one dog (2·6%) it exceeded the maximal therapeutic value (3·6 mg/ml). Clinical relevance; Following this oral loading dose protocol, serum bromide concentrations reach the therapeutic range in the majority of dogs. This indicates that the suggested protocol is effective in achieving therapeutic concentrations rapidly in epileptic dogs.

**Endogenous endophthalmitis caused by enterococcus faecalis in a cat.**

E. Donzel, E. Reyes-gomez and S. Chahory.

A three-year-old male neutered domestic shorthair cat was presented for loss of vision associated with hyperthermia, lethargy and anorexia. Ophthalmic examination revealed a bilateral panuveitis. Cytological examination of aqueous and vitreous humours was performed and revealed a supplicative inflammation associated with numerous cocci. *Enterococcus faecalis* was identified by bacterial culture from aqueous and vitreous humour. No primary infection site was identified. Active uveitis resolved after systemic antibiotic therapy, but the vision loss was permanent. To
the authors’ knowledge, this is the first reported case of endogenous bacterial endophthalmitis secondary to *E. Faecalis* infection in a cat.

**Ketamine as a part of anaesthetic management in a dog with twiddler’s syndrome.**


An 11-year-old male German shepherd dog was referred for possible pacemaker implantation. A routine 6-lead electrocardiogram revealed a third-degree atrio-ventricular block with a heart rate of 40 to 45 beats/minute. A transvenous pacemaker implantation procedure was scheduled. The dog was premedicated with 10 µg/kg acepromazine and 5 mg/kg pethidine. A dose of 5 mg/kg ketamine and 0·2 mg/kg diazepam were used for induction and isoflurane in O₂ and a constant rate infusion of ketamine (20 to 30 µg/kg/minute) were administered for maintenance of general anaesthesia. Due to a twiddler's syndrome, the pacemaker had to be repositioned. For the second procedure, the same protocol was employed except for a lower dose of ketamine both for induction (3 mg/kg) and constant rate infusion (10 to 15 µg/kg/minute). Ketamine appeared to be useful for both management of anaesthesia and cardiac pacemaker implantation in the absence of a temporary pacemaker.

**Inflammatory myofibroblastic tumour in the nasal cavity of a dog.**


A 4·5-year-old, female neutered Leonberger was presented with a 2-month history of sneezing, nasal discharge and epistaxis. A presumptive diagnosis of nasal aspergillosis was made based on a suspected (fungal) granuloma on rhinoscopic examination and fungal hyphae on cytological examination. A poor response to targeted therapy was observed and computed tomography 16 months after initial presentation revealed a progressive, locally invasive mass lesion. Histopathological and immunohistochemical analysis of deep surgical biopsies revealed a spindle cell population and a plasma cell rich inflammatory infiltrate, with diffuse expression of vimentin, supporting a diagnosis of inflammatory myofibroblastic tumour. Complete resolution of the nasal discharge and reduced sneezing frequency was reported 9 months post-surgical debridement via rhinotomy. To the authors’ knowledge, this is the first report of imt in the nasal cavity of a dog. Imt should be considered when presented with a nasal mass lesion, particularly if histopathological features and clinical course are inconsistent.

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**Compartment syndrome associated with expansile antebrachial tumors in two dogs.**

Maki LC1, Kim SE, Winter MD, Kow KY, Conway JA, Lewis DD.

CASE DESCRIPTION: A 10-year-old spayed female Jack Russell Terrier and a 7-year-old neutered male mixed-breed dog were evaluated because of acute, progressive, unilateral forelimb lameness associated with signs of pain and turgid antebrachial swelling.

CLINICAL FINDINGS: For either dog, there were no salient pathological or diagnostic imaging abnormalities. A diagnosis of compartment syndrome was confirmed on the basis of high caudal antebrachial compartmental pressure in the affected forelimb.

TREATMENT AND OUTCOME: Both dogs underwent surgical exploration of the affected forelimb. In each case, an intramuscular tumor (mast cell tumor in the Jack Russell Terrier and suspected sarcoma in the mixed-breed dog) was detected and presumed to be the cause of the high compartmental pressure. At 6 months following tumor excision, the dog with the mast cell tumor did not have any clinical signs of disease. The dog with a suspected
sarcoma underwent tumor excision and forelimb amputation at the proximal portion of the humerus followed by chemotherapy; the dog was euthanized approximately 1 year following treatment because of pulmonary metastasis. CLINICAL RELEVANCE: Compartment syndrome is a serious but rarely reported condition in dogs and is typically ascribed to intracompartmental hemorrhage. These 2 cases illustrate the potential for expansile intramuscular antebrachial tumors to cause compartment syndrome in dogs.

Risk factors associated with the development of chronic kidney disease in cats evaluated at primary care veterinary hospitals.
OBJECTIVE: To identify risk factors associated with diagnosis of chronic kidney disease (CKD) in cats.
DESIGN: Retrospective case-control study.
ANIMALS: 1,230 cats with a clinical diagnosis of CKD, serum creatinine concentration > 1.6 mg/dL, and urine specific gravity < 1.035 and 1,230 age-matched control cats.
PROCEDURES: Data on putative risk factors for CKD were extracted for multivariate logistic regression analysis from the medical records of cats brought to 755 primary care veterinary hospitals. For a subset of cats evaluated 6 to 12 months prior to the date of CKD diagnosis or control group inclusion, the percentage change in body weight between those dates as well as clinical signs at the earlier date were analyzed for associations with CKD development.
RESULTS: Risk factors for CKD in cats included thin body condition, prior periodontal disease or cystitis, anesthesia or documented dehydration in the preceding year, being a neutered male (vs spayed female), and living anywhere in the United States other than the northeast. The probability of CKD decreased with increasing body weight in nondehydrated cats, domestic shorthair breed, and prior diagnosis of diabetes mellitus and increased when vomiting, polyuria or polydipsia, appetite or energy loss, or halitosis was present at the time of diagnosis or control group inclusion but not when those signs were reported 6 to 12 months earlier. Median weight loss during the preceding 6 to 12 months was 10.8% and 2.1% in cats with and without CKD, respectively.
CONCLUSIONS AND CLINICAL RELEVANCE: The probability of CKD diagnosis in cats was influenced by several variables; recent weight loss, particularly in combination with the other factors, warrants assessment of cats for CKD.

Evaluation of the risk and age of onset of cancer and behavioral disorders in gonadectomized Vizslas.
Zink MC, Farhoody P, Elser SE, Ruffini LD, Gibbons TA, Rieger RH.
OBJECTIVE: To investigate associations between age at gonadectomy and estimated risk or age at diagnosis of neoplastic and behavioral disorders in Vizslas.
DESIGN: Retrospective cohort study.
PROCEDURES: Data on demographics, gonadectomy status, and age at diagnosis of disease or disorder were obtained with an anonymous online survey and analyzed.
RESULTS: Dogs gonadectomized at \( \leq 6 \) months, between 7 and 12 months, or at \( > 12 \) months of age had significantly increased odds of developing mast cell cancer, lymphoma, all other cancers, all cancers combined, and fear of storms, compared with the odds for sexually intact dogs. Females gonadectomized at \( \leq 12 \) months of age and males and females gonadectomized at \( > 12 \) months of age had significantly increased odds of developing hemangiosarcoma, compared with the odds for sexually intact dogs. Dogs gonadectomized at \( \leq 6 \) months of age had significantly increased odds of developing a behavioral disorder. The younger the age at gonadectomy, the earlier the mean age at diagnosis of mast cell cancer, cancers other than mast cell, hemangiosarcoma, lymphoma, all cancers combined, a behavioral disorder, or fear of storms.
CONCLUSIONS AND CLINICAL RELEVANCE: Additional studies are needed on the biological effects of removing gonadal hormones and on methods to render dogs infertile that do not involve gonadectomy. Veterinarians should discuss the benefits and possible adverse effects of gonadectomy with clients, giving consideration to the breed of dog, the owner's circumstances, and the anticipated use of the dog.

Multicenter prospective evaluation of dogs with trauma.
Hall KE1, Holowaychuk MK, Sharp CR, Reineke E. OBJECTIVE: To determine hospital admission variables for dogs with trauma including values determined with scoring systems (animal trauma triage [ATT], modified Glasgow coma scale [MGCS], and acute patient physiologic and laboratory evaluation [APPLE] scores) and the usefulness of such variables for the prediction of outcome (death vs survival to hospital discharge).

DESIGN: Prospective, multicenter, cohort study.

ANIMALS: 315 client-owned dogs.

PROCEDURES: By use of a Web-based data capture system, trained personnel prospectively recorded admission ATT, MGCS, and APPLE scores; clinical and laboratory data; and outcome (death vs survival to discharge) for dogs with trauma at 4 veterinary teaching hospitals during an 8-week period.

RESULTS: Cause of injury was most commonly blunt trauma (173/315 [54.9%]) followed by penetrating trauma (107/315 [34.0%]), or was unknown (35/315 [11.1%]). Of the 315 dogs, 285 (90.5%) survived to hospital discharge. When 16 dogs euthanized because of cost were excluded, dogs with blunt trauma were more likely to survive, compared with dogs with penetrating trauma (OR, 8.5). The ATT (OR, 2.0) and MGCS (OR, 0.47) scores and blood lactate concentration (OR, 1.5) at the time of hospital admission were predictive of outcome. Surgical procedures were performed for 157 (49.8%) dogs; surgery was associated with survival to discharge (OR, 7.1).

CONCLUSIONS AND CLINICAL RELEVANCE: Results indicated ATT and MGCS scores were useful for prediction of outcome for dogs evaluated because of trauma. Penetrating trauma, low blood lactate concentration, and performance of surgical procedures were predictive of survival to hospital discharge. The methods enabled collection of data for a large number of dogs in a short time.

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Presumed solitary intraocular or conjunctival lymphoma in dogs and cats: 9 cases (1985-2013).

Wiggans KT1, Skorupski KA, Reilly CM, Frazier SA, Dubielzig RR, Maggs DJ.

Author information

Abstract

Objective-To determine prevalence, reason for evaluation, treatment, and outcome for dogs and cats with presumed solitary ocular lymphoma (PSOL). Design-Retrospective case series. Animals-7 dogs and 2 cats with PSOL.

Procedures-Medical records were reviewed. Progression-free survival time (PFST) and overall survival time (OST) were determined. Results-Animals with intraocular (4 dogs and 1 cat) or conjunctival (3 dogs and 1 cat) lymphoma represented 0.1% and 0.08% of patients with lymphoma evaluated at the hospital during the study period, respectively. Animals with intraocular lymphoma represented 0.19% of all patients with uveitis; animals with conjunctival lymphoma represented 0.16% of all patients with conjunctivitis. Tumors included B-cell (2 intraocular and 1 conjunctival), non-B-cell, non-T-cell (1 intraocular), and T-cell (3 conjunctival) neoplasms; immunophenotype of 2 uveal lymphomas was not determined. Treatments included enucleation (4 intraocular) and chemotherapy (3 intraocular and 2 conjunctival). All dogs with intraocular lymphoma developed neurologic signs. Lymph node metastasis was detected in 2 patients with conjunctival lymphoma. Median PFST and OST were 178 days for all animals with PSOL, dogs with PSOL, and animals with intraocular lymphoma. Median PFST and OST for animals with conjunctival lymphoma were 221 and 549 days, respectively. Conclusions and Clinical Relevance-Results indicated PSOL was uncommon, but should be considered a differential diagnosis for animals with uveitis or conjunctivitis. Performance of MRI and cytologic analysis of CSF and regional lymph node aspirate samples may be beneficial for such patients. Prognosis seemed to be better for animals with conjunctival lymphoma than it was for those with intraocular lymphoma.


Holowaychuk MK1, Leader JL, Monteith G.
Objective-To determine whether the number, volume, or age of transfused packed RBC units; volume of other blood products; or pretransfusion PCV was a risk factor for transfusion-associated complications or nonsurvival in dogs.

Design-Retrospective case series. Animals-211 client-owned dogs receiving stored packed RBC transfusions.

Procedures-Information collected or calculated from the medical record of each dog included the total number, volume, and dose of packed RBC units; mean age of packed RBC units; number of packed RBC units > 14 days old; age of oldest packed RBC unit; volume and dose of other blood products used; pretransfusion PCV; acute patient physiologic and laboratory evaluation score; transfusion-associated complications; and outcome. Results-The dose (mL/kg) of other blood products transfused was a risk factor for transfusion-associated complications (OR, 1.03; 95% confidence interval [CI], 1.01 to 1.05). The pretransfusion PCV (OR, 1.13; 95% CI, 1.06 to 1.21) and dose of packed RBCs administered (OR, 1.04; 95% CI, 1.02 to 1.07) were risk factors for nonsurvival. Age of transfused packed RBC units was not identified as a risk factor for transfusion-associated complications or nonsurvival, but the study was statistically underpowered to detect this finding. Conclusions and Clinical Relevance-Administration of larger doses of other non-packed RBC blood products was a risk factor for transfusion-associated complications, and a higher pretransfusion PCV and larger dose of packed RBCs administered were risk factors for nonsurvival. Prospective randomized studies are needed to determine whether conservative transfusion strategies will reduce transfusion-associated complications and improve outcome in dogs.

**Evaluation of blood cardiac troponin I concentrations obtained with a cage-side analyzer to differentiate cats with cardiac and noncardiac causes of dyspnea.**

Wells SM1, Shofer FS, Walters PC, Stamoulis ME, Cole SG, Sleeper MM.

Objective-To determine whether measurement of blood cardiac troponin I (cTnI) concentrations with a cage-side analyzer could be used to differentiate cardiac from noncardiac causes of dyspnea in cats. Design-Prospective, multicenter study. Animals-44 client-owned cats with dyspnea and 37 healthy staff-owned cats. Procedures-Affected cats were examined because of dyspnea; treatment was administered in accordance with the attending clinician's discretion. Cats were judged to have a cardiac or noncardiac cause of dyspnea on the basis of results of physical examination, thoracic radiography, and echocardiography. Blood cTnI concentrations were determined with a cage-side analyzer on samples collected within 12 hours after admission of affected cats. Concentrations for healthy cats were obtained for comparison. Results-5 enrolled cats were excluded from the study because of concurrent cardiac and respiratory disease. Of the remaining 39 cats with dyspnea, 25 had a cardiac cause and 14 had a noncardiac cause. The 25 cats with a cardiac cause of dyspnea had a significantly higher blood cTnI concentration than did the 37 healthy cats or the 14 cats with a noncardiac cause of dyspnea. Conclusions and Clinical Relevance-Measurement of cTnI concentrations with a cage-side assay in emergency settings may be useful for differentiating cardiac from noncardiac causes of dyspnea in cats.

**Journal of Feline Medicine and Surgery**

**Risk factors for urinary tract infection with multiple drug-resistant*Escherichia coli* in cats**

Juan Hernandez, Doroteia Bota, Marion Farbos et. Al

The emergence of multiple drug-resistant (MDR) bacteria is a growing public health problem. The objective of this retrospective study was to identify risk factors associated with MDR *Escherichia coli* infection of the urinary tract in cats. All cats presenting with an *E coli* urinary infection between March 2010 and December 2012 were included and divided into two groups: an MDR group and a non-MDR group. The effects of different variables on the occurrence of an MDR *E coli* infection were evaluated: age, sex, additional diseases, number of antibiotics and number of days of hospitalisation. Fifty-two cats were identified (10 MDR and 42 non-MDR). The number of antibiotic groups used within the last 3 months was associated with an increased risk of MDR *E coli* urinary infection (*P* = 0.007). The association of the number of days of hospitalisation within the last 3 months and the increased risk of MDR *E coli* urinary infection did not reach significance (*P* = 0.090). This study provides evidence that systematic urinary culture with antibiotic sensitivity testing should be recommended when treating urinary tract infections if antibiotics
have been prescribed within the past 3 months. Moreover, the selection of MDR bacteria through antibiotic use should be considered as a potential risk associated with treatment.

Screening diabetic cats for hypersomatotropism: performance of an enzyme-linked immunosorbent assay for insulin-like growth factor 1
Madalina Rosca, Yaiza Forcada, Gheorghe Solcan, et. Al

Screening diabetic cats for feline hypersomatotropism (HS) is currently dependent on using a radioimmunoassay (RIA) for measurement of growth hormone or insulin-like growth factor 1 (IGF-1), both of which require radioactivity, are costly and have limited availability. Performance of an enzyme-linked immunosorbent assay (ELISA) using anti-human IGF-1 antibodies was assessed. Total IGF-1 was determined in diabetic cat samples across a wide range of IGF-concentrations using a previously validated RIA (serum: 92 cats; plasma: 31 cats). Repeat IGF-1 measurement was then performed using the ELISA-system. Mean IGF-1 recovery after serial dilution proved satisfactory with a correlation coefficient of 0.96 (serum) and 0.97 (plasma). Appropriate precision was established [intra-assay coefficient of variation (CV) 9.5 ± 2% (serum) and 13.6 ± 7% (plasma); inter-assay CV 11.4 ± 4% (serum) and 7.6 ± 6% (plasma)] and significant effect of hyperlipidaemia, haemoglobinaemia, bilirubinaemia and storage was excluded, with the exception of an increase in serum IGF-1 when left at room temperature for more than 24 h. ELISA concentrations correlated significantly with RIA concentrations (serum Pearson r²: 0.75; plasma: 0.83, P<0.001). Receiver operating characteristics analysis showed an area under the curve of 0.99 (serum) and 0.96 (plasma), and indicated high diagnostic accuracy for categorising a diabetic cat correctly as suspicious for HS at a serum IGF-1 cut-off of 997 ng/ml (sensitivity, 100%; specificity, 88.1%). The current study is the first to validate an easy-to-use and economical IGF-1 ELISA for the screening for HS among diabetic cats, which is important given the suspected significant prevalence of HS-induced diabetes mellitus.

Ultrasonographic thickening of the muscularis propria in feline small intestinal small cell T-cell lymphoma and inflammatory bowel disease
Lise A Daniaux, Michele P Laurenson, Stanley L Marks et. Al

Gastrointestinal lymphoma is the most common form of lymphoma in the cat. More recently, an ultrasonographic pattern associated with feline small cell T-cell gastrointestinal lymphoma has been recognized as a diffuse thickening of the muscularis propria of the small intestine. This pattern is also described with feline inflammatory bowel disease. To evaluate the similarities between the diseases, we quantified the thickness of the muscularis propria layer in the duodenum, jejunum and ileum of 14 cats affected by small cell T-cell lymphoma and inflammatory bowel disease (IBD) and 19 healthy cats. We found a significantly increased thickness of the muscularis propria in cats with lymphoma and IBD compared with healthy cats. The mean thickness of the muscularis propria in cats with lymphoma or IBD was twice the thickness of that of healthy cats, and was the major contributor to significant overall bowel wall thickening in the duodenum and jejunum. A muscularis to submucosa ratio >1 is indicative of an abnormal bowel segment. Colic lymph nodes in cats with lymphoma were increased in size compared with healthy cats. In cats with gastrointestinal lymphoma and histologic transmural infiltration of the small intestines, colic or jejunal lymph nodes were rounded, increased in size and hypoechoic.

Computed tomographic signs of acromegaly in 68 diabetic cats with hypersomatotropism
Christopher R Lamb, Táízha C Ciasca, Panagiotis Mantis et. Al

In order to describe the signs of acromegaly in cats, a case-control study was done based on computed tomography (CT) scans of the heads of 68 cats with hypersomatotropism and 36 control cats. All cats with a diagnosis of hypersomatotropism had diabetes mellitus, serum insulin-like growth factor-1 >1000 ng/ml and a pituitary mass. Measurements of bones and soft tissues were done by two independent observers without knowledge of the diagnosis. Pituitary masses were identified in CT images of 64 (94%) cats with hypersomatotropism. Analysis of variance found a moderate effect of gender on the size of bones and a large effect of hypersomatotropism on the size of bones and thickness of soft tissues. In cats with hypersomatotropism the frontal and parietal bones were, on average, 0.8 mm thicker (P<0.001); the distance between the zygomatic arches was, on average, 5.4 mm greater (P<0.001); and the mandibular rami were, on average, 1.1 mm thicker (P<0.001) than in control cats. The skin and subcutis dorsal to the frontal bone were, on average, 0.4 mm thicker (P = 0.001); lateral to the zygomatic arch were, on average, 0.7 mm thicker (P<0.001); and ventral to the mandibular rami were, on average, 1.1 mm thicker (P = 0.002) in cats with hypersomatotropism than in control cats. The cross-sectional area of the nasopharynx was, on average, 11.1 mm² smaller in cats with hypersomatotropism than in control cats (P = 0.02). Prognathia inferior and signs of temporomandibular joint malformation were both observed more frequently in cats with
hypersomatropism than in control cats ($P = 0.03$). Overall, differences between affected and unaffected cats were small. Recognising feline acromegaly on the basis of facial features is difficult.

**Evaluation of fluorescence in situ hybridization for the detection of bacteria in feline inflammatory liver disease**
David C Twedt, John Cullen, Kelly McCord et Al.

The etiopathogenesis of feline inflammatory liver disease (ILD) is unclear. Therefore, we sought to determine the presence and distribution of bacteria within the livers of cats with ILD using eubacterial fluorescence in situ hybridization (FISH). Histopathology from 39 cats with ILD and 19 with histologically normal livers (C) were classified using World Small Animal Veterinary Association guidelines. Hepatic sections were examined by 16 and 23S ribosomal RNA FISH. Antibodies against cytokeratins and factor VIIIa were used to distinguish bile ducts and vascular structures. Histopathologic findings included non-specific reactive hepatitis (12), neutrophilic cholangitis (NC; 12), lymphocytic cholangitis (seven), cholestasis/obstruction (three), probable lymphoma (three) and acute hepatitis (two). Bacteria were observed in 21/39 ILD and 3/19 C ($P = 0.0054$). In 8/39 ILD and 2/19 C bacteria were restricted to the outer liver capsule ($P = 0.29$) and may represent contaminants. The prevalence of intrahepatic bacteria was higher ($P = 0.008$) in ILD (13/31) than C (1/17). Bacteria in ILD were more frequently ($P <0.0001$) localized to portal vessels, venous sinusoids and parenchyma (12/13) than bile duct (1/13). Bacterial colonization was highest in *Escherichia coli*-positive NC cats. Concurrent non-hepatic disease, predominantly pancreatic and intestinal (8/10 cats biopsied), was present in all 13 cats with intrahepatic bacteria. Bacterial culture was positive (predominantly *E coli* and *Enterococcus* species) in 11/23 (48%) samples, and concurred with FISH in 15/23 cases. The presence of intrahepatic bacteria in 13/31 (41%) cats with ILD suggests a role in etiopathogenesis. The distribution of bacteria within the liver supports the possibility of colonization via either enteric translocation or hematogenous seeding.

**Ultrasonographic evaluation of relative gastrointestinal layer thickness in cats without clinical evidence of gastrointestinal tract disease**
Matthew D Winter, Leonel Londono, Clifford R Berry, and Jorge A Hernandez

The objectives of this study were (1) to measure normal thickness values of the muscularis, submucosal, mucosal and serosal layers in each gastrointestinal (GI) segment (gastric fundus, body and pyloric antrum; duodenum; jejunum; ileum; colon), and (2) to calculate a ratio of muscularis and mucosal layer thickness to aortic diameter measured at the level of the celiac artery (Musc:Ao and Muc:Ao) in each GI segment in a sample of healthy cats. Ultrasonographic examination of the GI tract was performed, and measurements of the individual layers in each GI segment were obtained in 38 healthy cats without clinical evidence of disease. The muscularis layer was significantly thickest in the ileum, compared with other segments, and it was thicker than the submucosa in all segments except the colon. The mucosa was the thickest layer in all segments, and was thickest in the duodenum and ileum. Measurements of the submucosal and serosal layers were not significantly different between all segments. Musc:Ao and Muc:Ao in each segment were 0.12 and 0.25 (gastric fundus), 0.12 and 0.18 (gastric body), 0.11 and 0.16 (pyloric antrum), 0.08 and 0.27 (duodenum), 0.08 and 0.22 (jejunum), 0.14 and 0.25 (ileum), and 0.05 and 0.08 (colon), respectively. Musc:Ao and Muc:Ao are clinically relevant values that can be used to objectively identify thickening of the muscularis and mucosal layers in response to GI diseases.

**Haematological and biochemical reference intervals of four feline breeds**
Saverio Paltrinieri, Fabrizio Ibba, and Gabriele Rossi

Many feline breeds have been generated from a small number of ancestors. Thus, breed-specific peculiarities can be expected, which could include haematological and biochemical measurements. Despite this, there are only a few reports on breed-specific reference intervals (RI). This information is essential in routine practice where results from individual patients are usually compared with an RI. The aim was to compare haematological and biochemical data from clinically healthy Abyssinian, Holy Birman, Norwegian Forest and Siberian cats with published RIs to assess whether the published RIs are acceptable in these breeds. Comparison with established RIs using guidelines from the National Committee for Clinical Laboratory Standards and the American Society of Veterinary Clinical Pathology, revealed a number of breed-related clinicopathological differences. New RIs were established, but in most cases the new RIs overlapped with published RIs, and the use of the breed-specific data would minimally affect the clinical interpretation of laboratory results. Important differences that could result in misinterpretation of laboratory results were as follows: microcytosis and high α2-globulin concentrations in Abyssinian cats; high serum creatinine, α2-globulin and glucose concentrations in Holy Birman cats; high serum alkaline phosphatase activity and calcium and phosphate concentration in Norwegian Forest cats; low β2-globulin and γ-globulin concentrations in Norwegian
Forest and Siberian cats. Breed-specific RIs should be used for these analytes. In addition, care should be taken in interpreting clinicopathological data in purebred cats for which specific RIs have not been established.

**Effect of single-cat versus multi-cat home history on perceived behavioral stress in domestic cats (Felis silvestrus catus) in an animal shelter**
Heidi M Broadley, Emily C McCobb, and Margaret R Slater

This study investigates the effect of living with other cats in a prior home on stress levels of cats recently surrendered to an animal shelter. A total of 63 cats was evaluated using a Cat-Stress-Score and an approach test. Cats were categorized in terms of previous home history with or without other cats. No significant difference was found in stress scores between cats from single-cat households and those from multiple-cat households, although single cats that had been in the shelter less than 4 days demonstrated higher stress levels. No significant difference was found between the two groups in terms of approach results. Results of this study suggest that, in traditional individual cage settings, cats that are not accustomed to living with other cats may experience more stress in the initial few days of attempting to adjust to shelter existence. Through the use of such assessments, shelter personnel may develop an increased awareness to the needs of these cats and attempt to provide measures to improve their well-being within the shelter environment.

**Reference values and repeatability of buccal mucosal bleeding time in healthy sedated cats**
Dimitrios G Alatzas, Mathios E Mylonakis, Giorgos M Kazakos et. Al

Bleeding time is a screening test for the evaluation of primary haemostasis. As there is currently limited information on the reference interval (RI) and repeatability of the test in the cat compared with the dog, the purpose of the study was to establish the RI of buccal mucosa bleeding time (BMBT) in healthy cats and to investigate the intra-observer repeatability of the test. Fifty-six cats were prospectively enrolled in the study. The animals were deemed to be healthy based on history, physical examination, complete blood count, serum biochemistry, and negative serological testing for feline leukaemia and immunodeficiency viruses. All cats were sedated with ketamine, dexmedetomidine and morphine, and the BMBT was sequentially measured in the left and right exposed buccal mucosa following a standardised incision made by a commercially available, disposable, bleeding time device. The mean BMBT was 58.6 s and the RIs ranged from 34 to 105 s (Bootstrap estimation). The intra-observer repeatability was up to 87 s (Bland–Altman plot). The results of this study imply that the combination of ketamine, dexmedetomidine and morphine is a safe and useful sedative protocol allowing for the reliable measurement of BMBT in the cat. The RI of feline BMBT may range from 34 to 105 s and the BMBT may differ by up to 87 s for any two consecutive readings for an individual cat.

**Effect of neutering and breed on femoral and tibial physeal closure times in male and female domestic cats**
Karen L Perry, Alice Fordham, and Gareth I Arthurs

The timing of physeal closure is dependent upon many factors, including gonadal steroids, and previous studies have shown that early neutering delays physeal closure. Pelvic and femoral radiographs of 808 cats were analysed and physes at the greater trochanter, proximal femur, distal femur and proximal tibia were recorded as being open or closed. Date of birth, gender, neuter status and breed of cases were recorded. Each physis was analysed individually at a specific age. The number of male entire (ME), male neutered (MN), female entire (FE), female neutered (FN), pedigree and non-pedigree cases at each of these ages was recorded. The number of cases that were open or closed at each staged age were compared between the neutered and entire, the female and male, and the pedigree and non-pedigree groups using a Fischer’s exact test, with \( P < 0.05 \) being considered significant. Seven hundred and eighty-three radiographs were included: 359 MN, 95 ME, 237 FN and 92 FE. Ninety-six cats were pedigree and 687 were non-pedigree. A statistically significant effect was shown with physes closing later in MN than in ME cats for the greater trochanter \( (P = 0.0037) \), distal femur \( (P = 0.0205) \) and tibial tuberosity \( (P = 0.0003) \). No effect was shown for the proximal tibial or proximal femoral physes, nor for any physis when comparing FE with FN cats. No statistically significant effect of breed or sex was noted. Physeal closure will occur later in MN cats than in ME cats for the greater trochanteric, distal femoral and tibial tuberosity physes, and the potential clinical consequences of this should be evaluated further.

**Failure of efficacy and adverse events associated with dose-intense diminazene diaceturate treatment of chronic Cytauxzoon felis infection in five cats**
Kristin M Lewis, Leah A Cohn, Henry S Marr, and Adam J Birkenheuer
Cytauxzoon felis is a hemoprotozoan parasite of cats. While many infected cats die of acute illness, some enter a chronic carrier state. To date, no treatment has been documented to clear the chronic carrier state, leaving recovered cats to act as a potential indirect source of infection via a tick vector. Diminazene diaceturate is an anti-protozoal therapy that has been suggested for use in the treatment of acute cytauxzoonosis, but which failed to clear the carrier state at the dose used in acute illness. We hypothesized that a dose-intensified regimen of diminazene could reduce or eliminate parasitemia from five domestic cats naturally infected with C. felis. Cats were administered 4 mg/kg of diminazene diaceturate intramuscularly for 5 consecutive days. Clearance of the organism was assessed via semi-quantitative polymerase chain reaction and light microscopy 1, 3, 6 and 10 weeks after starting treatment. Additionally, cats were monitored for adverse drug reactions by daily observation and examination. Complete blood count, biochemical profile and urinalysis were performed at 1, 3 and 10 weeks. Adverse events were common and included profuse salivation and nausea at the time of injection, monoparesis in the injected leg, proteinuria and potential hepatotoxicity. Severity of parasitemia was not reduced. Diminazene diaceturate cannot be recommended for elimination of the carrier state of C. felis infection.

Maria M Soltero-Rivera, Erika L Krick, Alexander M Reiter et al

The objective of this study was to evaluate the prevalence of regional and distant metastasis in cats with advanced oral squamous cell carcinoma (SCC) in a retrospective case series. Forty-nine cats with cytologically- or histopathologically-confirmed oral SCC presented to the Matthew J Ryan Veterinary Hospital of the University of Pennsylvania. History, clinical and laboratory results, diagnostic imaging findings and survival times were obtained from the medical records of patients who received diagnostic evaluation for metastasis. The prevalence of metastasis was assessed by means of mandibular lymph node cytology and three-view thoracic radiography. The prevalence of mandibular lymph node metastasis was 31% (15/49). Evidence of possible thoracic metastasis was seen in 10% (5/49) of cases. Of the patients with mandibular lymph node metastasis, 53% (8/15) were maxillary, 27% mandibular (4/15), 13% sublingual (2/15) and 7% caudal pharyngeal (1/15). Pulmonary metastasis was seen in three mandibular, one maxillary and one sublingual mass. Forty-one patients died or were euthanased owing to progression of local disease, and seven patients were lost to follow-up. The prevalence of regional metastasis in this study was more common than most previously reported studies, while the rate of pulmonary metastasis was higher than has previously been published. Although significant conclusions cannot be drawn, control of the primary tumor, regardless of tumor size at diagnosis, appears to be an important factor in improving survival time, and therefore treatment of metastasis may be important in those cases where long-term control of the primary tumor is possible.

Effects of age and reproductive status on postoperative pain after routine ovariohysterectomy in cats
Sally Polson, Polly M Taylor, and David Yates

A prospective clinical trial to compare the effects of age and reproductive status on postoperative pain was conducted in 145 female cats undergoing ovariohysterectomy using injectable anaesthesia. The cats were grouped appropriately: 60 kittens <4 months old (K), 85 adults >4 months old (A) and, within the adult group, 57 normal adults (nA) and 28 adults who were either pregnant or in oestrus (rA). Pain was assessed using a simple descriptive scale (SDS; 0–3), a dynamic and interactive visual scale (DIVAS; 0–100 mm) and mechanical nociceptive thresholds (MNT; N, 2 mm diameter probe) pre-operatively and at 4 and 24 h postoperatively. Kittens had lower DIVAS areas under the time curve and SDS than adults (P <0.05), but similar MNT (K: 3.3 ± 2.6, A: 4.3 ± 2.5 N at 4 h, P>0.05). Data from nA and rA were not different (P >0.05). Kittens had similar wound tenderness, but less affective pain than adults, and reproductive status had no effect.

Cloprostenol treatment of feline open-cervix pyometra
Maria C Garcia Mitacek, Maria C Stornelli, Claudia M Tittarelli,

Treatment with cloprostenol, a prostaglandin synthetic analogue, was evaluated in five queens with open-cervix pyometra. Cloprostenol was administered (5 µg/kg body weight SC) on 3 consecutive days and amoxicillin (20 mg/kg body weight IM) on 7 consecutive days. Transient post-injection reactions caused by cloprostenol administration included diarrhea, vomiting and vocalizations. Reactions began as quickly as 10 mins after cloprostenol administration and lasted as long as 30 mins. All queens improved clinically after cloprostenol treatment and remained healthy until the end of the study, 1 year after treatment. All queens resumed normal estrous cycles without further treatment and two (40%) delivered a normal litter. In conclusion, use of cloprostenol is an acceptable treatment for open-cervix pyometra in queens.
Partial hydatidiform mole diagnosis in a cat: a case report
Piotr Jurka, Mariusz Sacharczuk, Magdalena Kawka, et al.

A case of a stillborn Norwegian Forest kitten characterised in the course of anatomopathological and genetic examination is reported. The hydatidiform mole was diagnosed by delayed development, low birth weight of the kitten and abnormal placental development. Anatomopathological diagnosis was confirmed in genetic tests based on the amplification of highly heterozygous microsatellite sequences located on the X (FCA311) and autosomal chromosomes (FCA506, FCA532 and FCA178), as well as the sex-specific Sry and amelogenin (Amel) genes. The presence of two microsatellite alleles of paternal origin and one allele of maternal origin was observed in all analysed tissues (kidney, liver, brain, heart and spleen) of the stillborn kitten. The kitten’s sex was diagnosed by the presence of the paternal Sry gene, and maternal and paternal products of Amel, as well as one maternal and one paternal X chromosome FCA311 microsatellite allele. The results thus confirmed that the haploid egg was fertilised by two sperm, yielding a triploid karyotype. In summary, the successful application of genetic markers in postnatal diagnosis of this condition in the cat confirms considerable usefulness of these techniques, especially in cases where cytogenetic diagnosis is insufficient or impossible.

Unilateral squamous cell carcinoma of the renal pelvis with hydronephrosis in a cat
Aida Gómez Selgas, Timothy J Scase, and Robert D Foale

A 4-year-old female neutered domestic shorthair cat was presented for evaluation of gradual onset of lethargy and anorexia. Physical examination revealed moderate abdominal distension. Investigations performed included complete blood count, serum biochemistry, urinalysis, pyelocentesis, abdominal fluid analysis, abdominal ultrasonography and exploratory celiotomy. Nephrectomy was performed on the hydronephrotic kidney and a sample of the omentum was also taken, as it was grossly abnormal. No other abnormalities were found in the remainder of the abdominal organs. Findings were consistent with unilateral hydronephrosis and squamous cell carcinoma of the renal pelvis with abdominal carcinomatosis. The patient was given supportive treatment while the results of the biopsies from the renal tissue and the omentum were pending. The patient deteriorated a short time after surgical intervention and was euthanased. This is the first report of a squamous cell carcinoma arising from the renal pelvis in a cat. A comparison with the disease presentation in humans is also discussed.

Splendore-Hoeppli phenomenon in a cat with osteomyelitis caused by Streptococcus species
Silvia de Araujo França, Juliana Fortes Vilarinhos Braga, Matheus Vilardo Loes Moreira et al.

A 9-month-old male neutered mixed-breed cat had a history of chronic lameness of the right hind limb, which was non-responsive to antibiotic treatment. Hematologic analysis revealed marked neutrophilia and mild monocytosis. Radiography revealed extensive loss of cortical bone, and replacement with irregular and disorganized bone. There was loss of the normal cortico-medullary distinction, and the medullary cavity had an irregular radiodensity suggestive of osteomyelitis. Surgical curettage and antibiotics did not improve the clinical condition, and amputation was performed. Grossly, the skin over the right tibia was ulcerated with a viscous and granular exudate. At histopathology, there was marked diffuse pyogranulomatous dermatitis, myositis, periositis and osteomyelitis associated with Splendore-Hoeppli phenomenon. In addition, there was marrow osteoproliferation and multifocal cortical loss, reabsorption, fibroplasia and endosteal bone formation. Gram staining revealed myriad slightly elongated Gram-positive bacteria, arranged in pairs or single chains, confirmed by polymerase chain reaction as Streptococcus species.

First report of Dracunculus insignis in two naturally infected cats from the northeastern USA
Araceli Lucio-Forster, Mark L Eberhard, Vitaliano A Cama, et al.

Dracunculiasis is rarely reported in cats, yet over the last few years we have identified two cats with filarioid-like spirurid infections. Case 1 was a 9-year-old cat with pituitary-dependent hyperadrenocorticism from New York state from which four adult dracunculoid nematodes were isolated from its torso. Based on morphometric characteristics and parasite geographic distribution, the specimens were identified as Dracunculus insignis females; at least one of the females was gravid, suggestive of patent infection. Species identification was confirmed through amplification and sequence analysis of nuclear and mitochondrial loci. Case 2 was a 14-year-old diabetic cat from Massachusetts. Formalin-fixed sections were obtained from a subcutaneous mass excised from the left foreleg. Histopathological examination revealed a large nematode with morphometrical characteristics of Dracunculus, surrounded by lymphocytes and sheets of eosinophils. These two cases appear to be the first published reports of dracunculiasis in domestic cats in the USA, and based on the findings from case 1, D insignis may be the species associated with both infections.
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