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April 2015 abstracts

Journal of the American Veterinary Medical Association – Apr 1

Hemodynamic influence of acepromazine or dexmedetomidine premedication in isoflurane- anesthetized dogs
Stefania C. Grassi, Jeff C. Ko, Ann B. Weil, Vaidehi Paranjape, Peter D. Constable
Objective—To investigate hemodynamic effects of acepromazine and dexmedetomidine premedication in dogs undergoing general anesthesia induced with propofol and maintained with isoflurane in oxygen and assess the influence of these drugs on oxygen-carrying capacity and PCV. Design—Prospective, randomized crossover study. Animals—6 healthy adult dogs. Procedures—Dogs received acepromazine (0.05 mg/kg [0.023 mg/lb]) or dexmedetomidine (15.0 µg/kg [6.82 µg/lb]) IM. Fifteen minutes later, anesthesia was induced with propofol and maintained at end-tidal isoflurane concentration of 1.28% (1 minimum alveolar concentration) for 30 minutes. Hemodynamic variables were recorded at predetermined times. The experiment was repeated 48 hours later with the alternate premedication. Results were analyzed by repeated-measures ANOVA with a mixed-models procedure. Results—Bradycardia, hypertension, and significant cardiac output (CO) reduction developed after dexmedetomidine premedication but improved during isoflurane anesthesia. Hypotension developed after acepromazine administration and persisted throughout the isoflurane maintenance period, but CO was maintained throughout the anesthetic period when dogs received this treatment. Oxygen delivery and consumption were not different between treatments at most time points, whereas arterial oxygen content was lower with acepromazine premedication owing to lower PCV during isoflurane anesthesia. Conclusions and Clinical Relevance—Acepromazine exacerbated hypotension, but CO did not change in dogs anesthetized with propofol and isoflurane. Dexmedetomidine reduced CO but prevented propofol-isoflurane–induced hypotension. In general, oxygen-carrying capacity and PCV were higher in dexmedetomidine-treated than in acepromazine-treated dogs anesthetized with propofol and isoflurane.

Comparison of 2- and 3-category histologic grading systems for predicting the presence of metastasis at the time of initial evaluation in dogs with cutaneous mast cell tumors: 386 cases (2009–2014)
Damiano Stefanello, Paolo Buracco, Silvia Sabattini, Riccardo Finotello, Chiara Giudice, Valeria Greco, Selina Iussich, Massimiliano Tursi, Timothy Scase, Stefano Di Palma, Giuliano Bettini, Roberta Ferrari, Marina Martano, Francesca Gattino, Mary Marrington, Monica Mazzola, Maria Elisabetta Vasconi, Maurizio Annoni, Laura Marconato
Objective—To compare the Kiupel (2 categories) and Patnaik (3 categories) histologic grading systems for predicting the presence of metastasis at the time of initial examination in dogs with cutaneous mast cell tumors (MCTs). Design—Retrospective case series. Animals—386 client-owned dogs with cutaneous MCTs. Procedures—Medical records of dogs with newly diagnosed, histologically confirmed cutaneous MCTs that had undergone complete clinical staging were reviewed for clinical and histopathologic data. Results—All Patnaik grade 1 MCTs (n = 52) were classified as Kiupel low-grade MCTs, and all Patnaik grade 3 MCTs (43) were classified as Kiupel high-grade MCTs. Of the 291 Patnaik grade 2 MCTs, 243 (83.5%) were classified as Kiupel low-grade tumors, and 48 (16.5%) were classified as Kiupel high-grade MCTs. Dogs with Patnaik grade 3 MCTs were significantly more likely to have metastases at the time of initial examination than were dogs with grade 1 or 2 MCTs (OR, 5.46), and dogs with Kiupel high-grade MCTs were significantly more likely to have metastases than were dogs with Kiupel low-grade MCTs (OR, 2.54). However, 3 of 52 (5.8%) dogs with Patnaik grade 1 tumors, 48 of 291 (16.5%) dogs with Patnaik grade 2 tumors, and 44 of 295 (14.9%) dogs with Kiupel low-grade tumors had metastatic disease. Conclusions and Clinical Relevance—Findings indicated that in dogs with cutaneous MCTs, prognostication should not rely on histologic grade alone, regardless of grading system used, and should take into account results of clinical staging.

Journal of the American Veterinary Medical Association – Apr 15

Urine protein-to-creatinine concentration ratio in samples collected by means of cystocentesis versus manual compression in cats
Objective—To compare urine protein-to-creatinine concentration (UPC) ratios in samples collected by means of cystocentesis versus manual compression in cats. Design—Evaluation study. Animals—43 client-owned cats requiring urinalysis. Procedures—In all cats, 5 mL of urine from the midstream phase of micturition was collected by means of manual compression and, subsequently, an additional 5 mL of urine was obtained by means of ultrasound-guided cystocentesis. A complete urinalysis was performed on all samples, and UPC ratios were determined. Results—Cats were classified on the basis of the International Renal Interest Society substaging system as being free from proteinuria (UPC ratio, < 0.2; n = 19) or as having borderline proteinuria (UPC ratio, 0.2 to 0.4; 7) or proteinuria (UPC ratio, > 0.4; 17). None of the cats had postrenal proteinuria. A significant linear correlation was identified between UPC ratios in urine samples obtained by means of manual compression and ratios in samples obtained by means of cystocentesis. For all cats, UPC ratios for samples obtained by the 2 collection methods resulted in classification in the same IRIS substage. Conclusions and Clinical Relevance—Results suggested that collection of a urine sample from the midstream phase of micturition by manual compression would be a reliable alternative to cystocentesis for the determination of UPC ratio in cats, provided that postrenal proteinuria was excluded by means of urine sediment analysis. Once postrenal proteinuria was ruled out, the method used to collect urine samples did not appear to influence the quantification of urine protein concentration.

Surgical excision of anal sac apocrine gland adenocarcinomas with and without adjunctive chemotherapy in dogs: 42 cases (2005–2011)
Christopher P. Potanas, Sheldon Padgett, Rance M. Gamblin

Objective—To identify variables associated with prognosis in dogs undergoing surgical excision of anal sac apocrine gland adenocarcinomas (ASACs) with and without adjunctive chemotherapy. Design—Retrospective case series. Animals—42 dogs with ASACs. Procedures—Information on signalment, clinical signs, diagnostic procedures, surgical procedures, adjunctive therapies, survival time, and disease-free interval was obtained from the medical records. Results—Survival time was significantly associated with the presence of sublumbar lymphadenopathy and sublumbar lymph node extirpation, with median survival time significantly shorter for dogs with sublumbar lymphadenopathy (hazard ratio, 2.31) than for those without and for dogs that underwent lymph node extirpation (hazard ratio, 2.31) than for those that did not. Disease-free interval was significantly associated with the presence of sublumbar lymphadenopathy, lymph node extirpation, and administration of platinum-containing chemotherapeutic agents, with median disease-free interval significantly shorter for dogs with sublumbar lymphadenopathy (hazard ratio, 2.47) than for those without, for dogs that underwent lymph node extirpation (hazard ratio, 2.47) than for those that did not, and for dogs that received platinum-containing chemotherapeutic agents (hazard ratio, 2.69) than for those that did not. Survival time and disease-free interval did not differ among groups when dogs were grouped on the basis of histopathologic margins (complete vs marginal vs incomplete excision). Conclusions and Clinical Relevance—Results suggested that in dogs with ASAC undergoing surgical excision, the presence of sublumbar lymphadenopathy and lymph node extirpation were both negative prognostic factors. However, completeness of surgical excision was not associated with survival time or disease-free interval.

The Canadian Veterinary Journal

Effects of incision closure method on infection prevalence following tibial plateau leveling osteotomy in dogs
Chase Atwood, Mac Maxwell, Ryan Butler, Robert Wills

The goal of this study was to retrospectively investigate the effect of incisional closure with either stainless steel skin staples or intradermal poliglecaprone 25 on the prevalence of surgical site infection following tibial plateau leveling osteotomy in dogs. Medical records were reviewed for dogs treated with unilateral tibial plateau leveling osteotomy at Memphis Veterinary Specialists between 2006 and 2013. Procedures (n = 306) from 242 dogs were included in the study. The association of potential risk factors with the occurrence of postoperative infection was assessed using logistic regression. A value of P < 0.05 was considered significant. Weight and administration of postoperative antimicrobials were found to significantly influence surgical site infection prevalence. No significant association was noted between closure method and prevalence of postoperative infection.

Antimicrobial resistance trends among canine Escherichia coli isolates obtained from clinical samples in the northeastern USA, 2004–2011
Kevin J. Cummings, Victor A. Aprea, Craig Altier
Our objectives were to describe the antimicrobial susceptibility of Escherichia coli isolates from dogs in the northeastern USA and to identify temporal trends in resistance to selected antimicrobial agents. Data were collected retrospectively for all canine E. coli isolates from clinical samples submitted to Cornell University's Animal Health Diagnostic Center between January 1, 2004 and December 31, 2011. Antimicrobial susceptibility testing was performed on 3519 canine E. coli isolates; frequency of resistance to each agent ranged from 0.4% (amikacin) to 34.3% (ampicillin). No trends were evident among urinary isolates, but cephalosporin resistance remained consistently high. Among non-urinary isolates, there was evidence of a significantly increasing trend in prevalence of resistance to several agents, including cephalosporins, enrofloxacin, and tetracycline. These data suggest that some of the most commonly used antimicrobial agents in companion animal practice are becoming less effective against canine E. coli infections outside the urinary tract.

Laparoscopic-assisted extirpation of falciform ligament hemangiosarcoma in a dog
Katie Hoddinott, Ameet Singh, Evan C. Crawford, Elizabeth V. Guieu, Danielle Richardson
An 8-year-old, spayed female, bichon frisé dog had incidental nodules within its falciform ligament identified on routine abdominal ultrasonography. A laparoscopic-assisted technique provided both a diagnostic and a therapeutic treatment option. A histopathological diagnosis of hemangiosarcoma was made. This is the second case reporting hemangiosarcoma of the falciform fat.

Multiorgan dysfunction syndrome secondary to joint supplement overdosage in a dog
Irma J. Nobles, Safdar Khan
A 5-year-old spayed female Bernese mountain dog, with a chief complaint of vomiting and melena ingested approximately 200 nutritional joint supplement tablets. Despite aggressive therapy, the patient developed a coagulopathy, pancreatitis, peritonitis, acute kidney injury, and was euthanized. Postmortem examination revealed myocardial necrosis, pneumonia, centrilobular hemorrhage and necrosis of the liver, vasculitis, and acute tubular necrosis.

Cranial vena cava syndrome secondary to cryptococcal mediastinal granuloma in a cat
Jo-Annie Letendre, Søren Boysen
The successful management of cranial vena cava syndrome with suspected secondary chylothorax due to mediastinal cryptococcal granuloma in a 4-year-old male domestic shorthair cat is described. Treatment included long-term antifungal medication, short-term corticosteroids, intermittent thoracocentesis, rutin, octreotide, and enalapril.

The Australian Veterinary Journal
Evaluation of prognostic indicators for canine primary immune-mediated haemolytic anaemia and application of a scoring system for the determination of prognosis
SS Ke, GA Anderson and SL Connolly
Objective- Apply a previously described scoring system retrospectively to cases of canine primary immune-mediated haemolytic anaemia (pIMHA) to determine its accuracy and reliability for the determination of prognosis in Victoria, Australia. Methods - Retrospective cohort study of 41 dogs diagnosed with pIMHA at the University of Melbourne Veterinary Hospital (UMVH) between August 2006 to December 2012. Results - Of the 41 dogs included, 70.7% were female while 29.3% were male. The overall mortality in this study was 43.9%. The previously described prognostic scoring system when applied to cases of pIMHA in Victoria, Australia, was not found to show statistical significance for prognostification. None of the five prognostic factors were found to be independently significant for prognostification. Conclusion- Application of the previously described prognostic scoring system indicated that it may not be reliable for predicting prognoses of dogs with pIMHA in Victoria, Australia.

Preoperative factors associated with hypotension in young anaesthetised dogs undergoing elective desexing (pages 99–104)
RS Costa, AL Raisis, G Hosgood and GC Musk
Gene network and canonical pathway analysis in canine myxomatous mitral valve disease: A microarray study
C.-C. Lu, M.-M. Liu, G. Culshaw, M. Clinton, D.J. Argyle, B.M. Corcoran

Myxomatous mitral valve disease (MMVD) is the single most common acquired heart disease of the dog and is particularly common in small pedigree breed dogs such as the Cavalier King Charles spaniel (CKCS). There are limited data on the mitral valve transcriptome and the aim of this study was to use the microarray technology in conjunction with bioinformatics platforms to analyze transcript changes in MMVD in CKCS compared to normal dogs (non-CKCS). Differentially expressed genes (n = 5397) were identified using cut-off settings of fold change, false discovery rate (FDR) and P < 0.05. In total, 4002 genes were annotated to a specific transcript in the Affymetrix canine database, and after further filtering, 591 annotated canine genes were identified: 322 (55%) were up-regulated and 269 (45%) were down-regulated. Canine microRNAs (cfa-miR; n = 59) were also identified. Gene ontology and
network analysis platforms identified between six and 10 significantly different biological function clusters from which the following were selected as relevant to MMVD: inflammation, cell movement, cardiovascular development, extracellular matrix organisation and epithelial-to-mesenchymal (EMT) transition. Ingenuity Pathway Analysis identified three canonical pathways relevant to MMVD: caveolar-mediated endocytosis, remodelling of epithelial adherens junctions, and endothelin-1 signalling. Considering the biological relevance to MMVD, the gene families of importance with significant difference between groups included collagens, ADAMTS peptidases, proteoglycans, matrix metalloproteinases (MMPs) and their inhibitors, basement membrane components, cathepsin S, integrins, tight junction cell adhesion proteins, cadherins, other matrix-associated proteins, and members of the serotonin (5-HT)/transforming growth factor-β signalling pathway.

**Culture and characterisation of canine mitral valve interstitial and endothelial cells**


Valve interstitial cells (VICs) have an important role in the aetiology of myxomatous mitral valve disease (MMVD) in the dog. Furthermore, there is evidence that valve endothelial cells (VECs) also contribute to disease development. In addition to examining native valve tissue to understand MMVD, another strategy is to separately examine VIC and VEC biology under in vitro culture conditions. The aim of this study was to isolate and characterise canine mitral VICs and VECs from normal dog valves using a combination of morphology, immunohistochemistry and reverse transcription PCR (RT-PCR). Canine mitral VECs and VICs were isolated and cultured in vitro. The two cell populations exhibited different morphologies and growth patterns. VECs, but not VICs, expressed the endothelial markers, platelet endothelial cell adhesion molecule (PECAM-1 or CD31) and acetylated low density lipoprotein (Dil-Ac-LDL). Both VECs and VICs expressed vimentin and embryonic non-smooth muscle myosin heavy chain (SMemb), an activated mesenchymal cell marker. The myofibroblast marker, alpha smooth muscle actin (α-SMA), was detected at the mRNA level in both VEC and VIC cultures, but only at the protein level in VIC cultures. The morphological heterogeneity and expression of non-endothelial phenotypic markers in VEC cultures suggested that a mixture of cell types was present, which might be due to cell contamination and/or endothelial–mesenchymal transition (EndoMT). The use of a specific endothelial culture medium for primary VEC cultures enhanced the endothelial properties of the cells and reduced α-SMA and SMemb expression.

**SiRNA knockdown of the DEK nuclear protein mRNA enhances apoptosis and chemosensitivity of canine transitional cell carcinoma cells**

Hiroki Yamazaki, Tomomi Iwano, Saori Otsuka, Yumiko Kagawa, Yuki Hoshino, Kenji Hosoya, Masahiro Okumura, Satoshi Takagi

Transitional cell carcinoma (TCC) in dogs is an aggressive malignant neoplasm, originating in the epithelium of the urinary bladder. The DEK nuclear protein is overexpressed in several types of human bladder cancer, where it is involved in chromatin reconstruction, gene transcription and apoptosis. Since DEK represents a potential therapeutic target for canine TCC, this study was designed to investigate DEK expression in canine TCC and to determine the effects of DEK mRNA silencing on TCC cells in vitro. The gene expression profiles of seven selected cancer-associated genes was assessed in four canine TCC cell lines and expression of DEK protein was evaluated in bladder tissue biopsies from healthy dogs and those affected with cystitis or TCC. After transfection of four canine TCC cell lines with DEK-specific or scrambled siRNA, annexin V staining was performed to evaluate apoptosis, and methylthiazole tetrazolium assays were performed to assess both cell viability and sensitivity to carboplatin. DEK mRNA expression was relatively high in canine TCC cells and expression of the DEK protein was significantly greater in TCC tumours compared with the other tissue samples. After transfection with DEK-specific siRNA, apoptosis, cell growth inhibition, and enhanced sensitivity to carboplatin were observed in all TCC assessed. These research findings suggest that DEK could be a potential therapeutic target for canine TCC.

**The effect of inter-laboratory variability on the protein:creatinine (UPC) ratio in canine urine**

G. Rossi, W. Bertazzolo, F. Dondi, M. Binnella, M. Gruarin, P. Scarpa, S. Paltrinieri

Quantification of proteinuria is a fundamental step in staging dogs with chronic kidney disease and in monitoring the course of disease or the efficacy of anti-proteinuric treatments. Analytical precision and accuracy of the proteinuria assessment could be affected by several factors such as biological variability, different operators and quality control materials. The aim of this study was to assess whether inter-laboratory variability could affect the urinary protein to creatinine (UPC) ratio and whether this variability may affect patient classification according to the International Renal Interest Society (IRIS) sub-staging system. The same urine samples were analysed in three different
laboratories using different instruments and different reagent brands. The results of the three laboratories were highly correlated to each other although urinary protein (UP), urinary creatinine (UC) and the UPC ratio of one laboratory were found to be significantly higher than those of the other two. No significant differences between the other two laboratories were recorded. The concordance in classifying dogs according to the IRIS guidelines was good if all three proteinuria categories were analysed separately or if borderline proteinuric (BP) dogs were included in the proteinuric group, and very good if BP dogs were merged into the non-proteinuric group. The inter-laboratory variability in UPC ratio measurement was not so great as to impede the identification of proteinuric dogs, but may influence the estimation of the magnitude of proteinuria.

The effect of chronic kidney disease on the urine proteome in the domestic cat (Felis catus)
E. Ferlizza, A. Campos, A. Neagu, A. Cuoghi, E. Bellei, E. Monari, F. Dondi, A.M. Almeida, G. Isani Chronic kidney disease (CKD) is a major cause of mortality in cats, but sensitive and specific biomarkers for early prediction and monitoring of CKD are currently lacking. The present study aimed to apply proteomic techniques to map the urine proteome of the healthy cat and compare it with the proteome of cats with CKD. Urine samples were collected by cystocentesis from 23 healthy young cats and 17 cats with CKD. One-dimensional sodium-dodecyl-sulfate polyacrylamide gel electrophoresis (1D-SDS-PAGE) was conducted on 4–12% gels. Two-dimensional electrophoresis (2DE) was applied to pooled urine samples from healthy cats (n = 4) and cats with CKD (n = 4), respectively. Sixteen protein bands and 36 spots were cut, trypsin-digested and identified by mass spectrometry. 1D-SDS-PAGE yielded an overall view of the protein profile and the separation of 32 ± 6 protein bands in the urine of healthy cats, while CKD cats showed significantly fewer bands (P < 0.01). 2-DE was essential in fractionation of the complex urine proteome, producing a reference map that included 20 proteins. Cauxin was the most abundant protein in urine of healthy cats. Several protease inhibitors and transport proteins that derive from plasma were also identified, including alpha-2-macroglobulin, albumin, transferrin, haemopexin and haptoglobin. There was differential expression of 27 spots between healthy and CKD samples (P < 0.05) and 13 proteins were unambiguously identified. In particular, increased expression of retinol-binding protein, cystatin M and apolipoprotein-H associated with decreased expression of uromodulin and cauxin confirmed tubular damage in CKD cats suggesting that these proteins are candidate biomarkers.

Influence of experimental protocol on response rate and repeatability of mechanical threshold testing in dogs
L.K. Harris, J.C. Murrell, E.G.M. van Klink, H.R. Whay Mechanical threshold (MT) testing is widely used to measure nociceptive thresholds. However, there has been little research into factors that contribute to the response rate and repeatability (collectively termed ‘efficacy’) of MT testing protocols. The aim of this study was to investigate whether the efficacy of a protocol using a hand-held algometer to measure MTs (N) in healthy dogs (n = 12) was affected by varying (1) the area over which force was applied (tip diameter), (2) rate of force application, (3) position of dog during testing, and (4) anatomical site of testing. The effect of these factors on MT and the impact of individual dog effects on both efficacy and MT were also investigated. Overall, 3175/3888 tests (82%) resulted in a measurable response. The response rate was reduced by using wider tip diameters, testing at the tibia, and testing when the dog was lying down (compared to sitting upright). Wider tips were associated with higher, more variable MTs (mean ± standard deviation) with values of 4.18 ± 2.55 N for 2 mm diameter tips, 5.54 ± 3.33 for those of 4 mm, and 7.59 ± 4.73 for 8 mm tips. Individual dog effects had the most significant impact on efficacy and MT. The findings indicate that tip diameter, dog position, and anatomical site may affect both protocol efficacy and MTs, and should be taken into account when comparing different studies and in designing protocols to measure MTs in dogs. The predominant effect of the individual dog over other factors indicates that between-subject differences should always be accounted for in future studies.

Comparison of a new metamizole formulation and carprofen for extended post-operative analgesia in dogs undergoing ovariohysterectomy
K.S. Kalchofner Guerrero, A. Schwarz, R. Wuhrmann, S. Feldmann, S. Hartnack, R. Bettschart-Wolfensberger A newly developed slow-release tablet formulation of metamizole was compared with carprofen for post-operative analgesia in dogs undergoing ovariohysterectomy. Twenty-three dogs were randomly assigned to one of two groups, and administered 50 mg/kg metamizole PO (Group M) or 4 mg/kg carprofen PO (Group C) 1 h before anaesthetic induction and 24 and 48 h later. Anaesthesia was induced with propofol and maintained with isoflurane and fentanyl, after premedication with
0.005 mg/kg medetomidine and 0.3 mg/kg methadone IM. A blinded observer assessed post-operative sedation, and analgesia using a visual analogue scale, a dynamic interactive visual analogue scale, the Glasgow composite pain scale (GCPS), and a mechanical nociceptive threshold device (T = 0.5, 1, 2, 4, 8, 12, 18, 21, 24, 36, 45, 60 and 70 h after surgery). Rescue methadone was administered if the GCPS was >6/24 in ambulatory dogs, or >5/20 in non-ambulatory dogs. Plasma concentrations of test drugs were quantified. The dose range for metamizole was 39–56 mg/kg. At T = 0.5 h sedation scores were significantly higher in Group C and GCPS scores were significantly higher in Group M. Three dogs required rescue methadone (Group M, n = 1; Group C, n = 2). Vomiting occurred post-operatively in 45% of dogs in Group M. Carprofen and metamizole were both well absorbed; peak concentrations occurred within 4–24 h, and 4–16 h for carprofen and metamizole, respectively. Both drugs provided adequate analgesia of similar duration. No side effects were observed with carprofen while vomiting was frequent following administration of metamizole.

Journal of Feline Medicine & Surgery

Practical use of opioids in cats: a state-of-the-art, evidence-based review
Elisa Bortolami & Emma J Love
Rationale: Recent recognition of the need to improve pain management in cats has led to the investigation of the pharmacokinetics and efficacy of opioid analgesics in this species. The results of these studies may be difficult to interpret because the effect of these drugs varies with dose, route of administration and the method used to assess them. As equipotency of different opioids is not known, it is hard to compare their effects. Animals do not verbalise the pain they feel and, in cats, it may be more difficult to recognise signs of pain in comparison with other species such as dogs. Aim: This article reviews the use of opioid analgesics in cats. It must be remembered that not all drugs are licensed for use in cats, and that marketing authorisations vary between different countries.

Complications associated with corrective surgery for patellar luxation in 85 feline surgical cases
Lynda Rutherford, Sorrel J Langley-Hobbs, Richard J Whitelock et al
The objective was to review surgical techniques and postoperative complications of surgical correction for patellar luxation (PL) in cats. A retrospective study evaluating 85 surgeries in 71 cats was performed. The records from four referral centres were searched for cats with surgical management of PL. Signalment, history, PL grade and direction, corrective surgical techniques and outcome were retrieved. Binary logistic regression analysis was used to interrogate relationships between case features, surgical correction methods and outcomes. The outcomes were classified as minor and major complications (requiring revision surgery), including continued PL (reluxation). Postoperative complications occurred in 26% of cases; 20% had major complications, including 5% patellar reluxation, and 6% had minor complications. Cats with previous ipsilateral femoral fracture were significantly more likely to suffer complications, including minor (P = 0.02, odds ratio = 12.67), major (P = 0.03, OR = 7.2) and patellar reluxation (P = 0.01, OR = 19.25). Minor complications were significantly more likely with grade 4 PL (P = 0.03, OR = 8.5). Major complications were significantly more likely with tibial tuberosity transposition (TTT; P = 0.03, OR = 5.57). Patellar reluxation was significantly more likely if stifle surgery had been performed previously (P = 0.05, OR = 8.00). The presence of bilateral PL, hip dysplasia, grade 1, 2 or 3 PL, corrective surgery using an anti-rotational suture or femoral sulcoplasty did not influence complications. Complications were more likely for grade 4 PL, previous ipsilateral femoral fracture, if TTT was performed and for cases with previous stifle surgery. This information allows consideration of risks and complicating factors.

Caudal mucogingival lesions secondary to traumatic dental occlusion in 27 cats: macroscopic and microscopic description, treatment and follow-up
Margherita Gracis, Elena Molinari, and Silvia Ferro
The main aim of this retrospective study was to describe clinical and histopathological findings in cats with mucogingival lesions developed at the contact point of the premolar and molar teeth of the opposite quadrant. Cases were retrieved following manual review of the medical records, dental records and photographic documentation of all feline dental patients visited in the period between February 2001 and August 2011. Cats showing different lesions at different times were calculated as multiple cases. A total of 27 cats (31 cases) with 44 lesions (26 proliferations [59%], 11 clefts [25%] and seven foveae [16%]) were included. Mean age at the time of the first visit was 6.6 years. The lesion object of the study was the main reason for presentation in only five cases (16%). Proliferations showed two different histopathological patterns and had characteristics in common with human oral pyogenic granuloma. Successful treatment was achieved in all cases by removing the occlusal contact
by dental extraction or coronal reduction, possibly associated with lesion excision. This study underlines the need for a thorough oral examination and evaluation of dental occlusion in all patients. Causes for the development of traumatic occlusion may include an acquired overbite (possibly secondary to selective dental extraction), congenital or post-traumatic malocclusion, abnormal lateral mobility of the mandible, occlusal drift of the premolar and molar teeth, and/or alveolar bone expansion.

Factors affecting urine specific gravity in apparently healthy cats presenting to first opinion practice for routine evaluation
Mark Rishniw and Rodrigo Bicalho
Evidence suggests that apparently healthy cats presenting for routine evaluation should have a randomly sampled urine specific gravity (USG) >1.035. A USG <1.035 might reflect inappropriate concentrating ability warranting further investigation. We measured the USG of 1040 apparently healthy cats presenting to first opinion practice in an observational study, using either in-clinic refractometers or measurements provided by reference laboratories, and examined factors that might affect USG. In-clinic refractometers were calibrated using distilled water (specific gravity = 1.000). The USG was >1.030 in 91% of cats and >1.035 in 88% of cats; 121 adult cats (>6 months old) and five young cats (<6 months old) had USGs of <1.035. Of these 126 cats, a pathological cause was identified in 27 adult cats – of these, 26 were >9 years old – but no young cats. No cause was identified in 43 adult cats, and further investigation was not pursued in 51 adult cats. Factors that affected USG included age, diet type, sex, fasting status, drinking avidity, refractometer type, and the interaction between sex and diet – increasing dietary moisture content lowered USG only in female cats. Most factors minimally affected USG. The odds of having a USG <1.035 without apparent pathology included age and dietary moisture content. Drinking avidity decreased with increasing dietary moisture content. Our results show that most apparently healthy cats presenting to first-opinion practice should have a USG >1.035. Dietary management strategies to lower USG might be less effective than anticipated, and warrant monitoring of USG to determine efficacy. Older cats with USG <1.035 are more likely to have pathological causes identified, although clinicians are more likely to examine these cats for possible pathology. A lack of stringent refractometer calibration could have caused some errors in estimates of USG by some observers, but would be unlikely to alter markedly the findings.

Clinical and haematological responses of feline blood donors anaesthetised with a tiletamine and zolazepam combination
Eva Spada, Daniela Proverbio, Giada Bagnagatti De Giorgi et al.
This prospective study investigated the effect on clinical and haematological variables of the anaesthetic combination of tiletamine and zolazepam in feline blood donors. Blood (10 ml/kg bodyweight to a maximum volume of 60 ml) was collected from the jugular vein of 31 owned healthy cats anaesthetised with 2.5 mg/kg of tiletamine and 2 mg/kg of zolazepam intramuscularly. Rectal temperature (RT), systolic arterial pressure (SAP), mean arterial pressure (MAP), diastolic arterial pressure (DAP), heart rate (HR) and complete blood count (including red blood cells [RBC], haemoglobin [HB], haematocrit [HT], platelet [PLT] count, white blood cells [WBC], lymphocytes, neutrophils, eosinophils, monocytes and basophils) were evaluated pre- and postdonation. RT decreased significantly (P <0.01) after blood donation (mean change in RT =−0.7°C). Significant increases in SAP (P = 0.03), MAP (P <0.01) and DAP (P<0.01) occurred after blood donation (mean increase 13 mmHg, 12 mmHg and 11 mmHg, respectively). Although RBC, HT, HB, WBC, PLT, neutrophil and monocyte counts decreased, and HR, and lymphocytes, eosinophil and basophil counts increased after blood donation this change was not statistically significant. Mean time from pre- to postdonation evaluation was 39 ± 11 mins (range 24–76 mins). None of the cats had evidence of pallor or collapse after recovery from anaesthesia. The collection of blood at 10 ml/kg bodyweight to a maximum volume of 60 ml in healthy cats using a low dose tiletamine and zolazepam anaesthetic appears to be well tolerated by feline blood donors.

Management of endemic Microsporum canis dermatophytosis in an open admission shelter: a field study
Sandra Newbury, Karen Moriello, Kimberly Coyner et al.
Endemic Microsporum canis dermatophytosis was identified in a large, open admission, private, no-kill shelter that admitted >1200 cats per year. Fungal culture (FC) screening revealed that 166/210 (79%) and 38/99 (38%) cats in the non-public and public area were culture positive, respectively. However, pending screening FC results, the 99 cats in the public area were treated with once-weekly lime sulfur rinses and monitored with once-weekly FC. Cats in the non-public area were not treated.
When FC results were available, cats were separated into low-risk (n = 61) and high-risk (n = 38) groups based upon the presence or absence of skin lesions. Low-risk cats continued to receive once-weekly topical lime sulfur and rapidly achieved culture-negative status. High-risk cats were divided into two groups based upon the number of colony-forming units/plate (low or high). All 38 cats were treated with twice-weekly lime sulfur and oral terbinafine and within 6–7 weeks only 5/38 cats were still FC-positive. These cats were moved to a separate room. Dermatophytosis was eradicated within 5 months; eradication was prolonged owing to reintroduction of disease into the remaining room of cats under treatment from three kittens returning from foster care. Continued admissions and adoptions were possible by the institution of intake procedures that specifically included careful Wood’s lamp examination to identify high-risk cats and use of a ‘clean break strategy’.

**Patellar ligament rupture in the cat: repair methods and patient outcomes in seven cases**

Smita Das, Rebecca Thorne, Sorrel J Langley-Hobbs et al.

The medical records of cats receiving surgical treatment for unilateral patellar ligament rupture between 1999 and 2012 at 12 referral centres in the UK and Ireland were reviewed. Seven cases were identified: six were caused by trauma and one was iatrogenic, occurring as a complication following surgical stabilisation of a tibial fracture. All cases were treated by sutured anastomosis of the ruptured ligament, with six of the repairs protected by a circumpatellar and/or transpatellar loop of suture. The stifle was immobilised by transarticular external skeletal fixation in three cases. No cases required revision surgery. No complications were reported. Final evaluation, performed at a median time of 31 days, determined five patients to have returned to acceptable or good limb function; two cases were lost to follow-up. The data suggest that, in cats, the current surgical techniques extrapolated from their canine counterparts for repair of a completely or partially ruptured patellar ligament are successfully used and result in acceptable limb function.

**Effect of ciclosporin and methylprednisolone acetate on cats previously infected with feline herpesvirus 1**

Michael R Lappin and Linda M Roycroft

Feline herpesvirus 1 (FHV-1) is a common ocular and respiratory pathogen of cats that can be associated with recurrent clinical signs of disease. Ciclosporin (cyclosporine) is commonly administered per os (PO) for the treatment of a number of inflammatory diseases in cats. A number of client-owned cats administered ciclosporin (cyclosporine) A (CsA) PO to block renal transplant rejection have developed clinical signs of upper respiratory tract disease that may have been from activated FHV-1. In this study, cats experimentally inoculated with FHV-1 several months previously were administered methylprednisolone acetate intramuscularly, CsA PO or a placebo PO. While clinical signs of activated FHV-1 occurred in some cats, disease was mild and self-limited in most cats. There was no vomiting, diarrhea, inappetence, weight loss, polydipsia, polyuria or polyphagia recognized.

**Therapeutic serum phenobarbital concentrations obtained using chronic transdermal administration of phenobarbital in healthy cats**

Joy A Delamaide Gasper, Heidi L Barnes Heller, Michelle Robertson et al.

Seizures are a common cause of neurologic disease, and phenobarbital (PB) is the most commonly used antiepileptic drug. Chronic oral dosing can be challenging for cat owners, leading to poor compliance. The purpose of this study was to determine if the transdermal administration of PB could achieve serum PB concentrations of between 15 and 45 µg/ml in healthy cats. Nineteen healthy cats were enrolled in three groups. Transdermal PB in pluronic lecithin organogel (PLO) was applied to the pinnae for 14 days at a dosage of 3 mg/kg q12h in group 1 (n = 6 cats) and 9 mg/kg q12h in group 2 (n = 7 cats). Transdermal PB in Lipoderm Activemax was similarly applied at 9 mg/kg q12h for 14 days in group 3 (n = 6 cats). Steady-state serum PB concentrations were measured at trough, and at 2, 4 and 6 h after the morning dose on day 15. In group 1, median concentrations ranged from 6.0–7.5 µg/ml throughout the day (observed range 0–11 µg/ml). Group 2 median concentrations were 26.0 µg/ml (observed range 18.0–37.0 µg/ml). For group 3, median concentrations ranged from 15.0–17.0 µg/ml throughout the day (range 5–29 µg/ml). Side effects were mild. One cat was withdrawn from group 2 owing to ataxia and sedation. These results show therapeutic serum PB concentrations can be achieved in cats following chronic transdermal administration of PB in PLO at a dosage of 9 mg/kg q12h. More individual variation was noted using Lipoderm Activemax. Transdermal administration may be an alternative for cats that are difficult to medicate orally.

**Pregnancy in a unilaterally ovariohysterectomised queen**
Piotr Jurka, Kamil J Kacprzak, and Beata Degórska
A 4-year-old female Russian Blue cat presented with signs of right-sided abdominal distension, anorexia and a mucoid vaginal discharge. On the basis of clinical and ultrasonographical findings a tentative diagnosis of uterine torsion was made. Exploratory coeliotomy revealed a 900° right uterine torsion along the longitudinal axis. Unilateral ovariohysterectomy was performed. Subsequently, the cat had two successful and uneventful pregnancies. To our knowledge this is the first case report of pregnancy in a unilaterally ovariohysterectomised queen.

Metaphyseal osteopathy in a British Shorthair cat
Carl Adagra, Derek Spielman, Angela Adagra, and Darren J Foster
Metaphyseal osteopathy, otherwise known as hypertrophic osteodystrophy, is a disease that causes pyrexia and lethargy accompanied by pain in the thoracic and pelvic limbs of rapidly growing large-breed dogs. While metaphyseal osteopathy has been described in association with slipped capital femoral epiphysis in cats, it has not previously been reported as a cause of limb pain and pyrexia in this species. A 7-month-old British Shorthair cat presented with a 1 month history of pyrexia, lethargy and pain in all limbs. Investigation included radiographs of the limbs and chest, abdominal ultrasound, serum biochemical analysis, haematology, bone biopsy, joint fluid aspiration and cytology. Findings were consistent with a diagnosis of metaphyseal osteopathy. The cat’s clinical signs resolved following the administration of prednisolone. Symptoms recurred 1 month after the cessation of prednisolone therapy, but resolved when administration was resumed.

Use of a coccygeal axial pattern flap for reconstruction following tumour excision in a cat
Vincenzo Montinaro, Federico Massari, and Giorgio Romanelli
A 6-year-old male castrated Chartreux cat was referred for recurrence of an injection site sarcoma at the base of the tail 7 months after the initial surgery. Upon presentation, the physical examination was unremarkable except for a non-painful, subcutaneous mass, 2 cm in diameter, firmly attached to the underlying tissue on the left lateral side of the tail base. Complete blood count, biochemistry and urinalysis were within normal limits; thoracic radiographs and abdominal ultrasound showed no evidence of metastatic disease. After removing the mass with 3 cm margins laterally and two deep fascial planes, the defect was reconstructed after tail amputation using a coccygeal axial pattern flap based on the lateral coccygeal arteries and veins. There were no complications with wound healing and the only visible change was a difference in hair coat direction at the 1 month re-check. This is the first report to describe the utility and feasibility of the coccygeal axial pattern flap to reconstruct a large cutaneous defect over the caudodorsal pelvic region in a cat.

South African report of first case of chromoblastomycosis caused by Cladosporium (syn Cladophialophora) carrionii infection in a cat with feline immunodeficiency virus and lymphosarcoma
Anthony B Zambelli and Catherine A Griffiths
This report describes a 6-year-old neutered male feline immunodeficiency-positive cat with repeated abdominal and thoracic effusions. The cat was diagnosed with and treated for lymphosarcoma but remission was short-lived and, on re-evaluation, a fungal peritoneal exudate was noted. Cytology of the organisms is described and the culture elucidated Cladosporium carrionii, an important cause of chromoblastomycosis. Treatment with itraconazole was unsuccessful in this case.

Pericardial cyst in a 2-year-old Maine Coon cat following peritoneopericardial diaphragmatic hernia repair
Hannah M Hodgkiss-Geere, Valentina Palermo, Tiziana Liuti et al.
A pericardial cyst developed in a 2-year-old male neutered Maine Coon cat following surgery for an incidentally diagnosed congenital peritoneopericardial diaphragmatic hernia. The cyst caused no clinical signs in the cat, although clinical findings included positional right-sided cardiac tamponade and compression of thoracic structures, associated with a cardiac arrhythmia and axis deviation on electrocardiography. Extensive assessment of the cyst included radiography, echocardiography, computed tomography, exploratory thoracotomy, electrocardiography, histopathology and fluid analysis. Surgical removal of the cyst was curative, and the arrhythmia and axis deviation resolved. This report details case management from initial diagnosis to long-term follow-up, adding to the limited body of literature available on feline pericardial cysts. This is also the first report to associate cardiac arrhythmia with a pericardial cyst.
Neuromuscular blocking effects of vecuronium in dogs with autosomal-recessive centronuclear myopathy.
Manuel Martin-Flores, Monique D. Paré, Emily A. Tomak, Morgan L. Corn, Luis Campoy.
OBJECTIVE To evaluate the potency of vecuronium and duration of vecuronium-induced neuromuscular blockade in dogs with centronuclear myopathy (CNM). ANIMALS 6 Labrador Retrievers with autosomal-recessive CNM and 5 age- and weight-matched control dogs. PROCEDURES Dogs were anesthetized on 2 occasions (1-week interval) with propofol, dexmedetomidine, and isoflurane. Neuromuscular function was monitored with acceleromyography and train-of-four (TOF) stimulation. In an initial experiment, potency of vecuronium was evaluated by a cumulative-dose method, where 2 submaximal doses of vecuronium (10 µg/kg each) were administered IV sequentially. For the TOF’s first twitch (T1), baseline twitch amplitude and maximal posttreatment depression of twitch amplitude were measured. In the second experiment, dogs received vecuronium (50 µg/kg, IV) and the time of spontaneous recovery to a TOF ratio (ie, amplitude of TOF’s fourth twitch divided by amplitude of T1) ≥ 0.9 and recovery index (interval between return of T1 amplitude to 25% and 75% of baseline) were measured. RESULTS Depression of T1 after each submaximal dose of vecuronium was not different between groups. Median time to a TOF ratio ≥ 0.9 was 76.7 minutes (interquartile range [IQR; 25th to 75th percentile], 66.7 to 99.4 minutes) for dogs with CNM and 75.0 minutes (IQR; 47.8 to 96.5 minutes) for controls. Median recovery index was 18.0 minutes (IQR, 9.7 to 23.5 minutes) for dogs with CNM and 20.2 minutes (IQR, 8 to 25.1 minutes) for controls. CONCLUSIONS AND CLINICAL RELEVANCE For the study dogs, neither potency nor duration of vecuronium-induced neuromuscular blockade was altered by CNM. Vecuronium can be used to induce neuromuscular blockade in dogs with autosomal-recessive CNM.

Platelet activation in a population of critically ill dogs as measured with whole blood flow cytometry and thromboelastography.
Sean B. Majoy, Armelle M. de Laforcade, Marc R. Barnard, Scott P. Shaw,
OBJECTIVE To determine whether critically ill dogs had increased platelet activation and whether the proportion of activated platelets correlated with severity of illness. ANIMALS 82 dogs in the intensive care unit of a veterinary teaching hospital and 24 healthy control dogs. PROCEDURES Flow cytometry with monoclonal mouse anti-human CD61 and CD62 antibodies in resting and ADP-treated samples and kaolin-activated thromboelastography were used to compare platelet activation in blood samples of critically ill and control dogs. Serum antithrombin, von Willebrand factor, fibrinogen, and activated protein C concentrations; prothrombin time (PT); and activated partial thromboplastin time (aPTT) were measured. Revised survival prediction index, acute patient physiology and laboratory evaluation, systemic inflammatory response syndrome, and multiple organ dysfunction syndrome scores were used to estimate severity of illness. Severity of illness scores and platelet activation measurements were compared with survival time and duration and cost of hospitalization. RESULTS Critically ill and control dogs had no differences in platelet activation for non–ADP-treated samples measured. Critically ill dogs had significantly increased platelet activation in response to 2, 6, and 10µM ADP. Critically ill dogs had significantly increased maximum amplitude, a angle, and global clot strength and significantly decreased clot formation time. Critically ill dogs had significantly increased fibrinogen concentration, PT, and aPTT and significantly decreased antithrombin concentration. Survivors and nonsurvivors had similar flow cytometry and thromboelastography values. Three dogs developed macrothrombosis. CONCLUSIONS AND CLINICAL RELEVANCE In this study, critically ill dogs had hyperreactive platelets, which may have contributed to a high incidence of hypercoagulability in this patient population.

Effects of postexercise feeding of a supplemental carbohydrate and protein bar with or without astaxanthin from Haematococcus pluvialis to exercise-conditioned dogs.
Brian M. Zanghi, Rondo P. Middleton, Arleigh J. Reynolds
OBJECTIVE To characterize the postprandial nutrient profiles of exercise-conditioned dogs fed a supplemental carbohydrate and protein bar with or without astaxanthin from Haematococcus pluvialis immediately after exercise. ANIMALS 34 exercise-conditioned adult Husky-Pointer dogs. PROCEDURES The study had 2 phases. During phase 1, postprandial plasma glucose concentration was determined for dogs fed a bar containing 25% protein and 18.5% or 37.4% maltodextrin plus dextrin (rapidly digestible carbohydrate; RDC), or dry kibble (30% protein and 0% RDC) immediately after exercise. During phase 2, dogs were exercised for 3 days and fed a bar (25% protein and 37.4%
Effect of oral administration of cyclosporine on Toxoplasma gondii infection status of cats.
Michael R. Lappin, Karen A. VanLare, Wolfgang Seewald, Linda M. Roycroft, Andrea V. Scorza, Stephen King, Elizabeth S. Roberts.

OBJECTIVE To evaluate whether anti-inflammatory doses of cyclosporine activate Toxoplasma gondii in chronically infected cats or potentiate infection in cats exposed for the first time. ANIMALS 30 T gondii–negative cats. PROCEDURES Cats were assigned to 1 of 3 groups (10 cats/group). Group 1 (control) cats were administered a placebo for 126 days; group 2 cats were administered a placebo for 84 days, followed by cyclosporine at 7.5 mg/kg/d, PO, for 42 days; and group 3 cats were administered cyclosporine at 7.5 mg/kg/d, PO, for 126 days. Cats were orally inoculated with T gondii on day 42. Results for fecal flotations, PCR assays, and histologic examinations and IgM and IgG titers were analyzed. Cyclosporine concentrations were measured on selected days. RESULTS All cats were infected by T gondii and developed signs of self-limiting gastrointestinal tract infection. Group 3 had the highest incidence and severity of CNS and pulmonary histopathologic findings typical of toxoplasmosis. One cat in group 3 died of systemic toxoplasmosis; that cat had a cyclosporine concentration of 1,690 ng/mL. Group 2 cats infected with T gondii before cyclosporine administration did not have repeated oocyst shedding. Group 3 cats shed fewer oocysts for a shorter time than did control cats of group 1. CONCLUSIONS AND CLINICAL RELEVANCE Oral administration of cyclosporine in accordance with the protocol for this study did not potentiate the enteropathic phase of T gondii infection. Cats with high cyclosporine blood concentrations at the time of primary T gondii infection may be at risk of developing systemic toxoplasmosis.

Pharmacokinetics of an oral extended-release formulation of doxycycline hyclate containing acrylic acid and polymethacrylate in dogs. Sara Melisa Arciniegas Ruiz, Lilia Gutiérrez Olvera, Sara del Carmen Caballero Chacón, Dinorah Vargas Estrada.

OBJECTIVE To determine the pharmacokinetics of doxycycline hyclate administered orally in the form of experimental formulations with different proportions of acrylic acid–polymethacrylate–based matrices. ANIMALS 30 healthy adult dogs. PROCEDURES In a crossover study, dogs were randomly assigned (in groups of 10) to receive a single oral dose (20 mg/kg) of doxycycline hyclate without excipients (control) or extended-release formulations (ERFs) containing doxycycline, acrylic acid polymer, and polymethacrylate in the following proportions: 1:0.5:0.0075 (ERF1) or 1:1:0.015 (ERF2). Serum concentrations of doxycycline were determined for pharmacokinetic analysis before and at several intervals after each treatment. RESULTS Following oral administration to the study dogs, each ERF resulted in therapeutic serum doxycycline concentrations for 48 hours, whereas the control treatment resulted in therapeutic serum doxycycline concentrations for only 24 hours. All pharmacokinetic parameters for ERF1 and ERF2 were significantly different; however, findings for ERF1 did not differ significantly from those for the control treatment. CONCLUSIONS AND CLINICAL RELEVANCE Results indicated that both ERFs containing doxycycline, acrylic acid polymer, and polymethacrylate had an adequate pharmacokinetic-pharmacodynamic relationship for a time-dependent drug and a longer release time than doxycycline alone following oral administration in dogs. Given the minimum effective serum doxycycline concentration of 0.26 µg/mL, a dose interval of 48 hours can be achieved for each tested ERF. This minimum inhibitory concentration has the potential to be effective against several susceptible bacteria involved in important infections in dogs. Treatment of dogs with either ERF may have several benefits over treatment with doxycycline alone.
Immunotherapy for canine cancer – Is it time to go back to the future?
D. R. Killick, A. J. Stell and B. Catchpole
Over the last 50 years, the significance of the immune system in the development and control of cancer has been much debated. However, recent discoveries provide evidence for a role of immunological mechanisms in the detection and destruction of cancer cells. Forty years ago veterinary oncologists were already investigating the feasibility of treating neoplasia by enhancing anticancer immunity. Unfortunately, this research was hindered by lack of a detailed understanding of cancer immunology, this limited the specificity and success of these early approaches. The great forward strides made in our understanding of onco-immunology in recent years have provided the impetus for a resurgence of interest in anticancer immunotherapy for canine patients. In this article both these initial trials and the exciting novel immunotherapeutics currently in development are reviewed.

Ease of intravenous catheterisation in dogs and cats: a comparative study of two peripheral catheters
A. Chebroux, E. A. Leece and J. C. Brearley
OBJECTIVES To evaluate animal comfort and ease of placement of a veterinary-specific intravenous catheter compared with a catheter manufactured for human use. METHODS Fifty-nine veterinary undergraduates were recruited to perform intravenous catheterisations with two brands of over-the-needle catheter [Smiths Medical Jelco® (human use) and Abbott Animal Health catheter® (veterinary use)] in 69 healthy cats (n = 28) and dogs (n = 41) requiring general anaesthesia. After a standardised pre-anaesthetic medication, each animal was randomly allocated to have one of the two brands of catheter placed. Each student was allowed a maximum of three attempts to achieve cephalic vein catheterisation. The student and a single experienced observer evaluated each attempt. Observations related to ease of placement and to the animal's reaction were recorded. RESULTS Human use catheters were placed in 34 and veterinary use in 35 animals. There was no difference in weight, sex or sedation score between the two groups. The number of failed attempts was similar between the two groups. There was no difference between groups for the number of animals reacting to catheter insertion. CLINICAL SIGNIFICANCE The two types of catheters evaluated are equally suitable for intravenous catheterisation of sedated animals by veterinary undergraduate students.

Short-term wound complications and predictive variables for complication after limb amputation in dogs and cats
M. Raske, J. K. McClaran and A. Mariano
OBJECTIVES To identify short-term wound complications and associated predictive factors following amputation in dogs and cats. MATERIALS AND METHODS Retrospective review of case records of dogs and cats undergoing thoracic or pelvic limb amputation. Preoperative data on signalment, body weight, limb amputated, reason for amputation and laboratory parameters were collected. Details regarding surgical procedures and use of anaesthesia such as total surgical and anaesthesia times, incidences of intraoperative hypotension or hypothermia, method of muscle excision and type of skin closure utilized were recorded. Postoperative data on duration of hospital stay, use of postoperative antibiotics, use of a wound soaker catheter, wound complications noted both during hospitalization and at recheck and treatments if applicable were collected. RESULTS In total, 67 records were identified including 39 dogs and 28 cats. Wound infection/inflammation complications occurred in 20.9% of cases and wound infection complications in 9%; 12.8% in dogs and 3.6% in cats. One (1.5%) complication was classified as major, which occurred immediately postoperatively. Nine (13.4%) minor complications occurred immediately after surgery and four (6.0%) were identified at recheck. Age was the only significant predictor of postoperative infection/inflammation following pelvic or thoracic limb amputation. CLINICAL SIGNIFICANCE Short-term wound complications following pelvic or thoracic limb amputation in cats and dogs were typically minor and resolved after treatment.

Antimicrobial efficacy of an innovative emulsion of medium chain triglycerides against canine and feline periodontopathogens
OBJECTIVES To test the in vitro antimicrobial efficacy of a non-toxic emulsion of free fatty acids against clinically relevant canine and feline periodontopathogens METHODS Antimicrobial kill kinetics were established utilising an alamarBlue® viability assay against 10 species of canine and feline periodontopathogens in the biofilm mode of growth at a concentration of 0·125% v/v medium chain triglyceride (ML:8) emulsion. The results were compared with 0·12% v/v chlorhexidine digluconate and a xylitol-containing dental formulation. Mammalian cellular cytotoxicity was also investigated for both the ML:8 emulsion and chlorhexidine digluconate (0·25 to 0·0625% v/v) using in
vitro tissue culture techniques. RESULTS No statistically significant difference was observed in the antimicrobial activity of the ML:8 emulsion and chlorhexidine digluconate; a high percentage kill rate (>70%) was achieved within 5 minutes of exposure and was maintained at subsequent time points. A statistically significant improvement in antifilm activity was observed with the ML:8 emulsion compared with the xylitol-containing formulation. The ML:8 emulsion possessed a significantly lower (P < 0.001) toxicity profile compared with the chlorhexidine digluconate in mammalian cellular cytotoxicity assays. CLINICAL SIGNIFICANCE The ML:8 emulsion exhibited significant potential as a putative effective antimicrobial alternative to chlorhexidine- and xylitol- based products for the reduction of canine and feline periodontopathogens.

**Molecular identification of black-pigmented bacteria from subgingival samples of cats suffering from periodontal disease.**


OBJECTIVES To characterise the black-pigmented bacterial species found in the subgingival samples of cats with periodontal disease using molecular-based microbiological techniques. METHODS Sixty-five subgingival samples obtained from 50 cats with periodontal disease were analysed by polymerase chain reaction amplified ribosomal DNA restriction analysis and cloning and sequencing of the 16S rRNA genes. RESULTS Among the 65 subgingival samples, eight phylogenetic profiles were obtained, of which the most prevalent species were: Porphyromonas gulae (40%), P. gingivalis/P. gulae (36 · 9%), P. gulae/Porphyromonas sp. UQD 406 (9 · 2%), Odoribacter denticanis (6 · 2%), P. gulae/Porphyromonas sp. UQD 348 (1 · 5%) and P. circumdentaria (1 · 5%). When compared with the species resulting from biochemical diagnosis, the identification of P. gulae was congruent in 70% of the cases, while colonies identified as P. intermedia-like corresponded in 80% of cases to P. gulae. CLINICAL SIGNIFICANCE The use of molecular-based microbiological diagnostic techniques resulted in a predominance of Porphyromonas spp. in the subgingival plaque of cats suffering from periodontal disease. Further characterisation of these bacteria identified P. gulae, O. denticanis and P. circumdentaria. The more frequently detected phylogenetic profiles corresponded to P. gingivalis and P. gulae.

**Clinical characteristics of Scottie Cramp in 31 cases.**

G. Urkasemsin and N. J. Olby

OBJECTIVE - To report the clinical features, with response to therapy and long-term outcome of Scottie Cramp as described by owners. METHODS - Owners of affected dogs provided a description of clinical signs, age of onset and disease progression. Medical records, pedigrees and videotapes of cramp episodes were evaluated. RESULTS - Thirty-one dogs were recruited; 19 showed generalised spasticity and 12 exhibited only hind limb spasticity and skipping. Episodes were noted in the first year of life in 76% of dogs and were triggered by excitement, stress and exercise. Episode frequency and severity decreased over time with behaviour modification and decreased exposure to triggers playing a role in their development. One dog was euthanased because of severe refractory signs. Fluoxetine reduced the frequency and duration of episodes in seven dogs, but not in one severely affected dog. Female dogs were over-represented with only eight affected males in the study cohort, and the presence of dogs with cerebellar degeneration in the same pedigrees may suggest a more complex mode of inheritance than previously reported. CLINICAL SIGNIFICANCE - The disorder recognised as Scottie Cramp by dog owners includes dogs with hind limb spasticity in addition to generalised cramping. Signs usually improve over time without specific treatment.

**Acquired cervical spinal arachnoid diverticulum in a cat.**

R. J. Adams, L. Garosi, K. Matiasek and M. Lowrie

A one-year-old, female entire, domestic, shorthair cat presented with acute onset non-ambulatory tetraparesis. Magnetic resonance imaging was consistent with a C3-C4 acute non-compressive nucleus pulposus extrusion and the cat was treated conservatively. The cat was able to walk after 10 days and was normal 2 months after presentation. The cat was referred five and a half years later for investigation of an insidious onset 3-month history of ataxia and tetraparesis. Magnetic resonance imaging of the cervical spine was repeated, demonstrating a spinal arachnoid diverticulum at C3 causing marked focal compression of the spinal cord. This was treated surgically with hemilaminectomy and durectomy. The cat improved uneventfully and was discharged 12 days later.