The pharmacokinetics and in vitro/ex vivo cyclooxygenase selectivity of parecoxib and its active metabolite valdecoxib in cats

T.W. Kim, C. Vercelli, A. Briganti, G. Re, M. Giorgi.

Parecoxib (PX) is an injectable prodrug of valdecoxib (VX, which is a selective cyclo-oxygenase-2 (COX-2)) inhibitor licensed for humans. The aim of the present study was to evaluate pharmacokinetics and in vitro/ex vivo cyclooxygenase selectivity of PX and VX in cats. In a whole blood in vitro study, PX did not affect either COX enzymes whereas VX revealed a COX-2 selective inhibitory effect in feline whole blood. The IC50 values of VX for COX-2 and COX-1 were 0.45 and 38.6 µM, respectively. Six male cats were treated with 2.5 mg/kg of PX by intramuscular injection. PX was rapidly converted to VX with a relatively short half-life of 0.4 h. VX achieved peak plasma concentration (2.79 ± 1.59 µg/mL) at 7 h following PX injection. The mean residence times for PX and VX were 0.43 ± 0.15 and 5.94 ± 0.88 h, respectively. In the ex vivo study, PX showed a COX-2 inhibition rate of about 70% in samples taken at 1, 2, 4 and 10 h after injection, with a significant difference compared to the control. In contrast, COX-1 was slightly inhibited, ranging from 0.7% to 9.7% of the control inhibition rate without any significant difference for 24 h after PX administration. The preliminary findings of the present research appear promising and encourage further studies to investigate whether PX can be successfully used in feline medicine.

Conjunctival expression of the P2Y2 receptor and the effects of 3% diquafosol ophthalmic solution in dogs.

Kunihiko Terakado, Takuya Yogo, Yukihiro Kohara, Satoshi Soeta, Yoshinori Nezu, Yasuji Harada, Yasushi Hara, Hajime Amasaki, Masahiro Tagawa.

Conjunctival epithelial and goblet cell P2Y2 nucleotide receptors regulate ion transport and secretory function. Diquafosol is a P2Y2 purinergic receptor agonist that stimulates secretion of aqueous tear components from conjunctival epithelial cells and secretion of mucin from conjunctival goblet cells. In humans suffering from keratoconjunctivitis sicca (dry eye), topical administration of diquafosol improves corneal epithelial integrity and stabilises the tear film. The aim of the present study was to investigate P2Y2 receptor expression and to determine the effect of topical administration of diquafosol on mucin and aqueous tear production in dogs. Canine conjunctival P2Y2 receptor expression was evaluated by Western blotting and immunohistochemical analysis. The effect of diquafosol on mucin secretion was evaluated by examining mucin-5 subtype AC (MUC5AC) concentration in tears. The effect of diquafosol on aqueous secretions was evaluated by performing the Schirmer tear test (STT) and phenol red thread test. Expression of the P2Y2 receptor was confirmed in canine bulbar and palpebral conjunctivae and receptors were identified at the conjunctival epithelial and goblet cell surface. Tear MUC5AC concentration significantly increased after administration of 3% diquafosol ophthalmic solution, although neither STT nor phenol red thread test values showed any significant change after diquafosol instillation. Topical ocular administration of 3% diquafosol might improve corneal epithelial disorders in dogs through stabilisation of the tear film, by virtue of an increase in MUC5AC secretion.

Oestrogen and progesterone receptor expression in subtypes of canine mammary tumours in intact and ovariectomised dogs

M. Mainenti, R. Rasotto, P. Carnier, V. Zappulli.

The objective of this study was to investigate as a potential prognostic indicator the relationship between histological subtype of canine mammary tumours (CMTs) and oestrogen-α (ORα) and progesterone (PR) receptor expression. Using immunohistochemistry, receptor expression in neoplastic epithelial cells was assessed in 12 different subtypes in 113 CMTs (34 benign, 79 malignant) and 101 surrounding normal tissues. Sixty-eight and 45 CMTs were from intact and ovariectomised bitches, respectively. Histological subtype strongly influenced ORα/PR expression: simple and complex adenomas as well as simple tubular carcinomas exhibited the greatest expression,
whereas immunohistochemical labelling for these receptors was weakest in carcinoma and malignant myoepitheliomas, as well as in solid/anaplastic carcinomas and comedocarcinomas. Receptor expression was generally higher in benign relative to malignant neoplasms, and in the latter it was significantly lower in ovarioctomised vs. intact bitches. Lymphatic invasion, mitotic index, nodule diameter, and tumour grade were significantly associated with ORα/PR expression. Although not found to be an independent prognostic indicator, tumours from dogs with <10% cells with ORα/PR expression had a poorer prognosis. Lymphatic invasion, the state of the margins of excision, and mitotic index were found to be independent prognostic indicators. Overall, the results suggest that differences in histological subtype and whether or not a bitch has been ovarioctomised should be considered when evaluating the significance of ORα and PR expression in CMTs.

**Spontaneous acromegaly: A retrospective case control study in German shepherd dogs.**
Acromegaly results from the overproduction of growth hormone in adulthood and is characterised by overgrowth of soft tissue and/or bone as well as insulin resistance. There are few data indicating the risk factors associated with this disease in dogs or its clinicopathological features and sequelae. The objective of this retrospective study was to catalogue and assess these aspects of the disease in German shepherd dogs (GSDs) which were found to be over-represented among acromegalic dogs attending two veterinary referral clinics over a period of 7 years. Each acromegalic dog (AD) was compared with two breed/age/sex matched controls. Clinical signs of acromegaly included panting, polyuria/polydipsia, widened interdental spaces, weakness, inspiratory stridor, macroglossia, weight gain, redundant skin folds, thick coat, exophthalmos and mammary masses. Serum alkaline phosphatase, creatine-kinase, glucose, triglyceride, phosphate ion, and ‘calcium per phosphate product’ concentrations were significantly higher in acromegalic animals while haemoglobin concentration, blood urea nitrogen, sodium and chloride ion concentrations, and urinary specific gravity, osmolality and fractional excretion of phosphate were significantly lower. Although, in the majority of cases clinicopathological abnormalities resolved following ovariohysterectomy, in one dog, acromegalic signs abated and insulin-like growth factor-1 concentrations normalised only following the surgical excision of mammary tumours carried out 2 months after ovariohysterectomy. The findings of this study indicate that GSDs are predisposed to the development of acromegaly with a suspected inherited susceptibility.

**Bovine lactoferrin and piroxicam as an adjunct treatment for lymphocytic-plasmacytic gingivitis stomatitis in cats.**
Yi-Ping Hung, Yi-Ping Yang, Hsien-Chi Wang, Jiunn-Wang Liao, Wei-Li Hsu, Chao-Chin Chang, Shih-Chieh Chang.
Feline lymphocytic-plasmacytic gingivitis/stomatitis (LPGS) or caudal stomatitis is an inflammatory disease that causes painfully erosive lesions and proliferations of the oral mucosa. The disease is difficult to cure and can affect cats at an early age, resulting in lifetime therapy. In this study, a new treatment using a combination of bovine lactoferrin (bLf) oral spray and oral piroxicam was investigated using a randomized double-blinded clinical trial in 13 cats with caudal stomatitis. Oral lesion grading and scoring of clinical signs were conducted during and after the trial to assess treatment outcome. Oral mucosal biopsies were used to evaluate histological changes during and after treatment. Clinical signs were significantly improved in 77% of the cats. In a 4-week study, clinical signs were considerably ameliorated by oral piroxicam during the first 2 weeks. In a 12-week study, the combined bLf oral spray and piroxicam, when compared with piroxicam alone, exhibited an enhanced effect that reduced the severity of the oral lesions (P = 0.059), while also significantly improving clinical signs (P < 0.05), quality of life (P < 0.05), and weight gain (P < 0.05). The remission of oral inflammation was closely correlated with the decreased number of macrophages (OR = 4.719, P < 0.05). There was no detectable influence on liver or kidney function during a 12-week assessment. It was concluded that combining oral bLf spray and piroxicam was safe and might be used to decrease the clinical signs of caudal stomatitis in cats.
Forelimb and hindlimb ground reaction forces of walking cats: Assessment and comparison with walking dogs
The primary aim of this study was to assess the potential of force plate analysis for describing the stride cycle of the cat. The secondary aim was to define differences in feline and canine locomotion based on force plate characteristics. Ground reaction forces of 24 healthy cats were measured and compared with ground reaction forces of 24 healthy dogs. Force-time waveforms in cats generated by force plate analysis were consistent, as reflected by intra-class correlation coefficients for peak vertical force, peak propulsive force and peak braking force (0.94–0.95, 0.85–0.89 and 0.89–0.90, respectively). Compared with dogs, cats had a higher peak vertical force during the propulsion phase (cat, 3.89 ± 0.19 N/kg; dog, 3.03 ± 0.16 N/kg), and a higher hindlimb propulsive force (cat, −1.08 ± 0.13 N/kg; dog, −0.87 ± 0.13 N/kg) and hindlimb impulse (cat, −0.18 ± 0.03 N/kg; dog, −0.14 ± 0.02 N/kg). Force plate analysis is a valuable tool for the assessment of locomotion in cats, because it can be applied in the clinical setting and provides a non-invasive and objective measurement of locomotion characteristics with high repeatability in cats, as well as information about kinetic characteristics. Differences in force-time waveforms between cats and dogs can be explained by the more crouched position of cats during stance and their more compliant gait compared with dogs. Feline waveforms of the medio-lateral ground reaction forces also differ between cats and dogs and this can be explained by differences in paw supination–pronation.

The effect of magnetic resonance imaging noise on cochlear function in dogs.
Noise produced by magnetic resonance imaging (MRI) scanners (which can peak at a sound pressure level of 131 dB) has been shown to cause noise-induced cochlear dysfunction in people. The aim of this study was to investigate whether noise produced during MRI had a deleterious effect on cochlear function in dogs, using distortion product otoacoustic emission (DPOAE) testing, which allows frequency specific, non-invasive assessment of cochlear function. DPOAE testing was performed before and after MRI in one or both ears under general anaesthesia at 14 frequency pairs (f2 frequency ranging from 0.84 kHz to 8.0 kHz). A control group comprised dogs undergoing anaesthesia of a similar duration for quiet procedures. Thirty-six dogs (66 ears) and 17 dogs (28 ears) were included in the MRI and control groups respectively. There was a reduction in DPOAE at all frequencies tested in the MRI group; a similar effect was not evident in the control group. This reduction in the MRI group was statistically significant in five of the 14 frequencies assessed (P < 0.05). These results demonstrate that exposure to MRI noise results in a significant reduction in frequency-specific cochlear function in dogs, although it is not known whether this is reversible or permanent. This suggests that all dogs undergoing MRI studies should be provided with ear protection as a routine precautionary measure.

Plasma exogenous creatinine clearance in clinically healthy cats: Comparison with urinary exogenous creatinine clearance, tentative reference intervals and indexation to bodyweight.
Glomerular filtration rate (GFR) is considered to be the best indicator of overall kidney function. The major objectives of this study were to compare plasma exogenous creatinine clearance (PECC) with a reference method, to establish reference intervals (RIs) for PECC and to assess the effects of indexation of GFR to bodyweight (BW) in cats. PECC was compared with urinary clearance of exogenous creatinine (UECC) in six clinically healthy domestic shorthair cats (experiment 1). Tentative RIs were determined according to current guidelines and the effects of indexation to BW and of covariables on GFR were assessed in 43 clinically healthy cats of various breeds (experiment 2). PECC was 15% higher than UECC (P < 0.01), but the two estimates were strongly correlated (r² = 0.97, P = 0.001). RIs for PECC were 6.4–21.3 mL/min or 1.2–4.9 mL/min/kg. The absolute (i.e. non-indexed) GFR value was not dependent on BW. Thus, indexation of GFR to BW in cats would not standardize the GFR value, but could introduce bias in clinical interpretation. Significant effects of breed, plasma protein concentration and plasma albumin concentration on GFR were demonstrated. Plasma concentrations of urea and creatinine, when
assessed separately, were also weakly correlated with GFR in healthy cats. These combined findings contribute to a better understanding of renal function assessment in cats.

**Prevalence of canine influenza virus A (H3N8) in dogs in Germany.**
Bianka Schulz, Christina Klinkenberg, Robert Fux, Tara Anderson, Paola de Benedictis, Katrin Hartmann.
The aim of this study was to investigate the prevalence of CIV H3N8 in dogs in Germany. Blood samples from 272 clinically healthy dogs and 35 dogs with acute respiratory signs were screened for antibodies against influenza virus by ELISA and haemagglutination inhibition (HI) assay; positive samples were further tested by fluorescent antibody test (FAT) and subtype-specific HI assay. Nasal and pharyngeal swabs from all sick dogs were submitted for real-time (RT)-PCR for influenza virus RNA; PCR results were negative in all cases. One healthy and one sick dog tested positive for antibodies against influenza virus nucleoprotein by ELISA, but both were negative by subtype-specific HI assay and FAT, and were therefore considered false positive results. Thus, antibody prevalence against CIV H3N8 was 0% (0–1.24%, 95% CI). Currently, the risk for CIV H3N8 infection in the German dog population seems very low.

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**Qualitative study of the information expectations of clients accessing oncology care at a tertiary referral center for dogs with life-limiting cancer**
Debbie L. Stoewen, Jason B. Coe, Clare MacMartin, Elizabeth A. Stone, Catherine E. Dewey
Objective—To evaluate the content aspects of the information expectations of clients accessing oncology care services at a tertiary referral center for dogs with life-limiting cancer. Design—Qualitative analysis of data acquired during in-person single and dyadic interviews. Sample—43 dog owners participating in 30 interviews. Procedures—Independent in-person interviews were conducted with standardized open- and closed-ended questions from April to October 2009. Thematic analysis was performed on transcripts of the interview discussions. Results—For the clients, the central qualification was that the information given had to be the truth. Information was expected about all aspects of their dog's cancer and its treatment, varying in relation to clients’ basic understanding of cancer, their previous experience with cancer, and their information preferences. Provision of information generated the trust and confidence necessary to engage in treatment, the ability to make informed decisions, and the ability to be prepared for the future. Provision of information also engendered a sense of control and capability and fostered hope.
Conclusions and Clinical Relevance—When dealing with owners of dogs with life-limiting cancer, results indicated that in addition to abiding by the principle of truth-telling, it is important for health-care service providers to ascertain clients’ understanding of and experiences with cancer as well as their information preferences and thereby adopt a tailored approach to information giving. Provision of information enabled client action and patient intervention but also enhanced clients’ psychosocial well-being. Veterinary healthcare service providers can purposely provide information to build and sustain clients’ ability to successfully cope with their pet's condition.

**Qualitative study of the communication expectations of clients accessing oncology care at a tertiary referral center for dogs with life-limiting cancer**
Debbie L. Stoewen, Jason B. Coe, Clare MacMartin, Elizabeth A. Stone, Catherine E. Dewey
Objective—To describe the process aspects (communication) of the information expectations of clients accessing oncology care services at a tertiary referral center for dogs with life-limiting cancer. Design—Qualitative analysis of data acquired during in-person single and dyadic interviews. Sample—43 dog owners participating in 30 interviews. Procedures—Independent in-person interviews were conducted with standardized open- and closed-ended questions from April to October 2009. Thematic analysis was performed on transcripts of the interview discussions. Results—The participants expected information to be communicated in a forthright manner; in multiple formats; with positivity; with compassion and empathy; with a nonjudgmental attitude; and through staff with whom they had established relationships. Conclusions and Clinical Relevance—Results indicated that the manner in
which information is communicated is vitally important to clients of dogs with life-limiting cancer in that it not only facilitates comprehension but also creates a humanistic environment from which clients derive the psychosocial support needed to successfully cope with their pet's condition.

Clinical features of progressive vacuolar hepatopathy in Scottish Terriers with and without hepatocellular carcinoma: 114 cases (1980–2013)
Objective—To characterize signalment, clinical features, clinicopathologic variables, hepatic ultrasonographic characteristics, endocrinologic profiles, treatment response, and age at death of Scottish Terriers with progressive vacuolar hepatopathy (VH) with or without hepatocellular carcinoma (HCC). Design—Retrospective case series.
Animals—114 Scottish Terriers with progressive VH. Procedures—Electronic databases from 1980 to 2013 were searched for adult (age > 1 year) Scottish Terriers with histopathologic diagnoses of diffuse glycogen-like VH. Available sections of liver specimens were histologically reevaluated to confirm diffuse VH with or without HCC; 8 dogs with HCC only had neoplastic tissue available. Physical examination, clinicopathologic, treatment, and survival data were obtained. Results—39 of 114 (34%) dogs with VH had HCC detected at surgery or necropsy or by abdominal ultrasonography. Histologic findings indicated that HCC was seemingly preceded by dysplastic hepatocellular foci. No significant differences were found in clinicopathologic variables or age at death between VH-affected dogs with or without HCC. Fifteen of 26 (58%) dogs with high hepatic copper concentrations had histologic features consistent with copper-associated hepatopathy. Although signs consistent with hyperadrenocorticism were observed in 40% (46/114) of dogs, definitive diagnosis was inconsistently confirmed. Assessment of adrenal sex hormone concentrations before and after ACTH administration identified high progesterone and androstenedione concentrations in 88% (22/25) and 80% (20/25) of tested dogs, respectively. Conclusions and Clinical Relevance—Results suggested that VH in Scottish Terriers may be linked to adrenal steroidogenesis and a predisposition to HCC. In dogs with VH, frequent serum biochemical analysis and ultrasonographic surveillance for early tumor detection are recommended.

Intravesical instillation of amikacin for treatment of a lower urinary tract infection caused by Pseudomonas aeruginosa in a dog
Ahmira R. Torres, Kirsten Cooke
Case Description—A 9-year-old neutered male Golden Retriever was evaluated because of recurrent lower urinary tract infection subsequent to placement of a permanent cystostomy tube. Clinical Findings—The dog was clinically normal except for the presence of malodorous urine. Bacteriologic culture of a urine sample obtained by cystocentesis yielded growth of Pseudomonas aeruginosa, which was susceptible to amikacin, gentamicin, imipenemcilastatin, and ticarcillin–clavulanic acid. Treatment and Outcome—The dog was administered amikacin sulfate (15 mg/kg [6.8 mg/lb], SC, q 24 h) for 14 days before treatment was discontinued because of the presence of casts in the urine. The cystostomy tube was replaced, and intravesical instillation of amikacin (15 mg/kg diluted in 30 mL of saline [0.9% NaCl] solution, q 12 h) was initiated. On day 25 of instillation treatment, bacterial culture of a urine sample yielded no growth, urinalysis revealed no casts, and SUN and creatinine concentrations were within reference intervals. On day 27 of instillation treatment, gross hematuria was observed, which resolved following discontinuation of amikacin instillation. Clinical Relevance—In this dog, treatment of a lower urinary tract infection caused by a multidrug-resistant strain of P aeruginosa was successfully achieved with intravesical instillation of amikacin. Results of serial serum biochemical analyses remained within reference limits, and urine casts were not identified on urinalyses during the treatment period, which suggested that systemic absorption of amikacin was minimal. Intravesical instillation of antimicrobials may be a viable treatment option for dogs with lower urinary tract infections caused by multidrug-resistant bacteria.
Evaluation of the learning curve for a board-certified veterinary surgeon performing laparoendoscopic single-site ovariectomy in dogs
Jeffrey J. Runge, Raymond C. Boston, Sharona B. Ross, Dorothy C. Brown
Objective—To define the learning curve and evaluate the outcome for a board-certified veterinary surgeon performing laparoendoscopic single-site (LESS) ovariectomy in dogs. Design—Retrospective case review and learning curve evaluation with a skill acquisition model. Animals—27 client-owned dogs. Procedures—Between April 2011 and December 2012, 27 dogs underwent elective LESS ovariectomy performed by a single experienced board-certified laparoscopic surgeon by means of the same technique. Medical records for these patients were reviewed to determine whether a learning curve could be detected. A commercially available multitrocar port was inserted through a 15- to 20-mm incision at the umbilicus, and LESS ovariectomy was performed with articulating graspers, a bipolar vessel-sealing device, and a 30° telescope. Surgical performance of the surgeon was quantified with an exponential skill acquisition model, and how skill was gained with repetition of the same novel surgical procedure was examined. Results—Median patient body weight was 20 kg (44 lb; range, 3.5 to 41 kg [7.7 to 90.2 lb]). Median surgical time was 35 minutes (range, 20 to 80 minutes). Median patient age was 314 days (range, 176 to 2,913 days). The skill acquisition model revealed that a comparable surgeon could reach 90% of optimal surgery performance after approximately 8 procedures (8.6, 95% confidence interval, 0.5 to 16.6 procedures). According to the model, with each surgery, surgical time would be expected to decrease by 27% (95% confidence interval, 2% to 52%). Complications were limited to minor hemorrhage due to a splenic laceration and a postoperative incisional infection. Follow-up information was available for all 27 cases. All owners were satisfied and indicated that they would pursue LESS ovariectomy again. Conclusions and Clinical Relevance—The learning curve for LESS ovariectomy was short and definable. Short-term outcome was excellent. Results of this study suggested that an experienced laparoscopic surgeon may anticipate achieving proficiency with this technique after performing approximately 8 procedures.

International survey of veterinarians to assess the importance of competencies in professional practice and education
Objective—To determine the perceived importance of specific competencies in professional veterinary practice and education among veterinarians in several countries. Design—Survey-based prospective study. Sample—1,137 veterinarians in 10 countries. Procedures—Veterinarians were invited via email to participate in the study. A framework of 18 competencies grouped into 7 domains (veterinary expertise, communication, collaboration, entrepreneurship, health and welfare, scholarship, and personal development) was used. Respondents rated the importance of each competency for veterinary professional practice and for veterinary education by use of a 9-point Likert scale in an online questionnaire. Quantitative statistical analyses were performed to assess the data. Results—All described competencies were perceived as having importance (with overall mean ratings [all countries] ≥ 6.45/9) for professional practice and education. Competencies related to veterinary expertise had the highest ratings (overall mean, 8.33/9 for both professional practice and education). For the veterinary expertise, entrepreneurship, and scholarship domains, substantial differences (determined on the basis of statistical significance and effect size) were found in importance ratings among veterinarians in different countries. Conclusions and Clinical Relevance—Results indicated a general consensus regarding the importance of specific types of competencies in veterinary professional practice and education. Further research into the definition of competencies essential for veterinary professionals is needed to help inform an international dialogue on the subject.

Association between oral health status and retrovirus test results in cats

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Mathew R. Kornya, Susan E. Little, Margie A. Scherk, William C. Sears, Dorothee Bienzle

Objective—To determine associations between oral health status and seropositivity for FIV or FeLV in cats.

Design—Cross-sectional survey. Animals—5,179 cats. Procedures—Veterinarians at veterinary clinics and animal shelters completed online training on oral conditions in cats and then scored oral health status of cats with no known history of vaccination against FIV. Age, sex, and results of an ELISA for retroviruses were recorded. Results were analyzed by means of standard logistic regression with binary outcome. Results—Of 5,179 cats, 237 (4.6%) and 186 (3.6%) were seropositive for FIV and FeLV, respectively, and of these, 12 (0.2%) were seropositive for FIV and FeLV. Of all 5,179 cats, 1,073 (20.7%) had gingivitis, 576 (11.1%) had periodontitis, 203 (3.9%) had stomatitis, and 252 (4.9%) had other oral conditions (overall oral disease prevalence, 2,104/5,179 [40.6%]). Across all age categories, inflammatory oral disease was associated with a significantly higher risk of a positive test result for FIV, compared with the seropositivity risk associated with other oral diseases or no oral disease. Stomatitis was most highly associated with risk of FIV seropositivity. Cats with any oral inflammatory disease were more likely than orally healthy cats to have a positive test result for FeLV. Increasing age was associated with a higher prevalence of oral disease in retrovirus-seronegative cats. Conclusions and Clinical Relevance—Inflammatory oral disease was associated with an increased risk of seropositivity for retroviruses in naturally infected cats. Therefore, retroviral status of cats with oral inflammatory disease should be determined and appropriate management initiated.


Lisa E. Olsen, Elizabeth M. Streeter, Rhonda R. DeCook

Objective—To describe the signalment, wound characteristics, and treatment of gunshot injuries in cats and dogs in urban and rural environments, and to evaluate the utility of the animal trauma triage (ATT) score as an early predictor of survival from the hospital. Design—Retrospective case series. Animals—29 dogs and 8 cats. Procedures—Medical records of cats and dogs evaluated for gunshot wounds from 2003 and 2008 at a private urban referral practice in Cedar Rapids, Iowa, and an urban veterinary teaching hospital in Ames, Iowa, were reviewed. Information collected included signalment, chief reason for evaluation, circumstance of the injury, general physical examination findings, wound characteristics, treatments provided, cost of care, survival to discharge from the hospital (yes vs no), and duration of hospital stay. For each animal, ATT scores were calculated and evaluated as a prognostic tool. Results—37 animals met study inclusion criteria. Animals with higher ATT scores had a greater likelihood of poor outcome following gunshot injury. Animals with higher ATT scores, classified as low (<4.5) or high (>4.5), were found to have a longer duration of stay, classified as zero (0 days), short (1 to 3 days), or long (>3 days). Young male dogs generally considered working breeds were overrepresented (29/37 [78.4%]). A preference for low-velocity, low-kinetic-energy firearms was identified (19/37 [52%]). The most numerous wounds were those inflicted to the limbs (12/37 [32.4%]), during low-visibility hours or hunting excursions. Calculated ATT scores on admission were higher in animals requiring blood products or surgical procedures and in nonsurvivors. Conclusions and Clinical Relevance—Results of the present study suggested that regional preferences in breed ownership and firearm choice are responsible for variation in gunshot injury characteristics and management in animals sustaining injuries in rural and urban settings in Iowa. In cats and dogs, calculation of an ATT score may provide a useful predictor of the need for surgery or blood products, duration of stay, and likelihood of survival to discharge from the hospital.

Outcome and prognostic factors for osteosarcoma of the maxilla, mandible, or calvarium in dogs: 183 cases (1986–2012)

Laura E. Selmic, Mary H. Lafferty, Debra A. Kamstock, Alana Garner, Nicole P. Ehrhart, Deanna R. Worley, Stephen J. Withrow, Susan E. Lana

Objective—To describe the biological behavior, clinical outcome, and prognostic factors of osteosarcoma of the maxilla, mandible, or calvarium in dogs. Design—Retrospective case series. Animals—183 client-owned dogs with osteosarcoma of the maxilla, mandible, or calvarium. Procedures—Medical records for dogs treated for osteosarcoma of the maxilla, mandible, or calvarium from 1986 through 2012 were reviewed. Dogs with a
histopathologic diagnosis of osteosarcoma and treated for a primary tumor arising from these bones of the head were included. Results—Mean age was 9.3 years, and body weight was 31.8 kg (70.0 lb). Most dogs (124/183 [67.8%]) were purebred, and the most common primary tumor site was the maxilla (80 [43.7%]). Treatments included palliative medical treatment only (11/183 [6.0%]), coarsely fractionated radiation therapy (RT; 12 [6.6%]), fractionated or stereotactic RT (18 [9.8%]), surgery (135 [73.8%]), and both surgery and fractionated RT (7 [3.8%]). Eighty-three (45.4%) dogs received adjuvant chemotherapy. Local recurrence or progression occurred in 80 of 156 (51.3%) dogs, and 60 of 156 (38.5%) dogs developed distant metastases. Median survival time for all dogs was 239 days. Dogs that underwent surgery had a median survival time of 329 days. Histologically tumor-free surgical margins were associated with significantly decreased hazards of progression or recurrence (hazard ratio [HR], 0.4) and death (HR, 0.5). Dogs with osteosarcoma of the calvarium had a significantly greater hazard of local recurrence or progression (HR, 2.0). Conclusions and Clinical Relevance—In this study, tumor excision in dogs with histologically tumor-free margins resulted in better local control and longer survival time than did other treatment types.

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Comparison between core temperatures measured telemetrically using the CorTemp® ingestible temperature sensor and rectal temperature in healthy Labrador retrievers

Stephanie Osinchuk, Susan M. Taylor, Cindy L. Shmon, John Pharr, John Campbell

This study evaluated the CorTemp(®) ingestible telemetric core body temperature sensor in dogs, to establish the relationship between rectal temperature and telemetrically measured core body temperature at rest and during exercise, and to examine the effect of sensor location in the gastrointestinal (GI) tract on measured core temperature. CorTemp(®) sensors were administered orally to fasted Labrador retriever dogs and radiographs were taken to document sensor location. Core and rectal temperatures were monitored throughout the day in 6 resting dogs and during a 10-minute strenuous retrieving exercise in 6 dogs. Time required for the sensor to leave the stomach (120 to 610 min) was variable. Measured core temperature was consistently higher than rectal temperature across all GI locations but temperature differences based on GI location were not significant (P = 0.5218). Resting dogs had a core temperature that was on average 0.4°C above their rectal temperature with 95% limits of agreement (LoA) between 1.2°C and -0.5°C. Core temperature in exercising dogs was on average 0.3°C higher than their concurrent rectal temperature, with LoA of +1.6°C and -1.1°C.

Presence of residual material following mini-hemilaminectomy in dogs with thoracolumbar intervertebral disc extrusion

Jonathan L. Huska, Luis Gaitero, Brigitte A. Brisson, Stephanie Nykamp, Jeff Thomason, William C. Sears

Presence of residual material following mini-hemilaminectomy in dogs (n = 9) with spontaneous thoracolumbar intervertebral disc extrusion was prospectively investigated. Volume of extruded disc material within the vertebral canal and the proportion of residual material were determined using pre- and post-operative magnetic resonance imaging. The degree of spinal cord compression, proportion of extradural material considered hemorrhage, and invasion of the articular facets were also determined. Residual material was identified in 44% of the mini-hemilaminectomies. The median percentage of residual material calculated was 7.7% of the preoperative volume. No observed effect of surgical side or site, proportion of extradural material considered hemorrhage, patient weight, and duration of clinical signs was detected.

Occurrence and recurrence of gastric dilatation with or without volvulus after incisional gastropexy

John F. Przywara, Steven B. Abel, John T. Peacock, Susan Shott

This study investigated recurrence of gastric dilatation without (GD) or with volvulus (GDV) after incisional gastropexy (IG) in dogs that underwent IG for prevention of GDV. Signalment, concurrent surgical procedures, presence of GD or GDV at the time of IG were obtained from medical records of dogs that underwent IG. Owners were contacted to determine whether the dogs experienced GD or GDV after IG, dates of postoperative GD or GDV
episodes, survival status, date of death for deceased dogs. Gastric dilatation and GDV recurrence rates were calculated for 40 dogs that had at least 2 y follow-up from the time when IG was performed and for dogs that experienced GD or GDV during the follow-up period. No dogs experienced GDV after IG and 2 dogs (5.0%) experienced GD after IG. The results suggest that GD and GDV rates after IG may be comparable to recurrence rates after other methods of gastropexy.

**Radiographic evaluation of positional atelectasis in sedated dogs breathing room air versus 100% oxygen**
Michele Barletta, Donna Almondia, Jamie Williams, Sonia Crochik, Erik Hofmeister
This study documents the degree of positional atelectasis in sedated dogs receiving 100% oxygen (O(2)) versus room air. Initial lateral recumbency was determined by an orthopedic study and initial treatment (O(2) or room air) was randomized. Each dog was maintained in lateral recumbency for 15 min, at which time ventrodorsal (VD) and opposite lateral thoracic radiographs were obtained. Each dog was then maintained in the opposite lateral recumbency and received the other treatment for 15 min, followed by a VD and opposite lateral radiograph. Radiographs were scored for severity of pulmonary pattern and mediastinal shift by 3 radiologists. Dogs breathing O(2) had significantly higher scores than dogs breathing room air. If radiographically detectable dependent atelectasis is present, repeat thoracic images following manual positive ventilation and/or position change to the opposite lateral recumbency should be made to rule out the effect of O(2) positional atelectasis and avoid misdiagnosis.

**Protothecosis in a dog**
Andrew R. Vince, Chantale Pinard, Adam T. Ogilvie, Emmeline O. Tan, Anthony C.G. Abrams-Ogg
A case of a disseminated algal infection is reported in a young rough-coated collie dog with progressive neurologic deficits, blindness, and hemorrhagic diarrhea. Prototheca zopfii organisms were cultured from feces, urine, and blood. At necropsy, granulomas containing typical organisms were identified within the proximal colon, heart, kidneys, and eyes.

**Bilateral phalangeal fillet technique for metacarpal pad reconstruction in a dog**
Tania Shaw, Fleur James, Lucas Beierer, Giselle Hosgood
Loss of the metacarpal or metatarsal pad requires reconstruction with other pad tissue to allow functional weight-bearing on the limb. This report describes the use of a bilateral phalangeal fillet technique to reconstruct a weight-bearing surface in a dog following complete excision of its right metacarpal pad for malignant melanoma. This resulted in a functional weight-bearing limb.

**Circumferential cervical rubber band foreign body diagnosis in a dog using computed tomography**
Dainna Stelmach, Ajay Sharma, Desiree Rosselli, Chad Schmiedt
Computed tomography (CT) of a dog with a cervical concentric wound and ventral chronic draining tract revealed a hyper-attenuating, concentric foreign body and contrast-enhancing tract. This is the first descriptive report of rubber band syndrome in a dog and CT characteristics of a subcutaneous rubber band foreign body.

**Bilateral mandibular pyogranulomatous lymphadenitis and pulmonary nodules in a dog with *Bartonella henselae* bacteremia**
This report describes a 2-year-old collie dog with pulmonary nodules, visualized by computed tomographic (CT) scan, with evidence of Bartonella henselae bacteremia and pyogranulomatous lymphadenitis. Clinical signs resolved with antimicrobial therapy.
Characteristics of persons convicted for offences relating to animal hoarding in New South Wales (pages 369–375)
M Joffe, D O'Shanessy, NK Dhand, M Westman and A Fawcett
Objective - To highlight the characteristics of persons convicted for offences related to animal hoarding in New South Wales, Australia, document the outcomes of cases and compare them with overseas studies. Design - Retrospective case series. Methods - Records of finalised prosecutions for offences relating to animal hoarding between 2005 and 2011 were examined. Data recorded included: the age of each subject at the first offence, sex, postcode, occupation, living conditions, number of charges, number of prosecutions, title of each charge, number and species of live animals, whether animals needed veterinary attention, the medical conditions that the animals suffered, whether dead animals were on the property, how animals were obtained, veterinary and legal costs accrued and case outcomes. The data were analysed to obtain frequencies and relative frequencies for categorical variables and summary statistics for quantitative variables. Observed frequencies were compared using Chi-square test with the expected frequencies calculated based on the Australian Bureau of Statistics data for NSW. Results - The number of persons included was 29. Most were female (72.4%) and 23 were 40–64 years of age at their first offence. Almost one-third identified themselves as breeders, eight as pensioners and four as unemployed. Most resided in inner regional Australia (45%), 28% lived in major cities and 28% lived in outer regional Australia. Dogs were the species hoarded in 80% of cases. Animals requiring veterinary attention were identified in all cases. Dead animals were found on premises in 41.4% of cases. Conclusions - Persons prosecuted for charges relating to animal hoarding in NSW have similar characteristics to those of previous studies, although the outcomes may be different. More farm animals and horses were hoarded in NSW and hoarders in NSW were more likely to live in inner regional and outer regional areas (rural areas) than animal hoarders in the USA.

Effective control of a suspected cyromazine-resistant strain of Lucilia cuprina using commercial spray-on formulations of cyromazine or dicyclanil (pages 376–380)
KE Baker, PF Rolfe, AJ George, KJ Vanhoff, PF Kluver and JN Bailey
Objective - To demonstrate the protection of Merino sheep from flystrike by Lucilia cuprina with cyromazine or dicyclanil in an implant study and in the field. Methods - In the implant study, sheep were treated with cyromazine or dicyclanil and implanted with 1st-stage larvae from a newly isolated field strain of *L. cuprina* (CYR-LS) or a reference strain (DZR50), then assessed over 3 days and compared with the implants on untreated control sheep. In the field study, weaner lambs were treated with cyromazine or dicyclanil and monitored weekly for flystrike over 18 weeks of grazing on the same farm from which the *L. cuprina* were isolated. Results - Implant study: cyromazine (6%) provided effective protection against CYR-LS and DZR50 *L. cuprina* for a minimum of 13 and 10 weeks, respectively. Dicyclanil (5%) provided at least 18 weeks' protection against both strains. Field study: only 1 of 386 lambs in the cyromazine-treated group was struck in the first 14 weeks of the trial. No strikes occurred in the 198 sheep treated with dicyclanil (5%). Rainfall, temperature and flytrap data indicated consistent fly pressure during the study. Conclusions - Based on the results of these studies, there was no evidence of reduced susceptibility to cyromazine or dicyclanil and the periods of protection of sheep against *L. cuprina* were unaffected and consistent with the registered label claims.

Tension pneumothorax secondary to nasojejunal feeding tube misplacement in a mechanically ventilated dog (pages 400–404)
P Giordano, BM Kirby, RC Bennett and F Bernard
Case report - An 11-year-old female terrier-cross underwent general anaesthesia and mechanical ventilation for insulinoma resection. Following tumour removal, three consecutive but unsuccessful attempts were made to place a wire-guided nasojejunal feeding tube (NJFT), using both nostrils, with one tube eventually left in situ in the right nostril. A final successful attempt using a smaller NJFT was made via the left nostril. On withdrawal of the previously, unsuccessfully placed NJFT, the dog developed an acute tension pneumothorax. Severe cardiorespiratory dysfunction ensued, including decreasing arterial haemoglobin O₂ saturation, increasing end-tidal CO₂, hypotension and tachycardia. Immediate thoracocentesis with air evacuation from the pleural cavity
followed by continuous air drainage through bilateral thoracostomy tubes produced marked improvement of
cardiorespiratory function. During exploratory thoracotomy performed 1 day later, two lung lesions were identified
and over sewn, one in the right middle lobe and the other in the accessory lobe.

Conclusions- This is the first case report to describe in an anaesthetised and mechanically ventilated dog the
occurrence and management of a tension pneumothorax as a life-threatening complication secondary to parenchymal
injury after NJFT misplacement into the tracheobronchial tree. It illustrates that presence of a cuffed endotracheal
tube does not protect against passing a NJFT into the bronchial system.

**Australian Veterinary Practitioner**
No journal this month

**Compendium**
Still no new Journal

**Journal of Feline Medicine and Surgery**

**A questionnaire on survival of kittens depending on the blood groups of the parents**
Eva Axnér
Cats more than 2 months of age have alloantibodies against the blood type antigen that they do not possess.
Maternal antibodies, including alloantibodies against blood groups, are transferred to the kittens’ systemic
circulation when they suckle colostrum during the first 12–16 h after birth. If kittens with blood group A or AB
nurse from a mother with blood group B they may develop neonatal isoerythrolysis (NI). Breeders can prevent
kittens at risk of NI from nursing during the first 16–24 h; after this period it is safe to let them nurse. Kittens
depend, however, on the passive transfer of antibodies from the colostrum for early protection against infections.
Although it is known that kittens deprived of colostrum will also be deprived of passive systemic immunity, it is not
known if this will affect their health. Therefore, the aim of this study was to evaluate kitten mortality in litters with
B-mothers and A-fathers compared to litters with A-mothers. In addition, the aim was to evaluate the effects of
colostrum deprivation on the health of the mothers, and the breeders’ opinions and experiences of these
combinations of breedings. A web-based questionnaire was constructed and distributed to breeders. The results
indicate that there is no difference in mortality between planned litters that have mothers with blood group A and
litters with mothers that have blood group B and fathers that have blood group A. When managing blood group
incompatibility in cat all factors affecting the health of the cats, including genetic variation, should be considered.

**Medical management and monitoring of the hyperthyroid cat: a survey of UK general practitioners**
Paul Higgs, Jane K Murray, and Angie Hibbert
Feline hyperthyroidism is commonly diagnosed in general practice. This study assessed the opinions and
experiences of UK general practitioners (GPs) regarding the management of feline hyperthyroidism. This included
an evaluation of preferred treatment modalities and the monitoring of medically treated cats in relation to thyroxine
(T4) level, co-morbid disease and adverse drug reactions. Six hundred and three GPs completed an online
questionnaire comprising 34 questions. Oral medication was the most commonly preferred treatment option (65.7% of respondents), followed by thyroidectomy (27.5%) and then radioiodine (5.5%). When cost of treatment was
eliminated as a consideration factor, significantly more respondents selected radioiodine (40.5%, P <0.001).
Concerning target total T4 levels during medical management, 48.4% aimed for the lower half of the reference
interval (RI), 32.3% anywhere within RI, 13.1% within the top half of RI and 0.5% above the RI; 3.4% evaluated
efficacy by physical assessment only. In the presence of chronic kidney disease (CKD) respondents were
significantly more likely to target total T4 levels within the upper half of the RI (40.3%) or above it (9.8%) when
compared with targets for routine cases (P <0.001). Assessment for unmasking of CKD after initiating treatment or
for hypertension was not consistently performed. Variability in monitoring strategies may result in CKD and
hypertension remaining undetected, inadequate suppression of T4 levels in cats with concurrent CKD and delayed
recognition of potentially significant haematological abnormalities.

**A morphological and immunohistochemical study of the effects of prednisolone or ursodeoxycholic acid on
liver histology in feline lymphocytic cholangitis**
Corma MA Otte, Jan Rothuizen, Robert P Favier, et al
Feline lymphocytic cholangitis (LC) has been commonly treated with prednisolone, and more recently with ursodeoxycholic acid (UDCA). Previously, we found that prednisolone treatment resulted in a statistically longer survival time than treatment with UDCA. In order to explain this difference, we compared the effects of prednisolone and UDCA treatment on hepatic tissue by evaluating consecutive liver biopsies. Archival serial biopsy materials from cats with LC treated with prednisolone (n = 5) or UDCA (n = 4) were evaluated. We employed haematoxylin and eosi stainings to evaluate inflammation, and reticulin staining for fibrosis. Immunohistochemical stainings for Ki-67, K19 (Cytokeratin 19) and α-smooth muscle actin were used to evaluate cell type-specific proliferation and activation of hepatic stellate cells. Inflammation decreased more in the group treated with prednisolone, while the number of cholangiocytes, progenitor cells and fibroblasts did not differ between the treatment groups. Additionally, no difference was found for the amount of fibrosis in both treatment groups.

**Evaluation of an in-house dot enzyme-linked immunosorbent assay to detect antibodies against feline panleukopenia virus**

Katherina Mende, Bianca Stuetzer, Uwe Truyen, and Katrin Hartmann

Measuring antibody titres to determine a cat’s immunity to core diseases instead of just administering annual vaccinations has not been established in Germany so far. An in-house test kit for the detection of antibodies against feline panleukopenia virus (FPV), feline herpesvirus-1 and feline calicivirus – the ImmunoComb Feline VaccinCheck – is now available in several European countries. The aim of this study was to assess the quality of the ImmunoComb Feline VaccinCheck to determine antibodies by comparing it to a gold standard. The test is aimed for use in practice to assist decision-making when performing an individual health assessment to see whether a cat is potentially unprotected against FPV and requires FPV vaccination. Sera from 347 cats were included in the study. For antibody detection, haemagglutination inhibition (HI) was performed as gold standard. Sensitivity, specificity and positive and negative predictive values of the ImmunoComb Feline VaccinCheck were determined for three different HI titre cut-off points (1:20, 1:40, 1:80). In comparison to the HI, the ImmunoComb Feline VaccinCheck showed a sensitivity of 79%, 83% and 87%, and a specificity of 89%, 86% and 81%, respectively. Specificity of the ImmunoComb Feline VaccinCheck, which was considered the most important parameter, was acceptable in comparison to HI. Especially when considering an antibody titre of 1:20 sufficient for protection (eg, in an adult animal), the ImmunoComb Feline VaccinCheck can be recommended for use in veterinary practice.

**Diagnostic accuracy of the vertebral heart score and other radiographic indices in the detection of cardiac enlargement in cats with different cardiac disorders**

Carlo Guglielmini, Marco Baron Toaldo, Helen Poser, et. al

A retrospective search was conducted to evaluate the diagnostic accuracy of the vertebral heart score (VHS) and other related radiographic indices in the detection of cardiac enlargement associated with different cardiac disorders in the cat. One hundred and five cats with a complete echocardiographic examination and radiographic examination of the thorax with at least two orthogonal views were enrolled. Eighty-three cats had different cardiac disorders, 72 with left-sided cardiac disorders (LSCD) and 11 with right-sided cardiac disorders; 22 cats were free of cardiovascular abnormalities. Measurements of VHS and cardiac long and short axes on lateral (L) and dorsoventral or ventrodorsal radiographs were obtained. Receiver operating characteristic curves were calculated to evaluate the diagnostic accuracy of each radiographic index in differentiating between cats with cardiac disorders or cats with LSCD and cats without cardiac abnormalities and, among cats with LSCD, between those with no or mild left atrial enlargement (LAE) or those with moderate-to-severe LAE and healthy cats. The L-VHS at the cut-off of 7.9 had high diagnostic accuracy in distinguishing cats with LSCD and moderate-to-severe LAE from healthy cats, but all the other radiographic indices were moderately accurate in distinguishing between cats with overall cardiac disorders or LSCD, either with no or mild LAE and moderate-to-severe LAE, and healthy cats. The considered radiographic indices were also moderately accurate in predicting different degrees of LAE in cats with LSCD. Radiographic indices are reasonably specific, but less sensitive predictors of cardiac enlargement in cats with heart disorders.

**Evaluation of a novel feline AB blood typing device**

Layla Hourani, Christiane Weingart, and Barbara Kohn

This prospective study evaluated a novel immunochromatographic (IC) blood typing test for the AB blood group system. Typing was conducted comparatively on ethylenediamine tetra-acetic acid-anticoagulated blood samples from 89 sick and 16 healthy cats with the IC test, as well as two tests as reference methods, a tube agglutination and a gel column test. The samples were between 0 and 10 days old (median 3 days) and were tested for haemolysis and agglutination; the packed cell volume ranged from 0.07 to 0.57 l/l (median 0.40 l/l). The reference methods agreed
with each other in 100% of the test runs. Of the 85 samples tested as blood type A by the two reference methods, 80 were correctly identified by the IC test, four were misidentified as AB and one was rated inconclusive. All B samples were correctly typed. Two of the three AB samples were correctly identified by the IC test and one was rated inconclusive. The sample quality had no influence on test performance. Of 30 repeats, 28 were readable and showed agreement in 27 cases. The agreement of the IC test with the control methods was 96.1% for the 103 conclusive tests, and it showed high sensitivity and specificity for A and B antigen detection. It is suggested that AB results be reconfirmed with a laboratory method and that a ‘back-typing’ be performed with plasma from B samples to detect the presence of alloantibodies. Given its very good performance and ease of use, the IC test can be recommended for clinical settings.

**Feline ischemic myelopathy and encephalopathy secondary to hyaline arteriopathy in five cats**

Helena Rylander, Şalih Eminaga, Viktor Palus, et al.

Five cats presented with acute-onset neurological signs. Magnetic resonance imaging in four cats showed a T2-weighted hyperintense spinal cord lesion that was mildly contrast-enhancing in three cats. Owing to inflammatory cerebrospinal fluid changes three cats were treated with immunosuppression. One cat was treated with antibiotics. All cats improved initially, but were eventually euthanased owing to the recurrence of neurological signs. Histopathology in all cats showed hyaline degeneration of the ventral spinal artery, basilar artery or associated branches with aneurysmal dilation, thrombosis and ischemic degeneration and necrosis of the spinal cord and brain. Two cats also had similar vascular changes in meningeal vessels. Vascular hyaline degeneration resulting in vascular aneurysmal dilation and thrombosis should be a differential diagnosis in cats presenting with acute central nervous system signs.

**Dermatophilus congolensis in a feral cat**

Anne M Barger, G Robert Weedon, Carol W Maddox, and Kimberly A Galloway

A young adult feral cat presented to the Champaign County Humane Society with a subcutaneous mass near the stifle. The mass was aspirated. Chains of paired coccoid organisms were identified, consistent with *Dermatophilus congolensis*. The identity of these organisms was confirmed by culture and polymerase chain reaction.

**Management of carpal hyperextension injury in a cat using combined temporary transarticular internal and external skeletal fixation**

Duncan R Greeff, Martin Owen, and Mark Bush

This report describes the successful management of a carpal hyperextension injury in a cat using combined temporary transarticular internal and external skeletal fixation, without performing an arthrodesis. To our knowledge, there have been no previous reports of management of feline carpal hyperextension injuries in this fashion.

**Oesophageal angioleiomyosarcoma in a cat**

Lesley HW Teo, Stephen D Cahalan, Livia Benigni, and Zoe Halfacree

A female spayed domestic longhair cat aged 3 years and 9 months was referred for investigation of regurgitation and weight loss of 2 months’ duration. Thoracic radiographs revealed a soft tissue mass within the cranial mediastinum causing focal oesophageal dilation. Computed tomography confirmed a contrast-enhancing mass located cranial to the heart base, possibly originating from the oesophagus. Exploratory thoracotomy revealed an intramural soft tissue mass within the ventral oesophageal wall. Surgical excision of the mass and reconstruction of the oesophagus around an oesophageal tube was performed successfully. Histopathological examination of the mass was compatible with a spindle cell tumour with a prominent vasoformative component. Immunohistochemistry was positive for α-smooth muscle actin and von Willebrand factor protein, and negative for CD117/c-kit protein. Both histopathological and immunohistochemical findings confirmed the diagnosis of an angioleiomyosarcoma. The cat was clinically well 6 months postoperatively. To our knowledge, this is the first report of an oesophageal angioleiomyosarcoma in a cat.

**Hypokalaemia in a hyperthyroid domestic shorthair cat with adrenal hyperplasia**

Adele Fryers and Clive Elwood

A 13-year-old female domestic shorthair cat presented with polyphagia and weight loss. Marked systolic hypertension was found on examination. Elevated total thyroxine levels confirmed hyperthyroidism, and hypokalaemia was also documented. A euthyroid state and normotension were achieved following 4 weeks of treatment with carbimazole and amlodipine. Despite potassium supplementation, the hypokalaemia worsened.
Abdominal ultrasonography revealed left adrenomegaly. Plasma aldosterone concentrations were initially in the lower half of the reference interval and, when repeated 2 months later, were undetectable. Urea and creatinine remained in the lower half of the reference interval throughout treatment, and urine specific gravity suggested good urine concentrating ability. The fractional excretion of potassium confirmed a renal source of potassium loss. Blood gas analysis was unremarkable. It was theorised that an aldosterone precursor was causing signs of mineralocorticoid excess and undetectable plasma aldosterone levels. Treatment with an aldosterone receptor antagonist successfully increased the serum potassium concentration. Owing to difficulties administering medication and associated effects on life quality the cat was euthanased. Adrenal hyperplasia was apparent on post-mortem histopathology.

A case of atypical diffuse feline fibrotic lung disease
Kevin Le Boedec, Patrick J Roady, and Robert T O’Brien
An 11-year-old cat presented for respiratory distress and weight loss. Thoracic radiographs were interpreted as a diffuse bronchointerstitial pattern with bronchiectasis and a mild ventral alveolar pattern on the lateral views. Computed tomography revealed a severe diffuse reticular pattern, relatively hyperattenuating in subpleural regions, with diffuse traction bronchiectasis and some degree of honeycombing. Despite the absence of basal predominance, this pattern was considered to be suggestive of usual interstitial pneumonia (UIP). Other differentials (other types of interstitial lung disease, infectious pneumonitis, neoplasia, or early edema or hemorrhage) were considered less likely based on history and other test results. The cat was discharged without any treatment, and euthanased 5 months later. Post-mortem histological analysis of the lung revealed end-stage lung, with extensive fibrosis that was more severe in subpleural regions, fibroblastic foci and honeycombing, suggestive of UIP. A probable diagnosis of idiopathic pulmonary fibrosis (IPF) was made. The diffuse distribution of the lesions was atypical compared with previous tomographic and histologic descriptions of IPF in cats. This case report suggests a heterogeneity of the pulmonary fibrotic disorders in cats that warrants further investigation for better characterization and classification.

Fenbendazole treatment for Mammonomonogamus species infection of a domestic cat on St Kitts, West Indies
Talia Gattenuo, Jennifer Ketzis, and Linda Shell
A 7-month-old, female, domestic shorthair, indoor/outdoor cat on the island of St Kitts was presented to the Veterinary Teaching Hospital at Ross University School of Veterinary Medicine as part of a student training spay–neuter program. Observation of diarrhea prompted a double centrifugation fecal analysis. Ova of Mammomonogamus species, in addition to Ancylostoma species, Trichuris species and Platynosomum species, were found. Mammomonogamus ierei is a parasitic nematode found on many Caribbean islands for which treatment is not well documented. Five days of fenbendazole (50 mg/kg bodyweight) was administered, and fecal analyses gave negative results for Mammomonogamus species eggs 1 week after the last fenbendazole treatment.

Journal of Small Animal Practice

Objective; To evaluate intraoperative effects, complications, postoperative rescue analgesia requirement and presence of postoperative unilateral blockade after hypobaric spinal anaesthesia in dogs. Methods; Retrospective review of case records of dogs that underwent pelvic limb orthopaedic surgery and received hypobaric spinal anaesthesia. Cases that contained complete information on perioperative analgesia, end tidal anaesthetic agent, arterial blood pressure, postoperative urination, motor function and assessment at the sixth week re-examination were selected. Results; Twenty-four of forty-eight records were sufficiently complete to meet the selection criteria. Local anaesthetic dose and volume of the solution administered were 0·22 (±0·06) mg/kg and 0·16 (±0·05) ml/kg, respectively. Fentanyl was administered intraoperatively in seven dogs (29%); mean ± sd end-expired isoflurane was 1·09 ± 0·17%; hypotension was observed in nine dogs (37 · 5%). Unilateral blockade was documented in 18 dogs (75%); 6 dogs (25%) required methadone postoperatively; urinary retention was not observed. One dog developed steroid responsive meningitis arteritis. Clinical significance; Hypobaric spinal anaesthesia achieved unilateral postoperative pelvic limb motor blockade in dogs, although bilateral block occurred in a proportion of animals; intraoperative hypotension was not infrequent. Fentanyl and postoperative methadone might be required to control nociception and pain, despite technical success in performing spinal anaesthesia.
ARFI elastography as a complementary diagnostic method for mammary neoplasia in female dogs – preliminary results.

Objectives; To evaluate the applicability of acoustic radiation force impulse elastography as a complementary method in diagnosing mammary neoplasia in dogs. Methods; Mammary tumours from 50 female dogs were evaluated and divided into two groups: g1 (benign tissue) and g2 (malignant tumours). The nodules were assessed by b-mode ultrasonography, qualitative and quantitative acoustic radiation force impulse elastography and histopathology. Results; B-mode ultrasound examination was ineffective at separating the tumours into the two groups. Likewise, there was no correlation between the grayscale images of the mammary tissue by qualitative elastography. A difference was found in the deformity of the mammary masses between the malignant and benign groups (p = 0.002). Using quantitative elastography, the mean values of shear velocity were 3.33 m/s for malignant tumours and 1.28 m/s for benign tissue (p < 0.0001). Clinical significance; The use of acoustic radiation force impulse elastography may help to differentiate between malignant and benign mammary neoplasms.

Aspiration pneumonia in the Irish wolfhound: a possible breed predisposition.
C. M. Greenwell and P. H. Brain

Background; Anecdotal reports suggest a recent high prevalence of aspiration pneumonia in Irish wolfhounds, prompting further investigation into the incidence of the disease in this breed. Objectives; To investigate the possibility that Irish wolfhounds have an increased incidence of aspiration pneumonia, and to consider possible predisposing causes in this breed. Methods; Retrospective review of medical records from the Small Animal Specialist Hospital, Sydney, from January 2008 to December 2012 inclusive to determine the total hospital incidence and individual breed incidences of aspiration pneumonia. Results; The total hospital incidence of aspiration pneumonia was 0.5%. The Irish wolfhound had the highest breed incidence, with 9 of 25 dogs (36%) diagnosed with aspiration pneumonia. Four of the Irish wolfhounds had a predisposing cause identified; one having a choking episode, one having gastric bloat, while two were diagnosed with laryngeal paralysis after it was specifically investigated because of clinical suspicion. Five had no underlying cause of their aspiration pneumonia determined. Clinical Significance; On the basis of the hospital population studied, the Irish wolfhound has a high incidence of aspiration pneumonia. Further investigation into the possible predisposing cause(s) in this breed is warranted.

Use of contrast-enhanced ultrasonography to characterize adrenal gland tumors in dogs
Pascaline Pey, Federica Rossi, Massimo Vignoli, Luc Duchateau, Laurent Marescaux, Jimmy H. Saunders.

Objective—To describe the contrast-enhanced ultrasonographic characteristics and vascular patterns of adrenal gland tumors in dogs and determine whether those features are indicative of malignancy or histologic type of tumor. Animals—14 dogs with 16 adrenal gland lesions (10 carcinomas [8 dogs], 3 adenomas [3 dogs], and 3 pheochromocytomas [3 dogs]). Procedures—Unsedated dogs with adrenal gland lesions underwent B-mode ultrasonography and contrast-enhanced ultrasonography ≤ 48 hours before adrenalectomy; contrast-enhanced ultrasonographic examinations were video-recorded. Macroscopic evaluation of the adrenal gland lesions and histologic examination of removed adrenal gland tissues were subsequently performed. Surgical and histopathologic findings and the ultrasonographic and contrast-enhanced ultrasonographic characteristics were recorded for the various tumor types. Time-intensity curves were generated from the contrast-enhanced ultrasonographic recordings and used to calculate regional blood volume (value proportional to area under the curve) and mean transit time (time the lesion began to enhance to the half-peak intensity). Results—In adrenal gland carcinomas, tortuous feeding vessels were noticeable during the arterial and venous phases of contrast enhancement. Heterogeneity of contrast enhancement was evident only in malignant tumors. Compared with adenomas, adrenal gland carcinomas and
pheochromocytomas had significantly less regional blood volume. Mean transit times were significantly shorter in adrenal gland carcinomas and pheochromocytomas than in adenomas. Conclusions and Clinical Relevance—For dogs, evaluation of the vascular pattern and contrast-enhancement characteristics of adrenal gland tumors by means of contrast-enhanced ultrasonography may be useful in assessment of malignancy and tumor type.