

CLINICAL ABSTRACTS 2021 | ORAL PRESENTATIONS

Following on from the success of BSAVA Virtual Congress 2021, we are delighted to present to you the 2021 Congress Clinical Abstracts. The congress programme committee have spent many hours reviewing some excellent clinical abstracts this year, with the quality and breadth of the 2021 abstract programme a testament to the high level of clinical research that was submitted.

From critical care to endocrinology and from orthopaedics to exotics, the submissions this year have covered a wide range of exciting developments in veterinary medicine, 30 years on from the first BSAVA Congress Abstracts in 1991. As a sign of the changing times since then, a number of the abstracts were presented in online poster form at the 2021 virtual congress, whilst more than 140 will also be presented orally at BSAVA's Congress Clinical Abstract Presentations Online programme on 24th-26th May 2021.

We would like to thank all the submitting authors for their hard work and for choosing BSAVA Congress as a forum in which to share their findings. We are also grateful for the willingness of oral abstract presenters to embrace the challenges of online presentations again this year – hopefully the experience is an enjoyable and rewarding one.

Thank you again for interacting with BSAVA Congress 2021 and see you next year!

Joe Fenn

BSAVA Congress Clinical Abstracts Chair

Note – the abstracts displayed are as supplied and BSAVA has not corrected typographical errors or edited the submission text. Any errors are the responsibility of the authors.

MONDAY 24 MAY 2021

AM Room 1, 09:30 - 11:30 | Orthopaedics

09:30 Quantification of Bone Mineral Density on Computed Tomography (CT) Of the Humeral Condyle in Labradors With Medial Coronoid Process Disease

Diana Soares¹, Matthew J Allen², Neil J Burton¹

¹Wear Referrals, Bradbury, Stockton-on-Tees, United Kingdom. ²Surgical Discovery Centre, Department of Veterinary Medicine, Cambridge, United Kingdom

Objectives

To quantify, using CT, the bone mineral density of the humeral condyle in Labrador retriever elbows with and without medial coronoid process disease (MCPD).

Methods

Elbows that had undergone CT were retrospectively reviewed. Scans were divided into three groups: 1) normal elbows 2) elbows with MCPD involving only fragmentation of the radial incisure 3) elbows with MCPD involving only apical fragmentation. A novel templating technique was employed to define two dorsal plane views of the humeral condyle and, thereafter, regions of interest from which mean Hounsfield unit (HU) measurements were recorded for each group. Statistical analysis was performed to assess intraobserver variability in templating technique and measurement as well as for any difference in mean HU value for each region of the condyle in each group.

Results

122 elbow CT 's from 81 dogs were obtained. There was a significant ($p < 0.01$) increase in the mean HU measurements in the medial portion of the humeral condyle in Group 3 compared to Group 1 and 2.

Statement (conclusions)

A significant increase in bone mineral density of the humeral trochlear was present in dogs with apical fragmentation of the medial coronoid process when compared to both normal dogs and those with radial incisure fragmentation. These data suggest that the humeral trochlear may play a role in the pathogenesis of apical, but not radial incisure medial coronoid process fragmentation.

09:45 Computed Tomographic Evaluation of The Non-Lame French Bulldog Elbow

Stephanie Mella, Richard Meeson, Helen Dirrig

Royal Veterinary College, London, United Kingdom

Objectives

French Bulldogs (FBD) are a popular breed and are predisposed to humeral condylar fractures of the elbow. The use of computed tomography (CT) in English Springer Spaniel elbows has allowed

identification of abnormalities, including humeral intracondylar fissures (HIF), that can cause lameness and predispose to condylar fractures. This study aimed to evaluate the CT characteristics of non-lame FBD elbows, to determine whether they have underlying elbow disease.

Methods

Retrospective evaluation of CT images from both elbows of non-lame FBD from scans obtained for soft tissue or neurological evaluation was performed. Images were evaluated for the presence of HIF and other abnormalities of the elbow (condylar and supracondylar remodelling, humeral condylar sclerosis, elbow incongruency, medial coronoid process disease and elbow osteoarthritis). Descriptive statistics were performed.

Results

CT scans from 37 dogs (74 elbows) were reviewed. No HIF was identified although 37% had sclerotic mid-condylar changes. Only a small number of elbows had radioulnar incongruency (n=4), however radial incisure widening was consistently identified and considered a breed normal. Elbow disease was noted in 31% of elbows, with medial coronoid abnormalities documented in 15% of dogs and osteoarthritis present in 28% of elbows. Of the elbows with osteoarthritis, 38 % had very mild disease.

Statement (conclusions)

Non-lame FBDs have radial incisure widening but otherwise relative low prevalence of occult elbow disease. Although mid humeral condylar sclerosis was present in over a third of dogs, no HIFs were identified and therefore no clear cause for their increased risk of humeral condylar fractures was identified.

10:00 Locking Compression Plate Fixation of Feline Acetabular Fractures: Application, Complications and Long-Term

Maider Murugarren, Francesco Piana, Miguel Solano

Fitzpatrick Referrals, Godalming, United Kingdom

Objectives

The aim of this study was to report the use, outcome and complications of locking plates with open reduction and internal fixation for acetabular fractures in feline patients.

Methods

Medical records were reviewed for cats presented to a single referral hospital with acetabular fractures between 2011 and 2019. Only cases that involved open reduction and internal fixation with at least one locking plate system and had a minimum of 6 weeks postoperative follow-up were included. Long term follow-up was performed over the phone based on the Feline Musculoskeletal Pain Index (FMPI).

Results

Fifteen cats with 15 acetabular fractures met the inclusion criteria. All implants used were Locking Compression Plates. Locking implants were used as a sole method of fixation in 11/15 cases, while combined with other ancillary implants in 4/15. There were two minor complications related to the locking constructs and consisted of a single screw backing out. Two major perioperative complications not related to the locking implants were described and required further surgical treatment. At the last clinical follow-up (median 46 days: 38 to 88 days), function was described as full for 7/15 cats, whereas acceptable for 8/15 cats. The FMPI questionnaire was completed by 9/15 owners at median 2332 days (min 542 - max 3081), all owners reported their cats as being pain free.

Statement (conclusions)

Based on our results, Locking Compression Plates are a suitable method for acetabular fracture fixation in cats, associated with a satisfactory outcome. Complications were similar to previously reported with other methods

10:30 A Survey of Orthopaedic Conditions in Small Animal Veterinary Referral Practice in the UK

William Phipps^{1,2}, Megan Richard³, Javier Rincon⁴, Josep Aisa⁵, Andrew Tomlinson², Felipe de Vicente³

¹Fitzpatrick Referrals, Godalming, United Kingdom. ²Small Animal Teaching Hospital, The University of Liverpool, Neston, United Kingdom. ³Pride Veterinary Centre, Derby, United Kingdom. ⁴Small Animal Hospital, University of Glasgow, Glasgow, United Kingdom. ⁵College of Veterinary Medicine, University of Tennessee, Knoxville, USA

Objectives

To report the prevalence of canine orthopaedic disease in UK referral practice, and describe changes in breed demographics, treatment choices and disease prevalence over 25 years.

Methods

A retrospective, multicentre population study reviewing records of patients presenting for first consultations with the orthopaedic service at three referral hospitals over two years. British Kennel Club (KC) registration data for a calendar year used to estimate current UK breed demographics.

Results

2022 cases were seen with 114 recognised breeds. The Labrador Retriever remained the most common breed (19%), with the German Shepherd Dog (4.1%) and Border Collie (3.8%) remaining within the top five. There were substantial increases in brachycephalic breed presentation, with seven in the top 19 breeds (9.4% cases, 26.7% KC registrations) compared to three in the top 18 (9.3% KC registrations) 25 years ago.

Cases were grouped into joints (1609, 80%), fractures (220, 11%), diseases affecting bone (72, 3.6%) and miscellaneous (121, 6%) categories. Most common conditions included cranial cruciate ligament disease (28% total), developmental elbow disease (16.6%) (DED) and hip dysplasia (9.1%); 25 years ago hip dysplasia was the most frequent diagnosis and DED wasn't included within the top 20

conditions. Humeral condylar fractures were the most common fracture configuration (25% of fractures), an increased incidence compared to previous surveys.

Statement (conclusions)

This study describes the prevalence, demographics and treatment for orthopaedic disease currently presenting to UK referral practice and will aid in discussing condition prevalence for individual breeds and respective treatment options with owners, and as reference data for future studies.

10:45 Mechanical Behaviour of The Robert-Jones Bandage Under Axial Compression

Pierre Picavet, Marc Balligand, Stéphanie Claeys

Department of Clinical Sciences (Companion animals), FARAH, Faculty of Veterinary Medicine, University of Liège, Liège, Belgium

Objectives

To determine whether the Robert-Jones bandage could provide sufficient stability to allow long bone fracture healing.

Methods

Six angulated (4°, via one universal joint included in the rod) wooden rods (diameter: 24 mm) placed inside a 1cm thick foam hollow tube (representing soft tissues) and mimicking a mid-shaft long bone fracture in a mid-size dog were used. One single ECVS diplomate did all the bandages. They included 1 jersey stockinette, 20 x 10cm rolls of soft padding material (Cellona^R) gently wrapped around the rods, and 2x 10cm rolls of stretchable auto-adhesive material (VetrapTM) put under tension according to published recommendations. Cyclic compression at a rate of 1,5 hertz was exerted by an Instron regulated Schenck machine instrumented with a FGP 200 daN load cell placed in the longitudinal axis of the specimens positioned obliquely (17° from the vertical direction) under the press. Incremental loading was applied in successive stages of 50 N (150 to 300 N) with 3000 cycles applied per stage. The loading process was arbitrarily interrupted when the vertical course of the actuator exceeded 2,5 mm.

Results

The 6 specimens withstood 3000 cycles at 150 N. Three (3/6) withstood 200 N, 2/6 withstood 250 N and 1/6 withstood up to 300 N.

Statement (conclusions)

Although no definitive treatment recommendations can be derived from this work, our observations advocate for additional studies (higher number of loading cycles) to determine the possible interest of Robert-Jones bandage in the treatment of stable long bone fractures in young dogs.

11:00 Correlation Between the Insertion Side of a Transcondylar Screw for The Surgical Management of Humeral Intracondylar Fissures in Dogs and The Incidence of Postoperative Surgical Site Infection.

Maria Potamopoulou¹, Gordon Brown², Richard Whitelock²

¹Grove Veterinary Hospital, Fakenham, United Kingdom. ²Grove Orthopaedic Referrals, Fakenham, United Kingdom

Objectives

An increased rate of surgical site infection (SSI) following treatment of canine humeral intracondylar fissure (HIF) with a lateromedially placed transcondylar screw (TCS) compared to a mediolateral TCS has been previously postulated. In this single centre retrospective study we hypothesised that the insertion direction of the TCS would not affect the incidence of postoperative SSI.

Methods

Inclusion criteria for this study were: dogs with HIF confirmed by computerised tomography, treated by TCS placement (between 2008-2019) and with a minimum follow up of 12 weeks. The following data was recorded: signalment, presenting clinical signs, direction of placement and size of the utilised TCS, surgical and anaesthetic times, concurrent surgical procedures, presence of concomitant elbow pathology, perioperative and postoperative antibiotic usage and postoperative complications. Recorded data was analysed with a multinomial logistic regression model with a p-value \leq 0.05.

Results

35 dogs (46 elbows) met the inclusion criteria. Median clinical follow up interval was 52 weeks. SSI was suspected based on results of synovial fluid cytology in 11 elbows and confirmed on culture in 8 of the 11 elbows. 7 of 31 (23%) elbows with a mediolateral TCS, and 4 of 15 (27%) elbows with a lateromedial TCS developed SSI. 4 dogs that underwent bilateral single-surgery TCS placement developed SSI unilaterally.

Statement (conclusions)

The study hypothesis was confirmed. No statistically significant difference was detected in short-term SSI occurrence between the mediolateral and the lateromedial direction of placement of the TCS. General anaesthetic duration and patient weight were the only significant predictors.

11:15 Pancarpal Arthrodesis and Antebrachial Deformity Correction Using 3D Printed Osteotomy and Reduction Guides and A Customized Titanium Plate in A Toy Breed Dog.

Alba Rial García, Patrick Ridge

Ridge Referrals, Dawlish, United Kingdom

Objectives

To report the case of a toy breed dog affected by antebrachial deformity and subluxation of the carpus due to a severe osteoarthritis.

Methods

A 9 year-old, 5kg, female Pekingese presented with subluxation of left carpus. Helical CT scan (16 slice) revealed advanced osteoarthritis in both carpi and elbows, and bilateral antebrachial deformity. Arthrocentesis of the left carpus was performed, yielding a mononuclear arthropathy.

CT images were manipulated to obtain 3D representations of the affected limb, so that virtual osteotomies could be performed and corrected to align the antebrachium and arthrodes the carpus. From these CAD templates, osteotomy and reduction guides and a single dorsally applied custom, hybrid (1.5/2.0mm) titanium plate were printed (Vet3D). Under general anaesthesia, via a cranio-medial approach combined correction and stabilization of the antebrachial osteotomy and pancarpal arthrodesis was performed using the guides, custom plate and an additional medially applied 1.5mm locking plate. Analgesia was provided with NSAIDs and opiates.

Results

After 6 weeks, the patient improved, lameness due to osteoarthritis in the elbow was present. Radiographs showed stable implants and healing of the arthrodesis and osteotomy. Unfortunately, 10 weeks after surgery acute luxation of the right carpus occurred and the patient was euthanated.

Statement (conclusions)

The use of CAD and patient specific, customized osteotomy and reduction guides as well as the creation of a patient specific customized plate allowed for the accurate correction and rigid stabilisation of an antebrachial deformity with combined pancarpal arthrodesis in a very small patient, whose antebrachium measured 5cm and pes measured 6cm.

AM Room 2, 09:00 - 11:45 | Neurology, Oncology

09:00 Serum C-Reactive Protein Does Not Predict Outcome in Dogs with Severe Spinal Cord Injury Secondary to Intervertebral Disc Extrusion

Max Foreman, Enzo Vettorato, Abby Caine, Paola Monti, Eminaga Salih

Dick White Referrals, Six Mile Bottom, United Kingdom

Objectives

- Evaluate the serum CRP concentrations in dogs presenting for assessment of acute severe spinal cord injury secondary to IVDE.

- Does serum CRP correlate with the presence or absence of nociception?

- Does serum CRP correlate with intramedullary changes seen on MRI?
- Does serum CRP on admission can give prognostic information for neurological improvement following surgery?

Methods

Case records were retrospectively reviewed for dogs presenting with paraplegia secondary to acute intervertebral disc extrusion between February 2018 and March 2020. Signalment, neurological grade, location of IVDE, serum CRP on admission, and outcome following decompressive surgery were extracted. MRI studies were reviewed for presence and length of T2W intramedullary hyperintensity associated with the disc extrusion.

Results

100 dogs were included in the study - 45 dogs had negative nociception and 55 dogs had positive nociception. Serum CRP levels overall were within the reference range, however there was a statistically significant difference between dogs with (median, 6mg/L) and without (median, 4mg/L) nociception. This difference was not clinically significant. On linear regression, a correlation was seen between CRP level and length of T2W intramedullary hyperintensity on MRI. There was no difference in the CRP of dogs that had a successful outcome after surgery compared to those that didn't.

Statement (conclusions)

Serum CRP in dogs with acute intervertebral disc extrusion is commonly within the reference range. Minor differences are seen in dogs on the basis of neurological grade, however these are not clinically significant. CRP level may correlate with MRI findings, but cannot be used to predict outcome.

09:15 Owner Reported Management of Inter-Ictal Anxiety Behaviours in Canine Epilepsy

Sarah Hobbs¹, Emily Blackwell², Rowena Packer¹

¹Royal Veterinary College, Hertfordshire, United Kingdom. ²University of Bristol, Langford, North Somerset, United Kingdom

Objectives

Idiopathic epilepsy (IE) is the most common chronic neurological condition in dogs which can be associated with increased fear and anxiety in the inter-ictal period. It is unknown what support owners are receiving, or the methods used, for management of anxiety-related behaviours in this period. This study aimed to discover what strategies are currently used and how supported owners of dogs with IE feel with this element of their dog's management.

Methods

An online questionnaire collected valid responses from 220 owners of dogs diagnosed with IE, to the tier 1 confidence level of diagnosis defined by the International Veterinary Epilepsy Task Force. Data on inter-ictal anxiety-related behaviour were quantified using the Canine Behaviour and Research

Questionnaire, along with strategies used to manage anxiety and perceived levels of veterinary support.

Results

Nearly half (49.1%) of owners sought advice for at least one behavioural issue, with 83.6% reporting inter-ictal anxiety. Management strategies reported included behavioural/training techniques (90.4%), behavioural products (46.7%), medications (27.7%) and nutraceuticals (12.3%). Only 28.5% of owners felt fully supported by their vet in managing inter-ictal anxiety, and owners who felt unsupported were less likely to have received advice on behavioural management or training from their vet ($p=0.003$).

Statement (conclusions)

Despite owners commonly seeking advice for managing inter-ictal anxiety, there is not a consistent information source for advice (e.g. behaviourists, trainers, vets). Development of evidence-based adjunctive behavioural management options is urgently needed so that veterinary professionals can provide reliable support to improve the quality of life of affected dogs and their owners.

09:30 Comparison of Serum C-Reactive Protein in Dogs with Idiopathic and Structural Epilepsy.

Elizabeth Mahon, Lisa Alves, Timothy Williams

The Queen's Veterinary School Hospital, University of Cambridge, Cambridge, United Kingdom

Objectives

To compare the serum C-reactive protein (CRP) concentrations in dogs with idiopathic epilepsy (IE) and structural epilepsy (SE). Additionally, to see if there is a correlation between serum CRP value in epileptic dogs and time after seizure.

Methods

26 dogs with SE and 48 dogs with IE were included in the study. The serum CRP values between the two groups were compared using a Mann-Whitney test. A receiver operating characteristic (ROC) curve was used to investigate the sensitivity and specificity of serum CRP values above the laboratory reference interval of 8.2mg/L in relation to IE and SE. The correlation between serum CRP values and the time after seizure was also determined using Spearman's correlation coefficient.

Results

Serum CRP values in the SE group (median 2.05, range 1.10mg/L to 53.23mg/L) were significantly higher than in the IE group (median 1.10, range 1.10mg/L to 10.70 mg/L) ($p<0.001$). Elevated CRP (>8.2 mg/L) was poorly sensitive (30.8%) but highly specific (95.8%) for identifying SE cases. There was a mild negative correlation ($r_s=-0.404$, $p=0.001$) between CRP values and time after seizure ($p=0.01$).

Statement (conclusions)

Dogs with SE have higher serum CRP concentrations compared with dogs with IE. This could be a useful additional analysis in determining if seizure activity is more likely due to idiopathic or

structural causes in a non-referral setting. The mild negative correlation between CRP and time after seizure supports that seizure activity is related to systemic inflammatory response, however further studies are needed.

09:45 Bilateral Trigeminal Neuropathy Associated with Multicentric Lymphoma in Two Dogs: Clinical Presentation, MRI Findings and Flow Cytometry Characteristics

Alenka Lavra Zajc, Harry Warwick, Chantal Rosa, Jessica Grant, Mary Marrington

Northwest Veterinary Specialists, Runcorn, United Kingdom

Objectives

Description of clinical presentation, MRI features and flow cytometry in two dogs presenting for dropped jaw and further diagnosed with multicentric lymphoma and bilateral trigeminal neuropathy without intracranial lesions.

Methods

Physical and neurological examination, diagnostic imaging, clinical and cytological analysis.

Results

Case1: Clinical and neurological examination revealed pyrexia, hepatosplenomegaly, peripheral lymphadenomegaly, mandibular salivary glands enlargement, subcutaneous nodule, masticatory muscle atrophy, dropped jaw, anisocoria with left miosis, bilateral third eyelid protrusion and enophthalmus. Stage Vb multicentric B cell lymphoma was diagnosed with bone marrow, salivary gland and subcutis involvement. Malignant hypercalcaemia, monoclonal gammopathy, bilateral trigeminal neuropathy and Horner's syndrome was detected. Flow cytometry was positive for CD45, CD21, CD79 and MCHII expression. Head MRI revealed T2-weighted hyperintensity and contrast uptake with reduced volume of the masticatory muscles. Bilateral enlargement of cranial cervical ganglia and bilateral trigeminal nerves enlargement was noted with increased T2-weighted signal intensity and contrast uptake.

Case2: Clinical and neurological examination revealed masticatory muscle atrophy and dropped jaw. Stage Vb multicentric T-cell lymphoma was diagnosed with splenic, renal involvement and bilateral trigeminal neuropathy. Flow cytometry was positive for CD45 and CD3. MCHII expression was negative. Head MRI revealed increased T2-weighted signal intensity of the masticatory muscles with right-sided increased contrast uptake and reduced volume. Right trigeminal nerve thickening with increased contrast uptake was also noted.

Statement (conclusions)

Only a few case reports are available describing peripheral neuropathy associated with canine lymphoma. This is the first report describing MRI findings and flow cytometry in two dogs with confirmed lymphoma presenting with trigeminal neuropathy.

10:00 Prognostic Factors for Survival in Dogs with Cerebral Glioma Receiving Primary Radiotherapy: A Pilot Study.

Matteo Pignanelli^{1,2}, Aaron Harper¹, Sarah Mason¹

¹Southfields Veterinary Specialists, Laindon, United Kingdom. ²Medivet, Shrewsbury, United Kingdom

Objectives

To identify prognostic factors for survival in dogs with cerebral glioma receiving radiotherapy

Methods

Medical records of client owned dogs, that received radiotherapy as sole treatment for cerebral glioma, were retrospectively reviewed. Presumptive diagnosis was based on computed tomographic and magnetic resonance images. Cox Proportion Hazard model was performed to assess factors associated with survival. Factors included signalment data (age, gender, weight, time from diagnosis to radiation therapy start) radiological data (tumour size, midline crossing, tumour location, contrast pattern enhancement) and radiotherapy protocol.

Results

17 dogs were included. Median age was 9 years and the median weight was 27.2kg. Median survival time was 330 days (range 81-1590) and the median follow up time was 300 days. Median tumour size (maximum diameter) was 15mm (range 7.7-26) and median time from diagnosis to radiation therapy start was 15 days. 11 patients received a total dose of radiation greater than 40Gy and 6 patients received a total dose lower than 40Gy. 2/17 dogs were still alive at the end of the study and 11/17 dogs were euthanized due to progressive disease. None of the variables examined were associated with survival but crossing the midline and radiation therapy protocol were approaching statistical significance ($p=0.057$ and $p=0.08$ respectively).

Statement (conclusions)

The results show good survival for dogs with presumed glioma receiving radiotherapy. Although a significant prognostic factor was not identified this may be due to the small cohort and further numbers are required to assess the importance of radiation protocol and tumours that cross the midline.

10:30 Sinonasal Mycosis as A Long-Term Complication Following Transfrontal Craniotomy In 3 Dogs

Ed Pilkington¹, Steven De Decker¹, Abtin Mojarradi², Matteo Rossanese¹, Dan Brockman¹, Nele Van den Steen³, Stephen Cahalan¹, Joe Fenn¹

¹Royal Veterinary College, London, United Kingdom. ²The IVC Evidensia Referral Hospital, Helsingborg, Sweden. ³Cave Veterinary Referrals, Wellington, United Kingdom

Objectives

To describe the clinical presentation, diagnosis, treatment and outcome in 3 dogs that developed sinonasal mycosis following transfrontal craniotomy.

Methods

Retrospective case series using clinical records of 3 referral institutions.

Results

Three dogs were presented for investigation of chronic nasal discharge and epistaxis, 141, 250 and 357 days following transfrontal craniotomy to treat intracranial meningioma (n=2) and meningoencephalocele (n=1). The dog presenting after 250 days underwent another transfrontal craniotomy 1951 days previously. Computed tomography demonstrated destructive rhinitis and frontal sinusitis in all three dogs, with mycotic infections confirmed by frontal sinusotomy and mycology. *Aspergillus* spp. were identified in all (culture n=2, cytology n=1) and additionally, *Chrysosporium* spp. were cultured in 1 dog. Surgical exploration revealed necrotic bone alongside fungal plaques associated with residual surgical tissue adhesive surrounding the site of the previous craniotomy in all 3 dogs. Curettage was followed by antifungal treatment (topical clotrimazole in two dogs, oral itraconazole for 3 months in one dog). Nasal discharge improved in the short-term but recurred in all cases after 99, 118 and 110 days. Long-term treatment included ongoing oral itraconazole in 1 dog and an additional 2 surgical debridement procedures for clotrimazole administration in 1 dog, with no further treatment in 1 dog. All dogs were alive at last follow-up after 204, 125 and 414 days.

Statement (conclusions)

Sinonasal mycosis should be considered as a potential complication in dogs developing persistent nasal discharge and epistaxis following transfrontal craniotomy. Potential risk factors, including the use of surgical tissue adhesive in the frontal sinus, require further investigation.

10:45 Clinical Features, Treatment and Outcome of Bacterial Meningitis in Dogs

Faye Rawson¹, Max Foreman², Thomas Mignan³, Jack Galer⁴, Abbe Crawford¹

¹Royal Veterinary College, Brookmans Park, United Kingdom. ²Dick White Referrals, Newmarket, United Kingdom. ³Dovecote Veterinary Hospital, Castle Donington, United Kingdom. ⁴Davies Veterinary Specialists, Hitchin, United Kingdom

Objectives

In humans bacterial meningitis (BM) is associated with high mortality rates and neurologic sequelae, including cognitive impairment. Limited data exists on outcome in dogs. This study aims to assess the clinical features, treatment and outcome of dogs with BM.

Methods

A multicentre retrospective case series was performed. Inclusion criteria were dogs presenting between January 2010 and August 2020 with a diagnosis of bacterial meningitis based on consistent diagnostic imaging findings, cerebrospinal fluid (CSF) analysis and response to antimicrobial therapy. Data collected included clinical records and follow up communications by the referral centre.

Results

Twenty-one dogs met the study criteria; 13 were of brachycephalic conformation. Median duration of clinical signs was 48 hours and included pyrexia (n=1), altered mentation (n=10), non-ambulatory status (n=6) and cervical hyperaesthesia (n=6). CSF analysis revealed a pleocytosis in all dogs, intracellular bacteria in 12 and positive bacteriological culture in seven. A suspected nidus of infection was identified in 14 dogs, with otitis media/interna in 11 of these. Five dogs underwent surgical management of otitis media/interna while the remaining 16 underwent medical management. Median length of antimicrobial therapy was six weeks (range 1.5-12 weeks). Glucocorticoids were administered in 16 dogs. Whilst hospitalised, 3 patients were euthanised and 1 died. Median follow up time for surviving patients was 68 days; 6 dogs had persistent neurological deficits and 1 suffered a relapse.

Statement (conclusions)

Dogs with BM presented with a range of clinical signs and 10/21 made a full recovery with no evidence of relapse.

11:00 Slosh Simulation in A Computer Model of Canine Syringomyelia

Clare Rusbridge^{1,2}, Serge Cirovic¹

¹Univeristy of Surrey, Guildford, United Kingdom. ²Fitzpatrick Referrals, Godalming, United Kingdom

Objectives

The exact pathogenesis of syringomyelia is unknown. Epidural venous distention during Valsalva manoeuvres (raised intrathoracic pressure when expiring against a closed glottis e.g. coughing) causing impulsive movement of fluid (“slosh”) within the syrinx is a proposed cause of syrinx dissection into spinal cord parenchyma and craniocaudal propagation of the cavity. We sought to test the “slosh” hypothesis by epidural excitation of CSF pulse in a computer model of canine syringomyelia.

Methods

Our previously developed canine syringomyelia computer model was modified to include an epidural pressure pulse. Simulations were run for: a cord with small syringes at C2 and the cervicothoracic junction (locations previously shown prone to syrinx formation); a healthy cord; and cord with a large syrinx.

Results

If small syringes are present, there are peaks of stress at those locations. For a single cervical syrinx, stress is highest at the caudal end of the syrinx, whereas for a cervicothoracic syrinx stress is highest at the cranial end of the syrinx. When there are both small cervical and cervicothoracic syringes, the stress peaks remain similar to each separately. However, there are no pressure peaks with a large syrinx. The stress is slightly elevated in the caudal cord up to the caudal end of the syrinx.

Statement (conclusions)

The findings supported the “slosh” hypothesis suggesting that small cervical syringes might propagate caudally and thoracic syringes cranially. However, when the syrinx is large there is less

focal stress which may explain why a syringe can expand rapidly but then remain unchanged in shape over years.

11:15 Cranial Nerve Assessment in Normal and Systemically Unwell Cats

Jaye Western, Abbe Crawford

Royal Veterinary College, North Mymms, United Kingdom

Objectives

The objectives of this study were to assess the reliability of cranial nerve testing in cats and to determine if systemically well and unwell cats with no primary neurological disease show normal and consistent cranial nerve reflexes and responses.

Methods

Twenty systemically unwell and 14 systemically well hospitalised cats with no primary neurological disease were included in this prospective study. Cranial nerve testing included the pupillary light reflex (PLR), dazzle reflex, menace response, vestibulo-ocular reflex (VOR), palpebral reflex, nasal sensation, facial sensation and gag reflex. A Fischer's exact test was used to determine if there was a statistically significant difference ($P < 0.05$) in the results of each cranial nerve reflex/response between systemically well and unwell cats.

Results

The PLR, menace response, palpebral reflex and nasal sensation were found to show inconsistent results in both systemically well and unwell cats. A reduced VOR was found in significantly more unwell cats (9/20) compared with well cats (0/14) ($P = 0.004$). All cats with a reduced/absent PLR were receiving opioids, with 4/7 (57%) of them demonstrating mydriasis at rest.

Statement (conclusions)

Both systemically well and unwell cats can demonstrate cranial nerve testing abnormalities in the absence of primary neurological disease. Consequently, veterinarians should be aware that abnormal cranial nerve testing in cats is not definitively indicative of primary neurological disease and should therefore interpret cranial nerve testing in cats with caution.

11:30 Complications Arising from Cerebrospinal Fluid Collection in Dogs: A Retrospective Case Series

Alana McCarthy, Abbe Crawford

Royal Veterinary College, Hatfield, United Kingdom

Objectives

Assessment of cerebrospinal fluid (CSF) is a commonly used diagnostic test in dogs presenting with neurological disease. Little is known about the rate or nature of complications arising as a result of

CSF collection in dogs. This retrospective study aimed to identify and describe clinical cases in which a complication arose during or immediately following CSF collection.

Methods

Retrospective case series. Complications were defined as an acute clinical deterioration detected during CSF collection or evident on recovery from general anaesthesia.

Results

Eight cases were identified over a 17-year period, during which time 6507 CSF samples were collected. The prevalence of complications was 1.23 per 1000 samples collected. Complications consisted of prolonged or failure of recovery from general anaesthesia (4), respiratory compromise (3), acute development of signs consistent with elevated ICP (3) and cardiopulmonary arrest (1). Seven patients died or were euthanised as a result of the complication, and thus the mortality was 87.5%. A diagnosis was reached in 7 cases: meningoencephalitis of unknown aetiology (MUA) (3), steroid responsive meningitis-arteritis (1), fungal meningoencephalitis (1), cerebral neoplasia (1) and cerebellar ischaemic infarct (1).

Statement (conclusions)

Therefore, complications associated with CSF collection are infrequent when performed in appropriately selected cases. However, when complications do arise they tend to be severe and fatal.

PM Room 1, 12:30 - 18:00 | Soft Tissue Surgery, Critical Care

12:30 Comparison of Open and Closed Orchidectomy In Dogs: A Retrospective Study

Valentina Brioschi^{1,2}, Lucy Andrews^{1,3}, Peter Fordyce¹, Olivier Restif¹, Jane Ladlow¹

¹University of Cambridge, Cambridge, United Kingdom. ²Arthurs Orthopaedics, Northampton, United Kingdom. ³Bath Veterinary Group, Bath, United Kingdom

Objectives

To compare open and closed orchidectomy in dogs and the associated complications.

Methods

Within this retrospective clinical study, the clinical records of male dogs presented to a veterinary teaching hospital for neutering were reviewed for information on signalment, weight, type of orchidectomy (open or closed), duration of surgery and short-term complications (within 14 days from surgery). All data included was exclusive to this study.

The data was analysed to compare postoperative complications (chi-square test) and duration of surgery (t-test) in dogs undergoing open and closed orchidectomy and to assess whether age

(Wilcoxon test), body weight (Wilcoxon test) and duration of surgery (Kruskal-Wallis test) had an association with the occurrence of complications.

Results

136 dogs were included in the study. 44 dogs underwent open orchidectomy and 92 dogs underwent closed orchidectomy. 4/44 (9%) dogs in the open orchidectomy group and 9/92 (10%) dogs in the closed orchidectomy group developed complications; there was no significant difference in the occurrence of complications between groups ($p=1$).

The duration of surgery (mean minutes \pm 2x standard deviation) in the open group was 45.3 \pm 54.2 and in the closed group 39 \pm 35.8; there was no significant difference in duration of surgery between groups ($p=0.37$).

Age ($p=0.34$) and weight ($p=0.93$) of the dogs and duration of surgery ($p=0.89$) had no association with the occurrence of complications.

Statement (conclusions)

This retrospective study found that open and closed orchidectomy had similar complication rates with no significant difference. The results of this study failed to show that one orchidectomy technique is superior to the other.

12:45 Comparison of Open and Closed Orchidectomy In Dogs: A Prospective Study

Valentina Brioschi^{1,2}, Lucy Andrews^{1,3}, Peter Fordyce¹, Olivier Restif¹, Jane Ladlow¹

¹University of Cambridge, Cambridge, United Kingdom. ²Arthurs Orthopaedics, Northampton, United Kingdom. ³Bath Veterinary Group, Bath, United Kingdom

Objectives

To compare open and closed orchidectomy in dogs and the associated complications.

Methods

A randomised clinical trial of 93 dogs presented to a teaching hospital. All data included is exclusive to this study. The dogs were randomly allocated to the open or closed orchidectomy group. They were pain scored 2 hours after surgery. Complications occurring within 14 days were recorded.

The data was analysed to compare complications (chi-square test), postoperative pain (Kruskal-Wallis test) and duration of surgery (t-test) between groups and to assess whether pain score (chi-square test), age, weight and duration of surgery (Kruskal-Wallis test) had an association with the occurrence of complications.

Results

43 dogs underwent open and 50 dogs underwent closed orchidectomy. 5/43 (12%) dogs in the open and 12/50 (24%) dogs in the closed group developed complications; there was no significant difference in complication rate ($p=0.2$).

The median pain score in both groups was 1; there was no significant difference in pain score between groups ($p=0.34$).

The duration of surgery (mean minutes \pm 2x standard deviation) in the open group was 33.6 ± 20.8 and in the closed group 37.4 ± 26.8 ; there was no significant difference between groups ($p=0.11$).

There was a weak association between higher pain score and complications ($p=0.047$).

Age, weight and duration of surgery had no association with the occurrence of complications ($p=0.58$; $p=0.14$; $p=0.67$).

Statement (conclusions)

Closed orchidectomy had a higher complication rate (24%) than open orchidectomy (12%) however, the difference was not significant. There is no evidence that one orchidectomy technique is superior to the other.

13:00 Frontal Sinus Depth at Fourteen Locations in Domestic Short Haired and Domestic Long-Haired Cats Assessed by Computed Tomography

Edward Crystal¹, Rachel Burrow²

¹Small Animal Teaching Hospital, University of Liverpool, Neston, United Kingdom. ²Northwest Veterinary Specialists, Sutton Weaver, United Kingdom

Objectives

To assess for a consistent “deep” feline frontal sinus location and to assess if sites identified to achieve safe trephination of the frontal sinuses in dogs can be transferred to cats.

Methods

Imaging records were reviewed to identify DSH or DLH cats that had undergone head CT to investigate aural disease. Inclusion criteria included imaging of the entire frontal sinus and absence of pathology other than aural changes. Frontal sinus depth was measured at fourteen locations on each side, based on their association to a line running between the zygomatic processes (z-z line). These locations were distances along the z-z line (5mm and 1cm), proportions of the midline to zygomatic process distance (m-z) (halfway and one-third along, measured from the midline) or distances rostral (3mm and 5mm) or caudal (3mm, 5mm and 1cm) to these primary locations.

Results

11 CTs were reviewed. No difference was identified between left and right. In all cats, all locations measured along the z-z line and those at 3mm and 5mm rostral to the one third of the m-z distance were located over the frontal sinus. Mean depths were greatest at the location one third the m-z distance ($11.0\text{mm} \pm 3.4\text{mm}$) and the 3mm rostral to the m-z distance ($10.6\text{mm} \pm 1.9\text{mm}$). The deepest point was along, or rostral to, the z-z line in all cats.

Statement (conclusions)

Frontal sinus depth in cats is greatest along, or just rostral to, the m-z line and trephination should be performed along this line unlike the more caudal location that is recommended in dogs.

13:15 Preventative Pneumopexy In the Management of Concurrent Right Cranial and Middle Lung Lobe Torsion Following Right Caudal Lung Lobectomy in A Dog

Catherine Davidson, Cristóbal López Jiménez, Tiziana Liuti, Kelly Blacklock

The University of Edinburgh, Edinburgh, United Kingdom

Objectives

To report a case of concurrent right cranial and middle lung lobe torsion, occurring within 24 hours of right caudal lung lobectomy in a dog and to describe the use of a preventative pneumopexy as a strategy to prevent torsion of the remaining accessory lung lobe.

Methods

A 4-year-old female neutered Welsh Springer Spaniel was presented with pneumothorax secondary to a migrating foreign body within the right caudal lung lobe. Six hours following thoracic exploration and hilar lung lobectomy, the patient deteriorated. Computed tomography was requested and the acquired images were consistent with lobar torsion.

Results

A second median sternotomy identified concurrent right cranial and middle lung lobe torsion. Hilar lobectomy of the affected lobes was performed. In order to prevent further lobar torsion of the remaining lobe, a preventative accessory lobe pneumopexy was carried out, thus potentially averting an additional surgical procedure and a reduction in total lung capacity to less than the reported minimum critical mass compatible with survival.

No complications following accessory lung lobe pneumopexy were encountered in this single case.

Statement (conclusions)

Although post-lobectomy lung lobe torsion appears to be rare in dogs, clinicians should be aware of this potentially life-threatening complication. This case report documents the first description of pneumopexy as a preventative procedure in a dog with previous lung lobectomy. Feasibility of this procedure is demonstrated but further studies should be conducted to establish whether fixation of at-risk lung lobes reduces post lobectomy lung lobe torsion.

13:30 Impact of Oesophageal Feeding Tube Placement on Outcome in Dogs Undergoing Cholecystectomy for Gall Bladder Mucocoele

Joshua Winter¹, Lucy Barker¹, Lee Meakin², Vicki Black²

¹University of Bristol, Bristol, United Kingdom. ²Langford Vets, Bristol, United Kingdom

Objectives

To assess if placement of oesophageal feeding tubes in dogs undergoing cholecystectomy for gall bladder mucocoele (GBM) influences outcome.

Methods

Hospital records were retrospectively searched between 2011-2019 for cases of GBM undergoing cholecystectomy. Dogs were defined as oesophageal tube (OT) if an oesophageal feeding tube was placed during anaesthesia for surgery, or no tube feeding (NOT) if this intervention was not performed. Time in days to voluntary food intake, requirement for feeding tube placement in the NOT group and outcome including duration of hospitalisation and oesophageal feeding tube complications were recorded.

Results

Thirty-three cases were identified. Three were excluded due to incomplete data sets. Eleven dogs underwent oesophageal feeding tube placement at the time of surgery (OT=11) and nineteen did not (NOT=19).

Days to voluntary food intake was found to be a median of 3 days in the OT group compared to 2 days in the NOT group (range 1-6 days in OT, 1-5 days in NOT). Two dogs in each group died, four dogs in the NOT group required a subsequent procedure to place a feeding tube. Minor tube complications were recorded in three cases (inflammation/infection, discomfort). Duration of hospitalisation was similar in both groups (OT: 6 days [4-10 days], NOT: 5 days [4-10 days]).

Statement (conclusions)

Placement of an oesophageal feeding tube did not appear to influence outcome in this small study of dogs undergoing cholecystectomy for GBM. Morbidity was low and tube placement was subsequently required in 24% of dogs when this intervention was not initially performed.

14:00 Short and Long-Term Outcomes of Polyethylene Band Attenuation of Congenital Extrahepatic Portosystemic Shunts in Dogs (2010-2020)

Owen Glenn, Andrew Tomlinson, Rachel Burrow

University of Liverpool, Neston, United Kingdom

Objectives

To report the short and long-term outcomes following attenuation of congenital extrahepatic portosystemic shunts (CEHPSS) using a polyethylene band.

Methods

Medical records were retrospectively reviewed for dogs that underwent attenuation of a CEHPSS by a polyethylene banding technique, at a single institution between 2010 and 2020. Long term follow up was provided by telephone interview, validated owner questionnaire or medical records. Data were analysed for short-term (<6 months) and long-term (>6 months) outcomes.

Results

Sixty dogs met the inclusion criteria. Postoperative complications occurred in 16.7% of dogs, of which 4 were classified as major and 6 as minor. Perioperative mortality rate was 6.7%. Post-operative seizures occurred in 3.3% of dogs. Persistent shunting was identified in 9 dogs (15%) and 5 underwent a second surgery. Long-term follow up was available for 44 dogs at a median time of 75 months (range 7-128). Outcomes were classified as 'Good' (n=10) to 'Excellent' (n=26) in 81.8% of dogs and 'Poor' (n= 8) in 18.2%. 'Successful' outcomes occurred in 59.1% (n=26) of dogs and were classified as 'unsuccessful' in 40.9% (n=18). At the time of follow up, 30 of 44 (68.2%) dogs were not receiving any medical treatment and 27 of 28 (96.4%) questionnaire respondents were satisfied with response to surgery.

Statement (conclusions)

Polyethylene is a readily available material which provides a safe, comparable and economical alternative to similar attenuation techniques. The material used in this study was pre-sterilised and pre-folded making it easy to use.

14:15 Reconstruction of The Rostral Zygomatic Arch Using Masseter Fascia Following Inferior Orbitectomy For the Management of An Oral Squamous Cell Carcinoma.

Tom Hernon^{1,2}, David Donaldson², Lee Meakin²

¹University of Bristol, Langford, United Kingdom. ²Langford Vets, Langford, United Kingdom

Objectives

To describe a novel technique for reconstruction of a partially resected zygomatic arch as part of an inferior orbitectomy, with preservation of the eye, for the management of an oral squamous cell carcinoma.

Methods

A 10-year-old dachshund was referred for the management of a right caudal maxillary squamous cell carcinoma. A CT scan performed of the head and thorax identified an aggressive caudal maxillary mass lesion invading the rostral portion of the zygomatic arch. There was no evidence of local or thoracic metastasis. Submandibular and retropharyngeal lymph nodes aspirates did not identify any evidence of metastasis.

An inferior orbitectomy was performed via a combination of an intraoral and lateral approach. The portion of the zygomatic arch to be resected was pre-determined from the pre-operative imaging. Following orbitectomy a portion of the adjacent masseter fascia, was elevated caudally. A flap of fascia was created, reflected over the deficit and sutured rostrally to the periosteum and dorsally to

the persevered orbital septum. Intraoperative complications included minor haemorrhage and hypotension. The globe appeared to have good support post-operatively.

Results

Histology confirmed squamous cell carcinoma and identified incomplete margins on the dorsal margin. The dog recovered well with no post-operative complications. Toceranib was started once the surgical sites had healed. Ten weeks post-operatively the dog was reported to be doing well, with no evidence of recurrence or long-term complications.

Statement (conclusions)

This novel technique provides a relatively simple option for providing ventrolateral support to the globe following partial resection of the zygomatic arch.

14:30 Split Staphylectomy - A Novel Surgical Technique to Address the Thickness of The Soft Palate in Brachycephalic Dogs

Gemma Holloway, Joe Higgins, Jan Beranek

Kentdale Referrals, Milnthorpe, United Kingdom

Objectives

To describe a novel technique of carbon dioxide laser staphylectomy that addresses soft palate thickness and length. To assess the complication rate and outcome for dogs undergoing Split Staphylectomy and to consider whether same-day discharge from hospital following surgery can be recommended.

Methods

A retrospective case series of 66 dogs with clinical signs of Brachycephalic Obstructive Airway Syndrome (BOAS), treated with by Split Staphylectomy at one clinic between November 2016-2018. All dogs were discharged on the same day as surgery. Post-operatively owners were contacted to complete a questionnaire regarding the effect of surgery on their dog's quality of life, and complications seen in the initial postoperative period.

Results

The overall complication rate was 6%. 3% of complications were considered major but none were life-threatening or related to Split Staphylectomy. 46/66 owners completed the questionnaire (mean follow up time 338.8 days). 89% of owners felt that surgery led to an improved quality of life for their dog. Only 7/46 owners sort veterinary attention between their dog leaving the hospital and the scheduled reassessment two weeks postoperatively, four dogs presented for veterinary intervention during this time period, but no intervention was considered urgent.

Statement (conclusions)

Split Staphylectomy offers a safe, straightforward method of addressing both excess thickness and length of soft palate in dogs with BOAS. Dogs that are clinically well postoperatively can be discharged on the same day as BOAS surgery without an increased risk of complications.

14:45 Subcutaneous Vascular Access Port Implantation in The Axillary or Femoral/External Iliac Vein at The Time of Full Limb Amputation for Treatment of Appendicular Skeleton Neoplasms

Diogo Miraldo, Laurent Findji

Fitzpatrick Referrals, Guildford, United Kingdom

Objectives

During full limb amputation, the axillary or the femoral/external iliac vein are approached and could be used for placement of a subcutaneous vascular access port (SVAP). We hypothesised that implantation of SVAP in a local vein at the time of amputation would have similar outcomes and complications to those implanted in the external jugular vein.

Methods

Medical records from a single hospital, between September 2015 and March 2020, were reviewed retrospectively. Cases where SVAP was placed in the axillary vein (aSVAP) or femoral/external iliac vein (fSVAP) at the time of amputation were included (amputation group), and a control group was formed by cases with placement of SVAP in the external jugular vein (jSVAP).

Results

Thirteen aSVAP, 4 fSVAP and 19 jSVAP were included. Minor and major complications were observed in 2/13 (15.3%) and 1/13 (7.7%) of aSVAP dogs, and 4/19 (21.0%) and 3/19 (15.7%) of jSVAP dogs, respectively. Two dogs with jSVAP (10.5%) were euthanised due to SVAP-related complications. No complications were observed within the four fSVAP dogs. Individual treatment requirements were fulfilled in 92.3%, 100% and 78.9% of aSVAP, fSVAP and jSVAP. No statistically significant difference was found for complication rates between jSVAP and aSVAP ($p=0.26$), or between jSVAP and fSVAP ($p=0.12$).

Statement (conclusions)

SVAP implantation directly in the axillary or femoral/external iliac vein at the time of amputation compares similarly or even favourably to jSVAP implantation. This may reduce surgical time and risk of surgical site infection in patients undergoing limb amputation and SVAP placement.

15:30 Successful Management of a Pharyngocutaneous Fistula That Developed Following Surgical Repair of Traumatic Laryngeal Avulsion in A Dog.

Matthew Simpson, Daniel Brockman

Royal Veterinary College, London, United Kingdom

Objectives

To report the management of a pharyngocutaneous fistula that developed following surgical reconstruction of a laryngeal avulsion injury.

Methods

A five-year-old male crossbreed dog was presented with bite wounds to the neck. Radiographs revealed pneumomediastinum, subcutaneous emphysema and a caudally positioned larynx. Surgical exploration confirmed rupture of the sternohyoid muscles from their insertion point on the basihyoid. Concurrent avulsion of pharyngeal mucosa from the epiglottis creating a large laryngopharyngeal defect was also evident. The pharynx was reconstructed and sternohyoid muscles reapposed. Penrose drains were placed in the peripharyngeal dead space, prior to closure.

The dog recovered well initially and began eating the following day. Three days postoperatively, saliva and food material appeared around the Penrose drains, suggesting pharyngocutaneous fistula development. A surgical gastrostomy tube was placed, the Penrose drains were removed and the dog was maintained nil per os. The dog was discharged nine days postoperatively by which time the volume of saliva produced at the drain sites had decreased.

Results

Gastrostomy tube feeding was continued for 11 days. The fistula had resolved completely by day 21. No further complications were reported during a routine examination at 23 days or on telephone follow-up with the owner at 110 days postoperatively.

Statement (conclusions)

Pharyngocutaneous fistulas have been well described in the human medical literature as a postoperative complication following total laryngectomy, but have been rarely described in veterinary patients. This complication should be considered when operating on wounds involving the laryngopharynx. Conservative management can lead to complete resolution.

15:45 Assessment of Hair Cortisol Concentration as A Marker of Chronic Stress in Dogs with Congenital Portosystemic Shunts

Alex Chan¹, Michael Tivers², Vicky Lipscomb³, Joelle Leiwy⁴, Emily Stacey⁴, Rob Fowkes⁴

¹Henlow Veterinary Centre, Henlow, United Kingdom. ²Paragon Veterinary Referrals, Wakefield, United Kingdom. ³Department of Clinical Science and Services, The Royal Veterinary College, North Mymms, United Kingdom. ⁴Department of Comparative Biomedical Sciences, The Royal Veterinary College, London, United Kingdom

Objectives

To measure hair cortisol concentration as a measure of physiological stress in dogs with congenital portosystemic shunts (CPSS) compared with healthy control dogs.

Methods

Dogs with CPSS undergoing surgery and healthy dogs undergoing routine neutering were prospectively recruited to the study. Hair removed during routine surgical preparation was collected. Cortisol was extracted from hair samples using methanol and a salivary enzyme immunoassay kit was used to measure the concentration. Cortisol concentration was compared between CPSS and controls using a Mann-Whitney U test ($P < 0.05$).

Results

Thirty-five dogs with CPSS (29 extrahepatic and six intrahepatic) and eight control dogs were included. The median age of CPSS dogs was 12 months (range 3-77) and the median age of control dogs was 12.5 months (6-49). The median cortisol concentration in the CPSS group was 0.405mg/dl (0.07-12.22) compared with that of the control dogs at 0.17mg/dl (0.06-0.76) This difference was statistically significant ($P = 0.004$). Six dogs had follow-up fur samples taken, five prior to a second surgery following partial shunt ligation. The cortisol concentrations increased in three dogs and decreased in three dogs.

Statement (conclusions)

The findings of this study suggest that dogs with CPSS experience chronic physiological stress with upregulation of their hypothalamic-pituitary-adrenal (HPA) axis and this is likely to have a negative effect on their welfare. Measurement of cortisol is easily performed on hair samples and this may have potential for monitoring response to treatment in dogs with CPSS.

16:00 The Potential Impact of An Educational Intervention Tool on Public Perception of Health Problems in Brachycephalic Dog Breeds.

Dan Kenny¹, Rosie Freemantle², Andrea Jeffery³, Mickey Tivers¹

¹Paragon Veterinary Referrals, Wakefield, United Kingdom. ²Polden Hills Veterinary Centre, Bridgwater, United Kingdom. ³Linnaeus Group, Shirley, United Kingdom

Objectives

To assess the effect of an educational intervention on public opinion of brachycephalic obstructive airway syndrome (BOAS).

Methods

Members of the public were prospectively recruited via social media and invited to complete a questionnaire, prior to reading an educational intervention (BOAS information sheet), and then completing another questionnaire.

Results

587 individuals participated, although not all questionnaires were fully completed. 401/573 (69.9%) respondents were familiar with the term brachycephalic, but only 240/578 (41.5%) knew of the term BOAS. Before the educational intervention the majority of respondents considered the following to be normal for brachycephalic dogs: snoring (89.7%), loud breathing (78.0%), laboured breathing

(65.0%). After the intervention these had decreased to 45.5%, 41.2% and 30.4% respectively. 572/578 (98.9%) participants considered the information sheet useful and 581/583 (99.7%) believed it had improved their understanding of BOAS. 307/579 (53.0%) respondents had their opinion on brachycephalic dogs altered with 448/578 (77.5%) not wanting to recommend a brachycephalic breed to friends and family. 564/577 (97.7%) of respondents believed that the general public should be more aware of BOAS and 576/579 (99.5%) believed that potential owners of brachycephalic dogs should be aware of BOAS.

Statement (conclusions)

Although the study suggests that public understanding of BOAS is limited, with most respondents believing the clinical signs to be normal for brachycephalic dogs, we found that a simple information sheet was beneficial in improving understanding and awareness of BOAS. By educating the public in this manner we may be able to reduce demand for affected breeds and therefore reduce the prevalence of BOAS.

16:30 Factors Associated with Positive Urine Cultures in Cats with Subcutaneous Ureteral Bypass System (SUB) Implantation.

Catrina Pennington, Rebecca Geddes, Zoe Halfacree

RVC, London, United Kingdom

Objectives

To report the postoperative incidence of SUB infection and associated risk factors.

Methods

Data was collected from the clinical records of cats with SUBs placed between 16/04/12 and 06/09/19. Cases without follow-up culture were excluded. Binomial linear regression and chi squared testing was performed to assess the relationship between various factors and likelihood of post-operative positive cultures.

Results

118 cases were included. 33.9% had a positive post-operative culture, ten within one month, 15 within three months and 29 within 12 months post-surgery.

The most common organisms isolated within one month post-surgery were *Escherichia coli* (40%) and *Pseudomonas aeruginosa* (30%).

110 cats had a pre-operative culture performed, 12.7% were positive. The most frequent isolates were *E.coli* (42.9%) and *Enterococcus faecalis* (28.6%).

Cats with a positive pre-operative culture were more likely to have a positive post-operative culture within six months post-operatively ($p=0.03$). This was not statistically significant at one, three or 12 months post-surgery.

Cats with lower end-anaesthetic temperatures were more likely to return a positive culture by one ($p=0.005$) and three months ($p=0.003$) post-surgery, but not by six ($p=0.22$) or twelve months ($p=0.564$) post-surgery.

Signalment, weight, condition score, perioperative antibiotic, placement reason, implant site, outdoor access, pre-operative urea, creatinine, urine pH and specific gravity, length of hospitalisation, anaesthetic and surgery were not significantly correlated with likelihood of returning a positive culture at any time-point.

Statement (conclusions)

Cats with positive pre-operative cultures or lower end-anaesthetic temperature were more likely to return positive cultures post-surgery; these findings may guide management of cats presenting with ureteral obstruction.

16:45 Use of the 'Functional Evaluation of Cardiac Health' (FETCH) Questionnaire to Determine Quality of Life Before and After Mitral Valve Repair Surgery in Dogs

Catrina Pennington, Poppy Bristow, Anne Kurosawa, Xavier Navarro-Cubas, Alison Young, Sarah Carey, Dan Brockman

Royal Veterinary College, London, United Kingdom

Objectives

To report changes in owner assessed quality of life (QOL) for dogs with myxomatous mitral valve disease (MMVD) pre- and post- mitral valve repair (MVR)

Methods

Dogs were included in the study if they underwent MVR for MMVD at our institution between October 2017 - July 2019, survived to discharge, and their owners completed the FETCH questionnaire prior to surgery and at least one month after surgery. A FETCH score was created by adding question scores to create a possible total of 80, with a higher score equating to a worse QOL.

Data were tested for normality and a Wilcoxon signed rank test was used to assess any change in score for individual questions and the total FETCH score, pre- and post-surgery. Significance was set at $p<0.05$.

Results

22 dogs met the inclusion criteria. Mean age was 9.3 years (SD 2.04), the most common breeds were Cavalier King Charles Spaniels and Chihuahuas (both 27.3%).

Median time between initial questionnaire completion and surgery was 5 days (range 1-91). Mean follow-up time was 8.6 months (SD 4.5).

20/22 dogs (90.9%) had a lower FETCH score post-surgery. Total median FETCH score was 22 (range 2-77) pre-surgery and 2.5 (range 0-31) post-surgery, ($p < 0.001$). Mean rank scores were significantly lower post-operatively for 14/17 questions.

Statement (conclusions)

QOL is increasingly recognised as an important outcome measure in veterinary medicine. The negative impact of MMVD on QOL was significantly reduced post MVR in this cohort of dogs. The results of this study may help to guide decision making after diagnosis of MMVD.

17:00 The Effect of Syringe Versus Stylet Collected Blood During Intravenous Catheter Placement on Blood Glucose, Lactate, Packed Cell Volume and Total Solids Values in Dogs

Daniela Grigore, Alisdair Boag, Adam Gow, Craig Breheny

Royal (Dick) School of Veterinary Studies, Edinburgh, United Kingdom

Objectives

Blood glucose (BG), lactate (LAC), packed cell volume (PCV) and total solids (TS) are frequently evaluated in emergency and critical care patients and may be subject to pre-analytical errors. Our aim was to assess whether these parameters are affected by collection site by comparing blood directly from the intravenous catheter stylet (stylet sample) versus blood from the same catheter hub using a syringe (syringe sample).

Methods

Prospective cross-sectional analysis; dogs presenting to a referral teaching hospital were prospectively included if there was a clinical indication to obtain a blood sample at the time of intravenous catheter placement. Stylet and syringe whole blood samples were collected from each dog and assessed immediately. A 10% difference between PCV, BG and LAC paired values (and 5% for TS) was considered clinically significant. Differences between sites were assessed with a paired T-Test. Statistical significance was set at $p < 0.05$

Results

Paired samples from 76 dogs were included in the study. PCV and GLU were not statistically different. Significant differences were present for LAC ($p = 0.017$, mean of differences: 0.096 mmol/L, 95 % CI: 0.091 – 0.102 mmol/L) and TS ($p = 0.027$, mean of differences: 0.71 mg/dL, 95 % CI: 0.081 - 1.34 mg/dL). These differences were considered clinically insignificant.

Statement (conclusions)

Variation in minimal database values between catheter and stylet collected blood is unlikely to affect clinical decision making, therefore the methods of collection analysed herein can be used interchangeably in clinical practice.

17:15 Comparison of Sonographically-Derived Caudal Vena Cava Parameters Acquired in Standing and Lateral Position in Healthy Awake Cats – A Pilot Study

Tove Hultman¹, Søren Boysen², Rebecca Owen¹, Ivayla Yozova¹

¹Massey University, Palmerston North, New Zealand. ²University of Calgary, Calgary, Canada

Objectives

To determine the feasibility of ultrasonographic caudal vena cava measurements at the subxiphoid view in standing and lateral recumbency in healthy awake cats.

Methods

Animal ethics approval was obtained. The study was a prospective, observational, experimental single-center study. Twenty healthy research-purposed cats were enrolled. Two trained operators scanned each cat in two positions, standing and lateral in a randomized order. CVC diameter was measured at end inspiration and end expiration at two anatomic locations along the CVC. A collapsibility index (CI) was calculated as a percentage for each position. A one-way ANOVA with post hoc Tukey's test was used to compare inspiratory to expiratory values within and between groups. A paired t-test compared CVC CI between groups ($p \leq 0.05$ = significance). Spearman's correlation and Bland Altman assessed inter-rater variability.

Results

All data passed normalcy. There was a statistically significant difference between inspiratory and expiratory values regardless of position, location and operator ($p < 0.0001$ for all). There was no statistically significant difference between lateral or standing position for inspiratory, expiratory and CI values. There was a statistically significant difference between operators for all measurements ($p < 0.0001$ for all).

Statement (conclusions)

This pilot study demonstrated that CVC diameter measurements are feasible in healthy awake cats in both lateral recumbency and standing positions. Further research is required to determine if ultrasonographic measurement of the caudal vena cava can be used to determine intravascular volume status and fluid responsiveness in spontaneously breathing cats.

17:30 Medical and Surgical Management of Suspected Pancreatic Abscessation In Dogs: A Retrospective Study Of 15 Cases

Charles Talbot, Ring Cheung, Simon Cook

Royal Veterinary College, London, United Kingdom

Objectives

Pancreatic abscessation in dogs is often considered a surgical condition. This study aims to describe the diagnosis and medical management of suspected pancreatic abscessation in dogs, to compare these with cases managed surgically at the same institution, and to reconsider the terminology describing acute pancreatitis with local inflammatory fluid accumulation.

Methods

A retrospective study was performed, evaluating the medical records of dogs that presented to a specialist referral hospital for management of pancreatic abscessation between January 2010 and March 2020. Inclusion criteria were: a clinical presentation of acute pancreatitis, ultrasonographic evidence of a fluid filled structure within the pancreatic parenchyma and cytological samples of the fluid revealing an inflammatory or infectious process.

Results

Fifteen cases were identified. Eight were managed medically initially, with 3 of these subsequently undergoing surgical management. Seven cases were managed solely surgically. Of the 5 cases managed solely medically, 4 were treated successfully and survived to discharge. Of the 7 dogs managed solely surgically, 4 survived to discharge and 3 were euthanized due to perceived poor quality of life. The 3 dogs that received a combination of medical and surgical management survived to discharge. Five surgically managed cases were deemed infected based on cytology or culture.

Statement (conclusions)

Medical management is a viable option for the successful treatment of canine pancreatic abscessation. However, current disease classification in dogs precludes more tailored management and accurate prognostication.

17:45 The Use of Haemodialysis for The Treatment of a Life-Threatening Phenobarbitone Overdose

Richard Trinder, Stefano Cortellini, Tom Greensmith, Laura Cole

Royal Veterinary College, Hatfield, United Kingdom

Objectives

To demonstrate that haemodialysis can be used to effectively treat a patient with a life-threatening phenobarbitone intoxication 30 hours after ingestion.

Methods

An 18-month-old male neutered cocker spaniel presented to his primary care veterinarian following the ingestion of phenobarbitone (216mg/kg). Upon presentation the patient was cardiovascularly stable with no increased respiratory effort or rate, however laterally recumbent with a comatose mentation and a reduced gag reflex. Following failure to respond to initial intravenous fluids and intralipid emulsion therapy, the patient was referred to a specialist hospital for extracorporeal removal of phenobarbitone using haemodialysis.

Results

On arrival at our referral specialist hospital the patient was mechanically ventilated due to severe hypoventilation (PvCO₂ of 69.9mmHg) and underwent a 300-minute prolonged veno-venous hemodiafiltration cycle performed using a continuous haemodialysis-based platform and a high-flux dialyzer. The patient rapidly demonstrated neurological improvement, being extubated 4 hours later, and becoming responsive and ambulatory 5 hours from initiation of the treatment. Phenobarbitone serum concentrations dramatically reduced from 143µg/ml on

presentation to 64µg/ml at the end of the cycle. Repeat phenobarbitone levels 24-hours later demonstrate no significant rebound redistribution of phenobarbitone.

The patient was discharged 36 hours following the completion of haemodialysis, and has no known long-term complications from the intoxication.

Statement (conclusions)

This is the first report describing the use of a high flux dialyzer in phenobarbitone toxicity in dogs. The use of veno-venous hemodiafiltration can be used to effectively treat patients with severe phenobarbitone intoxication, even 30 hours after ingestion and should be considered in severe cases.

PM Room 2, 12:45 - 18:00 | Primary Practice and the Profession, PetSavers Student Grants

12:45 Field Efficacy and Safety of a Novel Oral Chewable Tablet Containing Sarolaner, Moxidectin, And Pyrantel Against Naturally Acquired Gastrointestinal Nematode Infections in Dogs Presented as Veterinary Patients in Europe

Csilla Becskei¹, Daphne Fias¹, Sean P. Mahabir², Robert Farkas³

¹Zoetis, Zaventem, Belgium. ²Zoetis, Kalamazoo, USA. ³University of Veterinary Medicine, Budapest, Hungary

Objectives

The efficacy of a novel oral endectocide containing moxidectin, sarolaner and pyrantel was investigated in client-owned dogs with natural infections of *Toxocara canis*, *Toxascaris leonina*, *Ancylostoma caninum* and *Uncinaria stenocephala*.

Methods

Dogs infected with any of the four gastrointestinal nematode species were enrolled in this controlled, masked, randomized study. In total, 194 dogs were treated once orally with the combination of sarolaner (1.2 to 2.4 mg/kg), moxidectin (24 to 48 µg/kg) and pyrantel (5 to 10 mg/kg) and 97 dogs were treated with a positive control product containing afoxolaner (2.50–5.36 mg/kg) and milbemycin oxime (0.50–1.07 mg/kg). Faecal egg counts were conducted before, and 7 days after treatment administration. Efficacy was based on the post-treatment reduction in geometric mean egg counts (per gram faeces) compared to pre-treatment.

Results

Two hundred dogs were infected with *T. canis*, 80 with *A. caninum*, 36 with *U. stenocephala*, and 16 with *T. leonina*. Fifty dogs had mixed infections with two or more species. Post-treatment geometric mean fecal egg counts for *T. canis*, *A. caninum*, *T. leonina*, and *U. stenocephala* relative to pretreatment counts were significantly ($P < 0.0001$) reduced by $\geq 98.3\%$ in the group treated with the combination of sarolaner, moxidectin and pyrantel, and by $\geq 97.4\%$ in the afoxolaner and milbemycin oxime-treated group. Both products were well tolerated.

Statement (conclusions)

Oral administration of the combination of 1.2 mg/kg sarolaner, 24 µg/kg moxidectin and 5.0 mg/kg pyrantel provided effective treatment of roundworm and hookworm infection in dogs.

13:00 Raw Diets Safe and Nutritious? U.K. Dog Owner Perspectives on Raw Diets Compared to Cooked Diets

Alysia Empert-Gallegos, Sarah Hill, Philippa S Yam

University of Glasgow School of Veterinary Medicine, Glasgow, United Kingdom

Objectives

What are dog owner perspectives on risks, benefits, and nutritional value of raw diets compared to cooked diets?

Methods

This study is a descriptive, cross-sectional survey targeting Facebook-using pet dog owners in the United Kingdom. Discrete data were analysed using Microsoft Excel. Qualitative data were analysed using RStudio.

Results

The questionnaire was completed by 97 U.K. dog owners; 28.9% fed raw meat-based diets. Participants gave themselves a 4 or 5 out of 5 on dog nutrition knowledge 68.0% of the time, but only gave their veterinarian 4 or 5 on nutrition 46.3% of the time. This dichotomy was more extreme in raw feeders, with only 11.1% giving their veterinarians top scores in nutrition. Raw feeders rated commercial and homemade raw diets as highly nutritious 75.0% and 78.6% of the time, respectively, while only 7.4% rated commercially prepared cooked diets as highly nutritious. Cooked feeders ranked raw diets as highly nutritious less often, but also only ranked cooked diets as highly nutritious 60.9% of the time. All participants agreed that cooked diets were low risk to human health. Raw feeders ranked raw diets as highly risky to human or dog health 3.6% of the time in all categories but deemed cooked diets risky to dog health 53.6% of the time. This work was supported by MSD Animal Health.

Statement (conclusions)

This research bridges the gap of knowledge about owner perspectives around feeding raw and will help veterinarians educate and converse with clients about making the healthiest and safest diet choice for their dogs.

13:15 Evaluation of A Point-Of-Care Dot Enzyme-Linked Immunosorbent Assay to Detect Antibodies Against Canine Parvovirus, Distemper Virus and Adenovirus Before Revaccination.

Ditte Erika Leth Vasby, Line Kristensen, Agnethe Wallin, Jo Fjeldsted-Holm Lundsgaard, Tina Møller Sørensen

Department of Veterinary Clinical Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg C, Denmark

Objectives

Antibody measurement is the new recommended practice to evaluate the individual need for canine core vaccination boosters, according to the World Small Animal Veterinary Association (WSAVA).

The objectives are to evaluate the accuracy of a point-of-care titer test to detect canine antibodies in primary practice, and if accuracy improves when applying WSAVA recommendations regarding antibody cut-off values for gold standard analysis.

Methods

A prospective non-inferiority study (margin of 15%) of a point-of-care semi-quantitative titer test was performed on canine serum samples (n=82) and compared to gold standard analysis. Virus neutralization (VN) was performed for canine distemper virus (CDV) and canine adenovirus (CAV) while haemagglutination inhibition (HI) was performed for canine parvovirus (CPV) as quantitative gold standard. Sensitivity, specificity, positive and negative predictive values of the point-of-care titer test were determined for gold standard titer cut-off ≥ 16 , ≥ 32 and ≥ 80 for CAV, CDP and CPV, respectively. For WSAVA cut-offs all titers ≥ 10 was considered positive.

Results

The titer test showed a sensitivity of 91% [84;96], 87% [78;93] and 100% [96;100], and a specificity of 100% [37;100], 52% [33;71] and 100% [5;100] for CAV, CDV and CPV, respectively. No significant difference was seen when applying WSAVA cut-offs. As specificity is considered the most important parameter, the titer test was considered inferior to gold standard VN with respect to CDV antibodies.

Statement (conclusions)

Care should be taken when implementing and interpreting point-of-care titer tests in primary practice. More emphasis on high specificity is needed when developing and refining new in-house tests for antibody titer evaluation.

13:30 Cooling Methods Used in Dogs with Heat-Related Illness Under UK Primary Veterinary Care During 2016-2018.

Emily Hall¹, Anne Carter¹, Jude Bradbury¹, Dominic Barfield², Dan O'Neill²

¹Nottingham Trent University, Nottingham, United Kingdom. ²Royal Veterinary College, London, United Kingdom

Objectives

Greater duration and extent of hyperthermia in heat-related illness cases is associated with poorer prognosis. Rapid, effective cooling is critical for improved outcomes. Water immersion and water spray with air movement are currently considered the most effective cooling methods. This study explored cooling methods used in dogs with heat-related illness presenting for first-opinion veterinary care, and compared utilised cooling practices to best practice.

Methods

Dogs with heat-related illness events were identified from VetCompass clinical records. Clinical severity and information on cooling methods pre/post presentation were extracted. Associations between event severity and cooling methods used were assessed using a chi-squared test.

Results

The analysis included 810 heat-related illness events. No active cooling was recorded in 47.9% (388/810 events). Among 422 (52.1%) actively cooled dogs, cooling methods were: wet towels (35.3%), water spray/water immersion (33.2%), air movement (22.5%), ice/ice packs (11.8%), cold

intravenous-fluids (5.9%), alcohol on footpads (5.2%), cold-water enema (1.9%) and unspecified (28.7%). Multiple cooling methods were used in 34.1% of events, with wet towels plus air movement (8.5%) the most common combination reported.

Compared to mild and moderate cases, severe cases were three times more likely to receive cold intravenous-fluids ($p=0.003$), and six times more likely to receive cold-water enemas ($p=0.007$).

Statement (conclusions)

These findings benchmark active cooling actions used to manage heat-related illness in dogs in the UK; the use of active cooling was not documented in almost half of cases. These results suggest the value of improved public and veterinary education to increase use of effective, evidence-based cooling.

13:45 VetCompass Clinical Grading Tool for Heat-Related Illness in Dogs – A Novel Tool to Support Clinical Decision-Making in Primary-Care Practice.

Emily Hall¹, Anne Carter¹, Jude Bradbury¹, Dominic Barfield², Dan O'Neill²

¹Nottingham Trent University, Nottingham, United Kingdom. ²Royal Veterinary College, London, United Kingdom

Objectives

Historically, classification of heat-related illness in dogs relied on body temperature and neurological evaluation, extrapolated from traditional human classifications. Novel systems in human medicine now embrace the multi-systemic progressive nature of heat-related illness. This study aimed to adapt these novel human systems for use in dogs and explore the resultant predictive value for primary-care triage.

Methods

Dogs with heat-related illness were identified from VetCompass UK primary-care clinical records. Clinical presentation and outcome data were extracted, events were then retrospectively graded as mild, moderate or severe using a novel clinical grading tool which utilised only clinical signs. The ability of the grading tool to predict fatality was explored using logistic regression.

Results

The study included 856 heat-related events (2016-2018). The most frequent clinical signs were altered respiration (63.7%) and lethargy (44.3%). Clinical signs associated with increased risk of death were: abnormal mentation including coma (x13.3), stupor (x9.6), multiple seizures (x6.4), gastrointestinal haemorrhage (x5.2), petechiae/purpura (x4.2) and ataxia (x3.3).

The survival rate for cases graded by the tool as mild (altered respiration, lethargy, episodic collapse), moderate (gastrointestinal signs, a single seizure) and severe (abnormal mentation, gastrointestinal haemorrhage, petechiae/purpura) were 97.8%, 94.5% and 43.2% respectively.

Severe events had 58.1 (95%CI 25.1-134.4) times the odds of death compared to mild events.

Statement (conclusions)

The marked survival difference between grades highlights the prognostic value of the novel clinical grading tool in practice. The VetCompass grading tool used in combination with patient signalment and history could improve clinical decision making for dogs with heat-related illness.

14:30 The Scoop on Puppies That Eat Their Own Poop: Is Autocoprophagia Retained as Puppies Age?

Rachel Kinsman¹, Rachel Casey¹, Toby Knowles², Séverine Tasker^{3,2}, Joshua Woodward¹, Rosa Da Costa¹, Sara Owczarczak-Garstecka¹, Jane Murray¹

¹Dogs Trust, London, United Kingdom. ²Bristol Veterinary School, Bristol, United Kingdom. ³Linnaeus Group, Shirley, United Kingdom

Objectives

To investigate if autocoprophagia is retained as puppies age, and, for puppies displaying the behaviour at age 16-weeks, if owner response is associated with the occurrence of autocoprophagia at 7-months.

Methods

In an ongoing UK/ROI canine longitudinal study, owner-completed survey data about autocoprophagia (when puppies were aged 16-weeks and 7-months) were analysed. The prevalence of autocoprophagia was calculated for both timepoints, and the McNemar test was used to test for a change in prevalence between the timepoints. A Chi-squared test was used to test for association between owner-reported responses to seeing autocoprophagia at age 16-weeks and presence/absence of autocoprophagia at age 7-months.

Results

At age 16-weeks and 7-months, 11.7% (257/2200) and 4.6% (69/1515) of puppies, respectively, had reportedly eaten their own faeces in the last seven days. Autocoprophagia prevalence decreased between the two timepoints (n=1,349), p<0.001.

Autocoprophagia at 7-months was reported for 22.5% (9/40) of puppies whose owners had reported using only non-aversive responses (clearing up the faeces, calling dog away, distracting using a toy/treat, ignoring dog) at 16-weeks, compared with 30.6% (34/111) whose owners reported using either only aversive responses (use of loud/sudden noise, telling off, pulling away, putting on lead, rubbing dog's nose in it), or both aversive and non-aversive responses. The association between owner response to autocoprophagia at 16-weeks (n=151) and subsequent autocoprophagia did not reach statistical significance, p=0.329.

Statement (conclusions)

Autocoprophagia prevalence decreased as puppies aged. This analysis will be repeated with a larger sample size and greater age span to better understand this behaviour.

14:45 **What Makes Dogs Tick? Risk Factors and Clinical Management of Tick Infestations in UK Dogs**
Rinrada Komutrattananon¹, Ashley Hartley², Camilla Pegram¹, David Church¹, Dave Brodbelt¹, Dan G. O'Neill¹

¹Royal Veterinary College, Hertfordshire, United Kingdom. ²College of Veterinary Medicine, University of Tennessee, Knoxville, USA

Objectives

To report prevalence, risk factors, clinical management, and outcomes of tick infestation in UK dogs.

Methods

VetCompass cohort study using 905,554 dogs under veterinary care in 2016. Tick infestation cases were identified using electronic searches and compared to dogs under veterinary care for other reasons during 2016. Risk factor analysis used multivariable logistic regression modelling.

Results

One-year (2016) period prevalence of tick infestation was 0.5% (95%CI 0.2-0.7). Medium-haired dogs were predisposed (OR 2.3, 95%CI 2.0-2.6) compared with short-haired dogs. Cairn Terriers (OR 3.2, 95%CI 1.4-7.0) had the highest odds while Staffordshire Bull Terriers (OR 0.3, 95%CI 0.2-0.5) had the lowest compared to Labrador Retrievers. Cases occurred in every season, but predominantly summer (52.7%) and spring (27.0%). Ticks mainly in the head area (41.8%), especially around the eyes (27.9%) and ears (26.7%), followed by forelimbs (8.1%) and neck (6.2%). Of the tick cases, 12.4% of the wounds were infected. Most ticks were removed by clinical staff (58.7%). Medical therapy was prescribed in 51.5% of cases. Of those prescribed medical therapy, 56.1% cases were prescribed acaricides. NSAIDs, glucocorticoid or/and antibiotic were prescribed to 6.3% of tick cases.

Statement (conclusions)

This national tick infestation prevalence benchmark of 0.5% in 2016 can help with tick surveillance to assess trends over time, especially in response to changing acaricide preventative use and global warming. Veterinarians could prioritise routine tick surveillance especially in medium-haired dogs, and around the eyes and ears. Acaricides and vigilant grooming for ticks should be prioritised during summer months.

15:00 **Concerns and Experiences of Accessing Veterinary Care During the COVID-19 Pandemic: A Mixed-Methods Analysis of Dog Owners' Responses.**

Sara C. Owczarczak-Garstecka, Katrina E Holland, Katharine L. Anderson, Rachel A. Casey, Robert M. Christley, Lauren Harris, Kirsten M. McMillan, Rebecca Mead, Jane K. Murray, Lauren Samet, Melissa M. Upjohn

Dogs Trust, London, United Kingdom

Objectives

To explore dog owners' concerns and experiences related to accessing veterinary care during the UK's COVID-19 pandemic.

Methods

Data were obtained through two owner-completed surveys conducted in May 2020 (during the first nationwide lockdown) and during October 2020 and an electronic diary completed by owners (April-May 2020). Responses to three open-ended questions and electronic diaries were analysed qualitatively to identify key themes. Responses for questions concerning access to veterinary care from the second survey were summarised with descriptive statistics.

Results

During the lockdown, availability of veterinary care worried 32.4% (n=1,431) of respondents. However, 98.1% (n=1,745) of those who needed to access a veterinarian reported being able to do so. Significant qualitative themes were: Concerns around access to a veterinarian, delays in treatments and worries about the potential impacts of these delays on dogs' health. In relation to experiences since 23/03/2020, in the October survey, 30.4% (n=37/127) of dogs that owners planned to neuter were not yet neutered and neutering of further 16.5% (n=21/127) was delayed. Of dogs that owners intended to vaccinate, 11.0% (n=110/1,000) were not yet vaccinated and an additional 23.4% (n=234/1,000) experienced a delay in vaccination.

Respondents were also concerned about being unable to accompany dogs into the veterinary practice, especially if they cared for dogs with behavioural issues or elderly dogs, with fears around the potential for euthanasia in the owner's absence.

Statement (conclusions)

Although data collection is ongoing, preliminary results highlight that COVID-19 restrictions have delayed prophylactic treatments for some dogs and caused worry for about a third of owners. Our findings can inform veterinarians' dog owner engagement to address their concerns.

15:15 Euthanasia in Dogs in the UK; What Drives Decision-Making?

Camilla Pegram¹, Carol Gray², Rowena Packer¹, Ysabelle Richards¹, Dave Brodbelt¹, David Church¹, Dan O'Neill¹

¹Royal Veterinary College, Hatfield, United Kingdom. ²University of Liverpool, Liverpool, United Kingdom

Objectives

Veterinarians describe euthanasia as "the best and the worst" of their clinical role. This study explores how dogs die in UK general practice, and what demographic and clinical factors are associated with euthanasia relative to unassisted death.

Methods

Deceased dogs during 2016 were identified from anonymised clinical records in VetCompass. Deaths were categorized as euthanasia or unassisted. Demographic and cause of death data were extracted. Risk factor analysis for euthanasia relative to unassisted death used multivariable logistic regression.

Results

From 29,163 deceased dogs, 26,676 (91.5%) were euthanased and 2,487 (8.5%) died unassisted. Using neoplasia as the baseline, 6/20 disorder groups had higher odds in euthanased dogs. The disorders that were most likely to end in euthanasia compared with unassisted death were poor quality of life (odds ratio [OR] 15.64), undesirable behaviour (OR 13.10) and spinal cord disorder (OR 6.24). Conversely, traumatic injury (OR 0.06), complication associated with clinical care (OR 0.09) and heart disease (OR 0.13) were least likely to end in euthanasia. Bulldogs (0.38), Pugs (0.45), and West Highland White Terriers (0.60), had reduced odds of euthanasia compared with Labrador Retrievers. No breeds had significantly increased odds of euthanasia. Dogs aged ≥ 15 years had 8.33 times the odds of euthanasia compared with dogs < 6 years. Bodyweight ≥ 30 kg had 1.32 times the odds of euthanasia compared with dogs < 10 kg.

Statement (conclusions)

These findings can support veterinarians undertaking euthanasia conversations with clients, by highlighting factors that may influence such decisions and offering a basis for shared decision-making based on evidence.

15:45 Owner Strategies for Vaccination and Revaccination in Pedigree and Non-Pedigree Dogs

Megan Robson, Mark Dunning

University of Nottingham, Nottingham, United Kingdom

Objectives

Identifying motives behind owners' vaccination strategies and why they choose not to vaccinate or revaccinate their dogs to aid the discussions on how to improve the overall vaccination uptake in the UK.

Methods

A survey was constructed and distributed via breed groups and social media. The survey ran for 23 days, with 286 responses (totalling 790 dogs, of which 677 were pedigree and 113 non-pedigree). The data was analysed and qualitative answers filtered to find common themes. A Chi-squared test was used to determine any significant differences between datasets (significance set at $P < 0.05$).

Results

A total of 4.6% of pedigree and 8% of non-pedigree dogs received no vaccinations, a further 33.1% pedigree and 29.2% non-pedigree dogs were not revaccinated after their primary vaccination course. Leptospirosis uptake was particularly poor with only 68.7% pedigree and 67.3% non-pedigree dogs receiving vaccinations. Popular reasons against vaccinating included a preference for titre test, not believing they are necessary, cost and preference for homeopathy. Breeds standing out with lower uptake: 30.5% of Huskies were unvaccinated and 49.4% of Irish Wolfhounds were not revaccinated.

Statement (conclusions)

The results indicate that UK dogs may not be sufficiently vaccinated to provide adequate herd immunity and many may be at risk of disease, especially leptospirosis. Further work reviewing the validity of titre testing and more detailed information in selected breeds regarding vaccinations will aid efforts in improving vaccination uptake in UK dogs.

16:00 Characterising First-Line Empirical Treatment for Coughing - A Retrospective Evaluation Of 83 Dogs.

Joshua Hardwick^{1,2}, Jennifer Reeve¹

¹University of Bristol, Bristol, United Kingdom. ²Langford Vets, Bristol, United Kingdom

Objectives

Primarily, to characterise prescribing tendencies of primary care veterinary surgeons for dogs presenting with a cough. Secondly, to report the definitive diagnosis in this cohort and correlate the class(es) of drug(s) prescribed at initial presentation with the final diagnosis – specifically the correlation between antimicrobial use and diagnosis of an infectious cause of the cough.

Methods

Retrospective review of case records of dogs presenting to a referral centre between 2015-2020, following initial presentation to their primary veterinary clinic with coughing as a primary complaint. Cases were excluded if clinical histories were not available for review or a final diagnosis was not reached at referral. Included cases were stratified into the following categories based upon the final diagnosis (a) confirmed infectious (b) suspected infectious (c) non-infectious. Descriptive statistics were used to compare the use of different drug classes across these groups.

Results

83 dogs met the inclusion criteria of which 15 (18.1%) had a confirmed infectious cause, 6 (7.2%) had a suspected infectious cause and 62 (74.7%) had a non-infectious cause. Initial treatment comprised antimicrobials in 43 dogs (51.8%), non-steroidal anti-inflammatory drugs in 41 (49.4%), corticosteroids in 3 (3.6%), anthelmintics in 5 (6%) or drugs of a different class in 9 (10.8%).

Statement (conclusions)

In this study, 21 dogs (25.3%) had a confirmed or suspected infectious cause for their cough, despite over half (n=43, 51.8%) having received antimicrobials empirically at first presentation. Further studies identifying presenting features that would facilitate identification of dogs who would benefit from antimicrobials on first presentation would be valuable.

16:15 Vulval Conformation in The Entire Bitch and The Effects of Pre And Post-Pubertal Neutering on Vulva Development and Urogenital Disease.

Jasmine Godfrey-Hunt¹, Caitlin Pagett¹, Rachel Moxon², Gary England¹

¹University of Nottingham, Nottingham, United Kingdom. ²Guide Dogs Breeding Centre, Warwickshire, United Kingdom

Objectives

- 1) Describe normal vulval appearance for entire adult bitches, and compare to bitches neutered pre-pubertally and post-pubertally
- 2) Examine associations between vulval development and appearance and urogenital disease

Methods

Digital images of the vulva and vulval measurements were analysed from 412 adult large-breed bitches (106 entire, 155 neutered pre-pubertally and 151 neutered post-pubertally). Vulva size (cm) and development, vulval dorsal skin fold characteristics, recessed and juvenile vulval appearance were described and compared between the groups. Retrospective examination of health records identified cases of urogenital disease.

Results

Experiencing puberty resulted in greater vulval development; pre-pubertally neutered bitches had significantly smaller vulvas than post-pubertally neutered and entire bitches ($P < 0.001$). There was no difference in vulva length and width between bitches neutered post-pubertally and entire bitches. Recessed and juvenile vulvas were more prevalent in pre-pubertally neutered bitches at 17-months of age (12.9% and 15.0% respectively, compared to 2.9% and 1.4% for post-pubertally neutered bitches). Prevalence of UTI was greater in bitches neutered pre-pubertally (9.0% compared to 2.0%; $P = 0.007$).

Statement (conclusions)

Neutering and experiencing puberty impacts vulval development and subsequent predisposition to urogenital disease in bitches, although the incidence of disease was low. Examination of the vulva could be considered as part of routine decision-making regarding neutering.

16:30 Journal Advertising: What Does It Tell Us?

Natasha Basham¹, Simran Floyd¹, Lisa Morrow^{2,1}, Rachel Dean^{3,1}, Marnie Brennan^{2,1}

¹The University of Nottingham, Nottingham, United Kingdom. ²CEVM, Nottingham, United Kingdom. ³Vet Partners, York, United Kingdom

Objectives

Previous medical research indicates that, while advertisements in medical journals can have a profound impact on clinician prescribing habits, they often contain substandard provision of peer-

reviewed references. Minimal research exists exploring this concept within the veterinary industry. Therefore, the aim of this study was to interrogate advertisements in 2 veterinary periodicals.

Methods

All advertisements published in the Veterinary Times and Veterinary Record over a 1-year period that fit the inclusion criteria were identified. Characteristics such as target species, product action, company, size of advert, and type of references supplied were assessed. Two reviewers independently extracted and compared the data.

Results

A total of 524 adverts which met the inclusion criteria were identified; 16.1% of these contained no references at all. Overall, 882 references mentioned in the adverts were analysed, of which only 111 (12.6%) were peer-reviewed. Preliminary findings suggest associations between factors such as target species and product action on whether peer-reviewed references were provided.

It appears that peer-reviewed references are not often provided in adverts. This has implications for veterinary professionals being able to apply the principles of evidence based veterinary medicine into clinical practice. Future work should investigate the practical consequences of these findings.

Statement (conclusions)

This work highlights that references in adverts are frequently not peer-reviewed which is a potential barrier to practitioners when making evidence-based decisions in clinical practice. The findings provide a starting point for discussion within the veterinary industry concerning advert presentation and draws attention to current issues veterinary professionals should be aware of.

16:45 Surgical Safety Checklists in Veterinary Practice: Current Implementation Within UK Practices and Attitudes Towards Their Use

Jessica Hill^{1,2}, Gemma Irwin-Porter¹, Louise Buckley³

¹University of Bristol Veterinary School, Bristol, United Kingdom. ²Paragon Veterinary Referrals, Wakefield, United Kingdom. ³University of Edinburgh, Edinburgh, United Kingdom

Objectives

This study had two key objectives:

- To understand how respondents' veterinary practices (VPs) used surgical safety checklists (SSCs)
- To identify risk factors for poorer respondent attitude towards SSCs (all respondents) or VPs not using SSCs (qualified respondents)

Methods

A prospective observational cross-sectional survey with convenience sampling was utilised. From this, a summative composite attitudinal scale (13 statements; Cronbach alpha: 0.932; scale: 0 – 39,

39 = most positive) was developed. Risk factors were analysed using Generalised Linear Models, reported using means or odds ratios, with 95% confidence intervals.

Results

Of 517 respondents, 70.0% worked in practices using SSCs. Of these, 87.0% always used SSCs, 19.2% adapted SSCs to suit procedures and 60.2% had an SSC Standard Operating Procedure.

Attitudes to SSCs were generally favourable (mean: 28.3, \pm S.D. 6.8). A more positive respondent attitude was associated with: working in a VP employing at least one RVN with a post-qualifying qualification ($p = 0.027$), using SSCs ($p = 0.001$), working in a training practice ($p = 0.016$), undertaking self-directed reading ($p = 0.025$), or completing relevant CPD post-qualification ($p = 0.033$) around SSCs.

Risk factors for VPs not using SSCs included: Practice Standards Scheme (PSS) non-membership (OR 2.0, 1.1. – 3.4), not having RCVS hospital status (OR 1.9, 1.1. – 3.5) or being a mixed first opinion VP (OR 2.4, 1.2 – 5.0).

Statement (conclusions)

Encouragingly, most VPs utilised SSCs. The findings suggest familiarity, education and the RCVS PSS improve uptake and attitudes. Further research should identify mixed practice-specific barriers to SSC use.

17:00 Prevalence of Alimentary and Respiratory Disease in Brachycephalic Dog Breeds Presenting to Primary Care Practice.

Will Petchell¹, Rachel Burrow², Peter-John Noble¹, Harriet Broome¹, Marisol Collins¹

¹University of Liverpool, Liverpool, United Kingdom. ²Northwest Veterinary Specialists, Runcorn, United Kingdom

Objectives

The aims were to measure prevalence of alimentary and respiratory disease in French Bulldogs (FBD), English Bulldogs (BD) and Pugs attending first-opinion practice and to identify differences between breeds to improve management of brachycephalic dogs.

Methods

Clinical records of 260 FBD, 238 BD and 252 Pugs attending over 500 first-opinion practices from October 2014 - May 2020 from the Small Animal Veterinary Surveillance Network (SAVSNET) database were analysed. Inclusion criteria included patient age of <1 year at initial presentation and >36 months between the first and last clinical entry. Clinical signs of oesophageal, gastro-oesophageal, gastric, lower gastrointestinal, upper respiratory tract, lower respiratory tract and miscellaneous (exercise intolerance and syncope) were recorded as present or absent. Data were stored and analysed in Microsoft Excel 2015 (Microsoft Corporation).

Results

FBD had the highest prevalence of alimentary tract disease while Pugs had the highest prevalence of respiratory tract and miscellaneous disease. There were significant differences in the prevalence of oesophageal, gastric and lower gastrointestinal clinical signs between breeds ($p < 0.017$). FBD had significantly increased odds ratios of having oesophageal (2.61), gastric (1.86) and lower gastrointestinal disease (1.61). Pugs had significantly increased odds ratios of having upper respiratory tract disease (1.61).

Statement (conclusions)

Our results show important differences in the prevalence and likelihood of alimentary tract and respiratory disease between brachycephalic breeds attending primary care vets. The difference in clinical sign localisation and known association between gastro-oesophageal and obstructive airway diseases highlights the importance of considering the contribution of gastroenteric disease to clinical presentation when treating FBD in general practice.

17:15 Retrospective Study of Feline Lymphoma: Distribution, Clinical Signs, Nervous System Involvement and Diagnostic Testing (2013-2019) - Alexander Davies

Alexander M. Davies, Elsa Beltran, Irina Gramer

Royal Veterinary College

Objectives:

The aim of this study was to assess the relative frequency of different forms of feline lymphoma, especially those involving the nervous system (NS), and review their clinical features and diagnostic findings.

Methods:

Medical records of cats referred to the Queen Mother Hospital for Animals between 2013 and 2019 were reviewed. Cats were included if a lymphoma diagnosis was confirmed with cytology and/or histopathology. Signalment, retroviral status, tumour anatomical location, clinical signs at presentation, diagnostic testing and staging results were collected.

Results:

Two hundred and fifty-five cats were included. Median age at presentation was 9.7 years. One hundred and sixty-three were males and ninety were females. Seventy-six cats received retroviral testing, 5.3% were positive for FeLV and 13.2% positive for FIV. Anatomical locations of lymphoma included alimentary (55.7%), hepatic (14.5%), splenic (9.4%), mediastinal (10.6%), nasal (8.2%), cutaneous (2.4%), multicentric (19.6%), renal (14.5%) and NS (9.4%). Cats with NS lymphoma presented with chronic (79.2%), progressive (100%), lateralised (58.3%) and non-painful (58.3%) neurological deficits. The lesions affecting the NS were seen with advanced imaging in seventeen cats. Alimentary lymphoma (32.2%) and renal lymphoma (25.8%) were most frequently seen in cats with neurological deficits.

Impact/Clinical Significance:

NS lymphoma is relative infrequent compared to alimentary, mediastinal, multicentric and cutaneous forms, however it must be considered when compatible clinical signs are present. The clinical and diagnostic data shown in this study contributes to the clinical decision-making in primary care and referral practice.

Funding/Declarations of interest:

This project was funded with a PetSavers Student Research Project Grant.

Ethics declaration:

The authors declare no conflicts of interest. The work described in the abstract complies with UK legislation pertaining to animal welfare, ethics and data protection. This abstract will not be presented or published elsewhere before BSAVA Congress 2021. This abstract submission has been approved by all authors.

17:45 Radiographic Assessment and Observer Reliability in Cases of Implant Loosening Following Canine Total Hip Replacement (THR)

Samuel Pearce¹, Eithne Comerford², Sumaya Allaith², Sorrel Langley-Hobbs³

¹Bristol Veterinary School, ²University of Liverpool, ³Bristol Veterinary School,

Objectives:

To describe common radiographic features in cases of septic and aseptic loosening of canine THR implants and measure inter- and intra-observer reliability for radiographic assessment of loose THR implants.

Methods:

A retrospective study was performed using cases of implant loosening identified from the University of Liverpool – British Veterinary Orthopaedic Association Canine Hip Registry (UoL-BVOA CHR) and University of Bristol - Langford Vets. All cases of septic or aseptic loosening were included. Four board-certified orthopaedic surgeons reviewed anonymised affected radiographs on two occasions, according to criteria about bone changes, implant position, radiolucency changes, surgical technique and whether they thought the case was septic or aseptic. Reliability was assessed using Krippendorff's alpha.

Results:

Eighty-eight cases met the inclusion criteria. Clinical records and radiographs were obtained for thirty-three cases. In the first review, notable reported features included periosteal reaction (75.8% of cases), femoral remodelling (72.0%), acetabular remodelling (48.5%), implant subsidence (25.0%) and implant rotation (18.9%). Surgeons deemed the stem sizing and positioning post-THR were correct in 71.2% and 59.1% of cases, respectively. However, these results were inconsistent with the second review. The orthopaedic surgeons correctly identified 27.3 - 66.7% of cases as septic or aseptic. Inter-rater reliability was 0.03 – 0.5 for each variable in the first round and all were <0.16 in the second round.

Impact/Clinical Significance:

Septic and aseptic loosening can be difficult to diagnose and differentiate between from radiographs alone. These results suggest that even experienced observers have low agreement when assessing radiographs of THR implant loosening, but further research is needed to confirm this.

Funding/Declarations of interest:

This project was funded with a PetSavers Student Research Project Grant.

Ethics declaration:

The authors declare no conflicts of interest. The work described in the abstract complies with UK legislation pertaining to animal welfare, ethics and data protection. This abstract will not be presented or published elsewhere before BSAVA Congress 2021. This abstract submission has been approved by all authors.

TUESDAY 25 MAY 2021

AM Room 1, 08:45 - 12:15 | Primary Practice and the Profession, Ophthalmology

08:45 Photographic, Cytological and MRI Evaluation of The Hard, Soft Palate and Tonsils in Cavalier King Charles Spaniels with Chiari-Like Malformation

Beth Greene¹, Stratos Papakonstantinou¹, Susan Penelope Knowler¹, Pdraig Egan², Clare Rusbridge^{1,2}

¹University of Surrey, Guildford, United Kingdom. ²Fitzpatrick Referrals, Godalming, United Kingdom

Objectives

Determine if Cavalier King Charles spaniels (CKCS) with Chiari-like malformation associated pain (CM-P) or syringomyelia (SM) are predisposed to oropharynx inflammation.

Methods

Case control study 1) analysis of gross inflammation from oropharynx photographs; 2) cytological preparations from hard palate, soft palate and tonsils assessed for nucleated cellularity, mucus and bacterial presence. Ratio of inflammatory to epithelial cells calculated in 5 fields of view (40x objective); 3) soft palate quantitative measurements from T2-weighted midsagittal MRI 4) visual assessment of presence of soft palate hyperintensity, soft palate, nasopharynx impingement or otitis media with effusion (OME) from T2-weighted midsagittal and transverse head MRI.

Anonymized sample comprised of 26 CKCS presented for diagnostic investigation (ethical approval NASPA-2018-006); 13 with CM-P / SM and 13 unaffected controls.

Data analysis included descriptive statistics, Mann-Whitney U, Independent-Samples T Test and Chi-squared analyses

Results

Analysis of photographs suggested oropharyngeal inflammation was common particularly tonsillar eversion with reddening but was not more likely in CM-P/SM affected CKCS. Cytological analysis suggested a trend for greater inflammation in the affected group; however, the difference was not significant. Soft palate thickness and length was similar between groups. 19 of 24 CKCS had soft palate hyperintensity suggesting inflammation; 14 of 24 had nasopharyngeal impingement and 9 of 24 had OME

Statement (conclusions)

Oropharyngeal inflammation is a common co-morbidity and possible cause of pain in CKCS. However, this small study suggests that although this problem may be predisposed by brachycephalic conformation, it is not more likely with brachycephalic conformation associated with CM-P and SM.

09:00 Tasipimidine, A Novel Orally Dosed Alpha-2 Adrenoceptor Agonist, Alleviates Canine Acute Anxiety and Fear Associated with Travel – A Pilot Study

Mira Korpivaara¹, Mirja Huhtinen¹, Pasi Pohjanjousi¹, Beatrice Carlone², Chiara Mariti²

¹Research and Development, Orion Corporation Orion Pharma, Espoo, Finland. ²Department of Veterinary Sciences, University of Pisa, Pisa, Italy

Objectives

Clinical efficacy and safety of tasipimidine in dogs with anxiety and fear associated with travel was studied.

Methods

Nineteen dogs with a history of anxiety and fear associated with travel were enrolled in a randomised, double-blind, placebo-controlled, crossover study including one car ride with each treatment (periods 1 and 2).

Tasipimidine 30 µg/kg or placebo was administered one hour before the travel. Treatment effect on dog's signs of anxiety and fear was assessed from video by a blinded observer. Owner assessment of treatment effect, dog's alertness and adverse events were also recorded

Results

Tasipimidine significantly reduced signs of anxiety and fear based on both their duration ($p < 0.0001$) and frequency ($p = 0.0134$). Dogs treated with tasipimidine showed significantly less panting ($p < 0.0001$) and lip/nose licking ($p = 0.0003$). Similarly, the owner's assessment of the overall treatment effect was in favour of tasipimidine (OR 23.3; 95% CI 4.58–118.2; $p = 0.0001$).

The far majority of dogs were scored fully responsive in both periods (89.5 and 94.4%, respectively). The ability to stand up and move normally was also highly retained in both periods (100 and 94.7%). Temporary slight ataxia was reported for 3 dogs in the tasipimidine treatment, and it was the most common AE. No serious adverse events were reported.

Statement (conclusions)

In conclusion, in both the objective observer assessment of signs and the owner assessment, tasipimidine was found effective in alleviating anxiety and fear associated with travel and treatment effect was found not dependent on sedation.

09:15 Tasipimidine, A Novel Orally Dosed Alpha-2 Adrenoceptor Agonist, Alleviates Separation Anxiety in Dogs - A 5-Week Study

Mira Korpivaara¹, Mirja Huhtinen¹, Pasi Pohjanjousi¹, Clara Palestrini², Karen Overall³

¹Research & Development, Orion Corporation Orion Pharma, Espoo, Finland. ²Department of Veterinary Medicine, University of Milan, Milano, Italy. ³Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, Canada

Objectives

The objective was to study clinical safety and efficacy of tasipimidine in dogs suffering from separation anxiety.

Methods

Sixty-six dogs with a history of separation anxiety were enrolled in a randomised, double-blind, placebo-controlled study. Tasipimidine 30 µg/kg (n=32) or placebo (n=34) was administered 1 hour prior to departure during 5 weeks. Treatment effect was assessed from video. Signs and extent of dog's anxiety and fear, dog's alertness and adverse events (AE) were also assessed.

Results

In the owner assessment, tasipimidine reduced dog's signs of anxiety and fear statistically significantly (odds ratio [OR] 3.74, 95% CI 1.61, 8.65; p = 0.0021). Tasipimidine-treated dogs showed continuously lower weekly mean anxiety scores (estimate -9.47; 95% CI -15.9, -3.08; p = 0.0045). Tasipimidine reduced in particular restlessness/pacing (estimate -0.64; 95% CI -0.99, -0.28; p = 0.0007) and vocalisation (estimate -0.48; 95% CI -0.83, -0.13; p = 0.0085).

In the alertness assessment 10 dogs in the tasipimidine group were scored "less alert as usual" or presented short-lived slight ataxia. In order to find an anxiolytic dose for these individuals tasipimidine dose was reduced to 20 µg/kg in 6 dogs and the alertness assessment was repeated prior leaving dogs alone or undertaking efficacy assessments. There were no serious AEs in the study. The most common AE was emesis, which was reported in 15 dogs (46.9%) in tasipimidine group and 8 dogs (23.5%) in placebo group.

Statement (conclusions)

In conclusion, tasipimidine was found to be safe and effective in the treatment of separation anxiety in dogs.

09:30 Do Our Dogs Sleep Enough?

Carrie Tooley, Sarah Heath

Behavioural Referrals Veterinary Practice, Chester, United Kingdom

Objectives

Optimal sleep duration and quality is difficult to define. In humans, chronic inadequate sleep is a risk factor for physiological and emotional problems.

There is anecdotal support in the field of veterinary behavioural medicine for a correlation between dogs diagnosed with anxiety and those achieving a low duration and quality of sleep. No clear data exists however, on common sleep durations and the potential impact of this on emotional health or behavioural presentations in dogs is unclear.

This study assesses care-giver-reported duration of sleep achieved by pet dogs in the UK and the potential for correlation of sleep duration with presentation of care-giver-reported problem behaviours.

Methods

An online questionnaire was distributed via social media using snowball sampling from July-September 2020. Responses regarding 1417 pet dogs were received with 49% female (n=692), 76% neutered (n=1066) and 143 breeds represented.

Results

Most respondents reported dogs achieving either 6-8hrs (50%, n=705) or 8-10hrs (35%, n=491) sleep whilst their care-givers were in bed. Reports of sleep achieved whilst care-givers were out of bed varied substantially, with 21% (n=302) reporting 2-4hrs, 35% (n=487) reporting 4-6hrs, 20% (n=275) reporting 6-8hrs and 11% (n=148) reporting 8-10hrs.

Statement (conclusions)

This data provides a representation of common sleep durations in the UK dog population. Further assessment of the potential correlation of sleep duration with presentation of care-giver-reported problem behaviours will be presented, giving valuable information for use when recommending “down-time” or exercise as behaviour-improving solutions in general practice.

10:00 Establishing Accurate Dead-Space Discard Volumes to Improve Controlled Drug Record Accuracy.

Emily Macnish, Emily Hall

Nottingham Trent University, Nottingham, United Kingdom

Objectives

The Misuse of Drugs Regulations 2001 require accurate, audited records for Schedule 2 controlled drugs used in veterinary practice. This study aimed to investigate the volume of drug discarded in dead space with variable needle/syringe combinations

Methods

Two volumes (10% and 100% syringe fill) of sterile water for injection were withdrawn from a multi-use bottle using combinations of standard slip-tip 1ml, 3ml, 5ml, 10ml and 20ml syringes, with 21g, 23g and 25g needles. Ten replicates of each combination were performed. The injection bottle was weighed before and after each withdrawal to calculate the volume lost in dead-space. After normality testing, data were analysed using unpaired t-tests and one-way ANOVA.

Results

Three hundred measurements were performed. Syringe fill had no significant effect on the volume lost (p=0.574), but there was a significant difference between syringe sizes (p<0.001). For 1ml syringes, there was also a significant difference between the volume lost when using different needle gauges (p=0.001).

The mean (\pm standard deviation) volume lost for each syringe was: 3ml syringe 0.15 ± 0.04 ml, 5ml syringe 0.18 ± 0.04 ml, 10ml syringe 0.18 ± 0.04 ml and 20ml syringe 0.20 ± 0.04 ml. For the 1ml syringe with a 21g needle the volume lost was 0.11 ± 0.03 ml, and with a 23 or 25g needle was 0.09 ± 0.02 ml.

Statement (conclusions)

The use of 0.05/0.1ml as the standard discard volume for controlled drug records fails to adequately record the true volume of drug lost in needle/syringe dead-space. Clinicians should consider recording at least 0.1ml for 1ml syringes, and 0.15-0.2ml for larger syringes to improve record accuracy.

10:15 Recruitment and Retention: Why Do Some Canine and Feline Candidates Not Make It as Blood Donors?

Karen Humm, Marjanne Descamps

The RVC, London, United Kingdom

Objectives

Whilst there is extensive research into selection and retention of human blood donors, veterinary studies in this field are limited. This study therefore aimed to identify the reasons for rejection of potential canine and feline blood donors and the reasons why they left a blood donor programs before retirement age.

Methods

A retrospective analysis of the clinical records of 362 dogs and 134 cats who presented as prospective blood donors and/or donated between 01/01/2014 and 31/12/2019. Reasons for rejection at sign-up were categorised as either medical or temperament. Reasons why animals left before retirement age were categorised as medical, temperament or owner-related. Quantitative categorical data was analysed using Chi-square tests and differences between species were examined.

Results

Cats were more likely to be rejected than dogs at sign-up (20.8% of cats versus 5.2% of dogs), mostly due to medical reasons, with hypertrophic cardiomyopathy (HCM) the commonest cause. Cats were no more likely than dogs to be rejected for temperament at sign up. Cats were more likely to leave before retirement age than dogs (43.4% of cats versus 32.2% of dogs), but they were no more likely to leave early for any particular subcategory (owner, medical or temperament). Animals often left early due to owner factors. 13.4% of dogs and 17.2% of cats left early due to temperament despite passing behavioural screening at sign-up.

Statement (conclusions)

Owner understanding and motivation are essential to ensure successful selection and retention of donors which allows amortisation of recruitment costs. Temperament needs reassessment at each visit.

10:30 A Dog's Dinner: A Survey Investigating the Reasons Behind the Pet Food Choices of UK Dog Owners

Genever Morgan, Nicola Williams, Vanessa Schmidt, Gina Pinchbeck

University of Liverpool, Liverpool, United Kingdom

Objectives

To understand why dog owners choose either a raw meat-based diet (RMD) or non-raw diet (NRMD) for their pet dogs.

Methods

An online survey was conducted from February-March 2020. All UK dog owners were eligible to participate, regardless of dog food preference. Statistical analysis of quantitative data was undertaken. NVIVO 12 qualitative software was utilised for thematic analysis of free text answers.

Results

In total, 1831 dog owners (915 RMD, 916 NRMD) completed the survey for 3212 (1754 RMD, 1458 NRMD fed) dogs.

Most owners (>90%) who fed RMD believed it provided health benefits for skin disease/allergies and coat, dental and general digestive health, with >75% believing it provided health benefits for diarrhoea, anal sac clearance, mobility, performance and behaviour.

Conversely, >50% of owners who fed RMD, believed that NRMD posed a health risk for skin disease, dental disease, digestive health, diarrhoea, anal sac clearance and behaviour.

A lower percentage (50%) of owners who fed NRMD believed their diet choice to be beneficial for skin disease/allergies and coat, dental and general digestive health, while >60% of owners who fed NRMD believed that RMD was a health risk for foreign bodies and bone splinters.

Statement (conclusions)

Dog owners who fed RMD believed it provided a wide range of health benefits compared to NRMD, despite little scientific evidence to support claims. Veterinarians should be aware of owners' beliefs when discussing diet choices with their clients. Further research is needed to ascertain evidence for the perceived benefits or risks.

10:45 A Dog's Dinner: A Survey Investigating the Beliefs of UK Dog Owners Regarding the Wider Health Risks of Raw and Non-Raw Diets

Genever Morgan, Nicola Williams, Vanessa Schmidt, Gina Pinchbeck

University of Liverpool, Liverpool, United Kingdom

Objectives

To understand the perceived health risks of feeding raw- meat-based (RMD) and non-raw (NRMD) diets to pet dogs in the UK.

Methods

An online survey was conducted from February-March 2020. All UK dog owners were eligible to participate, regardless of dog food preference. Data were analysed using Chi-Square Test (significance $p < 0.05$).

Results

1831 dog owners (915 RMD, 916 NRMD) completed the survey. Significant differences in the responses were observed between groups ($p < 0.01$).

Only 1.3% of owners feeding RMD believed it constituted a health risk to their dog, 4.3% to themselves, 0.5% to in-contact dogs and 1.9% to in-contact people, suggesting RMD was perceived as low risk generally. However, 43.8% of RMD owners believed feeding NRMD was a risk to their dog, while few believed it posed a wider risk to themselves (4.3%), to in-contact dogs (3.0%) or to in-contact people (3.4%).

Many owners who fed a NRMD believed that RMD presented a risk to dogs and people; 44.3% believed it to be a risk to their dog, 46.9% to themselves, 33.8% to in-contact dogs and 39.5% to in-contact people, whereas NRMD diets were generally perceived as low risk.

Statement (conclusions)

Owners who feed RMD do not commonly believe it poses a health risk to their dog, or in-contact people and animals. Dogs fed RMD however, have previously been shown to shed zoonotic and antimicrobial-resistant bacteria and could represent an environmental, public health and patient risk. Further evidence is required; nevertheless, it is important that veterinarians educate owners regarding the potential wider-reaching risks of RMD.

11:15 Epidemiology of Prolapsed Third Eyelid Gland (Cherry Eye) In UK Dogs Under Primary Veterinary Care

Yahui Yin, Roser T. Pont, Camilla Pegram, David B. Church, Dave C. Brodbelt, Dan G. O'Neill

RVC, Hertfordshire, United Kingdom

Objectives

To report prevalence, risk factors, management and outcomes for prolapsed third eyelid gland (PTEG) in dogs attending UK primary practices in 2016.

Methods

Anonymised demographic and clinical data were extracted from VetCompass and manually verified. Risk factor analysis used a retrospective case-control study design with multivariable logistic regression modelling.

Results

1,802 PTEG cases were identified from 905,543 dogs, yielding an annual prevalence of 0.20% (95%CI=0.19-0.21%).

Predisposing risk factors included age, purebred status, brachycephaly, breed and bodyweight. Sex and neuter status were not predisposing. The median age at first diagnosis was 7.32 months (IQR=4.08-22.08, range=1.32-216.12). The odds of PTEG decreased as dogs aged. Purebreds had 2.36 times the odds (95%CI=1.48-3.77) compared with crossbreeds. Brachycephalic breeds had 8.18 times the odds (95%CI=7.02-9.53) compared with non-brachycephalic breeds. Dogs weighing 20 to 30kg had 3.00 times the odds (95%CI=2.52-3.58) compared with dogs weighing under 10 kg. British Bulldog had the highest breed odds ratio (22.91, 95%CI=17.15-30.61) compared with crossbreeds. Insured dogs had 1.50 times the odds (95%CI=1.24-1.81) of diagnosis compared with uninsured dogs.

Eyes receiving surgical treatment had 88.02% resolution rate compared with eyes receiving only medical treatment (68.76%) or no treatment (29.60%). Gland replacement anchoring and pocket technique had similar recurrence rates (25.00% and 24.35%), complication rates (50.00% and 50.43%) and keratoconjunctivitis sicca outcomes (2.78% and 4.31%).

Statement (conclusions)

This study reports the largest cohort of primary-care PTEG cases assembled to date. The findings assist veterinarians to diagnose PTEG and explain predispositions to owners of affected dogs. The clinical outcomes can act as useful clinical benchmarks.

11:30 Efficacy Of 0.02% Tacrolimus in Dogs with Keratoconjunctivitis Sicca in Which Topical Cyclosporine Was Ineffective: Preliminary Results.

Thomas Kearns, David Williams

Queens Veterinary School Hospital, University of Cambridge, Cambridge, United Kingdom

Objectives

For thirty years topical cyclosporine has been used as a lacrimostimulant agent in cases of canine keratoconjunctivitis sicca or dry eye. In some cases this drug does not result in adequate increase in tear production either at 0.2% in Optimune or in the 2% solution as originally reported. There is anecdotal evidence that tacrolimus, a similar drug to cyclosporine but with a more powerful immunomodulatory action, is more efficacious but until now we have no objective evidence that this drug works where cyclosporine fails. Here we sought to use 0.02% tacrolimus (Bova Ltd, UK) in dogs with KCS where topical cyclosporine was ineffective.

Methods

10 dogs with KCS where topical cyclosporine at 0.2% in Optimune had failed to improve tear production were given 0.02% tacrolimus and their Schirmer tear tests (STT) were measured before treatment and over a one month period on tacrolimus. The data before and after tacrolimus treatment were compared with a Mann Whitney U test as the data were non-normally distributed when evaluated using the Shapiro-Wilk test.

Results

The dogs were of varying breeds genders and ages but all eyes evaluated had STT below 5mm/min before treatment. The average STT before treatment was 2.8 ± 1.2 mm/min and at 1 month after treatment was 13.3 ± 1.6 mm/min this increase in tear production being significant at $p=0.00018$.

Statement (conclusions)

These preliminary results suggest that topical ophthalmic tacrolimus at 0.02% is effective to stimulate tear production in dogs with KS where topical cyclosporine has not been efficacious.

11:45 Variation in Intraocular Pressure in The Normal Canine Eye Between Different Dog Breeds

David Williams, Lucy Gimson

Queen's Veterinary School Hospital, Cambridge, United Kingdom

Objectives

Intraocular pressure (IOP) is commonly measured in veterinary ophthalmology with normal IOP generally considered to be between 15 and 20mmHg. But does IOP differ across the normal eyes of different dog breeds? Here we sought to determine this by measuring the IOP in normal eyes of 1000 dogs of differing breeds.

Methods

IOP was measured in both eyes of 1000 healthy dogs of various breeds with ophthalmoscopically normal eyes. The average IOP of the two eyes was evaluated. Data was analysed for breeds in which IOP in over 20 dogs had been measured. The difference between mean IOP in dogs of different breeds was determined using the Mann-Whitney U test as the Shapiro-Wilk test showed data to be non-normally distributed. IOP differences between dogs of different genders and ages were evaluated using the Kruskal Wallis test.

Results

IOP values between female entire, female neutered, male entire and male neutered dogs were 16.2+/-2.9, 1.4+/-2.6, 16.1+/-2.8 and 16.2+/-2.4 mmHg respectively, these not significantly different. A weak negative correlation was found between age and IOP with no significant difference across dogs of different ages from 4 weeks to 17.5 years. IOP in eyes of brachycephalic dogs was 17.6+/-2.5mmHg and in mesocephalic dogs 15.9+/-2.5mmHg, these significantly different at $p < 0.00001$. Pugs had the highest IOP at 19.1+/-1.5mmHg while Miniature Schnauzers had the lowest at 14.7+/-2.7mmHg.

Statement (conclusions)

Although all mean IOP values were within normal limits there is a significant difference in IOP between dogs of different breeds. Brachycephalic breeds had a significantly higher IOP than non-brachycephalic breeds.

12:00 Evaluation of Blink Rate in The Normal Dog

David Williams, Emma Denny

Queen's Veterinary School Hospital, Cambridge, United Kingdom

Objectives

Blinking is a key factor in maintenance of a healthy ocular surface and much research has been undertaken on blinking in humans, yet little is known about the normal blink rate in dogs. Spontaneous blink rate (SBR) was determined in dogs with ophthalmoscopically unremarkable eyes. SBR was compared between dogs of different breeds and genders.

Methods

SBR was determined in dogs either by an observer sitting 5 metres away from the animal and counting blinks per minute over a 5 minute period or using a video camera set to record the animal over 5 minutes and blinks counted on film later. As no difference in SBR between the two methods was determined the technique with observer present was used in the rest of the study. SBR was compared between brachycephalic and mesocephalic breeds and between male and female dogs.

Results

The overall SBR in the normal dog was 11.5 ± 2.4 blinks/min, with a range from 4 to 26 blinks/min. SBR for 30 mesocephalic dogs was 9.9 ± 1.9 blinks/min. SBR for 30 brachycephalic dogs was 13.2 ± 2.8 blinks/min this significantly different using the student's T test at $p = 0.001$. With all breeds considered

together SBR for male dogs was 11.6 ± 1.7 blinks/min and SBR for females was 11.4 ± 2.9 blinks/min these not significant different at $p=0.1$.

Statement (conclusions)

These results document the SBR in the normal dog showing brachycephalic breeds to have a higher SBR than mesocephalic dogs. The importance of this difference has yet to be determined.

AM Room 2, 09:00 - 12:00 | Internal Medicine

09:00 Retrospective Analysis of The Clinical Features and Outcome In 38 Dogs with Cholelithiasis On Abdominal Ultrasound

Frederik Allan, Penny Watson, Katie McCallum

Queen's Veterinary School Hospital, Cambridge, United Kingdom

Objectives

To evaluate clinical features of dogs with cholelithiasis and compare outcomes with medical treatment (MT), surgical treatment (ST) and no treatment (NT).

Methods

Retrospective review of medical records of dogs with cholelithiasis identified on abdominal ultrasound (AUS) between 2010-2019. Cases were assigned as clinically affected (CA) or incidentally detected (ID) and divided into MT, ST and NT groups. Biochemical parameters and cholelith location were compared between groups with Mann-Whitney U and Chi-squared testing, respectively. Survival times were compared with Kaplan-Meier survival analysis.

Results

18 dogs were CA and 20 were ID. CA dogs had significantly higher ALP, GGT and ALT than ID dogs. 8 cases were ST, 15 MT and 15 NT. ST dogs had significantly higher ALP, GGT, ALT and bilirubin than NT dogs. A significantly higher proportion of ST dogs had choleliths in the common bile duct than MT. 17 cases had follow-up AUS: cholelithiasis completely resolved at follow-up in 4/10 MT, 4/5 ST and 1/2 NT; decreased cholelith size or number occurred in 1/10 MT and 1/5 ST. Two MT dogs progressed to require surgery. Median survival time was 457.4 days, with no significant differences in survival between groups.

Statement (conclusions)

Dogs clinically affected by cholelithiasis have higher ALP, GGT and ALT than dogs with incidental cholelithiasis. 5/10 MT dogs had resolution or improvement of cholelithiasis, showing MT is effective for management of canine cholelithiasis with clinical signs and cholelith location playing a role in treatment decision-making. Survival time was not negatively affected by treatment choice.

09:15 A Retrospective Study Assessing Ultrasonographic Progression of Canine Biliary Sludge (BS) Over Time.

Thomas Butler, Katie McCallum, Nick Bexfield, Penny Watson

Queen's Veterinary School Hospital, Cambridge, United Kingdom

Objectives

To establish a relationship between the presence of BS and development of gall bladder mucocoele (GBM) in dogs.

Methods

Cases were identified by searching the diagnostic imaging database. Inclusion criteria included presence of BS, with at least one follow up ultrasonographic examination. Signalment, length of follow up, number of ultrasonographic examinations, concurrent disease, serum biochemistry, medications and changes to sludge character were recorded for analysis.

Results

23 dogs met inclusion criteria. 11/23 (47%) had increased alkaline phosphatase and 12/23 (52%) had hypercholesterolaemia at presentation. 20/23 had concurrent disease. 3/23 had elevated liver enzymes only. Mean number of repeat examinations was 3.5 (range 2-9) and 10/23 cases had follow-up longer than 12 months (range 0.75- 92 months). 14/23 (60%) cases were prescribed ursodeoxycholic acid (UDCA). 6/23 cases (26%) [4 from the UDCA treatment group] saw decreases in volume of BS. 2/23 cases had complete resolution. 6/23 saw increases in amount or organisation of BS [5/6 despite UDCA treatment]. 9/23 cases had static levels of BS. 1 case progressed to GBM 2 years after BS diagnosis, and this dog had received prednisolone for idiopathic pulmonary fibrosis.

Statement (conclusions)

To the author's knowledge, this is the first study assessing changes to gall bladder contents over time beyond 12 months. In addition, this is the first documentation of progression from BS to GBM. However, this series contains multiple cases with regression of or static BS. Long term prospective research is required into BS, in order to develop optimal management protocols, and assess risk factors for progression to GBM.

09:30 Cutaneous and Renal Glomerular Vasculopathy Cases in Emergency Veterinary Practices in UK

Mariana Abreu¹, Rodolfo Oliveira Leal², Sarah Ann Ambler³

¹Faculdade de Medicina Veterinaria, Lisboa, Portugal. ²Faculdade de Medicina Veterinaria, Lisboa, Portugal. ³VetsNow, Stoke-on-trent, United Kingdom

Objectives

This study aims to: a) review cases of dogs with suspected cutaneous and renal glomerular vasculopathy (CRGV), evaluating if the cutaneous lesions correlated with the development of acute kidney injury (AKI), b) to assess negative prognostic factors in dogs with suspected CRGV.

Methods

A retrospective study including dogs with suspected CRGV presented to 26 first opinion emergency practices in the United Kingdom. Their history, clinical signs, clinicopathological findings, diagnostics, treatment plan, and outcome were reviewed.

Results

40 dogs were included. 27 presented skin lesions and 13 showed skin lesions and AKI. The most common macroscopic aspects of the skin lesions both in dogs with and without AKI, were superficial abrasions, cutaneous ulcers, inflammation, dermatitis, alopecia, erythema and oedema, principally when located in the limbs and digits. Lesions wider than five centimetres were significantly correlated with the development of AKI ($p=0.029$). Dogs with AKI presented with azotaemia anaemia, proteinuria, haematuria, hyposthenuria, hypocalcaemia, thrombocytopenia, neutrophilia, high serum liver enzyme activity, and hyperbilirubinaemia. Five animals were submitted for euthanasia (38.5%). Azotaemia ($p=0.001$), oligoanuria ($p<0.001$), hypocalcaemia ($p=0.003$) and hypophosphatemia ($p<0.001$) were significantly correlated with a worse outcome. Intensive medical therapy is designated to these patients since successful outcomes with full recovery from AKI have been achieved, as observed in seven dogs (53.8%).

Statement (conclusions)

More than contributing to an increased number of reported cases, this study confirms that azotaemia, oligoanuria, hypocalcaemia, and hypophosphatemia are associated with a negative outcome in dogs with suspected CRGV.

09:45 Anaplasma Phagocytophilum In Domestic Cats from Germany, Austria And Switzerland And Clinical/Laboratory Abnormalities In 17 PCR-Positive Tested Cats (2008-2020)

Ingo Schäfer^{1,2}, Barbara Kohn², Elisabeth Müller¹

¹Laboklin GmbH & Co. KG, Bad Kissingen, Germany. ²Clinic for Small Animals, Faculty of Veterinary Medicine, Freie Universität Berlin, Berlin, Germany

Objectives

Anaplasma phagocytophilum is considered to be the most important rickettsial pathogen to affect cats. Transmitted by *Ixodes ricinus* ticks in Central Europe the organism can cause granulocytic anaplasmosis. In the United Kingdom, cats (0-2%) and ticks found on cats (1%) were tested positive by PCR. Aims of this study were to assess the frequency of positive test results for *A. phagocytophilum* in cats in Germany, Austria and Switzerland, and to evaluate clinical and laboratory manifestations in PCR-positive tested cats.

Methods

Results of direct (PCR) and indirect detection methods (IFAT), requested by veterinarians in Germany, Austria and Switzerland in the years from 2008 to 2020 in a German laboratory, were included. The treating veterinarians of PCR-positive cats were contacted by means of telephone calls.

Results

229/1579 cats (15%) were tested positive by direct (PCR 26/710 cats, 4%) and/or indirect detection methods (IFAT 207/914 cats, 23%). In 17/26 cats with a positive *A. phagocytophilum* PCR, additional information about clinical signs and laboratory abnormalities was obtained. In 12/17 cats without known concurrent diseases the most common manifestations were lethargy (92%), fever (83%) and thrombocytopenia (58%). The remaining 5 PCR-positive cats were additionally diagnosed with *Mycoplasma haemofelis* infections (n=2), lymphoma, hyperthyroidism and ileus.

Statement (conclusions)

Infections with *A. phagocytophilum* should be considered as differential diagnoses in cats with tick infestation, lethargy, fever and thrombocytopenia. The clinical and laboratory manifestations are in accordance with published case reports in cats. Ectoparasitic prophylaxis in cats is recommended throughout the entire year.

10:15 The Efficacy of Potassium Chloride in Decreasing Calcium Oxalate Relative Supersaturation in Dogs and Cats

Esther Bijmans, Yann Quéau, Vincent Biourge

Royal Canin, Aimargues, France

Objectives

In dogs and cats, increased dietary sodium chloride (NaCl) decreases the urinary concentration of CaOx precursors and CaOx relative supersaturation (RSS), an index of crystallisation risk. Potassium chloride (KCl) is used as a salt-substitute for humans with sodium sensitivity. This study aimed to evaluate the efficacy of increased dietary KCl compared to NaCl on CaOx RSS in healthy dogs and cats.

Methods

Two dry extruded maintenance diets differing only in KCl and NaCl were manufactured. Contents of sodium, potassium and chloride were 2.8, 1.3 and 4.0 g/Mcal respectively in diet A, and 1.0, 3.6 and 3.2 g/Mcal in diet B. Macronutrients and other minerals were similar between diets. Eleven cats and 15 dogs were fed each diet for 7 days, followed by 3 days of urine collection. Urinary ions were measured on the pooled urine sample using ionic chromatography. CaOx RSS was calculated using SUPERSAT software. CaOx RSS values were compared between diets using paired t-tests and presented as mean difference, 95% confidence interval (CI).

Results

For dogs, mean difference in CaOx RSS between diets was -0.95, 95% CI, -2.33,0.44 (ns), and in cats - 0.03, 95% CI -0.53,0.47 (ns).

Statement (conclusions)

The results of this study indicate that dietary KCl is as good as NaCl to decrease CaOx RSS, and can be used as a strategy to reduce crystallization risk. This is of particular interest for ageing animals at increased risk of disease that would benefit from low sodium diets, such as chronic kidney disease and heart disease.

10:30 The Effect of Increasing Levels of Potassium Chloride on Urine Specific Gravity, Urine Volume, And Relative Supersaturation in Dogs and Cats

Esther Bijmans, Vincent Biourge, Yann Quéau

Royal Canin, Aimargues, France

Objectives

This study investigated the effect of KCl on urine dilution and calcium oxalate (CaOx) relative supersaturation (RSS).

Methods

One base formula was supplemented with KCl to reach [K⁺] of 1.56, 3.35 and 4.62 g/Mcal (diets A, B and C respectively). Nine cats and 5 dogs were fed each diet for 10days. Water intake and urine volume were recorded. Urinary ions were measured on pooled sample using ionic chromatography. CaOx RSS was calculated using SUPERSAT software. Mixed effect models assessed the effect of diet on water intake, urine volume, urine specific gravity (USG), and CaOx RSS.

Results

For cats, water intake was significantly higher on Diet C versus Diet A (Diet A:22.4±5.3ml/kg/day; Diet B:25.9±6.0ml/kg/day; Diet C:28.5±7.2ml/kg/day, P<0.01). Urine volume increased (Diet A:8.5±2.5ml/kg/day; Diet B:13.1±1.7ml/kg/day; Diet C:15.4±2.1ml/kg/day, P<0.0001), USG decreased with increasing KCl (Diet A:1.070±0.008; Diet B:1.065±0.007; Diet C:1.060±0.005, P<0.0001). CaOx RSS was lower on Diets B and C versus Diet A (Diet A:2.55±0.76; Diet B:1.95±0.60; Diet C:1.65±0.52, P<0.01).

For dogs, increasing KCl increased water intake (Diet A:33.7 ±3.0ml/kg/day; Diet B:38.7±1.9ml/kg/day; Diet C:46.1±1.9ml/kg/day, P<0.0001). Urine volume increased (Diet A:20.2±2.84ml/kg/day; Diet B:24.0±2.77ml/kg/day; Diet C:33.8±2.5ml/kg/day, P<0.0001), USG decreased (Diet A:1.055±0.008; Diet B:1.048±0.006; Diet C:1.041±0.004, P<0.001). CaOx RSS decreased (Diet A:8.76±0.1.40; Diet B:7.05±1.89; Diet C:5.66±0.95, P<0.001).

Statement (conclusions)

Increasing KCl leads to increased urine volume and decreased USG and CaOx RSS in healthy dogs and cats. KCl can be used as a nutritional strategy to decrease crystallisation risk.

10:45 The Fluoroscopic Appearance of The Canine Prostatic Artery

Kieran Brown¹, Gerard McLauchlan¹, Jen O'Keefe¹, Sharyn Bray¹, Alex Horton²

¹Fitzpatrick Referrals Oncology and Soft Tissue, Surrey, United Kingdom. ²Royal Surrey County Hospital, Surrey, United Kingdom

Objectives

Prostatic artery embolization has been used in the treatment of benign prostatic hyperplasia and prostatic neoplasia in humans for the last decade and its use within the veterinary field is more recently being explored, however the appearance of the prostatic vasculature under fluoroscopy in dogs has not previously been described, despite being of significant importance in the success of the procedure.

Methods

We present a retrospective study evaluating the appearance of the prostatic vasculature on fluoroscopy in 11 dogs undergoing prostatic embolization for the management of prostatic neoplasia. Intraoperative fluoroscopic angiography footage of each patient (n=11) was reviewed retrospectively and a relevant image of both the right and left prostatic vasculature (except in 1 case) obtained. The visible presence of the prostatic artery and caudal vesicular artery on each image (n=21) was assessed. In cases where both the left and right prostatic artery was visible (n=7), inpatient comparison of the appearance of each side was assessed.

Results

Findings demonstrate variation in the appearance of the prostatic artery, both between individual dogs, and between the left and right prostatic arteries within some individuals (2/7). The prostatic artery could not be identified in all cases (3/21), and likewise the origin of the caudal vesicular artery was not always visible (3/21).

Statement (conclusions)

We intend to present the relevant fluoroscopic angiography footage (largely from digital subtraction angiography), supported, where available, by computer tomography angiography images, to better the current knowledge on the appearance of the canine prostatic vasculature, which has significant relevance to this emerging veterinary field.

11:00 The Relationship Between Age, Urine Dipstick and Sediment Examination Findings on The Presence of Proteinuria in Dogs with Positive Urine Cultures

Emily Fulton, William Weir, Tim Parkin, Alix McBrearty

University of Glasgow, Glasgow, United Kingdom

Objectives

Assess the relationship between age, urinalysis abnormalities and culture findings on the presence of proteinuria in dogs with positive urine cultures and determine whether urine protein-to-creatinine ratios (UPCR) decrease when these abnormalities resolve.

Methods

Dogs with urine collected via cystocentesis with a positive culture and contemporaneous urinalysis over a 4-year period were identified. Those with confirmed or suspected protein losing nephropathy or receiving drugs affecting renal protein loss were excluded. Effects of age, pyuria (WBC>5/hpf), microscopic haematuria (RBC>5/hpf), dipstick blood, organisms on microscopy, isolation of >1 pathogen and moderate or profuse growth, on the presence or absence of proteinuria (UPCR>0.5) were investigated.

When repeat urinalysis was performed within 7-56 days, the effect of abnormality resolution (including subsequent negative culture) on UPCR was investigated.

Results

Samples from 108 dogs were included. Dipstick blood (estimated odds ratio (OR)=3.39); organisms on microscopy (OR=2.50) and age (OR=1.16) were significantly more likely to be associated with proteinuria on univariate analysis ($p<0.05$). A multivariable model containing these 3 variables also predicted the likelihood of proteinuria best with an Akaike Information Criterion of 133.4 and R^2 of 13.1%.

Statement (conclusions)

Dogs with positive urine cultures are more likely to have proteinuria if dipstick blood and organisms on microscopy are present. Proteinuric, culture positive samples without these changes may suggest proteinuria is due to other causes and follow-up UPCR after infection resolution is recommended.

11:15 Long-Term Outcome of Cystoscopic-Guided Laser Ablation of Intramural Ectopic Ureters in Female Dogs and Effect of Post Procedural Neutering on Urinary Continence: A Single Center Experience

Christopher Hoey¹, Ed Friend², Lee Meakin², Guillaume Chanoit²

¹University of Bristol, Bristol, United Kingdom. ²Langford Vets, Bristol, United Kingdom

Objectives

To report the complications rate and long-term outcome of female dogs with intramural ectopic ureters undergoing cystoscopic-guided laser ablation and determine the effect of post procedural neutering on urinary continence.

Methods

Female dogs that had laser ablation of intra-mural ectopic ureter(s) were eligible for inclusion. Medical records were retrospectively analysed, and a 10-point continence score was given prior to and at a minimum of 12 months post-procedure via owner telephone contact. Neutering status prior to and post procedure was recorded.

Results

Thirty four client owned dogs were identified with a median age of seven months (3 months to 6 years 4 months). All dogs' incontinence scores significantly ($P < 0.0001$) increased post intervention (mean follow-up time: 63.9 months) with an increase of median urinary continence score from 2 (pre-procedure) to 10 (post-procedure). Two dogs developed urethral leaks immediately after the procedure, which were successfully managed conservatively. Two dogs had mild hematuria that lasted <48 hours. Six dogs had post-operative urinary tract infections. Two dogs died of urinary-related issues at 1-month and 5-months post procedure which were excluded from 12 months post-procedure analysis.

Complete and near-complete urinary continence (scores 9 and 10/10) was achieved in 26/32 dogs (81%) including 3 dogs requiring medical (2) or surgical interventions (1). Post procedure neutering did not significantly affect the continence score ($P = 0.44$).

Statement (conclusions)

In this study, a majority of dogs regained and maintained full continence following lone cystoscopic-guided laser ablation of intramural ectopic ureters. Post procedural neutering did not negatively impact urinary continence score.

11:30 Agreement Between Voided Urine Samples and Cystocentesis Samples for Urine Protein-To-Creatinine Ratio (UPC) Determination in Cats

Josh Kennils, Christina Maunder, Marta Costa

The University of Bristol, Bristol, United Kingdom

Objectives

To compare UPCs of urine obtained by cystocentesis with voided samples.

Methods

Paired cystocentesis and voided urine samples were obtained within 23-hours from 43 cats presented to a referral hospital. Voided samples were collected from litter trays containing non-absorbent sand litter. Urine sediments were classified as active or inactive and UPCs were determined. Statistical analyses were performed using commercially available software for all samples and then separately according to sediment status. The difference between UPCs obtained from each method of collection was assessed using the Wilcoxon signed-rank test. Agreement between measurements was assessed using Passing-Bablok regression and Bland-Altman analysis. Agreement for proteinuria classification according to the International Renal Interest Society (IRIS) was assessed using Cohen's kappa.

Results

UPCs ranged from 0.06 to 0.99. Twenty and twenty-three sediments were active and inactive respectively. Regardless of sediment status, statistically significant lower UPCs were observed in voided samples compared to cystocentesis samples. Passing-Bablok regression analysis revealed minimal constant and proportional error with an equation of $y = -0.0019 + 0.8596x$ for all samples. Visual assessment of Bland-Altman plots demonstrated superior agreement between voided and cystocentesis samples for inactive sediments of UPC <0.5 compared to active sediments. Cohen's

kappa coefficient for all samples was $\kappa=0.666$, corresponding to substantial agreement, this was reduced for samples with active sediments to $\kappa=0.489$, corresponding to moderate agreement. Cohen's kappa for samples with inactive sediments was $\kappa=0.833$, corresponding to almost perfect agreement.

Statement (conclusions)

These data suggest voided urine samples are acceptable for UPC determination of samples with inactive sediments and UPC <0.5 only.

11:45 Congenital Urethral Sphincter Mechanism Incompetence In 11 Bitches: A Retrospective Preliminary Study

Charles Porsmoguer, Annick Hamaide, Stéphanie Noël

Department of Clinical Sciences (Companion Animals), FARA, Faculty of Veterinary Medicine, University of Liège, Liège, Belgium

Objectives

This study aims to describe effects of medical treatment and sterilization in bitches with congenital urethral sphincter mechanism incompetence (CUSMI).

Methods

Diagnosis of CUSMI was based on history (urinary incontinence since early age), exclusion of anatomical abnormalities by diagnostic imaging and urethral pressure profiles. Follow-up data were collected via standardized telephone owner's interview. Continence scores (1 to 5; with 1 fully incontinent and 5 fully continent) were assigned.

Results

Eleven bitches were included (7 were sterilized before first oestrus (BO), 4 after first oestrus (AO). Before treatment, CS was significantly lower in the BO group (mean=1.4), compared to the AO group (mean=2.5). All bitches received phenylpropanolamine (PPA) 1.5mg/kg SID after diagnosis. After PPA treatment, CS was not different between the two groups and only 3/11 bitches were fully continent. Nevertheless, CS after treatment (mean=3.8) was significantly higher than CS before treatment (mean=1.9).

Improvement of incontinence was observed before or during oestrus in 3/4 dogs of the AO group (with 2 being fully continent). However, a significant worsening of the CS (mean decrease=1.4) was reported after sterilization in 5/11 dogs (2/7 from BO group and 3/4 from AO group).

At long-term follow-up, 5/10 dogs were fully continent after treatment modulation.

Statement (conclusions)

Bitches with CUSMI may be less responsive to medical treatment than bitches with acquired USMI. Even if improvement of incontinence can be observed before or during oestrus, worsening of clinical signs may occur after sterilization. Further investigation is needed on a larger number of dogs to confirm those preliminary results.

PM Room 1, 13:15 - 17:00 | Oncology

13:15 Does Homeopathy Extend Survival Time in Dogs with Osteosarcoma: Preliminary Findings

David Williams¹, Geoff Johnson²

¹Queen's Veterinary School Hospital, Cambridge, United Kingdom. ²Wiveliscombe Homeopathic Veterinary Hospital, Wiveliscombe, United Kingdom

Objectives

Canine osteosarcoma is often extremely painful, has high metastatic ability and poor prognosis. Homeopaths have anecdotally reported treatment outcomes exceeding the expected survival time in affected dogs. This study asks whether homeopathy in addition to non-steroidal pain relief extends survival time compared with that in dogs treated with non-steroidals alone.

Methods

This cohort study compares survival time in dogs with limb osteosarcoma treated with homeopathy and non-steroidal analgesia with those treated with non-steroidal drugs alone. Dogs were those where owners had declined surgical, radiotherapeutic or chemotherapeutic treatment options. Diagnosis was confirmed radiologically. Dogs were monitored by quality of life assessments and using videos of animals exercising provided by owners. Euthanasia was performed when pain was not treatable with non-steroidal analgesia with end of life decisions made by the owner and referring veterinarians. Survival times in the two cohorts were compared using a Student's T test.

Results

To date 13 dogs have been entered to the homeopathy arm of the study and 20 in the NSAID arm. All dogs on the study have been euthanased. Survival times are 155±74 days in the homeopathy cohort and 136±112 days in the NSAID cohort, this difference not statistically significant at p=0.86.

Statement (conclusions)

While to date the study does not show a benefit of using homeopathy in addition to non-steroidal anti-inflammatory drugs we look forward to completing the study by increasing the number of dogs in each cohort to 30. The study was funded through a grant from the Association of British Homeopathic Veterinary Surgeons.

13:30 Retrospective Analysis of The Metastatic Behaviour of Anal Sac Adenocarcinomas in Dogs - Freddie Allan

Frederik Allan, Andrea Mosca, Jane Dobson

Queen's Veterinary School Hospital, Cambridge, United Kingdom

Objectives

To assess the clinical behaviour of anal sac adenocarcinomas (ASAC), with the aim to inform practical staging of this disease.

Methods

Medical records from a single institution were retrospectively searched for dogs diagnosed with ASAC between 2008-2020. Data collected included signalment, tumour size, presence and location of metastasis, results of staging procedures and time to development of metastasis. Suspected lesions had been considered metastatic when cytologically or histologically confirmed, or when imaging findings were consistent with metastasis. Location of metastasis was defined as local (medial iliac, internal iliac, hypogastric and/or sacral lymph nodes (LN)) or distant (liver/spleen and/or thoracic).

Results

71 cases were identified. Cocker Spaniels (32.35%) and Labradors (29.41%) were the most commonly affected breeds and male neutered dogs (60.29%) were overrepresented. 68 dogs underwent staging (abdominal ultrasonography (53), thoracic radiography (41), CT (15)), three dogs were excluded due to lack of imaging. 30 dogs had evidence of metastasis at presentation; 22 to local LN only; one to local LN and liver/spleen; one to local LN, liver/spleen and thorax; and six to local LN and thorax. 46 dogs had subsequent imaging examinations, all dogs observed to develop distant metastases had concurrent or pre-existing local metastasis. There was no correlation between tumour size at presentation and presence of metastases.

Statement (conclusions)

All dogs in which distant metastases were detected had evidence of pre-existing or concurrent local metastases. The findings of this study suggest priority should be given to local lymph node evaluation when staging dogs with ASAC.

13:45 The Toxicity Profile of Zoledronic Acid in Dogs - A Single Centre Retrospective Study

David Brewer, Nicholas Bacon, Michael Macfarlane

Fitzpatrick Referrals Oncology and Soft Tissue, Guildford, United Kingdom

Objectives

Intravenous zoledronic acid can be used to treat both bone pain and hypercalcaemia in dogs. There are no reports of its toxicity profile in a large number of canine patients. The primary aim was to report the toxicities in dogs receiving zoledronic acid. A secondary aim was to report the survival time of dogs with primary and secondary bone cancer.

Methods

A referral hospital records were retrospectively reviewed. Dogs that received at least one dose of zoledronic acid were included if a serum chemistry profile was available within four weeks of the first dose and subsequent administrations. The diagnosis, indication for treatment, and adverse events were documented.

Results

Ninety-five dogs met the inclusion criteria. Thirty-one received multiple administrations, (range 2-7) of zoledronic acid for a total of 166 administrations, the dose range was 0.13mg/kg-0.32mg/kg, 4-6 weeks apart. Thirteen adverse events were recorded in nine dogs (8%); azotaemia (n=8), vomiting (n=2), pancreatitis (n=1) cutaneous ulceration (n=1) and diarrhoea (n=1). Zoledronic acid related azotaemia could not be confirmed in any case. Regression analysis demonstrated the change in creatinine was not related to the total dose received (P=0.51). Five dogs (16%) changed IRIS stage, the total dose of zoledronic acid received compared to the dogs which did not change IRIS stage was not statistically different (P=0.93). Seventy-one dogs with bone cancer had a median survival time from treatment to death of 110 days, (range 1-589 days).

Statement (conclusions)

Zoledronic acid appears well tolerated in dogs. A small number developed azotaemia which was not associated with cumulative dose

14:00 Lung Lobe Torsion Secondary to Pulmonary Papillary Carcinoma in A Dog

Estela Ciriano Cerda, Mary Marrington, Jessica Grant

Northwest Veterinary Specialists, Runcorn, United Kingdom

Objectives

Lung lobe torsion is a rare condition in dogs reported to be most commonly idiopathic or secondary to trauma, pleural effusion, lung lobectomy or thoracic neoplasia. We present a case of lung lobe torsion secondary to papillary carcinoma.

Methods

An 11 year old male neutered Labrador presented for lethargy, weight loss and pleural effusion. Contrast-enhanced computed tomography scan (CT), fine needle aspiration with cytology of the lung, thoracentesis and fluid analysis were performed. Subsequently, the patient underwent lung lobectomy and histological analysis of the excised lobe was requested.

Results

On clinical examination tachycardia, increased inspiratory effort, weak femoral pulses and pyrexia were noted. CT scan revealed pleural effusion and torsion of the left cranial lung lobe with no evidence of a pulmonary mass or metastatic disease. Cytology of the pleural effusion was consistent with an exudate with signs of pyogranulomatous inflammation and suspicious epithelial/mesothelial cells. Lung cytology was most consistent with epithelial neoplasia with marked pyogranulomatous inflammation and necrosis. During thoracotomy, there was no macroscopic evidence of pulmonary neoplasia. Lobectomy of the left cranial lung lobe was performed and histopathology confirmed grade 2 pulmonary papillary carcinoma with pulmonary necrosis, haemorrhage and suppurative bronchopneumonia.

Statement (conclusions)

To the author's knowledge, lung lobe torsion secondary to papillary carcinoma has not been previously reported in veterinary medicine. This case highlights the importance of considering

pulmonary neoplasia as a differential for lung lobe torsion and the value of performing histopathology on the excised lung tissue.

14:15 Renal Nephroblastoma In Dogs: Signalment, Histologic Features and Outcome In 10 Cases

Petros Frezoulis¹, Aaron Harper¹, Katherine Berman²

¹Southfields Veterinary Specialists, Laindon, United Kingdom. ²Synlab VPG Histology, Bristol, United Kingdom

Objectives

Renal nephroblastoma (Wilms' tumour) is the most common renal malignancy of children. Only a few cases are reported in the veterinary literature and a larger case series in dogs is lacking.

Methods

The records of a histopathology laboratory were retrospectively reviewed for cases of canine renal nephroblastoma. Medical records were obtained from the submitting veterinary surgeons. Immunohistochemistry was used to confirm the diagnosis. Clinicopathological staging was performed according to the Children's Oncology Group for Wilms' Tumour. Survival time was calculated from the time of diagnosis until the time of death.

Results

A total of 19 cases were retrieved and medical records were available for ten. There were six female and four male dogs. The median age at diagnosis was 101 months (range: 4-132) and 8/10 dogs were older than three years old. Histopathology showed a predominantly undifferentiated blastemal type in five, epithelial in three and mixed pattern in two dogs. Half of the cases had stage 1 disease while metastasis was found in one dog. Nine dogs had nephrectomy; one dog received chemotherapy postoperatively with vincristine and actinomycin-D initially, mitoxantrone after local recurrence and toceranib after progressive disease. Three dogs were lost to follow up and one dog was alive at the end of the study. The median survival time from diagnosis was 122.5 days (range: 8-777).

Statement (conclusions)

Nephroblastoma is an aggressive renal neoplasia that is more commonly seen in older dogs in comparison to humans. Survival is variable following surgery and clinicopathological staging in a larger cohort may help to predict outcome.

14:45 Treatment of Acute Megakaryoblastic Leukaemia and Severe Nonregenerative Anaemia in A Labrador Retriever

Jodie Green, Balazs Szladovits, Irina Gramer, Andrew Yale, Alexandra Guillen

The Royal Veterinary College, London, United Kingdom

Objectives

To describe the diagnosis and treatment of acute megakaryoblastic leukaemia (AML-M7) and suspected precursor targeted immune mediated anaemia in a dog.

Methods

A 2-year-old female neutered Labrador Retriever was presented with an eight day history of lethargy and melaena after an episode of oral bleeding. Pale mucous membranes were evident on physical examination.

Results

Haematologic examination revealed moderate thrombocytosis, severe nonregenerative anaemia and the presence of circulating atypical cells. Peripheral blood smear and bone marrow examination, and immunohistochemical staining for the megakaryocytic specific cell marker CD61 were used to support the diagnosis of AML-M7. Bone marrow examination found no myelophthisis but the presence of rare rubriphagocytosis and occasional erythroid dysplasia suggestive of immune mediated destruction of erythroid precursors. The dog received a packed red blood cell (pRBC) transfusion on admission and was started on combination chemotherapy with cytarabine, doxorubicin, vincristine and prednisolone.

A significant reduction in peripheral neoplastic cell counts was seen after the induction phase, but regular pRBC transfusions were required for management of the nonregenerative anaemia. Haematologic parameters stabilised once treatment with mycophenolate mofetil was initiated. The dog was euthanised due to an acute deterioration 51 days after starting treatment.

Statement (conclusions)

Combination chemotherapy with cytarabine and an anthracyclin, as indicated in the treatment of AML-M7 in humans, may have some success in inducing remission in dogs. Paraneoplastic nonregenerative anaemia can significantly affect the patient's outcome and despite an initial response to chemotherapy, the prognosis for dogs with AML-M7 has to be considered poor.

15:00 A Survey of Malignant Neoplasia in Spaniels

Tiago Henriques¹, Mark Dunning^{2,1}

¹The University of Nottingham, Nottingham, United Kingdom. ²Willows Veterinary Centre & Referral Centre, Birmingham, United Kingdom

Objectives

Following a spaniel-health symposium, a common concern was that spaniels seemed to be frequently affected by malignant neoplasia. The present study was therefore designed to review the range of neoplasia affecting spaniels and whether there are breed predispositions.

Methods

A survey was distributed to owners electronically to capture relevant data over a period of 18 months. A combination of open and closed questions were used. The data was categorized into tumour type, where this was unknown, the anatomical or topographical location was used.

Results

A total of 145 spaniels were included in the final analysis, 9 of the 11 individual UK spaniel breeds represented. Of the 145, 61.4% had been identified as having a malignant neoplasm. Field Spaniels were most frequent (26 of 36) followed by the Cocker Spaniel, Irish Water Spaniel, and English Springer Spaniel each with the same percentage affected (16 of 24, 14 of 21, 6 of 9 cases respectively).

The median age at diagnosis was 9 years old. The most frequently occurring neoplasia was: lymphoma, mast cell tumour, and adenocarcinoma, with 12, 10, and 8 cases respectively. The remaining 59 cases varied greatly amongst different tissue types and anatomical location.

Statement (conclusions)

The present study demonstrates that spaniels suffer from a wide range of neoplasia. No spaniel group suffered from a particular or unusual type of tumour, however, Field spaniels were frequently included in the database. The current study supports owner concerns that cancer frequently affects spaniels.

15:15 Investigation of The Value of Ultrasound Appearance of The Liver and Spleen and Subjective Appraisal of The Draining Lymph Node's Size as Predictors of Metastasis in The Staging of Mast Cell Tumours (MCT)

Perrine Henry, Luca Schiavo, Jane Dobson

Department of Veterinary Medicine, Queen Veterinary School Hospital, Cambridge, United Kingdom

Objectives

The aim was to determine the agreement between subjective assessment of enlargement of the loco-regional lymph node (LN) and abnormal appearance of the liver or spleen on ultrasound as predictor of the presence of MCT metastasis.

Methods

Medical records of dogs referred for MCT were retrospectively reviewed. Ultrasonographic appearance of the spleen and liver and the size of the loco-regional LN were compared to the presence of cytological evidence of metastasis.

Results

284 mast cell tumours were included in the study; 81 were subcutaneous (76 low grade, 5 high grade Kiupel), 188 were cutaneous (16 low grade, 123 intermediate, 13 high-grade and 36 not

graded according to Patnaik; 124 low grade and 40 high grade according to Kiupel) and 15 were visceral or muco-cutaneous.

Of these, 107 cases had FNA of the spleen, 92 of the liver and 100 of loco-regional LN (including 17 abdominal nodes). Visceral metastases were found in 8 ungraded cases, 3 intermediate and 4 high-grade tumours. Of 13 metastatic spleens only 10 were abnormal on ultrasound (Sp=65%, Se=77%, PPV=23%, NPV=95%). Of 7 metastatic livers, 4 were found abnormal (Sp=69%, Se=57%, PPV=13%, NPV=95%). Additionally, 62 loco-regional lymph nodes were metastatic, of which only 40 were enlarged (Sp=74%, Se=76%, PPV=82%, NPV=65%).

Statement (conclusions)

Results suggest that ultrasonographic appearance of the spleen and liver is a poor predictor of metastases as is palpable lymphadenomegaly. Therefore, FNA of lymph node, spleen and liver should be performed regardless of size and ultrasonography appearance if an aggressive behaviour of the primary tumour is expected.

15:30 Incidence and Risk Factors for Feline Mammary Tumours in UK Primary Care Practice

Phoebe Pickard Price¹, Anneliese Stell², Dan O'Neil¹, David B Church¹, David Brodbelt¹

¹Royal Veterinary College, London, United Kingdom. ²Davies The Veterinary Specialists, Higham Gobion, United Kingdom

Objectives

This study aimed to estimate the incidence and risk factors for mammary tumours (MT) in female cats attending UK primary-care practices. The study hypothesised that middle-aged, intact, Siamese and Persian breeds are associated with MT.

Methods

A case-control study design identified MT cases by assessment of electronic patient records (EPRs), nested within a denominator population of 259,869 female cats attending VetCompass participating primary-care veterinary practices in the UK in 2016. Potential cases were identified from the EPRs based on VeNom diagnoses recorded and key word searching of free text clinical notes. A case of MT was defined under two levels of certainty based on a veterinary clinical diagnosis with or without histological confirmation. Logistic regression modelling evaluated demographic risk factors for MT ($P < 0.05$).

Results

From 2,858 potential female MT cases identified within the denominator, 270 cats met the veterinary case definition, giving an incidence risk of 104 per 100,000 (0.104%, 95% CI 0.092% - 0.117%) during 2016. Additionally, based on the presence of a confirmatory histological diagnosis, the incidence risk was 20 per 100,000 (0.020%, 95% CI 0.015-0.026) cats per annum. In the veterinary diagnosis model age was associated with MT, whilst in the histological confirmed analysis, breed and insurance status were additionally associated with MT diagnosis. Post-diagnostic survival time was greater than previously reported and median survival of MT cats was 18.7 months.

Statement (conclusions)

The highlighting of major demographic factors in this study could aid veterinarians in identifying those cats at great risk of MT, potentially improving diagnosis, monitoring and survival.

16:00 Incidence of Urinary Tract Infection and Its Effect on Outcome of Dogs Diagnosed with Multicentric Intermediate to High-Grade Lymphoma

Onne-Marju Russak¹, Davide Berlato¹, Mellora Sharman², Sara Verganti¹

¹Dick White Referrals, Newmarket, United Kingdom. ²Animal Health Trust, Newmarket, United Kingdom

Objectives

The aims of this study were to evaluate the incidence of urinary tract infection (UTI) or bacturia (bacteria without active sediment) in chemotherapy naïve lymphoma patients, to evaluate the recurrence or development of new UTI during treatment, and to assess the impact of bacturia or UTI on clinical outcome.

Methods

Retrospective review of two referral centre databases from January 2013 till September 2020.

Results

One hundred and thirty five chemotherapy naïve dogs had urinalysis performed at diagnosis. Of these, bacturia or UTI was identified in 18 dogs (13.3%). Treatment decisions were altered in two dogs (1.4%) pending infection clearance. Eight of these dogs (6%) had UTI recurrence during chemotherapy and one developed a subsequent new UTI. No survival difference was identified between dogs with or without bacturia or UTI at presentation (157 vs. 255 days, respectively; $p=0.65$).

An additional 49 dogs undergoing chemotherapy, but that did not have a urinalysis at presentation, were evaluated separately. Five (10.2%) of these had bacturia or UTI documented during the treatment period. Two of these had a resultant treatment alteration.

Statement (conclusions)

Detection of bacturia or UTI is relatively common in dogs with lymphoma highlighting the importance of routine urinalysis on presentation, and periodically through treatment. In the described cohort, the impact of bacturia or UTI on treatment decisions was minimal and no statistically significant difference in survival among patients with or without bacturia or UTI on presentation was detected.

16:15 Evaluation Of C-Reactive Protein (CRP) As A Prognostic Marker in Patients with Histiocytic Sarcoma

Luca Schiavo, Antonio Giuliano, Tim Williams, Jane M. Dobson

Queen's Veterinary School Hospital, University of Cambridge, Cambridge, United Kingdom

Objectives

The aim of this study was to correlate serum C-reactive protein (CRP) concentrations with clinical variables and survival time in dogs with histiocytic sarcoma.

Methods

Medical records of dogs with histologically or cytologically diagnosed histiocytic sarcoma were retrospectively evaluated. Patients were divided into groups based on tumour presentation (periarticular; visceral) and stage (localized: no evidence of local or distant metastasis; lymph node: if metastasis were found only at the level of loco-regional node; disseminated: if more than 1 organ was affected). Serum CRP level at presentation was compared between groups using non-parametric statistics, and multivariable Cox regression analysis was used to evaluate association between CRP level, age, presentation, stage and survival time. Patients were excluded if they received any treatment with chemotherapy, surgery, or radiotherapy before CRP level measurement.

Results

Twenty-five cases were included. Of 25 cases included in the study, 9 had localized disease, 2 had lymph node metastases, and 14 had disseminated disease. Twenty-five had periarticular disease, 7 visceral disease, and one a cutaneous lesion. Median (range) survival times were 88 (2-400) days. CRP level was not correlated with stage ($P=0.548$) or clinical presentation ($P=0.504$). Increasing serum CRP level ($P=0.007$), decreasing age ($P=0.018$) and visceral presentation ($P=0.028$) were associated with decreased survival time.

Statement (conclusions)

Our results showed that increased serum CRP level at presentation, younger age and visceral origin of the tumour was correlated with a decreased survival time. This suggests that CRP level is correlated to the general status of the patient rather than the origin or extent of disease.

16:30 Diagnosis of Large Granular Lymphocyte (LGL) Lymphoma Via Aqueocentesis In Domestic Cats

Isla Trewin, Balazs Szladovits, Alejandro Suarez-Bonnet, Sarah Koll, Sarah Stewart

Queen Mother Hospital for Animals, Royal Veterinary College, Hertfordshire, United Kingdom

Objectives

To describe the clinical features and outcome of cats with LGL lymphoma and the utility of aqueocentesis in their diagnosis.

Methods

Retrospective description of cats diagnosed with ocular LGL lymphoma using aqueocentesis at a university referral hospital.

Results

Three cases were identified; a Bengal (MN) and two domestic short-hair cats (MN, FN), aged between 8 and 14 years. All cats presented through the ophthalmology department and were visual, with unilateral or bilateral uveitis and secondary glaucoma. Two cats were FIV positive, whilst toxoplasma and feline coronavirus titres were not supportive of active infection.

Initial diagnosis of LGL lymphoma was made, in all cases, with cytological examination of aqueous humour. No complications were encountered with the procedure and a rapid diagnosis was obtained. Additional ultrasonographic and cytological features associated with renal infiltration were present in one case, whilst the others had non-specific imaging and aspirate findings.

One cat was immediately euthanised, with ocular and bilateral renal LGL lymphoma confirmed on post-mortem examination. Two cats underwent systemic chemotherapy and tissue plasminogen activator injection alongside ocular medication, however, due to progressive disease (hepatic and CNS involvement) were euthanised 4-5 weeks later. Post-mortem examination of the neurologically affected cat confirmed involvement of multiple abdominal organs, skin, eyes and CNS.

Statement (conclusions)

Diagnosis of LGL lymphoma via aqueocentesis has not been previously described in the domestic cat. Cytological examination of aqueous humour can provide a prompt diagnosis, facilitating early treatment. Assessing for renal infiltration and FIV status in such cases is prudent given the prevalence in this study population.

16:45 Thymic Epithelial Tumours In 51 Dogs: Clinicopathologic And Histopathologic Findings

Andrew Yale, Simon Priestnall, Rachel Pittaway, Angela Taylor

The Royal Veterinary College, London, United Kingdom

Objectives

The aim of this study was to evaluate cases of canine thymic epithelial tumours (TET) in order to identify useful clinicopathologic and histopathologic prognostic factors.

Methods

Retrospective multi-institutional study. Cases were included if the tumour arose from the cranial mediastinum and a diagnosis of TET was made on the basis of histopathology. In addition to clinicopathologic data, histology samples were reviewed for the following features: mitotic count, percentage of necrosis, presence of Hassall's corpuscles, lymphocytic infiltrate, cellular pleomorphism, and vascular or capsular invasion. The Kaplan-Meier product of survival probabilities and log rank test was used to assess and compare progression free interval and median survival time

(MST) for the population and different cohorts of interest. Univariable and multivariable forward stepwise Cox regression was used to evaluate predictors of survival.

Results

Fifty-one dogs were included. The median survival time for all dogs was 449 days. The one- and two-year survival rate was 52.6% and 26.3% respectively. On multivariable analysis surgical excision of the thymic tumour was associated with significantly prolonged survival; the presence of metastasis, myasthenia gravis, and moderate or marked cellular pleomorphism were associated with significantly reduced survival.

Statement (conclusions)

This study demonstrated that surgical treatment of canine TETs significantly prolongs survival, and the presence of myasthenia gravis as a negative prognostic factor. Although moderate/marked cellular pleomorphism and the presence of metastasis were associated with shorter survival, these factors should not preclude treatment as outcomes for these cases are still reasonable with MST in excess of 325 days.

PM Room 2, 13:00 - 17:30 | Internal Medicine, Diagnostic Imaging and Cardiology

13:00 The Use of Chlorphenamine As a Pretransfusion Treatment in Dogs: Good or Bad Prophylaxis
Harriet Hall, Nick Bexfield, Barbara Skelly

The Queen's Veterinary School Hospital, Cambridge, United Kingdom

Objectives

To evaluate the effect of premedication with intravenous chlorphenamine on blood transfusion outcome in dogs; specifically, for transfusion associated complications (TAC).

Methods

A retrospective observational study was performed at a UK University referral hospital between 2009 and 2019. Canine patients that received either whole blood (WB) or packed red blood cells (PRBC) were identified through databases searches. Information recorded included signalment, pre-treatment with chlorphenamine, other medication administered and cause of anaemia. TAC and various transfusion variables were also recorded; temperature, pulse, respiratory rate and blood pressure before, during and after transfusion, pre- and post-transfusion packed cell volume (PCV), haemoglobin, serum bilirubin and urinalysis, duration and rate of transfusion and survival to discharge.

Results

A total of 56 dogs received 77 blood transfusions. The prevalence of TAC was 20.8% for all transfusions and 21.4% for first transfusion events. Febrile non haemolytic transfusion reactions (FNHTR), followed by vomiting post transfusion were most frequent. The percentage of TAC was 25.0% for dogs receiving PRBC compared with 13.8% for those receiving WB. There was no significant difference found between those pre-medicated with chlorphenamine and those that were not for TAC ($P = 0.393$), survival to discharge ($P = 0.377$), post-transfusion PCV ($P = 0.213$), specific TAC (type 1 hypersensitivity reactions ($P = 0.680$)) or when dogs received immunosuppressants ($P = 0.590$).

Statement (conclusions)

The prevalence of TAC was consistent with previous literature; these were mild and often self-limiting. In addition, this study suggested no indication for prophylactic chlorphenamine prior to canine blood transfusions.

13:15 Treatment Response and Long-Term Prognosis in Feline Precursor-Targeted Immune-Mediated Anaemia

Alba Maldonado Moreno, Rachel Miller, Paola Monti

Dick White Referrals, Six Mile Bottom, United Kingdom

Objectives

To assess treatment response and long-term survival in cats with precursor-targeted immune-mediated anaemia (PIMA).

Methods

Records of feline PIMA cases were reviewed. Patients were included if complete records were available, other causes of non-regenerative anaemia were excluded and bone marrow findings were consistent with PIMA.

Three survival points were assessed 1) survival to discharge; 2) survival >30 days and 3) total survival time.

Treatment response was evaluated by 1) time to achieve regeneration; 2) time to normalise haematocrit; 3) incidence of relapses; and 4) patients withdrawn of treatment.

Results

Twenty-seven patients met the inclusion criteria (8=male; 19=female; median age 4.2 years (range 11 months-13.1 years). Of those, 7/27 cats (25%) survived less than 30 days: 4 died in hospital, 3 died within 2, 9 and 17 days from discharge. Median survival time of the remainder 24/27 cats was 1055 days (range 54-3702 days).

A regenerative response was observed in 16/27 cats (mean 19.52 days (range 5-63 days)) and haematocrit normalised in 15/27 (mean 42.6 days; range 15-226 days). Of the 15 cats achieving clinical remission, treatment was withdrawn in seven.

After haematocrit normalisation, 10 cats relapsed: 6 were on treatment at the time of relapse and 4 were not.

Statement (conclusions)

Treatment of PIMA can be associated with long survival (MST 1055 days in cats surviving >30 days). 55% of cats achieved a normal haematocrit during treatment. Clinical relapse was common in 66% of the study population.

13:30 Causes of Thrombocytopenia in Dogs in the UK: A Retrospective Study Of 765 Cases - Marina Martín-Ambrosio Frances

Marina Martín-Ambrosio Francés^{1,2}, Mayank Seth^{1,3}, Mellora Sharman^{1,4}, Danica Pollard^{1,5}, Ana Liza Ortiz⁶, Rachel Miller³, Thomas Natsiopoulos³, David Walker⁷, Bryn Jones⁷, Josh Hardwick⁸, Barbara Glanemann⁹, Andrés Salas García², Jessica Bacon¹⁰, Aida Gómez Selgas^{1,11}

¹Animal Health Trust, Newmarket, United Kingdom. ²Pride Veterinary Centre, Derby, United Kingdom. ³Dick White Referrals, Newmarket, United Kingdom. ⁴VetCT Consultants in Telemedicine, Cambridge, United Kingdom. ⁵Safety Department, The British Horse Society, Kenilworth, United Kingdom. ⁶School of Veterinary Medicine and Science, University of Nottingham, Nottingham, United Kingdom. ⁷Anderson Moores Veterinary Specialists, Winchester, United Kingdom. ⁸Langford Vets, University of Bristol, Langford, United Kingdom. ⁹Department of Clinical Science and Services, Royal Veterinary College, Hatfield, United Kingdom. ¹⁰Wear Referrals Veterinary Hospital, Bradbury, United Kingdom. ¹¹North Downs Specialist Referrals, Bletchingley, United Kingdom

Objectives

To report the prevalence of different causes of thrombocytopenia in dogs in the United Kingdom and to investigate the utility of the platelet count for differentiation of causes of thrombocytopenia.

Methods

Medical records of dogs (n=765) with thrombocytopenia presented to 7 specialist referral hospitals from January 2017 to December 2018 were retrospectively reviewed. Cases were assigned into the following disease categories: primary immune-mediated thrombocytopenia (IMTP), infectious diseases, neoplasia, inflammatory/immune-mediated disorders and miscellaneous causes. The prevalence of the different disease groups was estimated, and platelet counts were compared across categories. Receiver operating characteristic (ROC) curves were used to interrogate the utility of platelet count for differentiation of causes of thrombocytopenia.

Results

The most common disease category associated with thrombocytopenia was neoplasia (34%), followed by miscellaneous causes (20%), primary IMTP (19%), inflammatory/immune-mediated disorders (14%) and infectious diseases (13%). Dogs with primary IMTP had significantly ($p < 0.05$) lower platelet counts (median $9.5 \times 10^9/l$) than dogs in the other four groups. Platelet count was

useful for distinguishing primary IMTP from other causes of thrombocytopenia (area under ROC curve=0.86, 95% confidence interval 0.83, 0.90), with a platelet count $\leq 13 \times 10^9/L$ being 58% sensitive and 90% specific.

Statement (conclusions)

Infectious causes of thrombocytopenia are less prevalent in dogs in the UK compared to reports from mainland Europe and North America, whereas primary IMTP is more prevalent in this population. Severe thrombocytopenia is highly specific for primary IMTP.

13:45 Multimodal Therapies in Canine Primary Immune Mediated Haemolytic Anaemia (PIMHA): A Descriptive Study

Julia Tang¹, Barbara Glanemann¹, James Swann²

¹The Royal Veterinary College, Hertfordshire, United Kingdom. ²Kennedy Institute of Rheumatology, University of Oxford, Oxford, United Kingdom

Objectives

This study's aims were to describe and compare the signalment and presentation of dogs with PIMHA treated with plasmapheresis, human intravenous immunoglobulins (hIVIG), or three concurrent immunosuppressants, including outcomes of dogs in the latter category.

Methods

A referral institution's electronic records were retrospectively searched for dogs diagnosed with PIMHA. Inclusion was based on published IMHA diagnosis guidelines. Patients which had been either treated with three concurrent immunosuppressants, received plasmapheresis or hIVIG underwent further data analysis. Descriptive statistics were used to compare among the treatment groups, and within the three concurrent drugs group.

Results

Over a period of 14 years, 552 dogs were diagnosed with PIMHA. Twenty dogs received three concurrent immunosuppressive drugs, seven underwent plasmapheresis, and thirty received hIVIG. There were no significant differences regarding demographics and clinicopathological findings between groups. All dogs treated with three concurrent immunosuppressants received prednisolone as their primary therapy. The most common additional immunosuppressants were ciclosporin and azathioprine. The mean time-point for starting a second immunosuppressant was 3.15 days after commencing prednisolone (3rd immunosuppressant: 14.8 days). Eleven patients started and continued on three immunosuppressants concurrently, while nine patients began on two immunosuppressants. Seventeen patients survived up to 1 month post discharge, ten survived up to 3 months, seven up to 6 months, three were alive over 30 months and one over 90 months.

Statement (conclusions)

This study provides new information on the follow-up of PIMHA patients receiving concurrent immunosuppressants, as well as data on cases receiving plasmapheresis and hIVIG for further comparisons with conventional IMHA study populations.

14:00 Utility Of C-Reactive Protein as A Biomarker of Remission in Immune-Mediated Polyarthritis in Dogs

Aimee Taylor¹, Jenny Reeve¹, Vicki Black², Fiona Whitworth²

¹The University of Bristol, Bristol, United Kingdom. ²Langford Vets, Bristol, United Kingdom

Objectives

To assess the validity of C-reactive protein (CRP) as a biomarker of resolution of neutrophilic joint inflammation in dogs undergoing treatment for immune-mediated polyarthritis (IMPA).

Methods

Medical records at Langford Vets were retrospectively reviewed to identify dogs diagnosed with type I or III IMPA between 2016 and 2019. Dogs were required to have undergone re-examination including CRP analysis and arthrocentesis, from at least three joints, within six weeks of diagnosis. CRP was compared to joint cytology. The hypothesis was that CRP would represent a sensitive marker for neutrophilic inflammation compatible with ongoing joint inflammation in dogs undergoing treatment for IMPA.

Results

Nine dogs were included in the study. At the time of re-assessment all dogs were receiving prednisolone (1.9-2.1mg/kg/day) and two cases were also receiving leflunomide (2mg/kg/day). CRP concentration in all nine dogs was <5 mg/l (laboratory reference <5mg/l). Six dogs (66.7%) had abnormal synovial fluid with an increased proportion of neutrophils in at least one joint despite normal CRP.

Statement (conclusions)

CRP, in this cohort of dogs, was not a reliable biomarker of resolution of neutrophilic joint inflammation. Monitoring of IMPA remission with repeated joint fluid analysis is proposed until a more sensitive and specific surrogate marker is identified.

14:30 Ultrasound-Guided Placement of a Near-Infrared Fluorescent Liquid Soft Tissue Marker for Fiducial Marking of Regions-Of-Interest During Surgical Procedures in A Dog

Lilah Moorman¹, Anna Müller¹, Anders E. Hansen², Thomas L. Andresen², Jonas R. Henriksen², Thomas Eriksen¹, Fintan J. McEvoy¹

¹Department of Veterinary Clinical and Animal Sciences, University of Copenhagen, Fredriksberg, Denmark. ²DTU Health Technology, Section for Biotherapeutic Engineering and Drug Targeting, Center for Nanomedicine and Theranostics, Technical University of Denmark, Kgs. Lyngby, Denmark

Objectives

To evaluate the potential of a novel soft tissue marker (XPVN-mark) placed using ultrasound-guidance and identified using near-infrared (NIR) fluorescence imaging for surgical localization.

Methods

Ultrasound-guidance was used by positioning the tip of a 23g needle and placing 0.04 ml of the marker within soft tissues adjacent to the inguinal lymph node in an 11 yr. American Cocker Spaniel diagnosed with an inguinal mast cell tumour. Once injected, the XPVN liquid forms a semi-solid marker that is positionally stable in the soft tissues. It can be visualized using multiple imaging modalities, including ultrasound, computed tomography (CT), radiography and fluorescence. NIR fluorescence imaging was used during surgery as a guide to its location.

Results

The marker was readily identified once *in situ* as a hyperechoic region with acoustic shadowing. It was visible on NIR-imaging through the intact skin and was used to guide the surgeon's dissection, aiding in identification of the lymph node and shortening anaesthesia time. Following removal of the marker and adjacent lymph node, the marker was still visible within the excised tissue using ultrasound, radiography and CT.

Statement (conclusions)

Due to the ease of injection under ultrasound guidance, and its imaging and chemical properties, this novel material shows promise as a marker system for small structures within soft tissues such as lymph nodes or small foreign bodies. Further experience with the marker in situations where the precise location of an abnormal imaging finding has to be marked for later reference is required.

14:45 Sensitivity and Specificity of Abdominal Ultrasonography for The Detection of Ectopic Ureters in Urinary Incontinent Dogs

Oliver Taylor, Rebekah Knight, Marie-Aude Genain, Laura Owen

Queen's Veterinary School Hospital, Cambridge, United Kingdom

Objectives

The aim of this study was to evaluate the sensitivity and specificity of ultrasonography for diagnosis of ureteral ectopia in incontinent dogs, using cystoscopic examination as the gold standard.

Methods

Medical records of urinary incontinent dogs presenting to a single institution (n=36) were retrospectively reviewed for the presence of ureteric insertion abnormalities as well as concurrent urinary tract lesions. Ultrasonographic findings were compared with those from cystoscopic examination to determine diagnostic accuracy. The relationship between the presence of concurrent urinary tract abnormalities and ureteral ectopia was assessed using an independent samples t-test and Mann-Whitney test. Statistical significance was set at $p \leq 0.05$.

Results

Ultrasonography had a sensitivity of 93.5%, specificity of 100% and diagnostic accuracy of 95% when identifying dogs suffering with ureteral ectopia. When used to classify individual ureters as ectopic or non-ectopic, sensitivity was 87.8% and specificity was 86.7%. Dogs with ureteral ectopia had

significantly more concurrent urinary tract abnormalities on ultrasound than unaffected dogs ($p=0.002$). Ectopic ureters were associated with significantly more concurrent ipsilateral upper urinary tract ultrasonographic abnormalities than unaffected ureters ($p<0.001$).

Statement (conclusions)

Ultrasonography performed by an experienced ultrasonographer is a useful screening tool for canine ureteral ectopia, which eliminates the need for general anaesthesia and advanced imaging, although it should not be the sole diagnostic modality for assessment of individual ureters. Abdominal ultrasound alongside cystoscopy allows comprehensive assessment of the entire urinary tract and thus is an excellent diagnostic approach for dogs with urinary incontinence.

15:00 Clinical Presentation, Computed Tomographic Findings, Treatment and Outcome of Canine Cutaneous Lymphoma; 10 Dogs

Thom Watton

Royal Veterinary College, London, United Kingdom

Objectives

To report the clinicopathological features, computed tomographic (CT) findings, treatment and outcome in dogs with canine cutaneous lymphoma.

Methods

Clinical and imaging data from dogs with canine cutaneous lymphoma and at least one CT study between September 2007 and July 2018 were retrospectively collected. An anatomical reference system was devised to aid lesion mapping, and studies were reviewed for multiple radiological criteria. When sequential studies were available, lesion progression was described. Treatment and patient outcome were summarised.

Results

Ten dogs were included, and 14 CTs were performed. Nine patients had canine cutaneous lymphoma lesions visible on CT. Seven dogs had diffusely distributed nodules, and 3 dogs had masses. Well-defined, diffusely distributed, contrast-enhancing, cutaneous or subcutaneous nodules were most common. Mass lesions were more variable in appearance. Nine of ten cases had lymphadenopathy, with mandibular and axillary nodes most commonly affected. Four dogs had confirmed nodal involvement, and 4 dogs had confirmed visceral involvement. Nine dogs received treatment with chemotherapy and 5 responded with complete remission. Median survival time of dogs responding to treatment was 561 days.

Statement (conclusions)

CT is a useful modality for detecting canine cutaneous lymphoma lesions, which were commonly nodules within the cutaneous or subcutaneous layers, and less commonly mass lesions or nodules within deeper sites. In most cases lymphadenopathy was evident, with frequent deep lymph node and visceral involvement supporting the use of bicavitary CT for staging. CT features may affect

subsequent decisions to utilize local or systemic treatment in patients with canine cutaneous lymphoma.

15:15 Co-Morbidities Associated with Diabetes Mellitus in Burmese Cats

Andrew Fisher, Rebecca Geddes, Katarina Hazuchova

The Royal Veterinary College, London, United Kingdom

Objectives

Diabetes mellitus (DM) is a common feline endocrinopathy and Burmese cats are predisposed. This breed has limited genetic diversity, but not all Burmese cats develop DM, suggesting there are other factors associated. This study aimed to ascertain which co-morbidities are associated with DM in Burmese cats.

Methods

An online survey was developed to collect data regarding signalment, previous or current medications and morbidities of Burmese cats. Owners were invited to complete the questionnaire for all Burmese cats. Cats were categorised into DM and non-diabetic (nDM) groups. Proportions of animals affected with each morbidity between groups were analysed using Chi-squared or Fisher's exact tests. Mann-Whitney U tests were used to compare non-parametric continuous data between groups.

Results

DM cats were significantly older than nDM cats and no DM cat was <10 years of age. nDM cats <10 years were subsequently excluded. Comparisons between age-matched DM and nDM groups found DM to be significantly associated with obesity (OR 7.86, 95% CI 2.82-21.03), hypokalaemia (OR 27.47, 95% CI 3.87-3317.60), cystitis or urinary tract infection (OR 2.78, 95% CI 1.09-7.21), pancreatitis (OR 4.16, 95% CI 1.30-12.24), dental disease (OR 2.50, 95% CI 0.97-6.46), and anaemia (OR Infinity, 95% CI 1.67-∞).

Statement (conclusions)

Vets should be aware that Burmese cats with these conditions may be at increased risk of DM and/or DM Burmese should be evaluated for development of these co-morbidities. Prospective studies to investigate causal relationships between DM and these co-morbidities are sought after.

15:30 New Ways for Clinicians to View Old Diseases: Using Data Clustering to Classify Cushing's Syndrome

Imogen Schofield¹, Dave Brodbelt¹, Stijn Niessen^{1,2}, David Church¹, Rebecca Geddes¹, Noel Kennedy¹, Dan O'Neill¹

¹Royal Veterinary College, London, United Kingdom. ²Veterinary Specialist Consultations, Hilversum, Netherlands

Objectives

Currently Cushing's syndrome (CS) is classified on the basis of the underlying disease process. While this distinction should be valuable in optimising treatment, the aetiology is infrequently determined in primary-care practice. Could other ways of classifying CS be applied to reflect primary-care practice and assess clinical outcomes?

This study used VetCompass data to classify Cushing's syndrome into phenotypic clusters and examine clinical outcomes for differing clusters.

Methods

Unsupervised partitional clustering identified unique clusters of CS cases. K-means analysis was used as the principal clustering technique, based on 19 factors (demographic factors and the clinical signs recorded at first presentation). Associations with clinical outcomes were assessed using chi-squared tests.

Results

The study included 546 incident, laboratory-confirmed Cushing's cases. Three distinct clusters were identified.

1. 'PUPD-predominant' cluster (n=222, 40.7%): presented solely with polyuria and polydipsia (PUPD).
2. 'Classical' cluster (n=153, 28.0%): presented with PUPD and other clinical signs typically associated with CS.
3. 'Non-specific' cluster (n=171, 31.3%): presented without PUPD but at least one other clinical sign associated with CS recorded.

Fewer dogs in the 'classical' cluster (79.7%) survived to 1 month following diagnosis than in other clusters (89.2% and 89.1%, $p=0.03$). Survival to 1 year following diagnosis did not differ between the clusters ($p=0.14$). No differences in treatment responses were found.

Statement (conclusions)

This exploratory research identified clusters for CS which may be a valuable way of considering this disorder. Future work could apply this approach to other disorders in the primary-care caseload and could provide alternative ways of guiding evidence-based practice.

15:45 Hypothyroidism in Dogs; Epidemiology and Clinical Management in The First Opinion Population

Janine Khoo, Rebecca Geddes, Camilla Pegram, David Brodbelt, David Church, Dan O'Neill

Royal Veterinary College, Hertfordshire, United Kingdom

Objectives

To report prevalence, risk factors, and clinical management of hypothyroidism in dogs under primary care in the UK in 2016.

Methods

Hypothyroidism cases were identified by automated searching of VetCompass electronic patient records. Risk factor analysis used multivariable logistic regression, with special focus on breed effects.

Results

From 905,543 dogs, one-year period prevalence (all cases) was 0.23% [95% confidence interval (CI) 0.22-0.24%]. One-year incidence risk (new cases) was 0.04% (95% CI 0.04-0.04%). Compared to Labrador Retrievers, 12 breeds had greater odds of diagnosis. Most predisposed were Doberman Pinscher [odds ratio (OR) 14.07, 95% CI 7.09-27.90], Rhodesian Ridgeback (OR 10.57, 95% CI 3.81-29.27), and Boxer (OR 7.89, 95% CI 5.33-11.68). Odds increased with increasing bodyweight. Compared to dogs <4 years, dogs aged 8-<12 years had highest odds (OR 5.07, 95% CI 4.04-6.37). Compared to male entire dogs, female neutered (OR 1.87, 95% CI 1.54-2.27) and male neutered dogs (OR 1.45, 95% CI 1.19-1.77) had higher odds. Higher bodyweight within that breed/sex (OR 2.22, 95% CI 1.91-2.59), and being insured (OR 2.57, 95% CI 2.20-3.00) were also risk factors. Obesity/weight gain (54.70%), lethargy (47.32%), and alopecia (46.31%) were common clinical signs. The most common diagnostic test was combined total T4 and TSH measurement (46.08%). Following levothyroxine supplementation, 93.95% showed clinical improvement within 6 months from diagnosis.

Statement (conclusions)

Approximately 1 in 400 dogs are affected by hypothyroidism; veterinary surgeons could consider routine screening in high risk breeds, particularly dogs that are overweight, neutered, and demonstrating lethargy or alopecia.

16:15 Pulmonary Hypertension in Cats: Causes and Echocardiographic Assessment

Joao Escalda, Siddharth Sudunagunta, Hannah Hodgkiss-Geere, Jo Dukes-McEwan

University of Liverpool, Neston, United Kingdom

Objectives

To document the underlying causes of pulmonary hypertension (PH) in cats and to evaluate the accuracy of the most common echocardiographic variables used in dogs to predict PH. A secondary objective was to assess progression after treatment of the primary cause.

Methods

A retrospective review of cats with PH presented to one referral centre. Cats were enrolled if they had PH, diagnosed by tricuspid regurgitation (TR) >2.8 m/s or pulmonic regurgitation > 2.2m/s. Cats without PH (TR<2.5m/s or without measurable TR) were selected as a control group. Ten quantitative echocardiographic variables were assessed in all groups, including: main pulmonary artery/aorta ratio (MPA/AO); Pulmonary acceleration time; Pulmonary acceleration time/ ejection time ratio; tricuspid annular plane systolic excursion (TAPSE), Tei Index, and four right ventricular TDI variables. Receiver operating characteristic (ROC) curves were performed for each variable.

Results

PH was diagnosed in 29 cats. Left-sided heart disease was the most common cause (14/29), with restrictive cardiomyopathy and hypertrophic cardiomyopathy being the most represented diseases, with 6 cases each. Congenital and respiratory diseases were diagnosed in 7 cases each. MPA/AO was the best parameter tested with an area under the curve of 0.81 followed by TEI index and TAPSE ($p < 0.05$). Three cats from the left-sided heart disease group and 1 from the pulmonary group showed less TR velocity after treatment

Statement (conclusions)

Left-sided heart disease was the most common cause of PH in cats in this study. MPA/AO showed the best agreement with TR velocity. PH was reversible in 3 cats.

16:30 Development of Atrial Fibrillation and Ventricular Tachycardia in An Adult Cat with Cor Triatriatum Sinister

Nekesa Morey, Mikaela Mueller

Seattle Veterinary Specialists, Kirkland, USA

Objectives

To report the first documented case of development of atrial fibrillation and ventricular tachycardia, with R on T phenomenon in an adult cat with cor triatriatum sinister

Methods

An eleven-year-old, 5.3kg castrated male domestic short hair cat had an acute history of syncope and recently developed lethargy and inappetence. On initial presentation, the cat was bright, alert and responsive with severe generalized paresis. Auscultation revealed a tachycardic rhythm and weak femoral pulses were palpated. An initial ECG showed runs of ventricular tachycardia with R on T phenomenon. Following stabilization, a 6-lead ECG showed atrial fibrillation (heart rate – 182beats/min). Cor triatriatum sinister (CTS) was diagnosed by 2D echocardiography, colour flow and continuous wave Doppler modes. Marked stenotic blood flow was noted through the perforation of the fibrous membrane, dividing the two atria, resulting in severe proximal atrial chamber dilation.

Results

The cat was treated initially with esmolol (0.25mg/kg) intravenously once, followed by atenolol (6.25mg) orally. Following resolution of ventricular tachycardia, further diagnostics determined atrial fibrillation was the consistent rhythm, with intermittent, rare ventricular premature complex beats . Treatment and prognosis for CTS was discussed with the owners. However, in this case, humane euthanasia was elected.

Statement (conclusions)

This is the first case report to describe consequent sequelae of CTS in an adult cat. Previous case reports have only described this congenital abnormality in cats under the age of one year. Despite

the outcome of this case, this case report describes both medical management and niche surgical options for the management of CTS in a cat.

16:45 Predictive Value of Cardiac Remodelling on Survival in Dogs with Persistent Atrial Standstill: The UK Perspective

Inigo Sanz-Gonzalez¹, Joanna B. Aitken², Brigitte Pedro³, Mike Martin⁴, Yolanda Martinez-Pereira¹, Joanna Dukes-McEwan⁵, Geoff J. Culshaw¹, Elizabeth F. Bode⁶

¹Royal Dick Veterinary School, Edinburgh, United Kingdom. ²Melbourne University, Melbourne, Australia. ³Willows Veterinary Centre, Solihull, United Kingdom. ⁴Martin Referrals, Kenilworth, United Kingdom. ⁵Liverpool University, Liverpool, United Kingdom. ⁶Chestergates Veterinary Specialists, Chester, United Kingdom

Objectives

Survival of dogs in the United Kingdom (UK) with persistent atrial standstill (PAS) after pacemaker implantation and the prognostic value of cardiac remodelling are unknown. Survival >800 days has been reported in non-UK dogs. We hypothesised that survival after pacing is predicted in PAS dogs by severity of cardiac remodelling.

Methods

This was a retrospective study, reviewing clinical records from three UK referral centres. Only dogs with PAS fitted with a pacemaker were included. Data at first presentation are mean±SD or median [range]. Pre and post-pacing clinical and echocardiographic variables (repeated measures ANOVA) and survival times were compared. Stepwise regression tested variables as predictors of death by one to three years post-pacing. Significance (P) was <0.05.

Results

Twenty-six dogs were included (20.0±9.3kg; 3.3 years [0.6-12.6]). Labrador retrievers and their crosses were most represented (9/26).

Clinical presentation included pre-syncope/syncope (14/26), lethargy/exercise intolerance (6/26), ascites (5/26) and coughing (3/26).

Heart rate was 52±13bpm. Left atrial enlargement was consistent (LA/Ao 2.3 [1.5-3.7]) but left ventricular dilation (LVIDdN 1.9 [0.9-2.8]) and systolic function (ESVI 25.8 ml/m² [9-93.5]; PEP/LVET 0.26 [0.12-0.61]) were highly variable. Echocardiographic variables were not modified by pacing (all P>0.1).

Survival (1512 days, IQR 2404) was not influenced by syncope (P=0.9) or heart failure (P=0.6). Clinical and echocardiographic variables did not predict survival (all P>0.3).

Statement (conclusions)

Dogs with atrial standstill can survive >3 years post-pacing despite significant myocardial dysfunction and cardiomegaly. When advising clients, syncope and heart failure before pacing do not have prognostic value.

17:00 Association Between Neutering Status and Cardiac Changes Secondary to Myxomatous Mitral Valve Disease

Ana Margarida Silva¹, Elizabeth F. Bode², Jorge Prieto-Ramos³, Joanna Dukes-McEwan², Rodolfo Oliveira Leal¹

¹CIISA Centre for Interdisciplinary Research in Animal Health - Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugal. ²Small Animal Teaching Hospital, Institute of Veterinary Science, University of Liverpool, Liverpool, United Kingdom. ³Centro Veterinario Uribe Kosta, Sopelana, Spain

Objectives

To determine if neutering status affects cardiac remodeling in male and female dogs with myxomatous mitral valve disease (MMVD)

Methods

A retrospective study was conducted including 582 dogs who were diagnosed with MMVD between January 2008 and December 2016. Dogs were categorized into four groups: female entire, female neutered, male entire and male neutered. Transthoracic two-dimensional echocardiographic studies were retrieved by board-certified (ECVIM or ACVIM) cardiologists or cardiology residents under their supervision. For each dog four echocardiographic measurements were retrieved: left atrial dimension to aortic root diameter in diastole (LA:Ao), left atrium maximal dimension to the aortic root dimension in systole (LAmAx:Ao), left ventricular internal dimension at end diastole (LVIDd) and left ventricular internal dimension at end systole (LVIDs). The last two measurement were normalized for body weight by allometric scaling. Echocardiographic measurements were compared between female entire vs female neutered and male entire vs male neutered.

Results

Male entire dogs had higher mean LVIDd ($p = 0.045$) values and median LA:Ao ($p = 0.031$) and LAmAx:Ao ($p = 0.002$) compared to male neutered dogs. On the other hand, LVIDs was not significantly different ($p = 0.070$). No significant differences were found between female entire and female neutered dogs.

Statement (conclusions)

This study shows that male entire dogs may have a higher risk of developing cardiac remodeling secondary to MMVD. It was suggested that testosterone could potentiate the extracellular matrix alterations characteristic of MMVD. However, further studies are necessary to prove this hypothesis.

17:15 Infectious Myocarditis Associated with Transient Myocardial Thickening in A Domestic Short Hair Cat Positive for Bartonella Henselae

Katarzyna Smiejan, Fabio Sarcinella, Valentina Palermo

Anderson Moores Veterinary Specialists, Winchester, United Kingdom

Objectives

To describe the clinical signs, imaging findings, treatment, and a clinical outcome of a *Bartonella henselae* - positive domestic shorthair cat, diagnosed with infectious myocarditis associated with transient myocardial thickening (TMT).

Methods

Case report of one cat.

Results

A 6-year-old female neutered domestic shorthair cat presented with an acute onset dyspnoea, and progressive onset hyporexia. Echocardiography revealed mild pericardial effusion, severe left ventricular hypertrophy with a heterogenous and hyperechoic myocardium, moderate enlargement of the left atrium and left ventricular outflow tract obstruction. Systemic hypertension and hyperthyroidism were excluded. The cardiac troponin I (cTnI) levels were elevated (3.89ng/ml). Positive result for *Bartonella henselae* was confirmed with PCR and Serology (1:40). Additionally, the patient was tested for *Toxoplasma gondii* (IgM < 20; IgG > 1:800). The antimicrobial treatment was initiated with azithromycin (10mg/kg orally (PO) every 24 h for 7 days, then every 48 h for 6 weeks) and doxycycline (10mg/kg PO every 24 h for 4 weeks). Additionally, the treatment consisted of furosemide (1mg/kg PO every 12 h) and clopidogrel (18.75mg PO every 24 hours). At 6-week follow up, the echocardiography showed complete reverse remodelling of the heart and the medical therapy was discontinued. The cTnI levels continued to decrease (0.14 ng/ml at 6 weeks, 0.08 ng/ml at 12 months). There was no return of clinical signs at 12 months post diagnosis.

Statement (conclusions)

Infectious myocarditis associated with TMT should be considered a differential diagnosis in cats presenting with respiratory distress combined with Hypertrophic Cardiomyopathy phenotype and elevated cTnI. Prognosis for these patients could be excellent.

WEDNESDAY 26 MAY 2021

AM Room 1, 09:30 - 12:30 | PetSavers Grants, Exotics, Feline General Practice

09:30 Beta Cell Loss of Function Precedes Islet Loss in Diabetic Cats

Valeria Bergomi¹, Samuel Beck², Melanie Dobromylskyj³, Lucy Davison⁴, John Wills¹, Kate Hughes¹

¹University of Cambridge, Cambridge, United Kingdom. ²VPG Histology, Bristol, United Kingdom.

³Finn Pathologists, Diss, United Kingdom. ⁴Royal Veterinary College, London, United Kingdom

Objectives

Diabetes mellitus (DM) is a common condition that markedly impacts quality of pet cats and dogs. The aim of this study was to identify DM-associated perturbations in the feline pancreatic islet

microenvironment. The utility of “clear, unobstructed brain imaging cocktails and computational analysis” (CUBIC) for three-dimensional (3D) pancreatic analysis was investigated.

Methods

Formalin fixed paraffin embedded tissues from cats with DM, or control cats without pancreatic pathology, were retrospectively identified. Immunohistochemistry and immunofluorescence were used to assess changes in islets. An image analysis pipeline was developed to analyse images acquired from two-dimensional immunofluorescence. CUBIC was used to optically clear selected pancreas samples prior to immunofluorescence and deep 3D confocal microscopy.

Results

Diabetic cats have a significant reduction in synaptophysin-positive islet area. Intriguingly, whilst islets from diabetic patients have similar numbers of β cells to islets from control cats, a significant decrease in intensity of insulin expression can be observed in the former. This suggests a potentially significant step in the pathogenesis of feline DM: a decrease in function of β cells prior to their destruction. CUBIC facilitates clear visualisation of pancreatic islets in 3D.

Statement (conclusions)

- Further characterisation of β cell functional changes prior to their loss will provide essential insights into potential new therapeutic targets in order to preserve islet cells and restore their functionality, with the goal of decreasing dependence on insulin treatment and improving quality of life.
- CUBIC technology has the potential to revolutionise the way we visualise pathology occurring the islets of diabetic pets.

09:45 Effect of Time and Storage Conditions on The Stability of Total Serum Thyroxine in Feline Blood

Rory Scrace¹, Tim Williams¹, Melanie Hezzell², Nicholas Bexfield¹

¹University of Cambridge, Cambridge, United Kingdom. ²University of Bristol, Bristol, United Kingdom

Objectives

The stability of feline serum total thyroxine (tT₄) during short-term storage has not been reported in the peer-reviewed literature to date. This study aimed to assess the stability of feline serum tT₄ over a period of 168 hours at room temperature (~21°C) or 4°C.

Methods

Frozen residual feline serum samples were collected, pooled (average tT₄ concentrations of 102, 44 and 13 nmol/L) and then stored at 4°C or ambient room temperature. tT₄ was measured (in triplicate) using an enzyme immunoassay (DRI[®] Thyroxine Assay, Microgenics Corporation) at 0, 24, 48, 96 and 168 hours. Change in tT₄ over time at both temperatures was assessed using a repeated measures linear mixed effects model.

Results

tT₄ increased over time at both 4°C and room temperature in all pools, with an average rate of increase of 0.34 nmol/L/day and 0.79 nmol/L/day respectively (both p<0.001). The rate of increase in tT₄ was significantly different between samples stored at room temperature and 4°C (p<0.001).

Statement (conclusions)

Whilst a statistically significant increase in tT₄ was observed in samples stored at both temperatures, the magnitude of increase is unlikely to alter clinical decisions in patients with marginal tT₄. We hypothesise that the observed increase in tT₄ may be due to changes in sample pH over time (associated with liberation of CO₂) which enhances dissociation of thyroxine from plasma binding proteins in the enzyme immunoassay. Therefore a change in tT₄ over time may not be observed when non-enzymatic methods are used to measure tT₄.

10:00 Successful Treatment of Immune-Mediated Haemolytic Anaemia (IMHA) In A Pet Rabbit

Sarah Brown

Holly House Veterinary Hospital, Leeds, United Kingdom

Objectives

To treat a one year-old male neutered dwarf rabbit presented with weight loss and lethargy. Clinical examination was unremarkable other than poor body condition, mucous membrane pallor and a palpable abdominal mass.

Methods

Bloodwork showed a packed cell volume (PCV) of 10% and a severe regenerative anaemia with red cells showing marked polychromasia, anisocytosis and poikilocytosis. Weak red cell agglutinates and spherocytes were present.

Blood biochemistry, plus abdominal and thoracic radiography and ultrasonography were unremarkable other than a small mid-abdominal mass identified on ultrasonography – potentially an enlarged lymph node. Fine needle aspirate cytology suggested marked suppurative inflammation, although no bacteria were evident.

Given the severe regenerative anaemia, presence of spherocytes and spontaneous autoagglutinates and lack of evidence of internal haemorrhage, a provisional diagnosis of IMHA was made, potentially secondary to a suppurative inflammatory process.

Results

Oral prednisolone (immunosuppressive dose starting at 2mg/kg bid and gradually tapered) was started, along with a two week course of daily penicillin-streptomycin injections. The rabbit's demeanour and pallor improved remarkably with serial increases in PCV to 33% five weeks later (red cells normocytic and normochromic). The rabbit continued to do well and the prednisolone was stopped nine weeks after starting therapy (PCV = 36%). The abdominal mass was no longer palpable and further investigations were declined. There has been no recurrence of signs three years later.

Statement (conclusions)

IMHA in rabbits is rare, with few cases in the literature. This case illustrates a good response to treatment with prednisolone, despite the concerns of steroid use in this species.

10:15 Prednisolone Therapy in The Management of a Focal Epitheliotropic Lymphoma Skin Lesion in A Guinea Pig (*Cavia Porcellus*)

Kristina Hunter

CityVets, Exeter, United Kingdom

Objectives

To present a guinea pig with chronic angular cheilitis due to epitheliotropic lymphoma and to discuss management with prednisolone therapy.

Methods

A 3 year-old female guinea pig presented with a focally extensive, erosive, scaling, erythematous plaque affecting the mucocutaneous junction of the right lip. Routine bloodwork, radiography and microscopy did not reveal any abnormalities. Biopsy identified dense sheets of round cells with indistinct cell borders and nucleoli. Cells showed diffuse invasion into the dermis, subcutaneous adipose tissue and skeletal muscle consistent with low grade epitheliotropic lymphoma. Given the severe clinical signs and lack of response to empirical treatment such as antimicrobials and meloxicam, treatment with prednisolone was considered.

Results

Oral prednisolone therapy was trialled, with a dosage up to 1.5mg/kg required to improve clinical signs. Marked improvement was noted in demeanour, appetite and dysphagia. The lesion showed resolution of erythema, erosion and scaling but affected skin remained thickened. Therapy was tapered to 1mg/kg sid as progressive polyuria, polydipsia and weight loss developed on the higher dose regimen after 13 days. Relapse occurred four months into treatment which did not respond to further dose increases and the animal died six months after diagnosis.

Statement (conclusions)

Epitheliotropic lymphoma in guinea pigs is rare with the few reported cases in literature exhibiting diffuse skin lesions and rapid progression necessitating euthanasia before treatment was attempted. This case demonstrates that focal lesions may have a different clinical progression and that palliative management with prednisolone therapy can prolong survival time.

10:30 Veterinary Health Information on Hamsters for Clinicians: A VetCompass Perspective

Kate Kim, Vicki Baldrey, Camilla Pegram, David B. Church, David C. Brodbelt, Dan G. O'Neill

Royal Veterinary College, Hertfordshire, United Kingdom

Objectives

To report the prevalence of common disorders and mortality of hamsters under primary veterinary care in the UK. Specific focus was placed on sex-associated effects.

Methods

VetCompass retrospective cohort study of anonymised clinical records from 3998 hamsters attending 748 UK practices in 2016. Multivariable binary logistic regression modelling evaluates sex as a risk factor, accounting for species, age, and neuter status as confounding factors.

Results

There were 1829 (50.1%) female and 1819 (49.9%) males. The median lifetime disorder count per hamster was 1 (IQR:1-2, range:0-8). The most prevalent specific disorders were wet tail (prevalence:7.3%, 95%CI:6.6-8.2) and hamster bite (5.9%, 95%CI:5.2-6.7). The most prevalent grouped disorders were traumatic injury (15.4%, 95%CI:14.3-16.6) and enteropathy (11.3%, 95%CI:10.3-12.3). Females were predisposed for wet tail (odds ratio:2.6, $P<0.001$) and enteropathy (OR:2.0, $P<0.001$) whereas males were predisposed to hamster bites (OR:1.8, $P=0.009$).

Overall median age at death was 1.8 years (IQR:0.8-2.2, range:0.01-3.7). Males had higher median ages at death (2.0 years, IQR:1.0-2.4, range:0.2-3.7) than females (1.7 years, IQR:0.9-2.0, range:0.1-3.3) ($P<0.001$). The most common specific causes of death were wet tail (6.3%, 95%CI:5.1-7.7), abdominal mass (5.1%, 95%CI:5.1-7.7), and neoplasia (4.3%, 95%CI:3.3-5.5). The most common grouped causes of death were neoplasia (11.1%, 95%CI:9.6-12.9), mass (10.8%, 95%CI:9.3-12.6), and enteropathy (9.4%, 95%CI:7.9-11.0). Females had higher proportional mortality for wet tail (OR:3.6, $P<0.001$) and enteropathy (OR:2.0, $P=0.007$) whereas males had higher proportional mortality for neoplasia (OR:1.7, $P=0.005$).

Statement (conclusions)

Veterinarians now have a robust evidence base on common disorders and causes of death directly sourced from, and thus relevant to, first opinion veterinary caseloads.

11:00 Feline Infectious Peritonitis: How Do Wet and Dry Patients Differ?

Toby D. Collen, Dan G. O'Neill, Dave C. Brodbelt, David B. Church, Rebecca F. Geddes

Royal Veterinary College, Hertfordshire, United Kingdom

Objectives

1. Report prevalence and risk factors for feline infectious peritonitis (FIP) in a referral caseload
2. Compare signalment, history, clinical examination and clinical pathology between wet and dry FIP cases.

Methods

VetCompass clinical records from all cats at a large UK referral centre between 01/01/2009 – 01/01/2019 were searched to identify FIP cases. Signalment factors between cases and non-cases, and all factors between wet and dry cases, were compared using univariable analyses.

Results

182 of 11,431 cats had FIP: overall prevalence 1.59% (95% CI 1.36-1.82%), comprising 75 dry (41.2%) and 107 wet (58.8%) cases.

Compared with non-FIP cats, cases were younger (median 13 vs 91 months, $p < 0.001$), and more likely to be entire (OR=3.76, 95% CI 2.74-5.13) and male (OR=2.09, 95% CI 1.51-2.92). Compared with the remaining cats, British Blues (OR=4.87, 95% CI 2.52-9.52), British Shorthairs (OR=2.69, 95% CI 1.69-4.29) and Ragdolls (OR=5.34, 95% CI 2.98-9.19) had increased odds, with Siamese (OR=0.00, 95% CI 0.00-0.881) and non-purebred cats (OR=0.265, 95% CI 0.197-0.358) under-represented.

Wet and dry FIP groups did not differ in signalment or recent cat contact, stressors and cat counts per household.

Maximum rectal temperatures, alpha-1 acid glycoprotein and feline coronavirus antibody titres did not differ between FIP types ($p > 0.05$). However, several clinical signs and clinical pathology parameters attributable to effusions were more common in wet FIP.

Statement (conclusions)

FIP is not uncommon in referral practice, and young, male, entire cats of certain pure breeds should have a higher index of suspicion for FIP. Factors driving development of wet versus dry FIP remain elusive.

11:15 Is There A Stress Component to Gastrointestinal Disease in Cats? A Look at The Behavioural and Environmental Risk Factors

Anna Garvey¹, Aarti Kathrani², Jess Williams¹, Edward Hall¹, Emily Blackwell¹

¹University of Bristol, Bristol, United Kingdom. ²Royal Veterinary College, London, United Kingdom

Objectives

1. Calculate the prevalence of gastrointestinal disease in a cohort of domestic pet cats.
2. Identify and quantify, using prospectively collected data, the strength of associations relating to:
 - The signalment of the cat
 - Diet type
 - Exposure to potential environmental stressors
 - Personality of the catthat increase/decrease the risk of chronic gastrointestinal disease.

Methods

Using data from owner questionnaires, completed as part of the Bristol Cats Study (a longitudinal cohort study of 2444 cats) risk factors for chronic gastrointestinal disease were analysed using multivariate logistic regression. A subset of 40 cats (20 cases and 20 unaffected controls) were visited at home. Hair samples were collected for cortisol analysis and behavioural tests were conducted to examine individual differences in response to novelty.

Results

The prevalence of chronic gastrointestinal disease in the population of cats at 2.5 years old was shown to be 6.8%. Antagonism with other cats in the household, moving house, being indoor only and having cat fights were all associated with an increased odds ratio of having recurrent gastrointestinal disease.

Statement (conclusions)

The risk factors of feline chronic gastrointestinal disease are poorly understood, particularly as to whether there is an affective or stress component to it. These findings demonstrate that daily environmental stressors may have an effect and is therefore an essential finding in promoting the idea that stress should be considered when presented with cats suffering chronic gastrointestinal disease.

11:30 Bicavitary Effusion in Cats: Retrospective Analysis of Signalment, Clinical Investigations, Diagnosis and Outcome

Christopher Hoey¹, Vicki Black²

¹University of Bristol, Bristol, United Kingdom. ²Langford Vets, Bristol, United Kingdom

Objectives

To describe the aetiology and outcome in cats with pleural and peritoneal effusion (bicavitary effusion).

Methods

Clinical records of cats with pleural and peritoneal effusion were retrospectively reviewed from a referral hospital between September 2009 and October 2020. Signalment, clinical investigations, diagnosis and outcome were assessed. Cases were assigned to disease categories (infectious, inflammatory, neoplastic, cardiac, volume overload, protein-losing nephropathy, hepatic dysfunction and no diagnosis). Outcome was assessed as survival to discharge and 30-day survival. Cats were excluded from analysis if they had obvious trauma to account for their bicavitary effusion (18 cats).

Results

One hundred and ten cases were identified with a median age of 7 years (4 months to 18 years 10 months). Neoplasia was diagnosed in 20 cats (18%), congestive heart failure in 13 (12%), infectious disease in 13 (12%), inflammatory disease in 10 (9%), protein-losing nephropathy in 6 (5%) and volume overload in 3 (3%). Fourteen cats (13%) had more than one disease category.

In the remaining 31 cats infectious disease was strongly suspected in 9 and neoplasia strongly suspected in 8. No diagnosis was reached or recorded to be suspected in 14 cats (13%).

Forty-six (42%) cats survived to discharge. Follow-up was not available in 21 of the discharged cats. 30-day survival analysis was available for 89 cases. In total 67/89 (75%) were deceased at 30 days.

Statement (conclusions)

In this cohort of cats bicavitary effusion was most commonly associated with neoplasia, congestive heart failure or infectious disease and appeared to be associated with a poor prognosis.

11:45 Investigating the Association Between Feline Morbillivirus Infection and Feline Lower Urinary Tract Disease (FLUTD) In Cats

Nicholas Hope, Tim Williams

Department of Veterinary Medicine, University of Cambridge, Cambridge, United Kingdom

Objectives

Feline morbillivirus (FeMV) RNA has been previously identified within urine of cats suffering from FLUTD. This study evaluated the association between feline morbillivirus (FeMV) exposure and FLUTD in UK cats. A secondary aim was to evaluate if FeMV seropositivity increases with age in cats.

Methods

Retrospective, case control study. Stored serum samples from cats with clinical signs and urinalysis findings (haematuria in absence of pyuria) consistent with FLUTD, and age matched healthy control cats were selected. Seropositivity was determined for FeMV by western blotting against a FeMV nucleoprotein clone. Comparison of the proportion of cats that were seropositive in each group was made using the Fisher's Exact Test, with statistical significance defined as $P < 0.05$.

Results

Fifteen appropriate FLUTD cases were identified (age 1.5-8 years). Seroprevalence of FeMV antibodies in the FLUTD group ($n=5$, 33%) was not significantly different to that of aged matched controls ($n=2$, 13%; $P=0.39$). Seroprevalence in healthy cats <6 years and >6 years was 11% (95% confidence interval [CI] 2-44%) and 50% (95% CI 19-81%) respectively. When both healthy and FLUTD cats were considered, the seroprevalence of cats <6 years and >6 years were 22% (95% CI 9-45%) and 67% (95% CI 39-86%) respectively.

Statement (conclusions)

Our results show no significant association between seroreactivity and a clinical diagnosis of FLUTD, however our study was statistically underpowered to detect significant differences at this effect size. Our results suggest an increase in seropositivity with increasing age, however larger studies would be required to confirm these findings.

12:00 Signs and Alleviation of Travel Anxiety in Cats – A Survey Among Cat Owners

Terttu Lamminen, John Aspegren

Orion Corporation Orion Pharma, Espoo, Finland

Objectives

The aim was to collect information about the signs of travel anxiety in cats and the use of medication and other products to alleviate those signs.

Methods

Cat owners in the UK and US were contacted via email and/or social media, and the questionnaire was shared by a public web link. The survey was done by using Webropol 3.0.

Results

364 owners (UK: 261, US: 103) completed the survey for 451 cats (UK: 326, US: 125) with travel anxiety. The most common signs were vocalisation (80%), abnormal activity (40%) and panting (30%). 80% had started showing signs early in their lives, and the travel anxiety had either not changed or worsened over time. Many cats expressed similar signs also in other situations, like when placed in a carrier box (36%), visiting a veterinary clinic (35%), or exposed to any new environment (15%).

Pheromone (14%) and other non-medicinal products (10%) were most frequently used to alleviate signs of anxiety during transportation, but were often assessed to have poor (55%) or only some (35%) effect. Few owners (2%) had used off-label prescription medicines. However, most (61%) would be interested in trying if there was a registered prescription medicine for travel anxiety available for cats. Oral solution, gel or paste were preferred over tablet formulation.

Statement (conclusions)

This survey increases knowledge about the signs of travel anxiety in cats, and medications and other products currently used to manage the problem. It shows that there is a clear unmet need to effectively relieve cats' anxiety during transportation.

12:15 Pet Owners' Willingness to Pay for Therapy Outcomes in Feline Pain Associated with Osteoarthritis

Louise Longstaff¹, David Bartram¹, Edwina Gildea¹, Andrea Wright¹, Danielle Riley², Nirav Nagda², Kristina DiPietrantonio², Ashley Enstone², Robin Wyn²

¹Zoetis, Inc., Parsippany, NJ, USA. ²Adelphi Values PROVE, Bollington, United Kingdom

Objectives

To investigate pet owners' willingness to pay for quality of life (QoL) improvements with innovative therapies for pain associated with feline osteoarthritis (OA).

Methods

A review of existing literature and exploratory interviews with cat owners (n=3) were conducted to identify behaviours in pain associated with OA that impact feline and pet owner QoL. A variety of feline QoL health state descriptions and product attributes were subsequently developed and validated through veterinarian interviews (n=3). Health states were presented via an online survey to 255 pet owners. Survey questions gathered cat owners' preference for QoL improvements, and their willingness to initiate and pay for (unbranded) therapies at various price points.

Results

The majority of cat owners highlighted that they would be willing to initiate treatment for pain associated with OA. When presented with two product profiles, significantly more pet owners (72%) preferred a novel monoclonal antibody (mAb) profile, with improved safety and efficacy, when compared to the standard of care (SoC) profile (27%, p=0.00). Additionally, the majority of cat owners (85%) did not find taking their cat to the clinic for treatment administration once a month burdensome. Cat owners were willing to pay (WTP) for improved QoL, and prioritized improvements within QoL domains, such as mobility, pain and well-being.

Statement (conclusions)

Cat owners value and are WTP for QoL improvements for their cat. Veterinarians should offer all available treatment options, despite varying price ranges, to ensure the treatment outcomes cat owners desire are achieved.

PM Room 1, 13:30 - 16:30 | Clinical Pathology, Dermatology, Primary Practice and the Profession

13:30 Clinical Potential of Five Serum Biomarkers in The Diagnostic Work-Up of Dogs with Osteoarthritis

James Miles, Michelle Brønniche Møller Nielsen, Lise Nikolic Nielsen, Kristín Aðalsteinsdóttir, Arna Ólafsdóttir

Department of Veterinary Clinical Sciences, University of Copenhagen, Copenhagen, Denmark

Objectives

To identify serum biomarkers differentiating dogs with and without osteoarthritis (OA).

Methods

Following institutional ethical approval, 24 dogs (27.2-48.5 kg, 3.6-13.6 years) previously diagnosed with OA affecting different joints with varying severity were included in the study. Sixteen dogs

(16.2-36 kg, 2.0-6.7 years) without detectable orthopaedic pathology were included as clinically healthy controls. Other disorders were ruled out by thorough clinical examinations and standard hematological and biochemical analyses. Serum was stored at -80°C until analysis of five biomarkers using commercially available enzyme-linked immunosorbent assays: hyaluronic acid (HA), matrix metalloproteinase 13 (MMP-13), procollagen type IIA (PIIANP), cartilage oligomeric matrix protein (COMP), and collagen type-2 cleavage (C2C). Medians and confidence intervals were calculated and differences between groups were tested for significance using Mann Whitney tests ($p < 0.05$).

Results

Higher concentrations of C2C and MMP-13 were observed in dogs with OA (median, [95% CIs] C2C: 23.7 ng/ml [18.2; 45.2 ng/ml], MMP-13: 0.70 ng/ml [0.51; 1.09 ng/ml]) compared to clinically healthy dogs (C2C: 12.3 ng/ml [10.1; 35.3 ng/ml], MMP 13: 0.34 ng/ml [0.27; 0.88 ng/ml]), whereas lower concentrations of PIIANP were observed in dogs with OA (11.6 ng/ml [10.7; 18.02 ng/ml]) compared to clinically healthy dogs (15.8 ng/ml [11.7; 31.7 ng/ml]). Observed differences were not significant.

Statement (conclusions)

None of the 5 biomarkers measured in the present study could differentiate heterogeneous groups of dogs with and without OA. Further studies are recommended to investigate possible diagnostic potentials of C2C, MMP-13 or PIIANP in subgroups of dogs with OA.

13:45 Canine Peripheral Lymphadenopathy in A Mediterranean Area: A Retrospective Study Of 128 Cases

Raquel Santiago¹, Luis Feo¹, Josep Pastor², Monica Sanchez¹, Alba Bercianos², Jordi Puig¹

¹Ars Veterinaria, Barcelona, Spain. ²Hospital Clínic Veterinari UAB, Barcelona, Spain

Objectives

The aim of the study was to evaluate the characteristics and causes of lymph node enlargement in dogs in a Mediterranean area.

Methods

The study was performed retrospectively, including medical records of dogs admitted with peripheral lymphadenopathy during a 4-year period (2015-2019). The results of cytological examination were defined as lymphadenitis (neutrophilic, eosinophilic or macrophagic), reactive lymph node, lymphoproliferative or metastatic neoplasia. The clinical diagnosis was classified as inflammatory, infectious, immune-mediated disease, lymphoproliferative neoplasia or other neoplasia.

Results

One hundred and twenty-eight dogs were included. The median age was 7.1 year-old. Single and general peripheral lymphadenopathy was present in 48% and 52% of cases, respectively. The most common disease was neoplasia in 54.6% (53% lymphoproliferative and 47% other neoplasia) followed by infectious (22.6%), inflammatory (14,8%) and immune-mediated diseases (7,8%). Thoracic and abdominal lymphadenopathy was significantly more frequent in dogs with

lymphoproliferative neoplasia ($p=0,008$). Fever ($>39.5^{\circ}\text{C}$) was statistically more frequently identified in the immune-mediated disease group ($p=0,016$). No statistically significant differences were found between final clinical diagnosis groups regarding haematological parameters (anaemia, leucocytosis, leukopenia and thrombocytopenia). Despite being an endemic area, canine vector borne diseases (CVBD) were identified in only 14% of dogs (16 leishmaniasis; 2 filariasis). No other CVBD were detected (SNAP 4Dx in 26 cases and *Babesia spp.* PCR in 5 cases)

Statement (conclusions)

This study suggests that neoplastic diseases appear to be the leading causes of canine peripheral lymphadenopathy in dogs. Clinicians should consider seeking for the presence of any immune-mediated disease in dogs with peripheral lymphadenopathy and fever.

14:00 Resistance of Canine Staphylococcus Pseudintermedius To Selected Topical and Systemic Antimicrobials in the UK

Zoe Donovan

University of Liverpool, Liverpool, United Kingdom

Objectives

Canine methicillin resistant Staphylococcus pseudintermedius (MRSP) is a growing concern due to the wide range of infections this bacterial strain causes. Carriage of the *mecA* gene and penicillin binding protein 2A causes resistance to beta-lactam antimicrobials. This project aimed to (1) investigate phenotypic oxacillin (methicillin) resistance based on CLSI breakpoints compared to EUCAST breakpoints, (2) investigate the carriage of the *mecA* gene using PCR analysis, (3) compare the carriage of these genes to phenotypic oxacillin resistance using both published breakpoints, (4) compare the presence of *mecA* gene (gold-standard) for the detection of MRSP with two different selective agars.

Methods

PCR analysis was used to identify the presence of MRSP and MSSP isolates, followed by further PCR analysis to identify the carriage of the *mecA* gene. These isolates underwent susceptibility testing using BSAC/CLSI/EUCAST breakpoints and various antibiotics including oxacillin, then testing with two different selective agars. Selected isolates underwent PBP2a testing.

Results

After PCR analysis, 56.73% isolates were identified as *mecA* positive. EUCAST breakpoints correctly identified 57.90% isolates as resistant and CLSI breakpoints correctly identified 47.95% of samples as resistant. Brilliance-MRSA-2 agar correctly identified 45.03% of isolates as positive and MSA-1%-oxacillin agar correctly identified 44.44% of isolates as positive. PBP2a correctly identified 33.33% of isolates as positive.

Statement (conclusions)

PCR analysis was confirmed as the gold-standard of testing. EUCAST breakpoints were the next most effective test, followed by CLSI breakpoints, Brilliance agar, MSA agar and PBP2a testing. These tests could be used as screening to decide which isolates need further analysis by PCR.

14:15 Pet Owners' Willingness to Pay for Therapy Outcomes in Acute Canine Pruritus

Michelle Greaves¹, Andrea Wright¹, Edwina Gildea¹, Louise Longstaff¹, Robin Wyn², Nirav Nagda², Kristina DiPietrantonio², Ashley Enstone², Danielle Riley²

¹Zoetis Inc., Parsippany, USA. ²Adelphi Values PROVE, Bollington, United Kingdom

Objectives

To investigate pet owners' willingness to pay for improvements in quality of life (QoL) and other therapy outcomes in acute canine pruritus.

Methods

Findings from the two qualitative interviews conducted in the current study were combined with insights from previous interviews with pet owners (n=20) to identify key aspects of QoL and attributes of therapies in pruritus. These were subsequently validated through veterinarian interviews (n=4). Therapy profiles and health states were subsequently developed and presented via an online survey to 251 dog owners. Survey questions gathered owners' preferences and their willingness to pay for QoL improvements and therapies at various price points.

Results

Dog owners identified that both investigation of pruritus cause and initiation of treatment are important (6.14 and 6.27; 1 to 7 scale). Approximately half of dog owners were willing to pay to achieve improvements in dog's itch-related QoL (including in happiness and comfort, frequency of scratching, and physical appearance). Considering (unbranded) therapy profiles that included administration, side effects, and price, significantly more owners preferred oclacitinib (66%) and lokivetmab (61%) over dexamethasone + prednisone/prednisolone (34%–39%; $p < 0.05$), in acute pruritus. Safety and efficacy of treatment were considered more important factors than administration (6.49 and 6.18 versus 5.60; 1 to 7 scale).

Statement (conclusions)

Dog owners value and are WTP for improvements in dog's QoL. Additionally, majority of owners prefer more-tolerable pruritus therapies. Veterinarians should offer all available treatment options for acute pruritus, to ensure that owners are able to achieve the outcomes they desire for their dogs.

14:30 Enhancing Technical Compliance and Minimizing the Exposure to Topicals By Giving Oral Flea Treatment in Cats: A Case Series Of 17 Cats Treated with Lotilaner

Marie-Christine Cadiergues

Université de Toulouse, ENVT, Toulouse, France

Objectives

Suboptimal owner compliance to medication recommendations is a common cause of flea treatment failure. Fear of endangering the animal or family members and dosing difficulties are among the causes of owner non-compliance/non-adherence. We aimed to follow cats treated for the first time with oral lotilaner once a month for 6 months, and evaluate the efficacy and the owner's satisfaction.

Methods

Pruritic cats untreated against fleas by inability or wish of the owner and harbouring fleas were recruited. Oral lotilaner (Credelio®, Elanco France) was prescribed once monthly. Cats were evaluated clinically and bimonthly for six months. Efficacy and global satisfaction of the owner and clinician (0-4) were evaluated at the end of the study.

Results

17 adult cats (9 females and 8 males) were included. They belonged to 16 owners unable to manipulate their cat to apply a pipette (n=8), owners reluctant to fit a collar for fear of the risk of strangulation (n=4) and owners wishing to avoid any chemical substance on the skin of their cat for fear of children coming into contact with a chemical substance (n=5). Efficacy was 100 % in all cats, from month 2 until the end of the study. The mean global satisfaction was 4.9/5 for owners and 5/5 for the investigator.

Statement (conclusions)

This case series underlines the importance for the veterinarian to take into consideration the reluctance and difficulties of owners when prescribing flea control in cats. Oral treatment with lotilaner provides veterinary professionals and cat owners an easy-to-use, effective and safe option in flea control in cats.

15:00 Reshaping Surgical Specialist Training in Small Animal Surgery During and After The COVID-19 Pandemic

Akash Alexander, Heidi Radke

Queen's Veterinary School Hospital, University of Cambridge, Cambridge, United Kingdom

Objectives

The COVID-19 pandemic has created major challenges for veterinary training. The aim of this study was to assess the effects and the perceptions of the effects of the COVID-19 pandemic on small animal surgical specialist training; and to use the results as a base to propose beneficial long-term changes that could be incorporated into these training programmes.

Methods

An anonymous online survey was distributed to all trainees enrolled into a small animal residency programme of the European College of Veterinary Surgeons (ECVS) and ECVS Diplomates acting as

supervisors. Descriptive statistics were used to analyse the data. Fisher's exact test was used to test for significance.

Results

Eighty-one analysable responses were collected. A reduction in surgical case load was reported by 81% of respondents, with 82% of those believing that COVID had a mild to moderate impact on training. Residents were significantly more likely to feel that appropriate guidance, a safe working environment and measures to preserve training had not been provided, compared to the opinions of supervisors ($P < 0.01$). Only 45% of the residents reported confidence with performing teleconsultation. Ninety percent of all respondents considered the use of online case presentations and edited surgical footage as a positive ancillary tool.

Statement (conclusions)

Open communication, as well as the use of additional training tools through digital platforms may help to preserve safe and effective training during times of decreased clinical activity. Whilst this study has focused on small animal surgical specialist training, the results could be applied to different educational settings.

15:15 A Survey to Explore the Perceptions, Attitudes and Experiences of UK Veterinary Professionals Towards Adverse Drug Reaction (ADR) Reporting

Heather Davies, Gina Pinchbeck, P-J.M Noble, Munir Pirmohamed, David Killick

University of Liverpool, Liverpool, United Kingdom

Objectives

To investigate:

UK veterinary professionals':

1. Understanding of the requirements for reporting ADRs
2. Past actions taken over observed ADRs and the motivations for such actions
3. Perceived barriers and facilitators in relation to ADR reporting

Methods

In order to explore the perceptions, attitudes and experiences of ADR reporting amongst veterinary professionals in the UK we conducted a cross-sectional questionnaire study of veterinary surgeons and veterinary nurses from 24-Jun-2019 to 26-Jan-2020.

Participants were recruited via advertisements and promotion in the veterinary press, social media and in person at two veterinary conferences.

Statistical analysis consisted of descriptive statistics and Chi-squared (or Fishers Exact tests) were used to test the statistical significance of different respondent characteristics.

Results

There were 260 respondents; 210 veterinary surgeons, 49 veterinary nurses and one SQP. The majority of respondents had reported an ADR, however, veterinary surgeons were more likely to have reported an ADR than veterinary nurses.

The main barrier to reporting identified was the ADR being well-known. Veterinary nurses were less likely to feel that they are too busy to report ADRs compared to veterinary surgeons.

The main proposed facilitator to ADR reporting identified was the ability to report ADRs via the practice management system (PMS). An ADR CPD themed event was a popular idea; especially amongst veterinary nurses.

Statement (conclusions)

The findings of this survey highlight potential interventions to improve reporting rates, including encouraging veterinary nurses to report ADRs following a tailored CPD event and the development of an ADR reporting tool embedded into the PMS.

15:30 A Study to Determine the Working Life of UK Gundogs and Whether Owners Believed They Stopped Work Prematurely

John Houlton

Empshill, Lolworth, United Kingdom

Objectives

To determine the median age at which Spaniels and the Retriever breeds stop working and whether owners believe they have to retire their dogs prematurely.

Methods

A web-based survey, approved by the RCVS Ethics Review Panel, collected data on why gundogs stopped working in the UK between January 1st 2010 and December 31st 2019.

Results

A total of 665 responses were included in the analysis.

The Labrador Retriever was the most common purebred dog (n = 354), followed by the Springer Spaniel (n = 123), Cocker Spaniel (n = 82), Flat Coat Retriever (n = 28), Golden Retriever (n=22), with an assortment of other purebreds reported in fewer numbers (<10 individuals each).

The median age at which all Retriever breeds and all Spaniel breeds stopped working was 10 years. The median age for Labrador Retrievers was 10 years, Golden Retrievers 11 years and Flat Coat Retrievers 9.5 years. The median age for Springer Spaniels was 11 years and for Cocker Spaniels was 9 years.

304 owners (45.7%) owners believed their dogs stopped working prematurely while 361 owners (54.3%) were satisfied with the working lifespan of their dog. Of those who were disappointed, over 90% believed their dog should have worked until it was 10 years or older.

Statement (conclusions)

This study is part of a wider investigation into the impact disorders have on the working life of gundogs. The majority of owners were happy with the length of their dogs' working lives.

15:45 10 Years of The PDSA Animal Wellbeing (PAW) Report: Surveillance Data on The Welfare of The UK's Pet Dogs, Cats, And Rabbits

Rachel Malkani, Emma Tipton, Lynne James, Vicki Betton, Sean Wensley

PDSA, Telford, United Kingdom

Objectives

Published annually since 2011, the PDSA Animal Wellbeing (PAW) Report provides UK companion animal welfare surveillance to identify trends and priorities, and to promote and monitor change. The 2020 report identified trends over the last decade in the provision of the 5 Welfare Needs of UK pets. Additionally, a post-lockdown survey provided early insights on the impacts of COVID-19 restrictions on pet wellbeing.

Methods

The surveys were conducted with YouGov, using their nationally representative panel of over a million adults living in the UK. Data has been collected from over 83,000 respondents over the last ten years and analysed using generalised linear models. Pre and post-lockdown data were analysed using Z-tests.

Results

From the wealth of results, key findings include an:

Increase in:

- Owners who would consider getting a pet from abroad
- Microchipping across all the species, despite legislation only covering dogs
- Rabbits being fed less muesli-type diets
- Rabbits receiving preventive healthcare

Decrease in:

- Rabbits living alone
- Owners feeling informed about their pet's companionship and behavioural needs
- Owners who would get a puppy from a puppy farm

Impact of COVID-19

- Nearly a quarter of owners reported their pet showing at least one new behaviour
- Primary vaccinations in dogs decreased
- Booster vaccinations in rabbits decreased
- Cats insured increased

Statement (conclusions)

The PAW Report provides the veterinary professions and others with robust data on the main welfare problems affecting the UK's pet dogs, cats, and rabbits. The veterinary professions will be cognisant of where further education, advocacy and human behaviour-change interventions are required.

16:00 Why We Trust Our In-Clinic Laboratory Results?

Archie Moffat, Peter Graham

School of Veterinary Medicine and Science, University of Nottingham, Sutton Bonington, United Kingdom

Objectives

It is not clear how UK practices ensure that results from in-clinic laboratories are reliable, despite frequent reliance on them for clinical decision-making.

Methods

An anonymous questionnaire on the use, interpretation, performance validation and quality assurance (QA) of in-clinic laboratory tests was distributed via social media to UK veterinary professionals. In addition, example manufacturer provided quality control (QC) rules were reviewed. Descriptive analyses were used.

Results

Fifty-five responses were received (21 veterinary surgeons, 28 veterinary nurses and 6 other). The majority of practices carried out most of their biochemistry testing in-clinic but few (16%) independently evaluated their equipment. Veterinary surgeons ranked accuracy as the most important aspect of laboratory testing, however only 10% could answer detailed questions on their practice QC procedures. Most (46/55 (85%)) reported regular QC but only 1/16 detailed responses reported independent rather than manufacturers' protocols. Example manufacturer protocols were inadequate in their sensitivity to detect clinically important failures and in their frequency because of the impractical number of cases to review following a QC failure; half of practices tested more than 60 patients between QC measurements. Only 44% of practices reviewed the impact of QC failures on prior patient management decisions. Around half (29/55 (53%)) reported participation in external QA.

Statement (conclusions)

The results of this study suggest that current in-clinic quality practices cannot adequately assure practitioners of reliable results for clinical decision-making. Greater understanding of in-clinic method limitations and improvement in QA/QC would mitigate risks of incorrect clinical decisions as could greater reliance on quality assured reference laboratories.

16:15 Preliminary Findings of a Multi-Practice Survey (Anicura Group) Into the Diagnostic Approach and Prescribing Habits of First Opinion Veterinarians for Uncomplicated Canine Acute Diarrhoea (UCAD)

Emma Rogers-Smith¹, Anneli Bjöersdorff², Ian Battersby¹

¹Davies Veterinary Specialists, Higham Gobion, United Kingdom. ²Anicura Group, Stockholm, Sweden

Objectives

To understand the current patient management and prescribing practices of first opinion clinicians for cases of UCAD.

Methods

Clinicians completed an online questionnaire on their approach to UCAD. Practices also assessed the last 10 cases seen of UCAD. An EBVM document, providing advice pertaining to each question, the complete survey findings, along with two supporting 30minute webinars was sent to all respondents. A follow up questionnaire will be resubmitted to participating practices after 10 months (COVID delay).

Results

108 clinics from 8 countries responded. 47% of responding clinicians reported undertaking diagnostic procedures as a first line approach to these cases. 20% reported prescribing antibiotics all cases of UCAD and 44% of respondents reporting they never prescribe antibiotics. There was a difference in prescribing practices based on geographic location with Swedish clinicians over-represented in *not* prescribing antibiotics for UCAD (96%) compared with the Netherlands (28%) and Germany (16%). 3% of respondents reported using non-steroidal anti-inflammatory drugs and 4% reported the use of corticosteroids. 37% of respondents reported providing both written and verbal information to clients.

Of the 1080 example cases provided 22% of cases were prescribed at least one antibiotic with metronidazole over-represented (66%). Four cases were prescribed fluoroquinolones first line. 4% of cases received corticosteroids and 8% received NSAIDs.

Statement (conclusions)

The initial survey demonstrates evidence of antimicrobial prescribing in UCAD which is not required. A repeat survey will assess the impact of the interventions provided to improve antimicrobial stewardship.