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.

TUESDAY 25 MAY 2021

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}

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Kingdom.⁷ Anderson Moores Veterinary Specialists, Winchester, United Kingdom.⁸ Langford Vets, University of Bristol, Langford, United Kingdom.⁹ Department of Clinical Science and Services, Royal Veterinary College, Hatfield, United Kingdom.¹⁰ Wear Referrals Veterinary Hospital, Bradbury, United Kingdom.¹¹ North 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 Polyarthritits 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 polyarthritits (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

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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.