WSAVA 2023

Posters E-Book

Content:

48th World Small Animal Veterinary Association Congress and 28th FECAVA Eurocongress
Lisbon, 27-29 September 2023

001 / #616

Topic: *AS01. Anesthesia*

CAN THE ULTRASOUND-GUIDED QUADRATUS LUMBORUM BLOCK REDUCE THE SYMPATHETIC TONE ACTIVATION IN CATS UNDER OVARIECTOMY?

Diogo Dos Santos[1,2,3,4], Mário Ginja[1,3], João Martins[1,3,4], Maria Sofia Alves Pimenta[1,3], Lénio Ribeiro[4], Pablo E Otero[5], Bruno Colaço[1,3]
[1]University of Trás-os-Montes and Alto Douro, Cecav – Animal And Veterinary Research Centre Utad, Vila Real, Portugal, [2]VetOeiras – Veterinary Hospital, Anaesthesia And Analgesia, Oeiras, Portugal, [3]Associate Laboratory for Animal and Veterinary Sciences (AL4AnimalS), Veterinary Medicine, Lisbon, Portugal, [4]Lusofona University, Veterinary Science, Lisbon, Portugal, [5]fUniversidad de Buenos Aires, Facultad De Ciencias Veterinarias, Buenos Aires, Argentina

Introduction:

The nociception induced during surgical procedures may be related to the development of complications such as chronic pain. The use of regional anesthesia is effective in nociception reduction. The quadratus lumborum block is an adjuvant in perioperative analgesia in cats' ovariectomy. Parasympathetic Tone Activity (PTA) is used in veterinary to quantify the nociception–antinociception and was used to measure relative parasympathetic and sympathetic balance.

Objectives:

To evaluate the performance of ultrasound-guided quadratus lumborum block in reducing the surgical sympathetic activation in female cats undergoing ovariectomy using a PTA monitor.

Methods:

A total of 45 female anesthetized cats were enrolled and randomized to receive bilateral ultrasound-guided quadratus lumborum block with bupivacaine 0.25% (QL; n = 29) or control (C; n = 16) studied protocols.

During ovariectomy anesthesia, the anesthetic plane, physiological values and nociceptive (PTA) variations were assessed. These parameters were evaluated at four periods, skin incision (t1), at first (t2), and at second ovary removal (t3) and skin closure (t4).

The values below a PTAi value of 50 were considered sympathetic activation, possibly due to surgical stimulation.

Results:

The PTAi value below 50 was observed in 64,1% of stimulation points in the C group and only in 34,5% of the QL group (Fisher test $p < 0,001$). The QL block reduced the sympathetic stimulation in all points

evaluated (Figure 1).

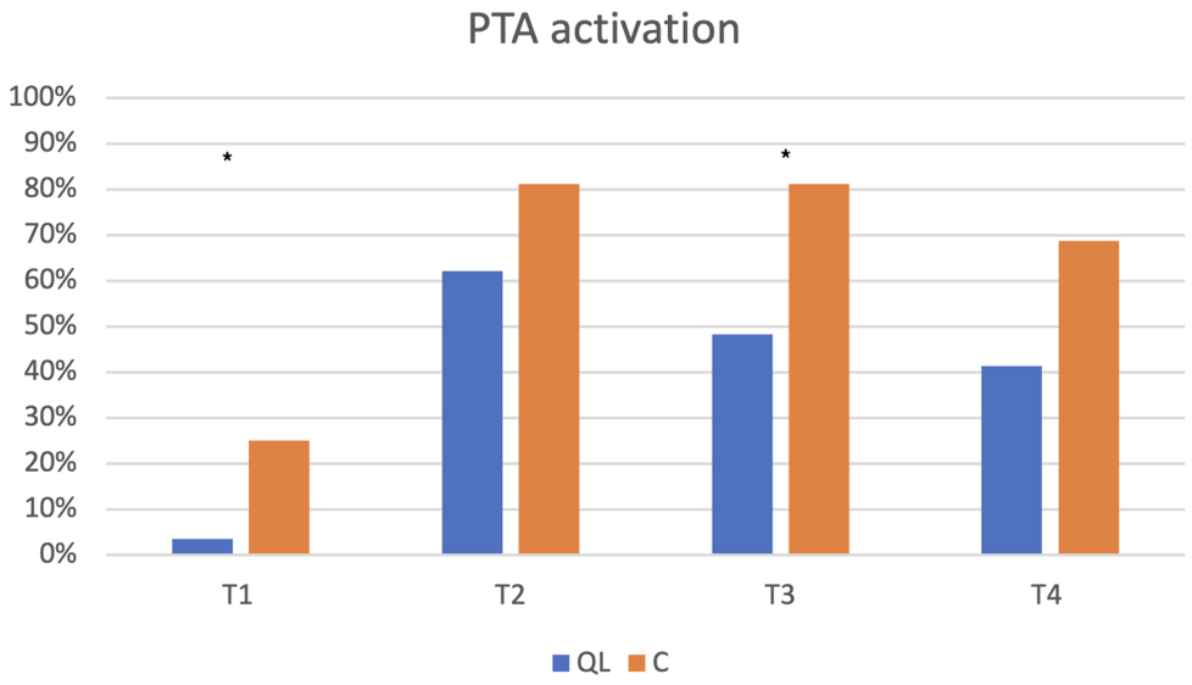

Figure 1. PTA activation distributed by the four stimulation points, with a significant difference in T1 and T3 ($p < 0,05$)

Conclusions:

The ultrasound-guided QL with bupivacaine reduced the sympathetic activation in cats under ovariectomy. This technique could be used to reduce de nociceptive stimulus in this specie under this surgery.

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002 / #715

Topic: *AS01. Anesthesia*

DOES THE MUSCLE MASS MAKE A DIFFERENCE? COMPARISON OF THE QUALITY OF INTRAMUSCULAR SEDATION IN DOGS, WITH METHADONE AND DEXMEDETOMIDINE

Pedro Tomás[1], Maria Teresa Oliveira[1,2], Catarina Lavrador[1,3], Elisabete Carolino[4], Bruno Colaço[5,6], Diogo Dos Santos[5,6,7,8]
[1]University of Évora, Veterinary Medicine, School Of Science And Technologies, Évora, Portugal, [2]University of Évora, Med – Mediterranean Institute For Agriculture, Environment And Development & Change, Évora, Portugal, [3]University of Évora, Med – Mediterranean Institute For Agriculture, Environment And Development & Change – Global Change And Sustainability Institute, Évora, Portugal, [4]Escola Superior de Tecnologia da Saúde de Lisboa (ESTeSL) of Instituto Politécnico de Lisboa (IPL), H&trc- Health & Technology Research Center, Lisbon, Portugal, [5]Associate Laboratory for Animal and Veterinary Sciences (AL4AnimalS), Veterinary Medicine, Lisbon, Portugal, [6]University of Trás-os-Montes and Alto Douro, Cecav – Animal And Veterinary Research Centre Utad, Vila Real, Portugal, [7]VetOeiras – Veterinary Hospital, Anaesthesia And Analgesia, Oeiras, Portugal, [8]University Lusófona, Department Of Veterinary Sciences, Lisbon, Portugal

Introduction:

Intramuscular injections can present different outcomes depending on the drugs used or characteristics of the population[1,2].

Reports support that intramuscular administrations can have painful reactions depending on the muscle studied[3,4] .

Objectives:

The objective of this study was to compare the quality of intramuscular sedation, between cervical and lumbar epaxial muscles and supraspinatus muscle, 5 minutes after the administration of methadone (0.2 mg/kg) and dexmedetomidine (2.5 µg/kg), in dogs.

Methods:

60 dogs were scheduled for procedures that implied sedation. Dogs were randomly sedated between cervical epaxial muscle (group C), supraspinatus muscle (group S) or lumbar epaxial muscles (group L).

Data collected included sedation score based on a sedation scale[5,6], body score condition (BSC), behaviour and pain level.

Qui-Square test with Monte Carlo simulation was used to test the correlation between variables. Data was considered significant for a level of 5%.

Results:

There was significant interaction between muscle groups and sedation score at 5 minutes (p=0.006), with the L group presenting significantly lower score than C (p=0.001) and S (p=0.001) groups.

We found no correlation between muscle groups and behaviour (p=0.075), BSC (p=0.449) or pain (p=0.9000).

Conclusions:

In this study, C and S groups presented better sedation scores at 5 minutes post-injection.

Although no correlation between muscle groups and BSC or behaviour was found, there was a tendency for animals with higher BSC and anxious behaviour to have lower sedation scores.

Injections in postural muscles are reported as more painful than in non-postural muscles[3,4], but there was no correlation between different muscle groups and pain.

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003 / #946

Topic: *AS02. Animal Welfare*

VETERINARY TELEMEDICINE VS. MOCK IN-CLINIC APPOINTMENTS FOR COMPANION CAT HEALTHCARE: CAT RESPONSES AND CAREGIVER OPINIONS

Grace Boone[1], Carly Moody[1], Melissa Bain[2]
[1]University of California, Davis, Animal Science, Davis, United States of America, [2]University of California, Davis, College Of Veterinary Medicine, Davis, United States of America

Introduction:

Cats visit the veterinarian less frequently than dogs, and cat caregivers face many barriers to accessing veterinary care including cat-related challenges with travel and clinic experiences. Video telemedicine uses video technology to deliver health and behavior care, education, and information remotely, and represents a possible solution to overcoming some of these barriers.

Objectives:

Assess cat behavioral and physiological responses during mock in-clinic versus video telemedicine appointments. Understand caregiver experiences and opinions regarding in-clinic and video telemedicine appointments.

Methods:

Companion cat caregivers and their cats (N=30) participated in two simulated spay re-check examinations: one in-clinic and one via video using Zoom. Order of appointment was counterbalanced, and cat responses during examinations were assessed. Caregivers completed pre- and post-appointment surveys to assess attitudes and experience with both visits.

Results:

Cats displayed higher respiratory rates ($p<0.001$) and larger pupil dilations ($p<0.001$) when undergoing the in-clinic appointment compared to the video telemedicine appointment. Caregivers reported a willingness to pay about the same (28%) or a little less (48%) for a video appointment as for one in-clinic. After participating, caregivers rated video telemedicine as significantly more helpful than in-clinic visits for reducing their own ($p=0.029$) and their cat's stress ($p<0.0001$).

Conclusions:

Results suggest increased negative responses in cats during in-clinic versus video telemedicine appointments, and positive caregiver views of video telemedicine. Video telemedicine appointments may be a useful way to reduce cat and caretaker stress and increase access to veterinary care for cats.

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004 / #655

Topic: *AS02. Animal Welfare*

USING A GRADIENT BOOSTED MODEL FOR CASE ASCERTAINMENT FROM FREE-TEXT VETERINARY RECORDS

Uttara Kennedy[1], Mandy Paterson[2], Nicholas Clark[1]
[1]University of Queensland, School Of Veterinary Science, Gatton, Australia, [2]RSPCA Queensland, Rspca Queensland, Brisbane, Australia

Introduction:

Feline upper respiratory tract infection (FURTI) is a severe problem in high density, stressful environments such as animal shelters. A risk factor analysis can aid better understanding of the epidemiology of FURTI in such environments. Risk factor analysis cannot be done without accurate case ascertainment from veterinary clinical data, which is a major challenge because records are not consistently structured.

Objectives:

Using natural language processing (NLP) and machine learning, we aimed to obtain accurate case recognition for FURTI using retrospective electronic veterinary records from the Royal Society for Prevention of Cruelty to Animals, Queensland (RSPCA Qld).

Methods:

We carried out NLP on eight years of free-text veterinary records through vectorisation, tokenisation and spell-check against a bespoke veterinary database. A gradient boosted model (GBM) was trained to predict the probability of each animal having a diagnosis of FURTI. The GBM's performance was tested against an out-of-sample validation dataset. Model agnostics interrogated the model's learning process.

Results:

Predicted probability of cases had an accuracy of 0.95 (95% CI 0.92, 0.97) and F1 score 0.96. Words that exerted the highest influence on the model included "doxycycline", "flu" and "ocular". The trained GBM was deployed on a dataset comprising 60,258 entries. Prevalence was predicted to be 23.59%, which is in line with domain expertise at the shelter.

Conclusions:

Case ascertainment enables in-depth study of the multifactorial correlations between shelter practices, animal demographics and risk of FURTI. The machine learning tool can be extended to other conditions requiring prolonged care, such as parvovirus and tick paralysis.

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005 / #656

Topic: *AS02. Animal Welfare*

EPIDEMIOLOGY OF FELINE UPPER RESPIRATORY TRACT INFECTIONS AT RSPCA QUEENSLAND SHELTERS

Uttara Kennedy[1], Mandy Paterson[2], Nicholas Clark[1]
[1]University of Queensland, School Of Veterinary Science, Gatton, Australia, [2]RSPCA Queensland, Rspca Queensland, Brisbane, Australia

Introduction:

Feline upper respiratory tract infection (FURTI) is a severe problem in animal shelters where there are often multiple stressors such as high turnover of populations and concurrent previous physiological compromise.

Objectives:

Carry out Bayesian risk factor analysis for FURTI on retrospective data from one of Australia's largest animal shelters.

Methods:

We conducted Bayesian analysis for categorising FURTI by admission (source, gender, age) and environmental (time of year and fullness of the shelter) variables. Predicted infection probability by previously conducted gradient boosted modelling was the outcome of interest. Prior assumptions were represented by a causal framework or a direct acyclic graph (DAG), which informed creation of multiple Bernoulli models with an observational and prior component.

Results:

We analysed 43,459 feline entries over eight years. Females were only 0.8 (95% CI 0.76, 0.84) times as likely as males to get infected, while already desexed animals were only 0.68 (95% CI 0.61, 0.75) as likely compared to those not desexed on entry. Kittens were 0.5 (95% CI 0.48, 0.53) times as likely as adult cats to get infected. Animals seized by RSPCA inspectors had the highest probability of infection compared to other sources (e.g., surrendered). Infection probabilities increased in winter and showed a linear pattern with occupancy of the shelter.

Conclusions:

This study gives a deep insight into the epidemiology of FURTI in shelter environments. The predictive nature of this analysis indicates that a small change in an animal's environment can have a significant impact on final outcomes for feline welfare, and conservation of shelter resources.

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006 / #741

Topic: *AS02. Animal Welfare*

EXPLORING CAT CAREGIVERS' ATTITUDES TOWARDS VETERINARY VIDEO TELEMEDICINE

Sooyoung Lee, Ashley Bidgoli, Grace Boone, Carly Moody
University of California, Davis, Animal Science, Davis, United States of America

Introduction:

Many caregivers do not seek routine veterinary care for their cats. This is in part due to barriers such as travel and clinic-related stressors for cats and their caregivers. Video telemedicine is the remote delivery of health and behavior care, education and/or information, and may help reduce some of these barriers.

Objectives:

Explore caregiver perceptions of using video telemedicine with their cat to improve access to care.

Methods:

Cat caregivers (N=1254) were recruited from across the US to complete an online questionnaire asking about their experiences with, and opinions on, using video telemedicine for their cat(s).

Results:

The majority (97%) of respondents had never experienced a veterinary video telemedicine appointment with their cat(s), however, most (86%) expressed interest in using it in the future. Seventy-three percent of participants expressed that taking their cat to the clinic is stressful, and 61% of those who never had a video telemedicine appointment with their cat believed this would not be stressful for their cats. Most participants (76%) also indicated that using video telemedicine would greatly or somewhat increase their accessibility to cat care. Cat caretakers indicated a preference of video telemedicine over in-clinic appointments for behavioral concerns such as destructive behaviors (70%), fears/phobias (72%), and aggression (62%), as well as for certain health issues such as maintenance of chronic health conditions (70%) and follow-up appointments (66%).

Conclusions:

Video telemedicine may be a practical option for increasing access to care for cats and their caregivers, especially for behavioral issues and select healthcare appointments.

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007 / #739

Topic: *AS02. Animal Welfare*

EFFECT OF AGE ON MORTALITY AND CAUSE OF DEATH IN GROUP-HOUSED SHELTER CATS

Veronika Vojtkovska, Eva Voslarova, Vladimir Vecerek
University of Veterinary Sciences Brno, Department Of Animal Protection And Welfare And Veterinary Public Health, Brno, Czech Republic

Introduction:

Shelters are facilities with high population density and turnover rates, ie. with increased opportunities for disease exposure and transmission, which may affect mortality.

Objectives:

To analyze the effect of age on mortality of group-housed cats in the no-kill shelters in the Czech Republic.

Methods:

Data on all cats housed in two private no-kill shelters from January 2013 to December 2021 were collected and based on cats´ age divided into four categories (kittens: ≤ 6 months, young cats: 6 < x ≤ 12 months, adult cats: 1 < x ≤ 8 years, old cats: > 8 years). Their outcomes were analyzed and compared using the Chi-Square test.

Results:

Of 1884 cats, 266 (14.1%) cats died in the shelter. The cause of death or euthanasia was known in 236 cases. Infectious feline peritonitis (FIP), panleukopenia and upper respiratory tract disease (URTD) were more frequent ($p<0.05$) than other causes of death. FIP resulted in death of 61 (25.9%) cats, panleukopenia of 39 (16.5%) cats, URTD of 31 cats (13.1%). FIP was more frequent ($p<0.05$) cause of death in kittens than in other age categories (50 vs. 11). Similarly, more ($p<0.05$) kittens than older cats died due to panleukopenia (30 vs. 9) and URTD (25 vs. 6). No animal over 8 years of age died due to FIP, panleukopenia or URTD.

Conclusions:

The results show an increased risk of mortality in kittens in the shelters, namely due to FIP, panleukopenia or URTD. Protection against the introduction of diseases into the shelter is essential.

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008 / #15

Topic: *AS02. Animal Welfare*

PHYSICAL HEALTH, MENTAL WELLNESS, AND OVERALL WELL-BEING: WOMEN'S CONTRIBUTIONS TOWARDS ANIMAL WELFARE DURING THE PUBLIC HEALTH EMERGENCY RESPONSE OF COVID-19

Haorui Wu, Ravinder Bains, Carole Preston
Dalhousie University, School Of Social Work, Halifax, Canada

Introduction:

Women's contributions towards health and well-being in the emergency response stage are usually human-centered. Since disasters impact human-animal-environment independence, women's contributions towards animal welfare pertain to disaster and emergency response efforts are under-researched.

Objectives:

COVID-19-driven public health mitigation strategies caused tremendous challenges regarding access to veterinary medical and behavioral services. this study examines gendered roles in contributing to animal welfare during the COVID-19 emergency response stage.

Methods:

Utilizing an interpretive phenomenological approach, this study qualitatively examines the roles, responsibilities, and experiences of companion animal guardians regarding seeking veterinary medical services during the COVID-19 emergency response in Vancouver, Canada. A semi-structured interview instrument was used to collect narrative data from twelve animal guardians, eleven of whom self-identify as women.

Results:

This study illustrates three primary animal welfare-related roles that woman companion animal guardians (WCAGs) demonstrated during the COVID-19 emergency response period: 1) Caring for companion animal physical health, emerging at the nuclear family, extended family and the community levels; 2) Supporting companion animal mental wellness in the household, community, and veterinary healthcare organization settings; 3) Advocating for companion animal holistic well-being through facilitating diverse resources associated with families, communities, and societies.

Conclusions:

A nuanced understanding of gender-specific animal welfare contributions in an emergency response setting addresses the knowledge deficits in animal welfare and disaster and emergency management fields. The findings provide WCAGs and animal welfare-specific public, private, and not-for-profit sectors with evidence-based strategies to enhance organizational emergency response planning. The gender-driven knowledge about human-animal-environment independence further supports healthy and sustainable human-animal interactions in future disasters

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009 / #883

Topic: *AS03. Behavior*

METABOLOMIC APPROACH: A NEW STEP TO EXPLORE THE IMPACT OF MELISSA OFFICINALIS ON CANINE BEHAVIOR.

Aberkane Fatima Zohra[1,2], Roy Anne-Sophie[3], Mallem Yassine[3], Benarbia Amine[1], Guilet David[2]
[1]NOR FEED, R&d, Beaucouzé, France, [2]SONAS, Pharmacy, angers, France, [3]ONIRIS, Pathophysiology And Pharcology (np3), Nantes, France

Introduction:

Dogs' behavior could be altered by several psychological-related disorders like anxiety. To address this issue, *Melissa officinalis* (*MO*) is commonly used in ethnoveterinary practice. Its mode of action is well described. However, there is a lack of data about the canine metabolic impacts induced by *MO* dietary supplementation.

Objectives:

The objective of this study was to investigate metabolic pathways impacted by a commercial *MO* extract (Nor-Balm®) and compare it to alpha-casozepine (Zylkene®). To do so, metabolomics coupled with multivariate data analysis was used.

Methods:

15 beagle dogs were divided into 3 groups: control (placebo), positive control (alpha-casozepine), and melissa group (Nor-balm®, commercial extract of *MO)*. Plasma samples were collected after 4 weeks of supplementation. Two types of extracts were obtained from each sample. The extracts were analyzed using LC-QTOF in positive and negative ionization. Progenesis QI was used for data processing, identification, and statistical analysis (principal component analysis (PCA)). IMPaLA web tool was used for pathways analysis.

Results:

PCA results revealed distinct profiles when comparing control, *MO* and positive control group. Control and *MO* group comparison revealed 625 metabolites differently expressed (p-value<0,05, max fold change >2) in which 28 molecules were identified with an acceptable score. Control and positive control comparison revealed 240 differently expressed metabolites in which 22 molecules were identified. IMPaLA analysis revealed totally different pathways when comparing control to *MO* group and control to positive control.

Conclusions:

The analysis revealed different metabolomic profiles suggesting that the mechanism of action might be different between *MO* and alpha-casozepine.

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010 / #940

Topic: *AS03. Behavior*

EFFECTS OF IMMUNOCASTRATION ON SEXUAL, SOCIAL AND MARKING BEHAVIOR IN OWNED DOGS IN TWO CHILEAN REGIONS

Daniela Siel[1,2], María José Ubilla[3], Leonardo Sáenz[2]
[1]Universidad Andrés Bello, Facultad De Ciencias De La Vida, Escuela De Medicina Veterinaria, Santiago, Chile, [2]Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile,, Laboratorio De Vacunas Veterinarias, Santiago, Chile, [3]Universidad de O'Higgins, Escuela Ciencias Agroalimentarias, Animales Y Ambientales, Santiago, Chile

Introduction:

The effective control of canine populations with welfare standards is an important challenge. For this, the use of immunocastration vaccines appears as an alternative.

Objectives:

To determine the effect of a new immunocastration vaccine on the behavior of male dogs in a field study phase.

Methods:

31 whole-owned male dogs were inoculated with a new recombinant immunocastration vaccine. A questionnaire associated to sexual, social and marking behaviors was applied to dogs guardians. To evaluate the effect of immunocastration and time on dogs' behavior, a two-way repeated ordinal ANOVA and Tukey's posttest were used (differences were considered significant when $p \leq 0.05$).

Results:

Immunocastration induced a decrease in sexual behaviors: human or animal mounting (between days 1 and 180), penis externalization (between days 1- 180), and effective mounting (between days 1- 60). A decrease in agonistic social behaviors was also observed: threat to unknown human (between days 1-120), and, barking to unknown human (between days 1- 120,). In addition, immunocastration increased one affiliative social behavior (resting with known human) (between days 1-60).

Conclusions:

For the first time, behavioral changes induced by immunocastration were analyzed in male owned dogs in a trial under field conditions. Significant differences were found over time for one of the affiliative variables, as well as variables related to sexual and social agonistic behaviors.

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011 / #891

Topic: *AS04. Clinical Pathology*

MASSIVE HEMATURIA CAUSED BY A PRIMARY T-CELL LYMPHOMA OF THE URINARY BLADDER WITH CD20 EXPRESSION

Luísa Fonte-Oliveira[1,2], Carolina Torres-Almeida[2], André Pereira[2], Patrícia Dias-Pereira[3], Hugo Gregório[2], Ricardo Marcos[1], Marta Santos[1]
[1]Cytology and Hematology Diagnostic Services, Laboratory Of Histology And Embryology, Instituto Ciências Biomédicas Abel Salazar, School Of Medicine And Biomedical Sciences, Icbas – Up, University Of Porto, Porto, Portugal, [2]AniCura CHV Porto, Hospital Veterinário, Porto, Portugal, [3]Departament of Pathology and Molecular Immunology, Icbas-up, Porto, Portugal

Introduction:

Tumors of the urinary bladder and urethra account for 0.5%-1% of all canine neoplasms and the majority are malignant and of epithelial origin. Transitional cell carcinoma is by far the most common malignancy and primary lymphoma of the urinary bladder has rarely been reported.

Objectives:

Report a primary T-cell lymphoma of the urinary bladder in a dog.

Methods:

A 12-year-old female spayed Weimaraner was referred with a 2-day history of hematuria, stranguria and dysuria. Abdominal distension was noted due to a markedly dilated bladder. Abdominal ultrasound and CT revealed a circumferential mass, located on the trigone area of the bladder and extending to the urethra, causing partial obstruction of the urine outflow. A percutaneous FNA of the mass was performed.

Results:

Urinalysis presented massive hematuria. FNA revealed hyperplastic transitional epithelial cells and medium to large immature lymphocytes with mitotic figures, compatible with lymphoma. Upon owners' request, the dog was euthanized after the cytologic diagnosis and necropsy was performed. A primary transmural lymphoma of the urinary bladder, extending to the urethra, intestine, mesentery and pancreas was confirmed. Immunohistochemistry revealed that the neoplastic lymphocytes were: CD3 positive, PAX5 negative and 20% of them expressed aberrantly CD20; Ki67 index was 42% (indicating a high proliferation level).

Conclusions:

Although percutaneous FNA of bladder masses is controversial, herein it was a necessary risk, allowing the prompt diagnosis of lymphoma. This case is the first report of a primary T-cell lymphoma of the urinary bladder with aberrant CD20 expression and associated with extension through the peritoneal cavity in a dog.

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012 / #933

Topic: *AS04. Clinical Pathology*

ASSESSMENT OF FELINE NEONATAL ISOERYTHROLYSIS AND MISMATCHED TRANSFUSIONS RISK IN LUANDA (ANGOLA) – PRELIMINARY STUDY

Ana Cristina Silvestre-Ferreira[1,2,3], Hugo Vilhena[2,3,4,5], Ana Cristina Oliveira[6], José R Mendoza[6], Maria Garcia Aura[6], Josep Pastor[7]
[1]University of Trás-os-Montes and Alto Douro (UTAD), Department Of Veterinary Sciences, Vila Real, Portugal, [2]University of Trás-os-Montes and Alto Douro, Animal And Veterinary Research Centre (cecav), Vila Real, Portugal, [3]Associate Laboratory of Animal and Veterinary Science AL4AnimaLS, -, Lisboa, Portugal, [4]Vasco da Gama University School, Vasco Da Gama Research Center (civg), Coimbra, Portugal, [5]OneVet Group, Hospital Veterinário Universitário De Coimbra, Coimbra, Portugal, [6]Casa dos Animais Veterinary Clinic, -, Luanda, Angola, [7]Universitat Autònoma de Barcelona (UAB), Departament De Medicina I Cirurgia Animal, Barcelona, Spain

Introduction:

Cats' express alloantibodies against the blood type they lack, as they don´t require prior sensitization by transfusion, pregnancy, or blood products. Alloantibodies are responsible for post-transfusion hemolytic reactions that can lead to animals' death or neonatal isoerythrolysis (NI). The risk of a life-threatening post-transfusion reaction (major transfusion reaction – MTR) is defined as the risk of a mismatched transfusion (MT) between a type A or AB donor and a type B recipient. A minor transfusion reaction (mTR) can reduce the erythrocytes life span and results from type B donor and type A recipient.

Objectives:

To assess the risk of NI and MT in a privately owned non-pedigree cat population from Luanda (Angola).

Methods:

Forty-nine blood samples from 27 male and 22 female cats, aged between 8 months and 17 years, were typed by an immunochromatographic strip technique. The MT risk was estimated by adding the MTR risk to the mTR risk. The NI risk was estimated according to the Hardy–Weinberg equilibrium according to the equation $(p2)(q2) + 2pq(q2)$; q = b allele frequency; p = 1 – q.

Results:

Prevalence of blood types A, B and AB was 95.9% (n=47), 4.1% (n=2) and 0% respectively. MT risk was 7.9%; proportion of mating risk for NI was 3,9%.

Conclusions:

The prevalence of type B cats is associated with risks of NI and MT, confirming the importance of blood typing prior to any blood transfusion or mating.

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013 / #935

Topic: *AS04. Clinical Pathology*

THE RELATIONSHIP BETWEEN URINE SPECIFIC GRAVITY AND URINE REFRACTIVE INDEX FOR CATS AND DOGS: AN EQUIVALENCE STUDY

Andreia Mota[1,2], David Beattie[2], Carlos Viegas[1,3,4], Irene Oliveira[5,6], João Requicha[1,3]
[1]University of Trás-os-Montes e Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [2]Gortlands, Veterinary Clinic, Belfast, United Kingdom, [3]University of Trás-os-Montes e Alto Douro, Animal And Veterinary Research Centre (cecav) - Associated Laboratory For Animal And Veterinary Science (al4animals), Vila Real, Portugal, [4]University of Trás-os-Montes e Alto Douro, Centre For The Research And Technology Of Agro-environmental And Biological Sciences (citab) - Associate Laboratory For Innovation, Capacity Building And Sustainability Of Agri-food Production (inov4agro), Vila Real, Portugal, [5]University of Trás-os-Montes e Alto Douro, Department Of Mathematics, Vila Real, Portugal, [6]Instituto Superior Técnico, Center For Computational And Stochastic Mathematics (cemat), Lisbon, Portugal

Introduction:

Urine concentration is reported on a specific gravity scale rather than on a scale of refractive index. A 60-year-old study claimed that the relationship between urine specific gravity and urine refractive index differs between cats and dogs, leading to the production of refractometers with a “urine specific gravity cat scale.

Objectives:

This study aimed to compare the relationship between urine specific gravity (SG) and refractive index (RI) in cats with the relationship between the same parameters in dogs.

Methods:

From a series of 47 dogs and 42 cats, urine samples were collected under the scope of routine investigations. Urine SG and RI were determined using a digital densitometer and an optical hand-held refractometer, respectively.

The relationship between urine SG and RI in dogs and cats of this study was studied by equivalence testing (paired two one-sided tests) and the difference obtained between cats and dogs was visually compared with the difference suggested in the literature.

Results:

The paired two one-sided tests showed equivalence between feline and canine urine regarding the relationship between its SG and RI (p-value<0.01). The results also indicate that, for the same urine RI value, there is a difference between feline urine SG and canine urine SG of much lesser magnitude than the one suggested in the published literature.

Conclusions:

It has been concluded that feline and canine urine are essentially equal regarding the relationship between SG and RI, and therefore we suggest abandoning the use of the SG scale for cats or the application of a correction formula.

014 / #25

Topic: *AS06. Dentistry*

VITAMIN D IMPROVES TREATMENT OF MUCOGINGIVAL REPLACEMENT SURGERY FOLLOWING ORAL MUCOSITIS BY ENHANCING AUTOPHAGY

Chung-Wei Chen[1], Ming-Yi Shen[2], Ming-Thau Sheu[3], Hung-Ming Chang[4], Yung-Kai Huang[5]
[1]HelloPeter Veterinary Hospital, Hellopeter Veterinary Hospital, Taichung City, Taiwan, [2]China Medical University, Graduate Institute Of Biomedical Sciences, Taichung City, Taiwan, [3]Taipei Medical University, School Of Pharmacy, College Of Pharmacy, Taipei City, Taiwan, [4]Taipei Medical University, Department Of Anatomy And Cell Biology, School Of Medicine, College Of Medicine, Taipei City, Taiwan, [5]Kaohsiung Medical University, Dartment Of Oral Hygiene, College Of Oral Medicine, Kaohsiung City, Taiwan

Introduction:

Oral mucositis is an oral soft tissue disease with a complex origin that occurs frequently in humans and animals, and feline chronic gingivostomatitis (FCGS) is a type of oral mucositis. In human, vitamin D is a common micronutrient that helps patients with periodontitis, and to enhance the recovery of different target cells by regulating autophagy. However, whether vitamin D can also benefit FCGS has never been reported.

Objectives:

The objective of this study was to elucidate the autophagy pathways involved in developing FCGS and whether vitamin D can prevent this pathology.

Methods:

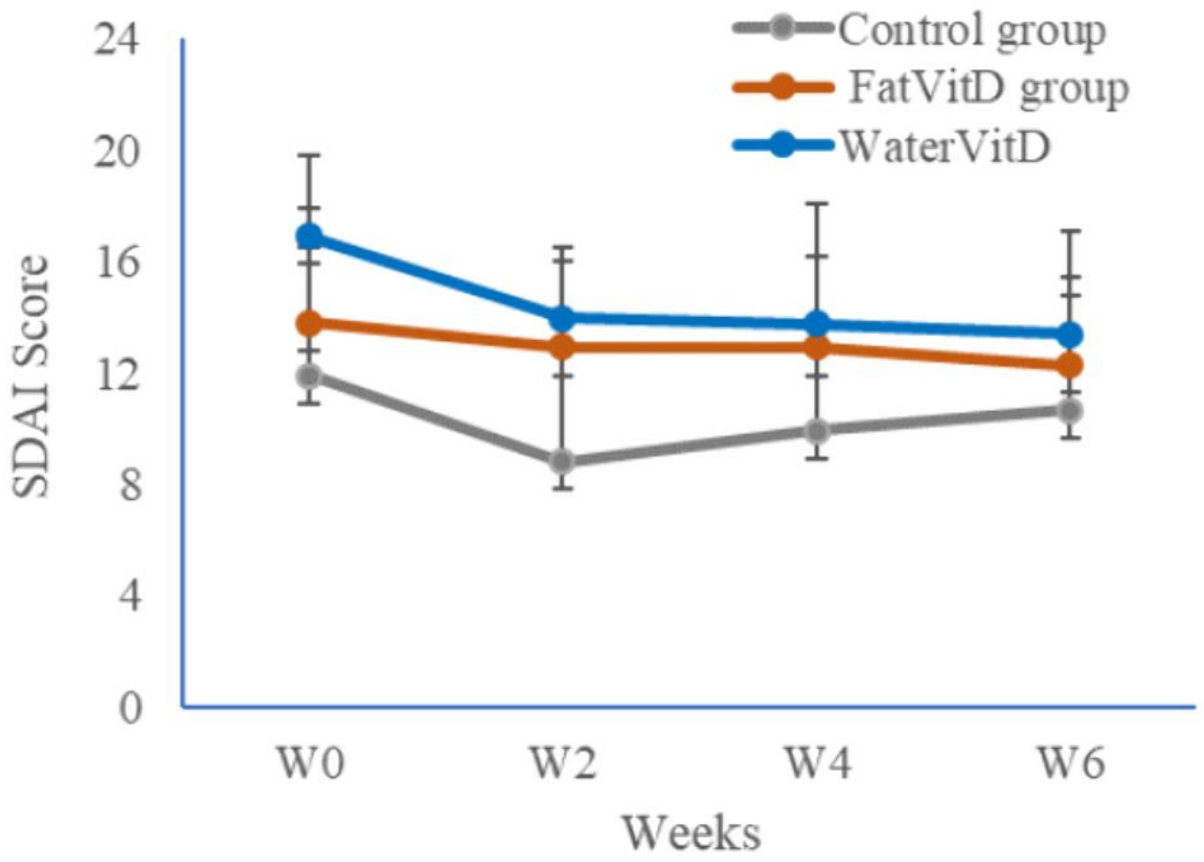
18 domestic cats with FCGS that received mucogingival replacement surgery (MGRS) and were subsequently administered fat or water-soluble vitamin D (200 ng/kg, PO, BID). The data collected includes stomatitis disease activity index (SDAI) scores, the level of vitamin D measured in serum, and immunohistochemical (IHC) expression of vitamin D receptor (VDR) and light chain 3B (LC3B) reactivity.

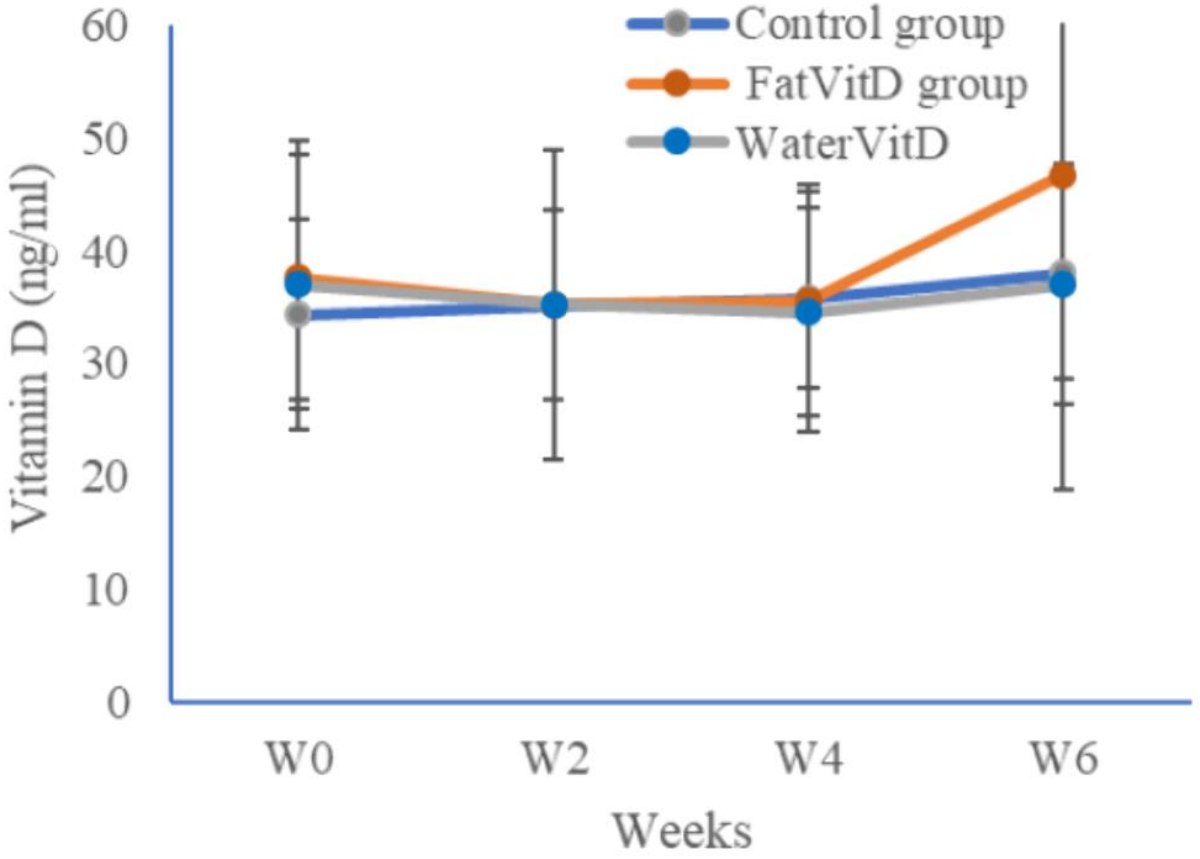
Results:

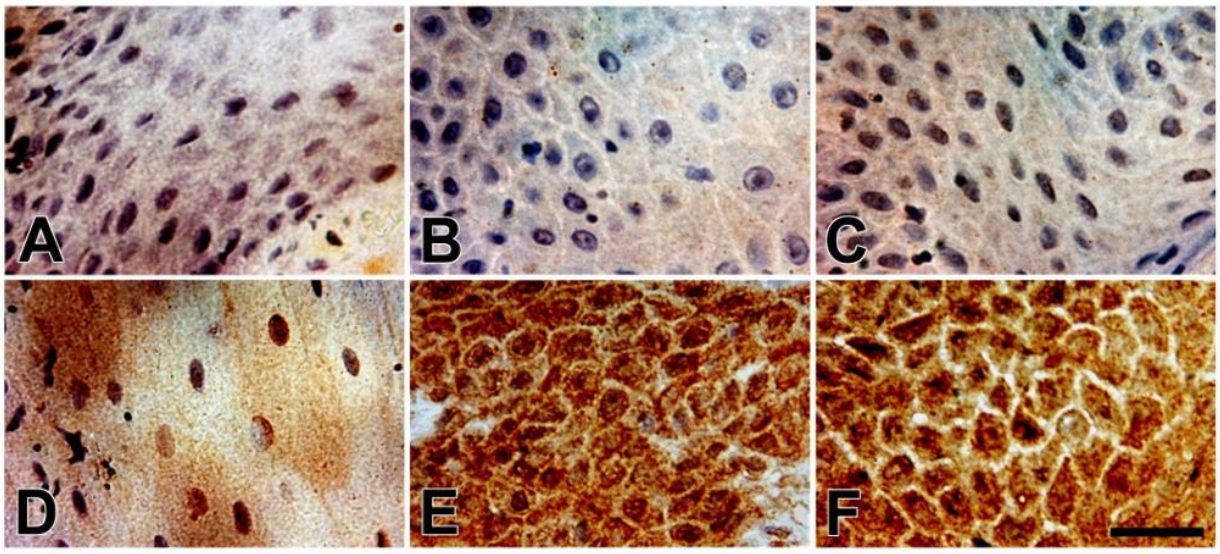
1. The SDAI score of the WaterVitD and FatVitD groups gradually declined between week 0 and weeks 2, 4, and 6.

2. Vitamin D serum levels at week 6 was significantly higher in the FatVitD group compared with the control and WaterVitD groups.

3. The administration of vitamin D significantly increased the staining intensity of LC3B, and the effect of fat-soluble vitamin D was greater than that of water-soluble vitamin D.


Control group
FatVitD group
WaterVitD
SDAI Score
24
20
16
12
8
4
0
W0
W2
W4
W6
Weeks





Photomicrographs showing LC3B immunoexpression at week 0 (A–C) and 6 (D–F) in animals with oral mucositis that were subjected to mucogingival replacement surgery (MGRS) followed by no vitamin D administration (A, D), or fat-soluble (B, E) or water-soluble (C, F) vitamin D administration. Scale bar = 100 μm.

Conclusions:

Administration of vitamin D during the course of MGRS attenuated the inflammatory response in FCGS, promoted healing of oral soft tissues, induced autophagy, and improved quality of life in cats.

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015 / #914

Topic: *AS06. Dentistry*

3D PRINTING FOR SURGICAL PLANNING OF THE TEMPOROMANDIBULAR JOINT SURGERY: A CASE SERIES

Miguel Godinho[1], Lisa Mestrinho[2]
[1]Faculty of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal, [2]CIISA – Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University Of Lisbon And Laboratório Associado Para Ciência Animal E Veterinária (al4animals), Lisboa, Portugal

Introduction:

Temporomandibular joint (TMJ) ankylosis and pseudoankylosis leads to closed jaw locking. 3-dimensional (3D) printed models can allow surgeons, students, and pet owners to improve their understanding of the oral and maxillofacial complex anatomy and disease through tactile and visuospatial perception. This approach has been described to be beneficial in oromaxillofacial surgery planning (Renner and Thatcher 2022; Huang et al. 2022). Since benefits and limitations of 3D printing in preoperative planning and intraoperative guidance of TMJ surgeries are still limited, this study aims to contribute with a case series.

Objectives:

To collect and describe retrospectively a series of 4 cases of closed locked jaw where 3D models were used to discuss the surgical strategy with the owners (4 cases), produce a model to guide surgery (3 cases) and produce 2 surgical guides (1 case).

Methods:

A case series of four 3D models segmented from computed tomography (TC) and cone beam computed tomography (CBCT) and printed via stereolithography for preoperative planning and intraoperative guidance of TMJ ankylosis and pseudoankylosis in dogs and cats.

Results:

3D models of the animal's craniums were used to support discussion with pet owners and allow surgeons to practice the surgery beforehand. Three out of four underwent surgery, in which the 3D models were used for intraoperative guidance. In one case, surgical guides were also printed to improve precision and define more acuratelly osteotomy lines, while avoiding vital structures.

Conclusions:

3D printed models provide better understanding and improved postoperative outcomes, however it requires additional time to master software and virtual design tools.

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016 / #932

Topic: *AS06. Dentistry*

CLINICAL TRIAL ON THE THERAPEUTIC EFFECT OF AN OZONATED PASTE IN CATS WITH CHRONIC GINGIVOSTOMATITIS.

Maria Inês Barata[1], Daniela Silva[1], Joana Coelho[2], Ana Filipe[2], Lisa Mestrinho[3]
[1]Faculty of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal, [2]Veterinary Teaching Hospital, Faculty of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal, [3]CIISA – Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University Of Lisbon And Laboratório Associado Para Ciência Animal E Veterinária (al4animals), Lisboa, Portugal

Introduction:

Feline chronic gingivostomatitis (FGCS) is a highly debilitating oral inflammatory disease associated with chronic pain. Inflammation and chronic pain control are the treatment goals. Ozone is the third most potent oxidant, with very potent antimicrobial activity and capacity to stimulate angiogenesis and the immune response. Such features justify the current interest in its application dentistry.

Objectives:

To assess the efficacy of ozone therapy in FGCS and to evaluate systemic impact with hematological and biochemical analysis.

Methods:

A prospective, randomized, double blind clinical trial, included two groups: cases (n=5) and controls (n=5) of FCGS cases refractory to other therapies normally used in FGCS. Variables registered included weight, hematologic and biochemical parameters, and stomatitis disease activity index (SDAI). Mixed generalized linear models (GLMM) and Mann-Whitney-U test was used for statistical analysis.

Results:

Platelet counts were significantly different between groups at day 0 ($p=0.0496$) and merely coincidental. Total proteins at day 30 were significantly inferior in the treated group ($p=0.043$), on the contrary albumin levels haven't change significantly. Of note, erythrocytes and hemoglobin levels decreased in the treated group, albeit not significant. The treated group showed tendential improvement when compared with control group, but differences were not significant. Renal and liver biochemical parameters where not significantly different between groups and timepoints.

Conclusions:

The ozone paste may contribute to the FCGS improvement and may have also be related with some systemic effects which should be further studied with an increase of included animals. It appears to be safe since no major adverse effects were registered.

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017 / #193

Topic: *AS06. Dentistry*

SEVERE BLEEDING GUMS AS A FIRST CLINICAL SIGN IN CANINE LEISHMANIASIS

Raluca-Ioana Nedelea[1], Andrei Mihalca[2]
[1]USAMV Cluj-Napoca, Pathophysiology, Cluj-Napoca, Romania, [2]USAMV Cluj-Napoca, Parasitology, Cluj-Napoca, Romania

Introduction:

In dentistry, the causes for bleeding gums include dental, periodontal issues, or tumours. Bleeding gums caused by dental problems are localized at the level of the tooth with the dental problem. If periodontal problems cause them, the bleeding of the gums will include several teeth, and the bleeding volume will be reduced. Tumours are easily diagnosed if localized on the gingiva. The differential diagnosis should be considered if clinical examinations associated with dental X-rays show no dental or periodontal pathology.

Objectives:

This case report aims to report severe bleeding gums as the first clinical sign of canine leishmaniasis in a dog.

Methods:

A nine-year-old neutered female Labrador dog presented for severe gum bleeding in the dentistry service. As dental procedures and dental X-rays were performed previously, the dental team excluded the dental problems as a primary cause for the bleeding gums, indicating a thorough examination as complete blood count, biochemistry, and other laboratory investigations.

Results:

A complete blood count revealed severe thrombocytopenia, while biochemistry showed high hepatic enzyme activity and hyperproteinemia with hyperglobulinemia. Five days after the first clinical sign of bleeding gums occurred, nodular lesions localized on the skin and tongue appeared, leading to the suspicion of a diagnosis of canine leishmaniasis. Lymph node cytology was performed, confirming the presence of *Leishmania infantum* amastigotes. The dog travelled with the owner in the Mediterranean region.

Conclusions:

Bleeding gums may be the first prominent finding in *Leishmania infantum* infection.

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018 / #904

Topic: *AS06. Dentistry*

FELINE CHRONIC GINGIVOSTOMATITIS: AN UPDATE ON ITS IMMUNOLOGICAL FEATURES

Rafael Lopes[1,2], Pedro Carvalho[3], Maria Pires[2,4], João Requicha[2,4]
[1]Vasco da Gama University School (EUVG), Vasco Da Gama Research Center (civg), Coimbra, Portugal, [2]University of Trás-os-Montes e Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [3]Vetherapy, Vetherapy, Coimbra, Portugal, [4]University of Trás-os-Montes e Alto Douro, Animal And Veterinary Research Centre (cecav) - Associated Laboratory For Animal And Veterinary Science (al4animals), Vila Real, Portugal

Introduction:

Feline chronic gingivostomatitis (FCGS) is a frequent inflammatory condition in cats associated with a high morbidity and has a multifactorial etiology still poorly understood.

Objectives:

This critical review aims to update the knowledge about the local and systemic immune response in the disease, focusing the most relevant biomarkers.

Methods:

The published articles were searched in the Pubmed/MEDLINE database. Following the recommendations of PRISMA statement, the original studies about the feline normal oral cavity immunology and the FCGS were selected.

Results:

A total of 3.347 articles were obtained from the initial research and only 14 were being included in this review. In those articles, 438 diseased-cats and 37 healthy cats were analyzed. The most prevalent comorbidities were bacterial infection (64.1%), feline calicivirus infection (56.6%) and tooth resorption (31.1%), while only 12.6% of cats had no comorbidities.

The characterization of diseased mucosa was described in 28.6% of the selected articles. Compared to healthy animals, FCGS samples presented a predominantly over-expression of lymphocytes (CD3, CD4, CD8, CD20, FoxP3, CD25 and CD79a) and mast cells. Regarding the systemic response, cats with FCGS present increased neutrophils and lymphocytes (CD8, FoxP3) counts and chemokines levels (IL-1, IL-6, TNF-a, IFN-g) while present under-expressed CD4, CD4/CD8 ratio and CD21 in comparison to healthy individuals.

Regarding the etiology and clinical presentation, authors consider that FCGS may constitute a spontaneous model for human disease *Oral Lichen Planus.*

Conclusions:

Although the FCGS is well described by a number of studies for the local immunology, the systemic immune response needs to be further characterized.

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019 / #927

Topic: *AS06. Dentistry*

DESCRIPTION OF TOMOGRAPHIC CHARACTERISTICS OF ORAL MALIGNANT NEOPLASIA IN DOGS

Ana Marques[1,2], Carlos Viegas[2,3,4], André Pereira[5], João Requicha[2,4]
[1]IVC Evidensia, Hospital Veterinário Do Bom Jesus, Braga, Portugal, [2]University of Trás-os-Montes e Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [3]University of Trás-os-Montes e Alto Douro, Centre For The Research And Technology Of Agro-environmental And Biological Sciences (citab) - Associate Laboratory For Innovation, Capacity Building And Sustainability Of Agri-food Production (inov4agro), Vila Real, Portugal, [4]University of Trás-os-Montes e Alto Douro, Animal And Veterinary Research Centre (cecav) - Associated Laboratory For Animal And Veterinary Science (al4animals), Vila Real, Portugal, [5]Anicura, Centro Hospitalar Veterinário, Porto, Portugal

Introduction:

Oral cavity of the dog represents the fourth most frequent location for the appearance of malignant neoplasms. Computed tomography is an essential ancillary method for the diagnose and staging of these diseases.

Objectives:

The aim of this study was to describe the tomographic features of the malignant oral neoplasms in dogs.

Methods:

The studied sample included 24 dogs of nine different breeds, 7 females and 17 males with an average of 10.7 years old diagnosed with oral malignant neoplasms. All animals were submitted to computed tomography of the head region at Anicura Centro Hospitalar Veterinário. The evaluated imaging features were anatomical location, dimension, attenuation of the structure and contrast uptake, bone involvement, invasion of adjacent structures, lymphadenopathies, and local and/or distant metastases. Squamous cell carcinoma was the most prevalent oral neoplasia (33.3%), followed by melanoma (29.2%) and fibrosarcoma (20.8%).

Results:

The most frequent location of the neoplasm was the maxilla (45.8%). The majority of the sample presented alterations in the evaluated parameters, such as mass size greater than 4 cm (54.2%), soft tissue attenuation (87.5%), contrast uptake with a heterogeneous pattern (87.5%) and bone involvement (58.3%). Lymphadenopathies were also regularly observed (75%), mainly in the mandibular lymph node. The presence of distant metastases was observed in 47.1% of the patients. Only 20.8% of the sample showed invasion of an adjacent structure to the primary mass.

Conclusions:

This study contributed to the knowledge of tomographic features in malignant oral neoplasms and emphasizes its importance in the diagnosis.

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020 / #198

Topic: *AS06. Dentistry*

RETROSPECTIVE STUDY OF FREQUENCY OF ORAL DISEASES IN DOMESTIC FELINES AT THE VETERINARY SCHOOL IN URUGUAY

Laura Tejera[1], Agustina Algorta[2], Juan Eguren[3], Gabriela Turini[4], Kevin Yaneselli[5]
[1]Laboratorio de Analisis Clínicos, Departamento de Clínicas y Hospital Veterinario, Facultad de Veterinaria, Universidad de la República., Montevideo, Montevideo, Uruguay, [2]Unidad de Inmunología e Inmunoterapia, Dpto de Patobiología and Odontoestomatología, Dpto de Clínicas y Hospital Veterinario, Facultad de Veterinaria, Universidad de la República., Montevideo, Montevideo, Uruguay, [3]Unidad de Cirugía y Anestesia de Pequeños Animales, Departamento de Clinícas y Hospital Veterinario, Facultad de Veterinaria, Universidad de la República., Montevideo, Montevideo, Uruguay, [4]Odontoestomatología, Departamento de Clínicas y Hospital Veterinario, Facultad de Veterinaria, Universidad de la República., Montevideo, Montevideo, Uruguay, [5]Unidad de Inmunología e Inmunoterapia, Departamento de Patobiología, Facultad de Veterinaria, Universidad de la República., Montevideo, Montevideo, Uruguay

Introduction:

Oral disorders are one of the main reasons for consultation worldwide for felines in veterinary clinics. However, in Uruguay, there is not any casuistry that indicates the most frequent oral diseases in this species.

Objectives:

The aim of this work was to establish the casuistry of feline oral diseases at the Dentistry Service of Veterinary School (DSVS) in Uruguay.

Methods:

A retrospective study was made with the medical records of felines that attended consultation at the DSVS of the Hospital Center of the Veterinary School, Universidad de la República (Udelar), Uruguay, between 2014 to July 2019.

Results:

A total of 46 consultations were registered; 28 were male and 18 females. The most frequent reasons of consultation were halitosis, pain and ptyalism. The most frequent oral diseases which motivated a consultation were the following: 69.6% for feline chronic gingivostomatitis (FCGS) and the mean age of these patients was 9.1 ± 3.3 years, 45.7% for periodontal disease (PD) at 10.1±3.6 years, 23.9% for feline odontoclastic resorptive lesion (FORL) at 10±3.1 years. Moreover, 39.1% of the patients showed both FCGS and PD, 19.6% showed both FCGS and FORL and 13% showed FCGS, PD an FORL simultaneously. Other diagnosis was neoplasia, malocclusion, osteomyelitis, alveolar osteitis, chronic renal failure.

Conclusions:

This is the first study on feline oral diseases in the DSVS, Udelar, Uruguay. The main reasons that motivated the consultation were halitosis, pain and ptyalism. The most frequent diagnosis was FCGS. Moreover, the most frequent associated conditions were FCGS and PD.

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021 / #905

Topic: *AS07. Dermatology*

CLINICAL MICROBIOLOGY, SAFETY AND EFFICACY OF A SINGLE IN-CLINIC DOSE OF GENTAMICIN, POSACONAZOLE AND MOMETASONE FUROATE IN DOGS WITH OTITIS EXTERNA

Lea Heuer[1], Cornelia Wilhelm[2], Olivier Roy[3], Wolfgang Löhlein[4], Oliver Wolf[4], Eva Zschiesche[5]
[1]MSD Animal Health Innovation GmbH, Global Clinical Research, Schwabenheim an der Selz, Germany, [2]MSD Animal Health Innovation GmbH, Research Antiinfectives, Schwabenheim an der Selz, Germany, [3]Cébiphar, Département Préclinique Et Clinique Vétérinaire, Fondettes, France, [4]löhlein & wolf vet research and consulting, Clinical Research, Munich, Germany, [5]MSD Animal Health Innovation GmbH, Biostatistics, Schwabenheim an der Selz, Germany

Introduction:

Otitis externa can be treated successfully in dogs using appropriate topical medication selected based on diagnostics.

Objectives:

Clinical microbiology, safety and efficacy of a single, 0.8-ml in-clinic dose of gentamicin, posaconazole, mometasone furoate ear drops suspension was compared to a florfenicol- and terbinafine-containing control product (CP) in a masked, randomized multicenter study in dogs with acute (recurrent) otitis externa in Europe.

Methods:

At inclusion, client-owned dogs (n=316, OTIS-3 score ≥5/12) had culture performed, ears cleaned (saline) and treatment applied in-clinic. Minimum inhibitory concentrations (MIC) of gentamicin and florfenicol in bacteria (n=279) and of posaconazole and terbinafine in yeast (n=300) were determined on D0 and D28. CP treatment was repeated on D7. Clinical response was assessed on D7, D14, D28 and D42. Non-inferiority analysis (Farrington-Manning, tolerated difference (δ) 0.15) was used with a lower 97.5% confidence limit and p-values.

Results:

Gentamicin had high activity, with *Staphylococcus pseudintermedius* (n=151), *Pseudomonas aeruginosa* (n=38), and β-haemolytic *Streptococcus canis* (n=45) most commonly isolated. Posaconazole had high activity in *Malassezia pachydermatis* (MIC ≤0.125 µg/mL). By D7, clinical signs had improved by 57%. Treatment success (89.5% D14 OTIS-3≤4 and D28 OTIS-3≤3) and relapse (4.7% OTIS-3≥5/12) rates were non-inferior to CP (87.2%, 97.5% confidence limit -0.059, $p<0.0001$ and 1.7%, 97.5% confidence limit -0.0411, $p=0.0002$, respectively). There were no treatment-related adverse reactions.

Conclusions:

The single-dose, in-clinic treatment is safe and effective in dogs with otitis externa.

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022 / #751

Topic: *AS07. Dermatology*

IS A POLYMER-BASED DISSOLVABLE MICRONEEDLE A NEW CANDIDATE FOR TRANSDERMAL DRUG DELIVERY IN DOGS AND CATS?

Benchaphorn Limcharoen[1,2], Wijit Banlunara[1,3], Supason Wanichwecharungruang[1,4]
[1]Center of Excellence in Advanced Materials and Bio-Interfaces, Chulalongkorn University, Bangkok, Thailand, [2]Chulalongkorn University, Department Of Anatomy, Faculty Of Veterinary Science, Bangkok, Thailand, [3]Chulalongkorn University, Department Of Pathology, Faculty Of Veterinary Science, Bangkok, Thailand, [4]Chulalongkorn University, Department Of Chemistry, Faculty Of Science, Bangkok, Thailand

Introduction:

The dissolvable microneedle (DMN) is a micron-sized needle made from biocompatible and water-soluble polymers. It facilitates the release of active compounds such as drugs, molecules, and vaccines by piercing the skin and dissolving in the interstitial fluid, surpassing the stratum corneum barrier.

Objectives:

This study aims to assess the feasibility of using DMNs for transdermal delivery in dogs and cats, examining TEWL and skin characteristics post-MN application.

Methods:

Fresh skins from 10 dogs and cats were obtained post-necropsy. DMNs were fabricated using a polymer solution (sodium hyaluronate, polyvinylalcohol, and ponceau dye). Two lengths of DMN patches (250 µm and 400 µm) were applied, and TEWL measurements were taken immediately and 24 h after application. Cross-sectional and histopathological examinations were conducted.

Results:

TEWL values significantly increased immediately after applying both 250 µm and 400 µm DMNs in dogs and cats ($p<0.05$). The 400 µm DMNs exhibited higher TEWL values than the 250 µm DMNs. However, TEWL values returned to baseline after 24 hours. Cross-sectional analysis revealed red dots representing the MN array in the dermis, with mild intradermal red staining observed after 24 hours. Intradermal penetration depths were approximately 160 µm for the 250 µm needle and 260 µm for the 400 µm needle. No significant skin damage was observed.

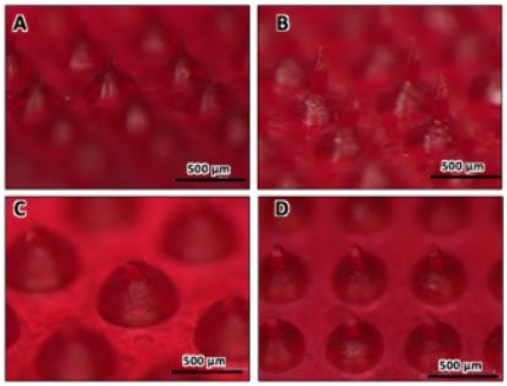

Figure 1. Dissolvable microneedles (DMNs). Stereoscopic images of the ponceau-loaded DMN of 250 (A & C) and 400 µm (B & D) needle length before and after application (bar= 500 µm).

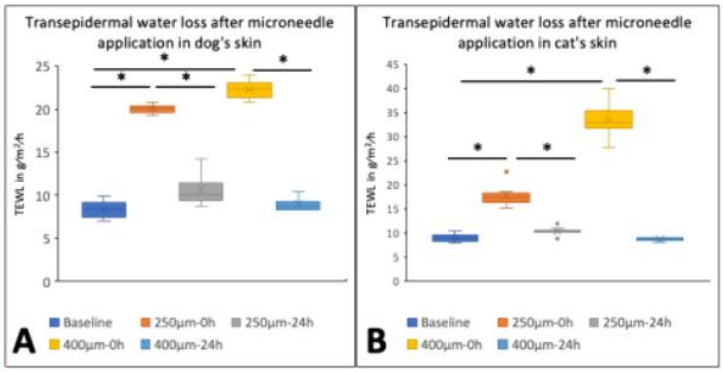

Figure 2. The measurements of transepidermal water loss (TEWL) before (baseline) and immediately (0 h) and 24 h after MN application in (A) dog, (B) cat, with DMN of 250 and 400 µm. The asterisk (*) Indicates significant difference ($p < 0.05$) while n.s. indicates no statistical difference ($p > 0.05$) between the indicated groups.

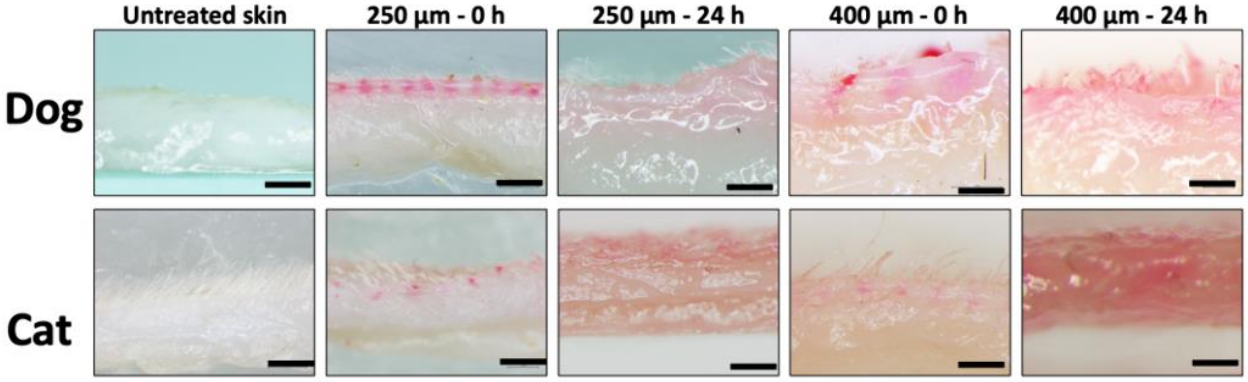

Figure 3. Representative stereomicroscopic images of the cross sectioned skin tissues immediately (0 h) and 24 h after the administration of the DMN with needle length of 250 and 400 µm in dog and cat (bar = 1 mm).

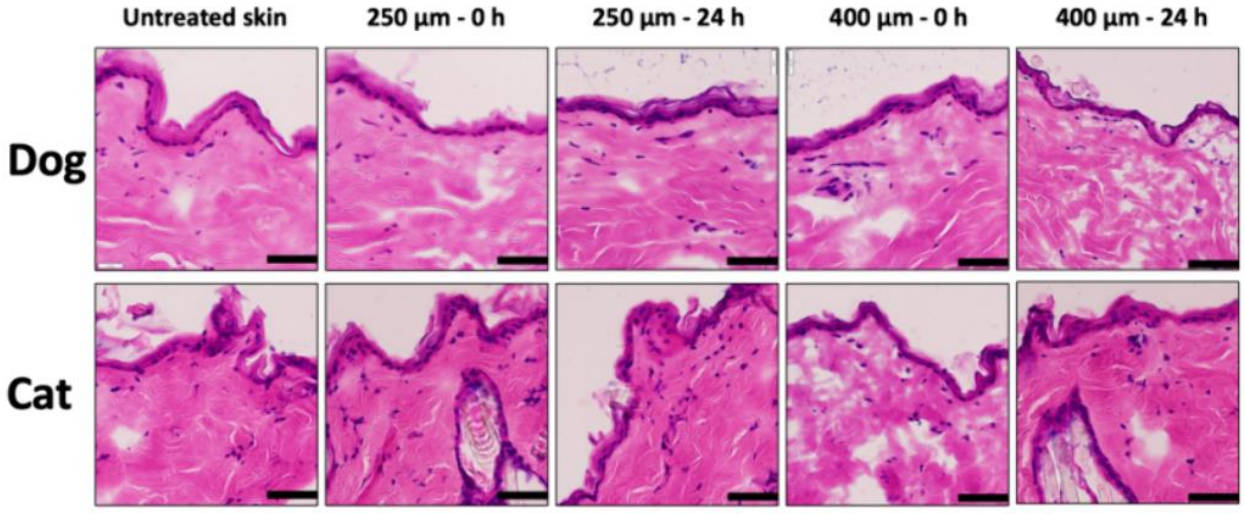

Figure 4. Representative microscopic images of the skin of dog and cat (bar = 40 µm).

Conclusions:

DMNs, as drug-loaded polymers, enable direct intradermal drug delivery in dogs and cats, targeting the deeper layers of the skin. The water solubility of the MN casting material allows for dissolution and release of active compounds into the desired area.

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023 / #845

Topic: *AS07. Dermatology*

VALIDATION OF A CLINICAL SCORING SYSTEM FOR NASAL CORNIFICATION DISORDERS IN DOGS

Sébastien Viaud[1], Sarah Pariente[1], Bruno Jahier[2], Christelle Navarro[3]
[1]Anicura CHV Aquivet, Dermatology, Eyssines, France, [2]MP Labo, Scientific Affairs, Grasse, France, [3]MP Labo, Marketing & Communication, Grasse, France

Introduction:

The lack of an accepted clinical scoring system for nasal cornification disorders limits the realisation of comparative efficacy studies on dedicated therapies.

Objectives:

The objective was to develop a score that is clinically relevant, reliable, and sensitive to change.

Methods:

An original evaluation grid was used by both investigator and dog's owners during an open-field study evaluating the benefits of a moisturizing balm (Sensiderm® Balm, MP Labo, France) in dogs with nasal hyperkeratosis (NHK). Twenty dogs with idiopathic or familial NHK received a vegetable-based ointment twice daily for 60 days. A global dermatological score (GDS) was defined using the sum of 4 criteria ("dryness", "lichenification", "crusts" and "affected area") on a 0 (no) to 3 (severe or > 2/3 extension) scale using clinical pictures for each item to guide the observer. Evaluation of the 4 criteria was realised on D0, D30, and D60, by each dog's owner and investigators. The correlation between observers for each criterion during follow-up were analysed (Spearman's rank correlation coefficient).

Results:

The dryness and affected area scores were significantly correlated between owners and investigators on D0, D30, and D60 ($p < 0.05$). The lichenification scores were not correlated at any time of the study. The crust scores were only significantly correlated on D60 ($p < 0.05$).

Conclusions:

The term lichenification is specific to dermatology and may be more difficult for owners to apprehend and may be confused with crusts. This original clinical evaluation system was proven to be partially reliable and should be re-evaluated by practitioners and for clinical use only.

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024 / #732

Topic: *AS07. Dermatology*

CASE REPORT – A CASE OF CUTANEOUS DIROFILARIASIS CONCOMITANTLY WITH HAEMANGIOMA IN A MONGREL

Ramesh P T[1], Anjan Kumar K R[2], Paramesha S C[3], Pramod K S[3], Lohitha H D[4], Selvi D[3], Lathamani V S[5], Malathi V[6]
[1]Karnataka Veterinary Animal and Fisheries Sciences University, Professor And Head, Veterinary Medicine, Veterinary College, Bengaluru, India, [2]Karnataka Veterinary Animal and Fisheries Sciences University,, Assistant Professor, Dept. Of Veterinary Pathology, Bengaluru, India, [3]KVAFSU, Dept. Of Veterinary Medicine ,, Bengaluru, India, [4]Bangalore Pet Hospital, Surgery, White field, India, [5]KVAFSU, Assistant Professor, Dept. Of Veterinary Medicine, Bengaluru, India, [6]KVAFSU, Associate Professor, Dept. Of Lpm,, Shivamogga, India

Introduction:

Cutaneous dirofilariasis is a parasitic disease caused by the mosquito borne filarial nematode *Dirofilaria repens,* which is also zoonotically important condition endemic to Asia. Infection may be asymptomatic or most commonly present as generalised dermatological lesions as a hypersensitivity reaction to microfilariae.

Objectives:

This case study aims to describe the concomitant occurrence of cutaneous dirofilariasis with haemangioma in a dog.

Methods:

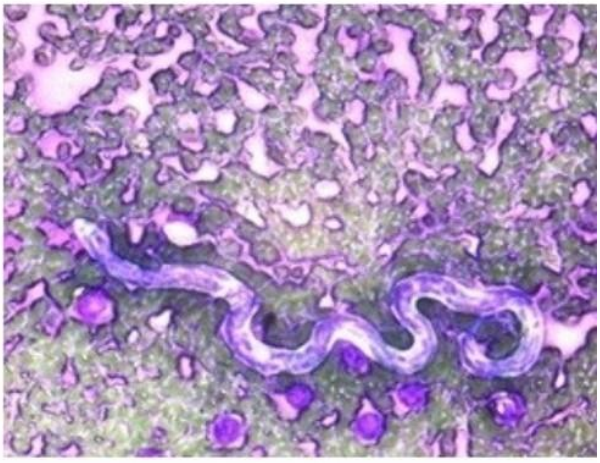
A mongrel dog presented with a deep ulcerative haemorrhagic cutaneous lesion which was a longstanding wound according to owner (Pet parent) measuring about 3x2x1cm in diameter. An impression smear was taken from the lesion and stained with rapid field stain and sent to Dept. of Parasitology for examination.

Excisional biopsy was also taken for the histopathological studies.

Results:

Impression smear revealed a filarial nematode, based on mouth and tail part it is confirmed as *Dirofilaria repens.* Pet was administered with the specific treatment against *Dirofilaria repens* which includes combination therapy with Doxycycline and Ivermectin. 15 days post treatment impression smear revealed no organism/filarial nematode but the lesion was not improved in condition. Finally, the histopathology of excisional biopsy revealed it as haemangioma.

Gross haemorragic lesion



D. repens in impression smear

Conclusions:

In the present case cutaneous dirofilariasis has concomitantly present with haemangioma and these conditions might be related to each other.

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025 / #931

Topic: *AS07. Dermatology*

ANTIMICROBIAL EFFECTIVENESS OF A PROPOLIS-BASED FORMULATION AGAINST MALASSEZIA PACHYDERMATIS AND MALASSEZIA SPP.

Claudia Santos[1], Cátia Morgado[2], Ana Catarina Rodrigues[1], Laura Fernandes[3], Maria Constança Pomba[1,3,4]
[1]Molecular Veterinary Diagnostic Laboratory, Genevet, Carnaxide, Portugal, [2]Hifarmax, I&d, São Domingos de Rana, Portugal, [3]Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugal, Clinic, Lisboa, Portugal, [4]AL4AnimalS - Associate Laboratory for Animal and Veterinary Sciences, Clinic, Lisboa, Portugal

Introduction:

Malassezia pachydermatis and other *Malassezia* species are among the most common pathogens causing skin infection, namely otitis externa.

Objectives:

To determine the *in vitro* efficacy of the propolis-based product topical product Septifree® against *Malassezia pachydermatis* and *Malassezia* spp. by Minimal Fungicidal Concentrations (MFC) and Time-Kill (TKA) assays.

Methods:

Fourteen clinical contemporary *Malassezia* spp. isolates were collected from canine ears with a diagnosis of Malassezia otitis externa in 2022. The isolates were identified as previously described (Guillot et al. 1996 J. Mycol. Médic.). MFC assays were developed according to the *in vivo* concentration of yeasts causing skin infection, as previously published for Staphylococci (Cremers N, et al. 2020 Vet Dermatol). Time-kill assays were done based in the Clinical and Laboratory Standards Institute specific guidelines.

Results:

Results of Time-Kill assays revealed that: i) MFC of 12,5% V/V occurred at time of contact of 48-hours in 5 Malassezia strains, ii) MFC of 25% V/V occurred at time of contact of 48-hours in 13 Malassezia strains, except for the *Malassezia furfur* strain, iii) MFC of 50% V/V occurred at 24-hours for all *Malassezia* strains except for the *Malassezia japonica* and *M. furfur* strains, iv) MFC 75% V/V occurred at time of contact of 48-hours for all *Malassezia* strains.

Conclusions:

Overall, this study allows us to conclude that 75% dilutions of the product would kill an inoculum that mimics the yeast concentration present *in vivo* in skin infection at time of contact of 24 hours for almost all strains and for all at 48-hours.

Disclosures: Funded by HiFarmax Portugal.

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026 / #877

Topic: *AS07. Dermatology*

SIMULTANEOUS ENVIRONMENTAL ALLERGEN-SPECIFIC IGE DETERMINATION AND CCD IDENTIFICATION BY CANINE INGEZIM PLEX ENVIRONMENTAL SENSITIZATION USING HAILSTORM ANALYZER

Luis Rivas[1], Jorge Pulido[1], Dana Natov[2], Paloma Rueda[1], Frank Lagattuta[2]
[1]GSD-Madrid, R&d, Madrid, Spain, [2]Gold Standard Diagnostics USA, R&d, Davis, United States of America

Introduction:

Allergen-specific IgE (sIgE) detection serological tests are reliable and patient-friendly diagnostic alternatives to skin tests in veterinary practice. Canine INgezim PLEX Environmental Sensitization kit is an ELISA-microarray test capable to determine simultaneously 30 allergen-sIgE levels. Herein, an improved version of the kit is presented, able of identifying the clinically irrelevant Carbohydrate Cross-Reactivity Determinants (CCD), which are responsible for polyreactivity results against pollen extracts. Furthermore, the assay was adapted to Hailstorm (GSD-USA), an automatic device which supports various technologies (ELISA, CLIA and ELISA-microarray) and test formats (96-well MTP and Mono-Test Strips).

Objectives:

Test the performance of Canine INgezim PLEX Environmental Sensitization kit in combination with Hailstorm to determine the sensitization profile of dog sera.

Methods:

Forty dog sera were tested for sIgE levels to CCD and 30 environmental allergens using the Canine INgezim PLEX environmental sensitisation assay conducted by Hailstorm. Each serum was tested with or without prior incubation with a CCD inhibitor (RIDA® CCD-Inhibitor; R-Biopharm).

Results:

Twenty-seven sera (67.5%) were reactive to at least one extract. sIgE to mite or mold extracts were identified in 16 sera; these specific reactivities were not affected by the CCD blocking incubation. Twenty sera were pollen-sIgE reactive and 17 of them were also CCD-sIgE reactive. The CCD blocking incubation totally or partially eliminated pollen-sIgE reactivity of 9 and 8 sera, respectively. Three sera were pollen-sIgE reactive and CCD-sIgE non-reactive.

Conclusions:

Hailstorm offers a complete automated solution for the simultaneous detection of specific canine IgE levels and identification of clinically irrelevant sensitizations using an prior CCD blocking incubation.

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027 / #736

Topic: *AS07. Dermatology*

WHOLE-GENOME ANALYSIS PINPOINTS MOLECULAR IMPRINTS PROMOTING EPIDERMAL BARRIER DYSFUNCTION IN CANINE ATOPIC DERMATITIS

Inés Rodríguez[1,2], Soledad S. Alférez[1], Carolina R. Sanz[3]
[1]Autonomous University of Madrid, Biology, Madrid, Spain, [2]CSIC, Severo Ochoa Molecular Biology Center, Madrid, Spain, [3]Complutense University of Madrid, Animal Health, Madrid, Spain

Introduction:

Canine atopic dermatitis (CAD) is a complex skin disease commonly seen in clinical practice, that may be influenced by dog genetics and environment. Although strong breed predispositions have been previously stated, the exact molecular mechanisms underlying CAD remain unclear.

Objectives:

Our main goal was to identify shared genomic variants among dog breeds highly susceptible for CAD, that also differ from breeds with the lowest incidence of the disease, as they might contribute to the pathogenesis of CAD.

Methods:

We integrated multiple bioinformatic approaches to analyse the whole-genome sequences of 171 purebred dogs from 14 breeds defined as susceptible, and 14 breeds considered protected against the development of CAD, based on previously published incidence reports. Firstly, we applied the XP-EHH method, followed by a GWAS, functional enrichment analyses for GO terms related to biological processes and KEGG pathways and, finally, a SIFT value estimation for predicting the effects of candidate variants on protein functions. Analyses were performed using PLINKv1.90 and Rv3.2.2. The threshold for statistical significance was set at $p\text{-}value<0.05$.

Results:

We identified 7 genomic regions that significantly differed between susceptible and protected breeds and were essential for maintaining skin integrity. Furthermore, we detected 30 candidate genes with variants predicted to have detrimental effects on protein function that were also located in these regions. Functional analyses revealed that these genes specifically participate in epithelial-cell morphogenesis, hyaluronan and collagen metabolic processes, hair development and desmosome organization.

Conclusions:

The molecular imprints here identified are likely involved in the epidermal barrier dysfunction associated with CAD.

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028 / #39

Topic: *AS07. Dermatology*

COMPATIBILITY WITH DELTAMETHRIN AND IMIDACLOPRID/FLUMETHRIN OF A SPHINGOMYELIN-RICH LIPID EXTRACT CONTAINED IN A POLYMERIC MATRIX COLLAR FOR CANINE ATOPIC DERMATITIS

Sergi Segarra[1], Sophie Leclerc[2], Estelle Seigneuric[2], Aurélie Miquel[2]
[1]Bioiberica SAU, R&d, Esplugues de Llobregat, Spain, [2]AB7 Innovation, R&d, Deyme, France

Introduction:

Canine atopic dermatitis (CAD) is a highly prevalent disease. A thermoplastic polyurethane collar (Atopivet® collar, Bioiberica SAU, Spain) containing 2.5% sphingomyelin-rich lipid extract (LE) has been shown to provide clinical benefits in CAD patients. Given the widespread use of antiparasitic collars in client-owned dogs, a potential interaction with this LE-collar might be an issue if worn simultaneously.

Objectives:

To evaluate the *in vitro* compatibility of LE with imidacloprid/flumethrin, and with deltamethrin.

Methods:

A mixture of 2.5% LE, 2% lavender oil and 2-ethylhexyl diphenyl phosphate (LE-collar composition) with 10% imidacloprid and 4.5% flumethrin was prepared, stirred, and stored for 2 weeks at 54°C. Another mixture containing 4% deltamethrin instead of imidacloprid/flumethrin was prepared separately. Sphingolipids in the LE were quantified using flame-ionization detection (GC-FID), and imidacloprid, flumethrin and deltamethrin were quantified by high performance liquid chromatography (HPLC). Recovery percentages were calculated by working out the difference between final and initial content in the mixtures.

Results:

When theoretical values and actual results from the assays were compared, recovery percentages were 101.0% for LE, 101.0% for imidacloprid and 100.0% for flumethrin in the first mixture; and 93.0% for LE and 95.5% for deltamethrin in the second mixture.

Conclusions:

The LE is stable in the presence of imidacloprid/flumethrin, and deltamethrin, and vice versa. These findings support the compatibility of these ingredients and point towards a lack of interaction between them when applied *in vivo* as components of polymeric collars. Therefore, this LE-collar could be worn simultaneously with antiparasitic collars incorporating imidacloprid/flumethrin or deltamethrin.

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029 / #895

Topic: *AS08. Diagnostic imaging*

ATYPICAL RADIOGRAPHIC AND CLINICAL PRESENTATION IN ONE KITTEN AFTER THORACIC TRAUMA

Mária Kuricová[1], Marian Hluchý[1], Scarlett Marešová[1], Filip Korim[2], Tomáš Lipták[1]
[1]University of Veterinary Medicine and Pharmacy in Kosice, Small Animal Clinic, Košice, Slovak Republic, [2]University of Veterinary Medicine and Pharmacy in Kosice, Department Of Morphological Disciplines, Košice, Slovak Republic

Introduction:

Tracheal avulsion or rupture occurs is a result of traumatic injury to the neck and/or thoracic region. This condition presents a high mortality rate due to risk of hypertension pneumothorax, mediastinal and cervical emphysema.

As there is a lack of newer information regarding the clinical presentation and outcomes after therapy of tracheal avulsion in small animals, we present detailed clinical and imaging findings, tracheoscopy, and surgical procedure.

Objectives:

This clinical case describes an interesting case with detailed descripion of clinical presentation, diagnostic procedures and findings in a found cat which was surgically treated with tracheal avulsion.

Methods:

A found 6-month-old European shorthair cat weighing 1.5 kg admitted to our veterinary hospital.had a mixed dyspnea 40/min, pulse 130/min, low body temperature (37.1 ºC), CRT 2 sec., BCS 3/9.

Thoracic x-ray revealed radiolucent structure in central thorax and megaesophagus. Oral barium confirmed esophageal dilatation, radiolucent structure persisted over the heart base. Endoscopic tracheal examination showed formation of diverticulum at the site of tracheal avulsion and a stricture and almost completely stenotic tracheal lumen with an opening of approx. 2 mm caudally.

Results:

We performed left lateral thoracotomy at 4th intercostal space. We identified the serous defect, excised affected adventicia, ruptured tracheal rings, and performed end-to-end anastomosis. After short tracheoscopy control of the lumen, the patient arrested at the end of the procedure, resuscitation with atropine and subsequently with adrenaline and manual CPR was unsuccessful.

Conclusions:

The presented clinical case is unique, had educational impact on tracheal avulsions as a type of atypical thoracic injuries in cats.

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030 / #197

Topic: *AS08. Diagnostic imaging*

TRAUMATIC ANEURYSMAL BONE CYST IN A SIX-MONTH-OLD MALE DSH CAT

Athena Salimi[1], Negin Akhavan[2], Mohammad Molazem[3]
[1]University of Tehran, Faculty of Veterinary Medicine, Department Of Surgery And Radiology, Tehran, Iran, [2]Islamic Azad University, Faculty of Veterinary Medicine, Department Of Diagnostic Imaging, Tehran, Iran, [3]University of Tehran, Faculty of Veterinary Medicine, Surgery And Radiology, Tehran, Iran

Introduction:

Aneurysmal bone cysts (ABCs) are characterized as expansile local benign osteolytic bone lesions, composed of cyst-like walls which are divided into blood-filled cavernous spaces by connective tissues or boney trabeculae described as soap bubble appearance. Although the blood within the cyst is dynamic, vessels are not true. As a result of bone destruction, pathological fractures may occur. ABCs are reported in veterinary medicine rarely. A common region for lesions in companion animals is metaphysis of long bones. However, they have been reported in other regions. Different types of treatments have been discovered.

Objectives:

Six-month-old, intact, male DSH cat was presented with non-weight-bearing lameness and general swelling of the right forelimb. The cat's previous medical history was a recent trauma.

Methods:

The patient was referred to the radiology department to perform orthogonal radiographs of the right forelimb. Radiography revealed soft tissue swelling and a chip fracture in craniodistal of ulnar metaphysis. After a month, right arm was shown excessive swelling and pain, so the patient was referred for repeat radiography. In the last radiographs, expansile, cyst-like bone lesions with no sign of aggression were noted through the right ulnar metaphysis to the proximal diaphysis.

Results:

Radiographic appearance of the lesion is "ballooned" or "blown out" patterns that are compatible with aneurysmal bone cysts which can occur due to various causes including trauma.

Conclusions:

Patient is living so far, although due to uncontrollable expansion of the lesion in the right ulna and high recurrence rate, amputation was decided. Aneurysmal nature has been confirmed in pathology exam.

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031 / #637

Topic: *AS08. Diagnostic imaging*

MRI-BASED DIFFERENTIATION OF SUBARACHNOID AND INTRASPINAL CYSTS IN DOGS: INSIGHTS FROM CLINICAL CASES

Angelika Tobolska, Joanna Bajon, Korina Michalska
University of Warmia and Mazury in Olsztyn, Department Of Surgery And Roentgenology With Clinic, Olsztyn, Poland

Introduction:

Spinal cord cysts in dogs can be classified as extradural and intradural cysts. The prevalent extradural cysts are subarachnoid cysts, characterized by CSF accumulation and meningeal dilation. While most are congenital, some can be acquired. The cause of congenital arachnoid diverticulae, a subtype of subarachnoid cysts, remains uncertain. These cysts can expand over time, causing neurological symptoms. Intraspinal cysts, also known as syringomyelia, are fluid-filled cavities within the spinal cord. MRI is valuable for evaluating these cysts in dogs.

Objectives:

Differentiating subarachnoid and intraspinal cysts in dogs using MRI images for diagnosis.

Methods:

Spinal imaging studies were performed on 5 patients using a 0.25T MRI scanner. T1-weighted and T2-weighted images were acquired with different sequences, including spin-echo (SE), fast spin-echo (FSE), and fluid-attenuated inversion recovery (FLAIR). T1-weighted images were obtained after contrast agent administration.

Results:

An intramedullary cyst was diagnosed in the cervical spinal segment of a 3-year-old French Bulldog. On MRI, it appeared as an elongated defect along the spinal cord's longitudinal axis, hyperintense on T1-weighted images, and hypointense on T2-weighted images, with peripheral contrast enhancement. Subarachnoid cysts were diagnosed in 4 dogs, each in different spinal segments. On MRI, the subarachnoid cysts appeared as well-defined diverticulae filled with fluid of similar intensity to the aforementioned cyst. Peripheral contrast enhancement was observed in one case.

Conclusions:

MRI characteristics of subarachnoid and intraspinal cysts can vary based on the case, size, location, and associated factors. Thorough evaluation of MRI images, along with clinical correlation, is essential for accurate diagnosis and treatment planning.

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032 / #874

Topic: *AS09. Endocrinology*

USE OF DESLORELIN IN PREPUBERTAL FEMALE DOGS: THE FEASIBILITY OF ANTI-MÜLLERIAN HORMONE AS AN INDICATOR FOR DETERMINING THE OPTIMAL TIMING OF RE-IMPLANTATION - PRELIMINARY RESULTS

Duygu Kaya[1], Muhammet Ali Karadağ[1], Merve Sena Kumcu[1], Selim Aslan[2], Christelle Speiser-Fontaine[3], Sabine Schäfer-Somi[4]
[1]Kafkas University, Faculty of Veterinary Medicine, Obstetrics And Gynecology, Kars, Turkey, [2]Near East University, Faculty of Veterinary Medicine, Department Of Obstetrics And Gynecology, Nicosia, Cyprus, [3]VIRBAC group, Companion Animal Medical Department, Carros, France, [4]Platform AI and ET, Vetmeduni Vienna Austria, Small Animals And Horses, Vienna, Austria

Introduction:

Deslorelin acetate (DA) implant is recognized as a safe and reversible contraceptive; however, its impact on anti-Müllerian hormone (AMH) levels in prepubertal dogs remains unclear. AMH levels can provide valuable insights into determining the appropriate timing for re-implantation of DA.

Objectives:

This prospective study aimed to identify the optimal re-implantation time for prepubertal bitches previously treated with DA. The main objective was to investigate whether serum AMH concentration could serve as an early indicator of flare-up occurrence prior to re-implantation.

Methods:

A total of sixteen mixed-breed puppies, aged 113±2.11 days, with body weights of 5.26±0.27 kg, were included in the study. Groups included treatment (DES, n = 8) received a 4.7 mg Suprelorin® implant (T0), and control (CONT, n = 8) received a placebo. Blood and vaginal cytology samples were collected at 5-day intervals during the first 20 days, followed by monthly intervals. Body weight, height at withers, and vulva measurements were recorded. Re-implantation was performed six months after the initial treatment. AMH, estradiol 17β, progesterone, and total testosterone concentrations were measured.

Results:

No significant differences were observed in body weight, height at withers, AMH, or steroid hormone concentrations between the DES and CONT groups ($P>0.05$). Both groups exhibited inter-individual variations in AMH patterns

Conclusions:

The DA implant effectively delayed puberty. However, based on the six-month data obtained in this study, AMH does not appear to be a suitable indicator for monitoring ovarian and re-implantation responses in prepubertal female dogs. Further evaluation of all data until puberty is necessary to make a definitive decision.

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033 / #909

Topic: *AS09. Endocrinology*

LIVER FUNCTION AND LIPID PROFILE IN OBESE DOGS

Alessandra Melchert, Natalia Dos Santos, Julia Dos Santos, Allanah Venturini, Ana Camila Urrego, Maria Hussni
São Paulo University State - School of Veterinary Medicine and Animal Science, Departmento Of Veterinary Clinic, Botucatu, Brazil

Introduction:

Obesity in dogs and cats has been increasingly recognized in recent years. Excess body fat has adverse metabolic consequences, including disturbances in glucose metabolism and dyslipidemia. Alterations in liver function are frequent in obese dogs. The disease is also related to disturbs in the normal biochemical profile.

Objectives:

The aim of this study was to characterize the lipidic profile and liver function in obese dogs.

Methods:

Were studied 32 obese dogs with body condition scores (BCS) 8 and 9, using the 9-point system. Blood samples were collected after a 12-hour fast via jugular venipuncture. Serum samples were analyzed for alanine aminotransferase (ALT), alkaline phosphatase (ALP), gamma-glutamyl transpeptidase (GGT), total cholesterol (TC), triglycerides (TG), and glucose levels. The values were compared with reference ranges for dogs.

Results:

In the lipid profile, 50% of the dogs showed an increase in TG, while only 9.4% presented elevations in TC. Mean TC and TG of obese dogs were 218.7±54.5, and 161.6±131.1, respectively. In the liver function, elevations in ALT, ALP, and GGT occurred in 15.6%, 28.1%, and 6.3% of the dogs. Mean ALT, ALP, and GGT were 74.1±99.6, 580.7±2072.7, and 6.2±18.8, respectively. Only one obese dog showed increased glucose levels, with a mean of 84.3±49.6.

Conclusions:

Obesity was associated with changes in liver enzyme activities and lipidic profile, highlighting the importance of preventing or treating weight gain in dogs. Monitoring the serum ALT and triglyceride levels is important in obese dogs.

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034 / #716

Topic: *AS09. Endocrinology*

INVESTIGATION OF GENERAL ANAESTHESIA, SEDATION, AND CONGESTIVE HEART FAILURE AS RISK FACTORS FOR THE DEVELOPMENT OF ACUTE PANCREATITIS IN DOGS.

Jasper Papworth-Norris, Craig Breheny, Glynn Woods, Perrine Henry
The University of Edinburgh, Royal (dick) School Of Veterinary Studies, Midlothian, United Kingdom

Introduction:

General anaesthesia and cardiogenic shock are recognized risk factors for Acute Pancreatitis (AP) in humans through ischaemic insult and reperfusion injury. Whether this phenomenon occurs in companion animals requires further investigation.

Objectives:

Investigate general anaesthesia (GA), sedation and congestive heart failure (CHF) as risk factors for developing AP.

Methods:

Medical records of dogs tested for pancreatitis (SNAP cPL or Spec-cPL) between December 2018 and August 2022 were retrospectively reviewed. The AP group included dogs with abnormal pancreatitis test, pancreatic ultrasonographic changes and ≥3 supportive clinical signs. Controls had normal pancreatitis test, no ultrasonographic changes and <3 compatible clinical signs. Signalment and prevalence of GA, sedation or CHF, during the month preceding testing, were recorded. Variables were compared between groups using non-parametric statistics. Data is presented as median [range].

Results:

Of 716 cases reviewed, 148 met inclusion criteria (31 AP, 117 control). Sex, body weight and blood pressure were not significantly different between groups. AP were significantly older than controls (8.5 years [2-13] vs. 6.4 [0.3-16], $p<10^{-2}$). Cocker spaniels had increased risk of AP (11/31 vs. 8/117, $p<10^{-4}$, OR: 7.5). GA (3/31 vs. 6/117, p=0.3, OR: 2.0) and sedation (2/31 vs. 8/117, p=0.9, OR: 0.9) were not significantly associated with AP. No cases of CHF were seen in either group.

Conclusions:

Patients diagnosed with AP were significantly older than controls and cocker spaniels were overrepresented, but no association was found with GA, sedation or CHF.

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035 / #896

Topic: *AS09. Endocrinology*

A RETROSPECTIVE MULTICENTRIC STUDY ON CANINE HYPOADRENOCORTICISM IN 3 VETERINARY REFERRAL HOSPITALS IN PORTUGAL

Beatriz Gomes[1], Doroteia Bota[2], Gonçalo Petrucci[1,3,4], Hugo Gregório[5,6], Felisbina Queiroga[1]
[1]Centro de Ciência Animal e Veterinária, Universidade De Trás-os-montes E Alto Douro, Vila Real, Portugal, [2]Anicura Restelo Hospital Veterinario, Internal Medicine, Lisboa, Portugal, [3]Vasco da Gama University School, Vasco Da Gama Research Center (civg), Coimbra, Portugal, [4]OneVet Group, Hospital Veterinário Do Porto, Porto, Portugal, [5]CESPU, Institute For Research And Advanced Training In Health Sciences And Technologies, Gandra, Portugal, [6]AniCura, Chv Porto, Porto, Portugal

Introduction:

Hypoadrenocorticism (HA) is an endocrine disorder whose clinical signs may be vague and unspecific, making the diagnosis sometimes challenging.

Objectives:

Perform a retrospective multicentric study on hypoadrenocorticism in Portugal

Methods:

Databases from “AniCura Restelo Hospital Veterinário”, “AniCura CHV Porto Hospital Veterinário” and “Onevet Hospital Veterinário Porto” were evaluated and data from cases diagnosed between January 2016 and December 2021, were collected.

Results:

41 cases were collected. HA was more commonly diagnosed in mixed breeds (56,1%), females (53,7%), and neutered dogs (58,5%), with a median age of 5.5 ± 3.58 years at presentation. Lethargy (77,5%) and anorexia/hyporexia (77,5%) were frequent. Increase in BUN (81,1%) and creatinine (64,9%) levels, as well as hyperkalemia (78,4%) and hyponatremia (75,7%), which displayed a Na: K ratio < 27 in 73% of the studied population were observed. Addisonian crisis, when present, was more frequent in the first 6 (six) months after diagnosis (86%). An association was observed between the development of an Addisonian crisis and the absence of follow-up appointments (p=0,001) and non-compliance with medication by the owner (p=0,001). The majority of the population was clinically stable after one year of diagnosis (91,7%) and those deaths that occurred, were due to causes unrelated to HA (8,3%).

Conclusions:

HA has a good prognosis in animals where diagnosis and treatment have been implemented. Moreover, the presence in follow-up appointments and compliance with medication guidelines established by the veterinarian is crucial for the stability of these animals, namely, regarding the occurrence of Addisonian crisis in the first six months after clinical diagnosis.

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036 / #928

Topic: *AS09. Endocrinology*

CONCURRENT JUVENILE DIABETES MELLITUS AND PITUITARY DWARFISM IN THREE BORDER COLLIE PUPPIES - A CLINICAL DESCRIPTION

Tijmen Willemse, Sylvie Daminet
Ghent University, Small Animal Clinic, Merelbeke, Belgium

Introduction:

The combination of juvenile diabetes mellitus (DM) and pituitary dwarfism (PD) in dogs has not been reported before in the veterinary medical literature.

Objectives:

To retrospectively describe the presentation, diagnostic process, treatment and follow-up information of Border Collie puppies diagnosed with both DM and PD.

Methods:

Clinicopathological data, diagnostics and follow-up information of Border Collies that were diagnosed with concurrent DM and PD were reviewed. The diagnosis was based on clinical signs, hyperglycemia and glycosuria for DM. The diagnosis of PD was based on multiple measurements of low Insulin-like growth factor-1 (IGF-1) concentrations, after treatment with insulin was started.

Results:

Three brown and white, apparently unrelated, border collie puppies aged 3-6 months, two males and one female, presented with polyuria/polydipsia (PU/PD), proportional dwarfism and a retained puppy coat. All were diagnosed with DM and insulin treatment was started. Their PU/PD improved, but their growth did not. Other causes of dwarfism were examined and all were diagnosed with PD. Treatment with medroxyprogesterone was started in two puppies. Both stayed smaller than expected for their breed. Their diabetes mellitus needed frequent dose adjustments as they grew. Quality of life assessed by the owners was excellent.

Conclusions:

This is the first report of concurrent juvenile diabetes mellitus and pituitary dwarfism in a series of brown Border Collie puppies. An underlying mechanism was not established. Treatment was challenging and did not induce a normal growth pattern, but did lead to good glycemic control and quality of life.

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037 / #882

Topic: *AS10. Exotics*

SUCCESSFUL MANAGEMENT OF PYOMETRA IN A PET HEDGEHOG (ATELERIX ALBIVENTRIS)

Daniela Pancrácio[1], Rui Patricio[1], Catarina Baptista[2], Paula Oliveira[3], Fernanda Seixas[4], Sonia Campos[1]
[1]Lusofona University, Faculty Of Veterinary Medicine, Lisbon, Portugal, [2]Lusofona University, Faculty Of Veterinary Medicine, Lisboa, Portugal, [3]Universidade de Trás-os-Montes e Alto Douro, Centro De Ciência Animal E Veterinaria, vila real, Portugal, [4]Universidade de Tras os Montes e Alto Douro, Centro De Investigação Das Tecnologias Agroambientais E Biologicas, vila real, Portugal

Introduction:

Pyometra, a life-threatening reproductive disorder characterized by uterine bacterial infection and pus accumulation, is poorly documented in exotic mammals. This case report presents the occurrence of pyometra in a 2-year-old African pygmy hedgehog and highlights the diagnostic and therapeutic approaches employed for its successful management.

Objectives:

This study aimed to: (1) describe the procedures used to confirm the diagnosis of pyometra in the hedgehog, including bloodwork, abdominal ultrasound and vulvar cytology in order to assess the severity of the infection in this species; (2) outline the therapeutic management of pyometra, focusing on medical and surgical treatments that ensure a favorable postoperative outcome.

Methods:

Anesthetic premedication included 0,5mg/kg midazolam IM and 0,2mg/kg butorphanol IM for instrumentation. Endotracheal intubation was performed with an 1.5mm endotracheal tube after induction with 1,5mg/kg alfaxalone IV. Maintenance was achieved with isoflurane in oxygen. Clinical parameters (ECG, capnography, blood pressure) were continuously monitored. Ovariohysterectomy was performed and the removed uterus sent for bacterial analysis and histopathology.

Results:

Anesthesia recovery was uneventfully. The patient was discharged the next day with 5mg/kg enrofloxacin PO BID and 0,2mg/kg meloxicam PO SID. *Staphylococcus warner* was identified as the cause of the pyometra confirmed by histopathology and showed to be sensitive to enrofloxacin. Follow-up examinations revealed complete resolution of the clinical signs. The hedgehog displayed an active and healthy status.

Conclusions:

This case emphasizes the importance of recognizing and managing reproductive disorders in exotic mammals to ensure favorable outcomes. The described methods may contribute to improve the clinical management and overall welfare of hedgehogs with pyometra.

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Lisbon, 27-29 September 2023

038 / #605

Topic: *AS10. Exotics*

LIMITED SARS-COV-2 INFECTION IN DOMESTIC FERRETS: A SEROPREVALENCE STUDY IN SPAIN

Sergio Villanueva, Jacobo Giner, María-Eugenia Lebrero, Hector Ruíz, Alex Gomez, Diana Marteles, Teresa Navarro, Pablo Rueda, Dolores Perez, Delia Lacasta, Antonio Fernandez, Marta Ruíz De Arcaute, Maite Verde, Michele Trotta
ZARAGOZA VETERINARY FACULTY, Animal Pathology, ZARAGOZA, Spain

Introduction:

Animal infections with SARS-CoV-2 have been reported in different countries including different species. Detection of anti-SARS-CoV-2 in serum sample is indicative of exposure of the host immune system to the virus.

Objectives:

The aim of this study was to determine the seroprevalence in pet ferrets from Spain during the different waves of COVID-19 outbreaks.

Methods:

A retrospective study including pet ferrets (n=432) from different provinces of Spain from 12/2019 to 05/2023 were analyzed. The seropositivity variation during the different waves of COVID-19 outbreaks was also evaluated.

Results:

Eighteen ferrets tested positive to SARS-CoV-2 (4.17%) by in-house enzyme-linked immunosorbent assay (ELISA) based on receptor binding domain (RBD) of spike antigen. Seropositive ferrets were detected during all COVID-19 outbreaks, except for the fourth wave. The highest number of seropositive ferrets occurred during the seventh wave when BA.4 and BA.5 Omicron virus variants were dominant. The epidemiological study was performed on many ferret samples from different provinces of Spain and covering the entire period of SARS-CoV-2 spreading in Europe.

Conclusions:

The present study report for the first time the seroprevalence to SARS-CoV-2 in many provinces of a European country, and the evidence that the major pet ferret exposure was registered during the circulation in Europe of Omicron variants. The human-to-animal transmission is the most probable source of infection, as the ferret lived prevalently indoor.

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039 / #683

Topic: *AS10. Exotics*

PRESENCE OF ANTI-TOXOPLASMA GONDII ANTIBODIES IN DOMESTIC FERRETS IN SPAIN: A SEROPREVALENCE STUDY

Sergio Villanueva[1], Jacobo Giner[1], María-Eugenia Lebrero[1], José Villora[2], Víctor Martín[1], Hector Ruíz[1], Diana Marteles[1], Alex Gomez[1], Dolores Perez[3], Delia Lacasta[1], Maite Verde[1], Michele Trotta[1], Antonio Fernandez[1]
[1]ZARAGOZA VETERINARY FACULTY, Animal Pathology, ZARAGOZA, Spain, [2]Clínica Veterinaria Selvática, Exotic Pets Service, Valencia, Spain, [3]ZARAGOZA VETERINARY FACULTY, Animal Production And Sciences Of The Food, ZARAGOZA, Spain

Introduction:

Toxoplasmosis is a protozoan disease caused by *Toxoplasma gondii*. This parasite can infect all warm-blooded animals, such as birds and mammals. However, there is no information of the presence of anti-Toxoplasma antibodies in domestic ferrets (*Mustela putorius furo*).

Objectives:

The objective of this study was to determine the seroprevalence level in domestic ferrets from Spain by in-house indirect immunofluorescence test (IFAT).

Methods:

A retrospective study including ferrets (n=303) from different regions of Spain from 01/2020 to 06/2023 were analyzed. For IFAT, the cut-off value for the positive sera was 1:32. Statistical analysis was performed to determine possible associations between seropositivity and the following variables: age, gender, neutering (intact, surgical castration/spaying, hormone implant), cohabitation with other animals, health status during the blood collection (sick versus healthy), and lifestyle (indoor, outdoor, or mixed) were analysed.

Results:

Three ferrets tested positive to *T. gondii* (0.99%) by IFAT. All seropositive ferrets were senior and outdoor lifestyle. No significant association ($p > 0.05$) was detected between *Toxoplasma* seropositivity and age, gender, neutering, cohabitation with other animals, and health status, and lifestyle (indoor, outdoor, or mixed) However, a significant association was found between lifestyle and seropositivity ($p=<0.001$).

Conclusions:

The present study report for the first time the seroprevalence to *T. gondii* in pet ferrets. In this sense, outdoor lifestyle could be a risk factor for ferrets . Further epidemiological studies are necessary to determine the risk that other non-conventional pets can be exposed to *T. gondii*.

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040 / #796

Topic: *AS11. Feline medicine*

EFFECT OF XENOGENEIC MESENCHYMAL STEM CELL SECRETOME ON REFRACTORY FELINE CHRONIC GINGIVOSTOMATITIS

Angel Almendros[1], Claudia Moores[2], Omid Nekouei[3], Fuyong Li[3], May Tse[1], Kerstin Baiker[1]
[1]City University of Hong Kong, Veterinary Clinical Sciences, Hong Kong, Hong Kong PRC, [2]City University of Hong Kong, Veterinary Medical Centre, Hong Kong, Hong Kong PRC, [3]City University of Hong Kong, Public Health, Hong Kong, Hong Kong PRC

Introduction:

Consistent successful treatment of feline chronic gingivostomatitis (FCGST) remains elusive. Even after surgery, 30% of cats require long term treatment with corticosteroids or cyclosporin. Autologous and allogeneic mesenchymal stem cells (MSCs) improved or cured FCGST in 70% of cats in previous studies. Secretome from MSCs appear to potentially exhibit functions including inflammatory control, regeneration, and healing of injured tissue.

Objectives:

To investigate the effect of xenogeneic adipose derived MSC secretome for the treatment of FCGST.

Methods:

Eight patients recruited prospectively with refractory FCGST, 3 to 12 months after partial or full mouth extraction, were included. All cats were free of systemic illness and had stopped treatment with immunomodulators at least 7 days before treatment. Cats visited on days 1, 30 and 90 for a clinical examination and treatment with 50 mg of injectable intralesional MSCs secretome. Monitoring of globulins, stomatitis disease activity index (SDAI) and histopathology, assessing the degree and quality of inflammation and mucosal damage, pre and post treatment were used for evaluation of therapeutical response.

Results:

SDAI decreased in 87% (7/8) of the cats on D90 compared to D1, while weight gain and lower globulinemia was observed in 62% (5/8) of the cats. Significant clinical and histopathological improvement was documented in 25% (2/8) of the cats, with ≥ 80% decrease of SDAI, weight gain and decrease in globulinemia. No adverse effects were observed.

Conclusions:

Addition of MSCs secretome to the treatment of cats after partial or full mouth extraction might lead to clinical and histopathological improvement in a subsection of cats.

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041 / #633

Topic: *AS11. Feline medicine*

URINARY KIDNEY INJURY MOLECULE-1 AS EARLY DIAGNOSTIC MARKER OF CHRONIC KIDNEY DISEASE IN CATS

Hiroto Maeda[1], Kokoro Masuda[2], Kurumi Igarashi[2], Kazuyuki Sogawa[2]
[1]Maeda Veterinary Hospital, Yamate Hospital, Hokkaido, Japan, [2]Azabu University, Biochemistry, Sagamihara-city, Japan

Introduction:

Chronic kidney disease (CKD) is a common disorder and cause of death in cats. In the classification proposed by the International Renal Interest Society (IRIS), stage 1 and 2 CKD are difficult to diagnose accurately using markers, in comparison with normal controls. We recently described a simple and highly reproducible tandem mass tag labelling method for identifying potential disease-marker candidates among low-abundance urine proteins.

Objectives:

We identify novel urine biomarkers that are potentially superior to classical markers for early and specific detection of CKD stage 1 cats.

Methods:

In the current study, urine samples were obtained from 90 normal control cats as the control group and from 50 cats with CKD (stage 1). To identify new urine biomarkers for CKD, two pool urine samples (normal controls and CKD stage 1 cats) were differentially labelled with TMT, subjected to analysis using SDS-PAGE, digested with trypsin and subjected to analysis using LC-MS/MS.

Results:

Kidney injury molecule-1 (KIM-1) was identified as a protein with higher levels in cats with CKD (stage 1). An ELISA of urine KIM-1 showed within-run (3.2-4.5%) and between-day (3.4–4.8%) reproducibility. Urine KIM-1 levels measured with this assay were significantly greater in CKD (stage 1) cats than in normal cats (63.7±10.7 vs. 35.7±9.7 mg/g Cre, $p<0.001$).

Conclusions:

These results indicate that KIM-1 may be useful as a complementary marker with p-Cre and BUN for detection of CKD (stage 1) in cats.

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042 / #925

Topic: *AS11. Feline medicine*

ACUTE NECROTIC GLOSSITIS IN A KITTEN WITH MIXED FCV AND FPV INFECTION: A CASE REPORT

Ana Lopes[1], Tomás Magalhães[2,3,4]
[1]BVET, Consultório Veterinário, São Brás de Alportel, Portugal, [2]University of Trás-os-Montes and Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [3]University of Trás-os-Montes and Alto Douro, Animal And Veterinary Research Centre (cecav), Vila Real, Portugal, [4]University of Trás-os-Montes and Alto Douro, Associate Laboratory For Animal And Veterinary Sciences (al4animals), Vila Real, Portugal

Introduction:

Viral infections, caused by feline calicivirus (FCV) and feline panleukopenia virus (FPV), are common in unvaccinated kittens.

Objectives:

To report an atypical case of acute necrotic glossitis in a kitten with mixed viral infection.

Methods:

Clinical data were obtained for descriptive analysis as a case report.

Results:

A 2-month-old kitten was admitted with anorexia and lethargy. Clinical dehydration, fever (41.8ºC) and abdominal discomfort were detected and a positive result for parvovirus and coronavirus was confirmed using a commercial rapid test. All white blood cell lines were significantly low, with severe neutropenia (0.02×10^9/l), which was compatible with FPV. An inpatient therapeutic plan was prescribed, including fluid therapy, triple antibiotic therapy (ampicillin, metronidazole and marbofloxacin), hyperimmune serum administration and nutritional support. On day 2, the kitten started having profuse bloody diarrhea and becoming less active and on day 5, a necrotic lesion on the rostral tongue developed. Regular local cleanings and syringe feeding were initiated, but the clinical condition deteriorated over the following hours (dyspnea, hypothermia and severe discomfort), which led to euthanasia. Part of the tongue was collected for molecular analysis by polymerase chain reaction, with a positive result for FCV (1.60×10^5 cDNA copies/ml) and for FPV (4.59×10^7 cDNA copies/ml). A necrotic glossitis of bacterial origin was diagnosed by histopathology, which was probably the result of viral tropism for tongue epithelial cells and consequent low local immunity and secondary bacterial overgrowth.

Conclusions:

This case report describes an unusual case of necrotic glossitis associated with mixed FCV and FPV infection.

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043 / #864

Topic: *AS11. Feline medicine*

PULMONARY LOBAR EMPHYSEMA IN A 6-YEAR-OLD CAT - A CASE REPORT

João Martins[1], Leonor Lina[2], Ana Tereso[2], Sonia Campos[3]
[1]Associate Laboratory for Animal and Veterinary Sciences (AL4AnimalS), Veterinary Medicine, Lisbon, Portugal, [2]Universidade Lusofona, Faculdade De Medicina Veterinária, Lisboa, Portugal, [3]Universidade Lusófona, Faculdade De Medicina Veterinária, Lisboa, Portugal

Introduction:

Pulmonary lobar emphysema is a rare condition characterized by abnormal hyperinflation of one or more lung lobes due to bronchial obstruction and air entrapment.

Objectives:

To descript a case of a cat with multiple emphysematous lung lobes.

Methods:

A 6-year-old indoor neutered male cat presented in respiratory distress and a supposed history of lethargy. According to the owners, changes in the respiratory pattern had been observed since a young age but never thoroughly investigated. Physical examination findings included abnormal crepitant lung auscultation (crackles), expiratory dyspnoea and tachypnea.

Results:

After in-cage oxygen therapy and sedation with 0.3mg/kg of butorphanol IM, chest radiographs were performed, having revealed signs of lung overinflation and lobar emphysema. Bloodwork showed mild azotaemia and hyperglobulinemia, as well as an unremarkable haemogram. Posteriorly, the cat was assigned for a CT-scan that disclosed the presence of multifocal emphysematous 'bulla-like' lesions on the caudal lobes and right lung's accessory lobe, being the second most severely affected. Bronchoscopy showed slight oedema of the mucosa, dynamic collapse of the left main bronchus and a small amount of purulent mucus. A bronchoalveolar lavage was performed and a sample collected for analysis didn't reveal aerobic culture growth. Despite the observed massive lesions, the cat showed an SpO_2=97% after extubation.

Conclusions:

The anomalies observed in the lungs are consistent with chronic obstructive pulmonary disease secondary to primary bronchopathy, concomitant with diffuse interstitial pneumonia. Differential congenital lobar emphysema is less likely, although it cannot be completely ruled out. Although the prognosis is guarded to bad, the cat is currently stable.

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044 / #632

Topic: *AS11. Feline medicine*

PLASMA VITAMIN K-DEPENDENT PROTEIN C AS EARLY DIAGNOSTIC MARKER OF FELINE CHRONIC KIDNEY DISEASE

Kokoro Masuda[1], Yuiko Suzuki[1], Hiroto Maeda[2], Kazuyuki Sogawa[1]
[1]Azabu University, Biochemistry, Sagamihara-city, Japan, [2]Maeda Veterinary Hospital, Yamate Hospital, Hokkaido, Japan

Introduction:

Chronic kidney disease (CKD) is a common disorder and cause of death in cats. In the classification proposed by the International Renal Interest Society (IRIS), stage 1 and 2 CKD are difficult to diagnose accurately using markers, in comparison with normal controls. We recently described a simple and highly reproducible tandem mass tag labelling method for identifying potential disease-marker candidates among low-abundance plasma proteins.

Objectives:

We identify novel plasma biomarkers that are potentially superior to classical markers for early and specific detection of CKD stage 1 cats.

Methods:

In the current study, plasma samples were obtained from 90 normal controls and from 50 cats with CKD (stage 1). To identify new plasma biomarkers for CKD, six plasma samples (three normal control samples and three CKD stage 1 samples) were extracted with SSA lectin magnetic beads, differentially labelled with TMT, digested with trypsin and subjected to analysis using LC-MS/MS.

Results:

Vitamin K-dependent protein C (PROC) was identified as a protein with lower levels in CKD stage 1 cats. An ELISA of plasma sialylated PROC showed within-run (4.3-4.9%) and between-day (4.3–5.2%) reproducibility. Plasma sialylated PROC levels measured with this assay were significantly greater in normal controls than in CKD stage 1 cats (1.40±0.13 vs. 1.07±0.11 mAU/mL, $p<0.001$).

Conclusions:

These results indicate that sialylated PROC may be useful as a complementary marker with plasma creatinine, BUN and SDMA for detection of CKD stage 1 cats.

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045 / #369

Topic: *AS11. Feline medicine*

GALLBLADDER ADENOCARCINOMA IN A RAGDOLL CAT

Pilar Rocha, Juliana Fragoso
Hospital Veterinário da Bicuda, Hospital Veterinário Da Bicuda, Cascais, Portugal

Introduction:

Although rare, tumours of the biliary system in cats are more common than liver tumours. They are described mainly as adenomas and adenocarcinomas in males, elderly and asymptomatic cats.

Objectives:

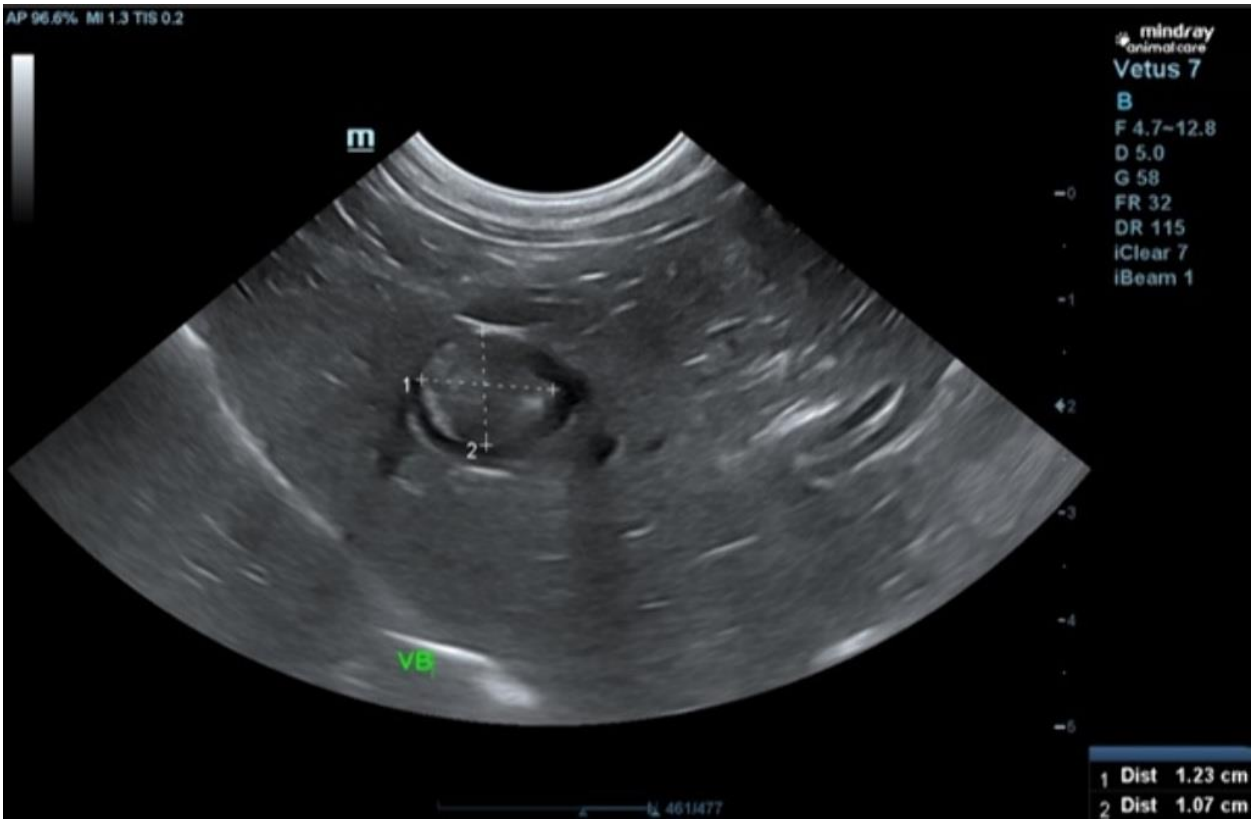
To describe a case of gallbladder neoplasia in a cat.

Methods:

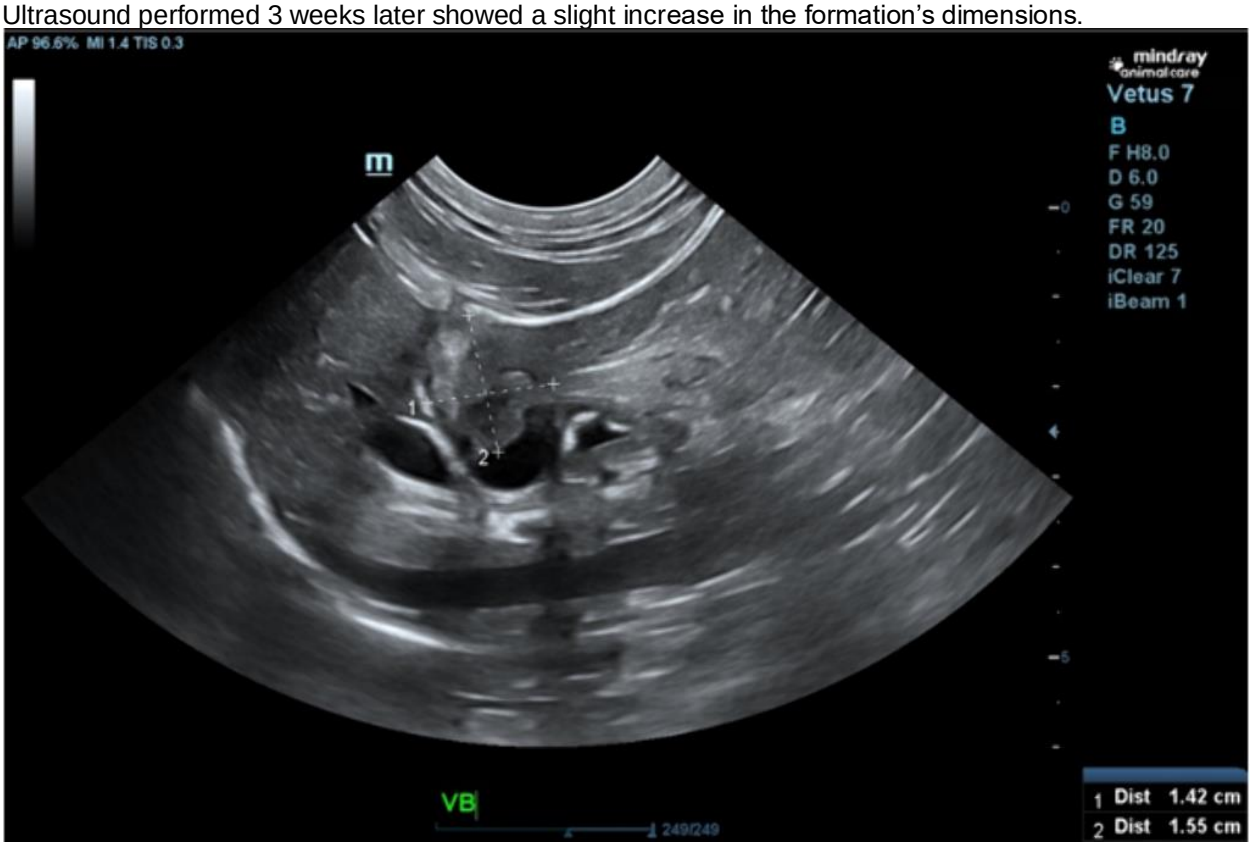
The present case consists of a 12-year-old Ragdoll cat with recurrent diarrhoea and sporadic vomiting.

Despite negative coprological analysis, empirical treatment with fenbendazole was performed due to infection by *Giardia* spp. in feline cohabitants.

In the absence of improvement, an abdominal ultrasound was performed. An intraluminal, hyperechogenic and heterogeneous formation with peripheral vascularization was identified in the gallbladder.



Ultrasound performed 3 weeks later showed a slight increase in the formation's dimensions.



Thorax radiography demonstrated no evidence of lung metastases and thrombocytosis was detected in the blood tests. The patient was referred for cholecystectomy and histopathological analysis.

Results:

The histopathological analysis resulted in scirrhous adenocarcinoma of the gallbladder.

Chemotherapy with doxorubicin was started, however, there was an evolution to local metastasis with the invasion of the hepatic parenchyma, adipose tissue and adjacent abdominal muscles 5 months after surgery. Survival was 8 months, having evolved to pulmonary metastasis and recurrent pleural effusion.

Conclusions:

Although gallbladder tumours are infrequent in cats, they are an important differential diagnosis to consider when identifying a gallbladder formation during ultrasound. On the other hand, since many of the affected cats do not show clinical signs or show signs that are not specific, the importance of ultrasound controls in elderly animals is emphasized.

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046 / #889

Topic: *AS11. Feline medicine*

PREVALENCE OF SUBCLINICAL HYPERTROPHIC CARDIOMIOPATHY IN APPARENTLY HEALTHY CATS AGED 7 YEARS AND OLDER IN THE GREATER LISBON AREA

Ana Rita Silva[1], Teresa Costa[2], Joana Oliveira[2], Ana Clotilde Alves[2], Berta São Braz[1]
[1]CIISA - Faculdade de Medicina Veterinária, Clinics, Lisboa, Portugal, [2]Hospital Veterinário SOSVET, Clinics, Almada, Portugal

Introduction:

Cardiomyopathies are the most common group of cardiovascular diseases in cats, often occurring subclinically and leading to underdiagnosis or late diagnosis, resulting in worse prognosis and outcome.

Objectives:

This study aimed to contribute to understanding the incidence, risk factors, and diagnostic methods for subclinical hypertrophic cardiomyopathy in Portugal.

Methods:

The randomized study included 24 apparently healthy cats aged 7 years or older with no present or previous cardiac disease. The animals underwent screening for systemic hypertension, chronic kidney disease, and hyperthyroidism through measurements of arterial blood pressure (BP) and determination of plasma urea, creatinine, and thyroxine, respectively. A physical examination, plasma proBNP determination, thoracic X-ray with vertebral heart scale (VHS) measurement, and echocardiography were performed.

Results:

According to the applied criteria, 45.8% (11/24) of the cats exhibited subclinical left ventricular hypertrophy (LVH), all in stage B1. While no statistically significant risk factors were identified, the affected cats tended to be heavier than the healthy ones. Heart murmurs were detected in 16.7% (4/24) of the cats, and left atrial dilation was observed in 12.5% (3/24) of the cases. Among the animals with increased left ventricular fractional shortening (45.8%, 11/24), 63.6% (7/11) also had LVH. Heart rate, BP, VHS, and proBNP did not show a significant association with the presence of LVH.

Conclusions:

These findings highlight the high incidence of LVH in the studied cat population and emphasize the challenges of early diagnosis. The study underscores the importance of implementing guidelines for early screening and detection of affected cats to enable timely monitoring of their condition.

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047 / #898

Topic: *AS11. Feline medicine*

SEVERE CYSTIC CHANGES WITH MARKED HEPATOMEGALY IN A BRITISH BLUE CAT

Hoi Lam Tang, Katie Mcnaught, Anselmo Gil, Ian Ramsey
University of Glasgow, Small Animal Hospital, Glasgow, United Kingdom

Introduction:

Marked hepatomegaly with extensive cystic changes is rarely recognised.

Objectives:

Description of polycystic liver disease (PCLD) in a cat.

Methods:

Case History: A 12-year-old, neutered female 6.8 kg British Blue was presented with a one-month history of non-painful abdominal distention caused by hepatomegaly. The cat was otherwise clinically normal, with no significant medical history. Blood tests demonstrated only mild changes. Feline retroviruses were negative, coagulation and bile acid stimulation tests were within normal limits.

Results:

Ultrasonography demonstrated severe, generalised, hepatic enlargement, extending caudally to the mid-abdomen and causing displacement of the remaining abdominal organs. Nearly all the hepatic parenchyma had a diffuse ‘bubble wrap’ appearance with multifocal, small, anechoic cystic lesions measuring 4 - 5mm wide, distributed throughout the hepatic parenchyma, affecting all lobes. The gall bladder was moderately distended but otherwise normal. The kidneys appeared to be normal, with no cystic lesions identified. Fluid obtained by fine-needle aspiration appeared grossly clear with a brown-yellow colour. Cytology showed occasional red cells and a few patches of amorphous haemoglobin with rare, variably preserved neutrophils. Amphophilic proteinaceous material was noted with occasional small amounts of admixed or overlain granular material. No bacteria or evidence of inflammation or neoplasia were apparent. Thoracic structures were unremarkable on radiographs.

Conclusions:

Given the absence of clinical signs and negative findings on cytological examination, a presumptive diagnosis of PCLD without renal changes was made. This is a rare condition, with a paucity of literature available. The cat remains alive at the time of writing and will be followed.

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048 / #757

Topic: *AS11. Feline medicine*

RETROSPECTIVE STUDY AND IMAGING FINDINGS OF 75 CATS PRESENTING WITH COUGHING TO A UK REFERRAL HOSPITAL 2016-2022

Samantha Taylor[1], Helen Kirkpatrick[2], Clarisse D-Aout[2], Holly Brien[3], Mark Plested[2]
[1]International Society of Feline Medicine, Veterinary Specialist Lead, Wiltshire, United Kingdom, [2]Lumbry Park Veterinary Specialists, Medicine, Alton, United Kingdom, [3]Surrey University, Veterinary Medicine, Guildford, United Kingdom

Introduction:

Introduction: Coughing is the most common presenting sign in cats with feline asthma and chronic bronchitis, but can have other causes, for example neoplasia. Investigation can be challenging and expensive, so knowledge of most frequent causes is desirable.

Objectives:

Objectives: To investigate the signalment, diagnostic tests and underlying cause of coughing in cats presenting to a referral hospital with coughing.

Methods:

Method: A database search for the term ‘coughing’ was performed and records examined for cats a primary presenting sign of cough. Radiographs and CT scans were reviewed, and cases categorised by location of pathology (upper respiratory tract [URT], lower respiratory tract [LRT] or other) and cause of coughing (inflammatory/infectious, neoplastic, cardiac or other).

Results:

Results: Median (range) age of cats was 111 months (6-212). Median (range) duration of coughing was 60 days (1-2520). Frequent investigations included radiography (71%), CT scan (72%) and bronchoalveolar lavage (43%), with 74% samples positive for *Mycoplasma felis*. Frequent radiographic findings were bronchointerstitial pattern (62%) and on CT bronchial wall thickening (72%). The most common causes of coughing were inflammatory/infectious (63%), neoplasia (24%), cardiac (5%), and other (5%) including one with foreign body and one with chronic diaphragmatic hernia.

Conclusions:

Conclusions: The most common cause of coughing in a group of cats presenting to a referral hospital was inflammatory/infectious but nearly a quarter had neoplasia. Cardiac disease causes coughing in a small proportion of patients. *M.felis* is commonly found in BAL samples.

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049 / #859

Topic: *AS11. Feline medicine*

HELMINTHIC PULMONARY PARASITES IN THE AZORES ISLANDS – AELUROSTRONGYLUS ABSTRUSUS AS AGENT OF RESPIRATORY DISEASE IN DOMESTIC CATS

Romana Teixeira[1], João Lozano[1], Isilda Flor[2], Lídia Gomes[1], Carlos Pinto[3], Maria Constança Pomba[1], Luís Madeira De Carvalho[1]
[1]Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugalne - University of Lisbon, Parasitology, Lisbon, Portugal, [2]Laboratory of Parasitology - Regional Veterinary Laboratory, Parasitology, Angra do Heroísmo, Portugal, [3]University of the Azores, Faculty Of Agricultural And Environmental Sciences, Angra do Heroísmo, Portugal

Introduction:

The Azores archipelago offers the ideal conditions for the development of feline respiratory metastrongyloids, given its abundance in intermediate hosts and the existence of a very mild climate. The present study aimed to evaluate the current prevalence of lungworms in domestic cats from the Azores archipelago, including the islands of Terceira and São Miguel, due to its larger population.

Objectives:

Identify the occurrence of lungworms in this insular territory.

Register clinical parameters associated with respiratory disease.

Methods:

In this case study, 43 fecal samples of domestic cats were collected from catteries, being any clinical signs recorded. The samples gathered where then examined using the Baermann technique for detection of lungworm L1 larvae. When present, larvae were morphologically identified.

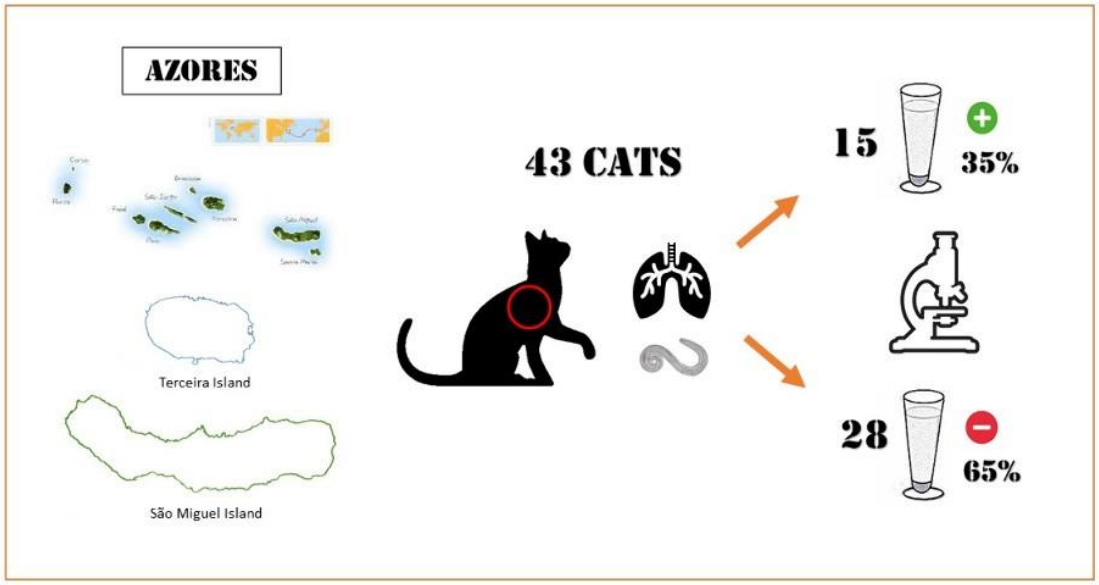
Results:

The occurrence of A. abstrusus was found in 15 (34,9 %) of the samples. Most infected cats presented no clinical signs (53%), however a considerable percentage of individuals showed sneezing (47%) and nasal discharge (33%) (Table1).

Table 1 -Clinical parameters used to characterize cats with lungworm infection.

Clinical parameters	*Infected*	*Prevalence*
No clinical signs	8/15	53
Nasal discharge	5/15	33
Ocular discharge	1/15	7
Sneezing	7/15	47
Coughing	1/15	7
Anorexia	1/15	7
Dyspnea	1/15	7

Conclusions:



This study indicates that *A. abstrusus* infects one third of the domestic cats sampled from the Azores Islands and can be present in clinical or subclinical conditions. Therefore, it is considered an agent of respiratory disease in domestic cats and should also be included in the list of differential diagnosis.

050 / #648

Topic: *AS11. Feline medicine*

SEROLOGICAL ANALYSES FOR LEISHMANIA INFANTUM DETECTION IN CATS: COMPARISON OF THREE DIFFERENT METHODS

Sergio Villanueva[1], Caterina Fani[2], Diana Marteles[1], Francesca Messina[2], Carmine Fiorillo[2], Simona Gabrielli[3], Simone Trichei[3], Federica Bruno[4], Germano Castelli[4], Fabrizio Vitale[4], Michele Trotta[2]
[1]ZARAGOZA VETERINARY FACULTY, Animal Pathology, ZARAGOZA, Spain, [2]CDVET, Veterinary Laboratory, ROME, Italy, [3]SAPIENZA UNIVERSITA DI ROMA, Sanita Pubblica E Malattie Infettive, ROME, Italy, [4]Istituto Zooprofilattico Sperimentale della Sicilia, C.re.na.l., Palermo, Italy

Introduction:

Feline leishmaniosis is a vector-borne infection *caused by Leishmania infantum. Among confirmatory diagnostic tests, serological techniques* are commonly employed in clinical and epidemiological studies.

Objectives:

The evaluation of diagnostic performance of three serologic assays to detect *Leishmania* antibodies in a feline population from Central Italy, Rome.

Methods:

Two hundred and fifteen feline serum samples from asymptomatic cats collected in Lazio region, Italy, were screened for specific antibodies to *L. infantum* by using home-made ELISA, home-made IFAT and the MegaFLUO®LEISH (Diagnostik GmbH), respectively, and setting the cut-off value at 1:80. Samples were classified as positive or negative to *Leishmania* when at least two of the tests yielded a positive or negative result. The relative diagnostic performances have been evaluated.

Results:

Eleven out of 215 samples resulted positive (5.1%). The diagnostic performances are showed in the table.

Test	Sensitivity (%)	Specificity (%)	Accuracy (%)
ELISA	100	97.09	97.21
IFAT 1	22.20	99.50	95.40
IFAT 2	88.89	87.80	87.85

Conclusions:

Our preliminary study highlights the presence of *L. infantum* in 5% of the examined cats, in complete absence of historical features and physical signs compatible with the disease. In general, the three methods showed good specificity and variable sensitivity. The best accuracy was observed for ELISA method. The employment of different test is an important critical issue influencing the different results in serodiagnosis. Thus, a standardization of procedures for a prompt diagnosis of *Leishmania infantum* in

cats is crucial for a better understanding of the epidemiology and of the potential role of these animals as reservoirs of leishmaniosis.

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051 / #678

Topic: *AS12. Gastroenterology and hepatology*

ISOLATION AND CHARACTERIZATION OF ADIPOSE-DERIVED MESENCHYMAL STROMAL CELLS – A POTENTIAL TREATMENT FOR CANINE INFLAMMATORY BOWEL DISEASE

Inês Dias[1,2,3,4], Teresa Mendes[3,4], Ana Platzgummer[3,4], Carlos Viegas[1,2,5,6,7], Isabel Dias[1,2,5,6,7], Pedro Carvalho[8], Cláudia Silva[3,4]
[1]CITAB, Centre For The Research And Technology Of Agro-environmental And Biological Sciences, Universidade De Trás-os-montes E Alto Douro (utad), Vila Real, Portugal, [2]Inov4Agro, Institute For Innovation, Capacity Building And Sustainability Of Agri-food Production, Vila Real, Portugal, [3]Department of Bioengineering and IBB, Institute For Bioengineering And Biosciences At Instituto Superior Técnico, Universidade De Lisboa, Lisboa, Portugal, [4]Associate Laboratory i4HB, Institute For Health And Bioeconomy At Instituto Superior Técnico, Universidade De Lisboa, Lisboa, Portugal, [5]Department of Veterinary Sciences, School Of Agricultural And Veterinary Sciences (ecav), Utad, Vila Real, Portugal, [6]CECAV, Centre For Animal Sciences And Veterinary Studies, Utad, Vila Real, Portugal, [7]AL4AnimalS, Associate Laboratory For Animal And Veterinary Sciences, Lisboa, Portugal, [8]Vetherapy, Research And Development In Biotechnology, Coimbra, Portugal

Introduction:

Conventional therapy for immune-mediated diseases is associated with long-term adverse effects, requiring the quest for novel therapeutic options. Through the secretion of various trophic factors, mesenchymal stromal cells (MSC) demonstrate immunomodulatory properties that make them a potential approach for treating immune-mediated diseases, namely canine inflammatory bowel disease (IBD). Challenges associated with the use of MSC include inconsistency in donor selection, tissue sources and manufacturing procedures.

Objectives:

The main goal of this work was to isolate, characterize and optimize the *ex vivo* expansion of MSC derived from canine adipose tissue (AT), with the goal of developing a viable therapeutic approach for canine IBD.

Methods:

Subcutaneous AT (5-20ml) was collected from 5 female dogs during ovariohysterectomies and digested with collagenase. Cells were isolated and expanded with Dulbecco's modified Eagle's medium supplemented with 10% MSC-qualified fetal bovine serum (FBS-MSC) or 10% standard FBS (FBS). Cell growth and immunophenotype were assessed.

Results:

Isolated cells exhibited typical MSC morphology and high viability (≥95%) up to passage 4 (P4). At P2, after 7 days in culture, cells reached average densities of $1.5x10^5$ cells/cm^2 and $1.3x10^5$ cells/cm^2, corresponding to cumulative population doublings of 9.6 and 9.0 for FBS-MSC and FBS, respectively. Flow cytometry analysis revealed high expression of CD90, CD44 and CD105 characteristic of an MSC-phenotype.

Conclusions:

Overall, canine AT is an easily obtainable source of MSC. Isolated cells demonstrated enhanced growth in culture medium supplemented with FBS-MSC. P2 allowed a reasonable compromise of culture time *vs*. cell yield towards potential clinical use. Ongoing work includes optimization of MSC differentiation protocols.

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052 / #862

Topic: *AS12. Gastroenterology and hepatology*

GASTROINTESTINAL ASSESSMENT IN DIABETIC CATS: INSIGHTS FROM ULTRASOUND AND HISTOPATHOLOGICAL EVALUATION

Marisa Esteves-Monteiro[1], Clara Landolt[2], Patrícia Dias-Pereira[3], Claúdia Sofia Baptista[4], Margarida Duarte-Araújo[5]
[1]LAQV@REQUIMTE, University of Porto (UP), Portugal; Institute of Biomedical Sciences Abel Salazar (ICBAS), UP, Departament Of Drug Sciences, Lab. Of Pharmacology,faculty Of Pharmacy, Up, Porto, Portugal, [2]Institute of Biomedical Sciences Abel Salazar - University of Porto (ICBAS- UP), Veterinary Hospital of the University of Porto (UPVet), Department Of Veterinary Clinics, Porto, Portugal, [3]ICBAS-UP, Departament Of Pathology And Molecular Immunology, Porto, Portugal, [4]Department of Veterinary Clinics, ICBAS- UP, Veterinary Hospital of the University of Porto (UPVet), Centro De Estudos De Ciência Animal (iceta-ceca), Instituto De Ciências E Tecnologias Agrárias E Agro-alimentares Da Universidade Do Porto, Porto, Portugal, [5]LAQV@REQUIMTE (UP); ICBAS-UP, Departament Of Immuno-physiology And Pharmacology, Porto, Portugal

Introduction:

Diabetes mellitus (DM) is a metabolic disorder characterized by a state of hyperglycemia, affecting approximately 0.21% to 1.24% of cats. While gastrointestinal (GI) complications of DM are known to impact up to 75% of human patients, there is currently no information available regarding GI changes in diabetic cats.

Objectives:

The purpose of this study was to assess the GI tract of diabetic cats through ultrasound and histopathological evaluation.

Methods:

Ultrasound evaluations were conducted on 7 domestic spayed diabetic cats (5 males and 2 females) without history of digestive disease. The cats had been diagnosed with DM for a period ranging from 1 month to 5 years. Full-lenght GI tract was examined, and 3 evaluations were performed *per* portion.

Results:

All cats exhibited gastric wall thickness, with measurements of rugal fold=5.40±0.47mm (reference value(RV)=4mm) and inter-rugal=2,71±0.07mm (RV=2mm); duodenum=3.15±0.07mm (RV=2.5mm); jejunum=3.14±0.15 (RV=2.5mm). On the other hand, the ileum and colon displayed normal thickness in all cats: 3.07±0.11mm (RV=3.2mm) and 2.13±0.18mm (RV=2.5mm), respectively. Additionally, histopathological evaluation was performed on 2 diabetic cats submitted to necropsy. Inflammatory infiltrate was observed throughout all sections of the GI tract, and collagen deposits were identified (using Masson's trichrome staining) in the muscular layers and between mucosal crypts and muscularis mucosa.

Conclusions:

These preliminary findings suggest that diabetic cats may undergo intestinal remodeling akin to what has been described in humans and laboratory animals. The gradual decrease in GI thickness in the distal

direction aligns with previous observations in diabetic laboratory animals, suggesting that a common mechanism may be involved.

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053 / #746

Topic: *AS12. Gastroenterology and hepatology*

CHRONIC HEPATITIS SECONDARY TO LEISHMANIASIS IN A DOG – CASE REPORT

Felipe Romano, Raquel Romano, Maria Lallo, José Xavier, Maria Carolina Pappalardo, Aurora Costa
Universidade Paulista, Veterinarian Science, São Paulo, Brazil

Introduction:

Canine Visceral Leishmaniasis is a frequent protozoal disease in Brazil. It is a common vector-borne zoonosis in tropical zones. Clinical and laboratory findings are varied and nonspecific, such as anemia, hyperglobulinemia, proteinuria, skin lesions, uveitis, arthritis, diarrhea, and weight loss. There is no cure.

Objectives:

To report a case of chronic liver disease in a 5-year-old female, mixed breed, spayed, treated in São Paulo-Brazil, who had a histological diagnosis of Visceral Leishmaniasis and exhibited remission of hepatitis.

Methods:

The animal presented weight loss, polydipsia, and jaundice. Serum tests showed mild anemia, increased alanine transaminase (ALT), bile acids, ammonia, and decreased albumin and cobalamin. Abdominal ultrasound showed ascites and hepatomegaly. The molecular biology test (PCR) of the blood for Leishmania, Ehrlichia, and Babesia was negative. Clinical treatment with Aldactone, SAMe, Curcumin, and L-carnitine did not improve the exams.

Results:

Liver histopathology revealed vacuolar degeneration, hepatic inflammatory infiltrate (nonspecific findings), and Leishmania infantum amastigotes. Rhodanine staining did not show copper impregnation. The animal began to receive Allopurinol and Domperidone, and after a month the jaundice ceased, albumin increased, and liver enzymes decreased. He used Hepguard-AVERT®, Vitecol-AVERT ®, and Beneflora-AVERT® as adjuvants for another three months. The patient gained weight. Serological tests (ELISA and Indirect Immunofluorescence) were positive (suggesting late seroconversion).

Conclusions:

Exclusively hepatic presentation in dogs is uncommon and should be kept in mind since the liver has the largest population of macrophages in the body (Leishmania sp. target cell).

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054 / #917

Topic: *AS12. Gastroenterology and hepatology*

ASSESSMENT OF PLASMA ZONULIN LEVELS IN CATS WITH INFLAMMATORY CONDITIONS: A PILOT STUDY

Carina Sacoor[1], Márcia Aleixo[1], Ana Figueira[2,3], Hugo Vilhena[2,3,4], Paulo Oliveira[5], José Teixeira[5], Liliana Montezinho[1]
[1]Vasco da Gama University School (EUVG), Vasco Da Gama Research Center (civg), Coimbra, Portugal, [2]OneVet Group, Hospital Veterinário Universitário De Coimbra, Coimbra, Portugal, [3]Vasco da Gama University School, Vasco Da Gama Research Center (civg), Coimbra, Portugal, [4]University of Trás-os-Montes and Alto Douro, Animal And Veterinary Research Centre (cecav), Vila Real, Portugal, [5]University of Coimbra, Cnc - Center For Neuroscience And Cell Biology, Cantanhede, Portugal

Introduction:

Recent investigations underline the pivotal role of altered intestinal permeability in several inflammatory diseases. Zonulin, a protein modulating intestinal permeability, is emerging as a potential biomarker for assessing intestinal barrier integrity and its consequent pro-inflammatory effects. Though Zonulin's association with various human diseases has been explored, its correlation with inflammatory diseases in veterinary medicine has yet to be investigated.

Objectives:

This study aimed to quantify zonulin in cat plasma samples, identify zonulin as a disease biomarker, and correlate this biomarker with inflammatory diseases.

Methods:

Blood samples were collected from 25 cats (10 healthy controls and 15 with inflammatory conditions, specifically renal and gastrointestinal diseases), and plasma was isolated. The BCA protein quantification method was employed to measure total plasmatic protein, while a competitive ELISA kit (IDK®) was used to quantify plasma Zonulin levels.

Results:

Zonulin levels were successfully measured across all samples. Healthy cats demonstrated lower concentrations of both total plasmatic protein and zonulin. Those with gastrointestinal and renal diseases exhibited elevated total plasmatic protein and Zonulin levels. Geriatric cats with gastrointestinal diseases exhibited higher levels of plasmatic Zonulin. However, age showed no correlation with Zonulin

concentration.

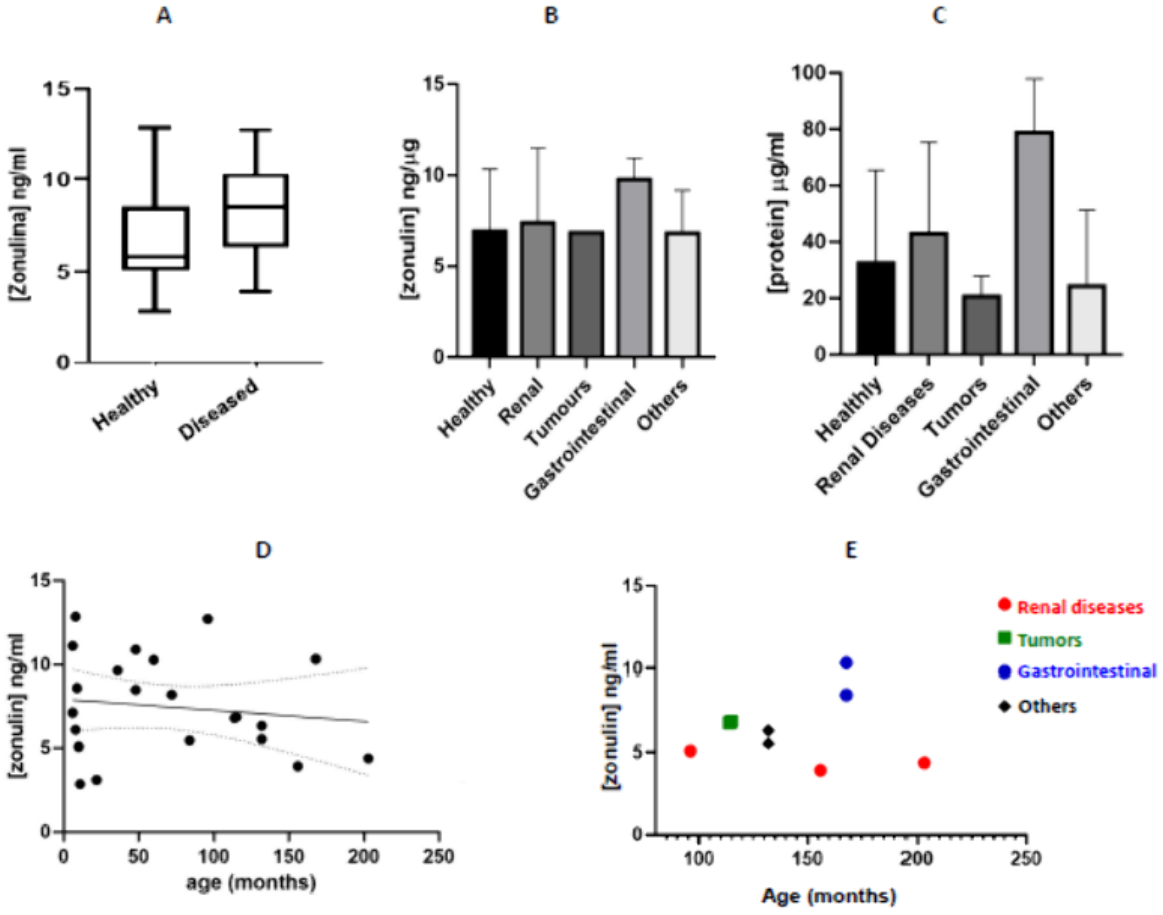

Figure 1 – Zonulin concentration (ng/ml) in healthy and ill cats (A); Zonulin concentration (µg/ml) distribution by disease (B); Protein concentration (µg/ml) distribution by disease (C); Zonulin concentration (ng/ml) distribution by age (D); Zonulin concentration (ng/ml) distribution in cats older than 8 years by disease (E).

Conclusions:

Zonulin, found at increased concentrations in cats with inflammatory conditions, particularly gastrointestinal diseases, could be a promising biomarker. Further, more comprehensive studies are required to corroborate these findings.

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055 / #863

Topic: *AS12. Gastroenterology and hepatology*

MINI-FLOTAC TECHNIQUE FOR DIAGNOSIS OF MAJOR GASTROINTESTINAL PARASITES IN DOGS OF THE AZORES ISLANDS

Romana Teixeira[1], João Lozano[1], Isilda Flor[2], Carlos Pinto[3], Maria Constança Pomba[1], Luís Madeira De Carvalho[1]
[1]Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugalne - University of Lisbon, Parasitology, Lisbon, Portugal, [2]Laboratory of Parasitology - Regional Veterinary Laboratory, Parasitology, Angra do Heroísmo, Portugal, [3]University of the Azores, Faculty Of Agricultural And Environmental Sciences, Angra do Heroísmo, Portugal

Introduction:

Due to greater proximity and coexistence with our pets, the relevance of parasitic diseases is higher than ever before. Being the information about parasites very limited in the Azores archipelago, the present survey aimed to identify and calculate shedding levels of major digestive parasites responsible for gastrointestinal disease in kennels and client-owned dogs.

Objectives:

Identify the prevalence and shedding levels of major gastrointestinal parasites in this insular territory.

Methods:

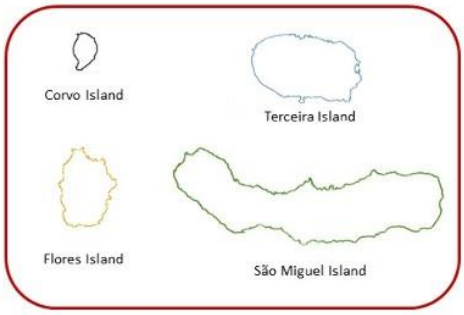
In this case study, 193 fecal samples were gathered from four different islands (Corvo, Flores, São Miguel and Terceira). 101 samples were collected from kennels (52%) and 92 (48%) from client-owned dogs, being examined with the mini-FLOTAC method.

Results:

Overall, 40% of dogs (/193) were infected with at least one parasite. The most commonly observed parasites were Ancylostomatidae (32%), followed by Toxocara canis (18%), Trichuris vulpis (18%) and Cystoisospora spp. (9%). Lowest/Highest shedding levels results for helminths and protozoa were as follows: Ancylostomatidae (10 - 1120 EPG), Toxocara canis (10 - 420 EPG), Trichuris vulpis (10 - 910 EPG) and Cystoisospora spp. (15 - 620 OPG).

Conclusions:

Forty percent of sampled dogs were positive and Mini-FLOTAC is a very promising technique, allowing qualitative and quantitative analysis of dog faeces, without any specialized equipment.



Species	Parasites	EPG/OPG	Prevalence (%)
Dogs	Ancylostomatidae	10 - 1120	32
	Toxocara canis	10 - 420	18
	Trichuris vulpis	10 - 910	18
	Cystoisospora spp.	15 - 620	9

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056 / #676

Topic: *AS12. Gastroenterology and hepatology*

EVALUATION OF THREE DIFFERENT METHODS FOR GIARDIA DETECTION IN DOGS AND CATS' FAECAL SAMPLES AND IDENTIFICATION OF ZOONOTIC ASSEMBLAGES.

Michele Trotta[1], Caterina Fani[1], Simone Trichei[2], Giovanni Milardi[1], Camilla Paradisi[1], Adriana Augello[2], Simona Gabrielli[2]
[1]CDVET, Veterinary Laboratory, ROME, Italy, [2]SAPIENZA UNIVERSITA DI ROMA, Sanita Pubblica E Malattie Infettive, ROME, Italy

Introduction:

Giardia is an intestinal parasite that infects a broad range of hosts including humans and domestic animals. The laboratory diagnosis is mainly based on the finding of the cyst in stool samples by microscopy. More sensitive and specific methods are required.

Objectives:

Objective of this study is to compare the performances of methods for diagnosing *Giardia* and to identify the assemblages in positive samples.

Methods:

A total of 200 faecal samples from owned dogs and cats were submitted to Rapid Diagnostic Test (RDT), Direct Immunofluorescence (DIF) and to PCR.

Results:

Sixty hundred out of 200 dogs scored positive for *Giardia*, with a prevalence of 30% according to PCR. The diagnostic performances of methods compared here using microscopy as most applied method, were reported. The per cent of positive samples, sensitivity, specificity, and K value for RDT: 29, 84,7, 87,3 and 86,7; for DIF: 28, 61,1, 90,9 and 82,7; and for PCR: 30, 41,6, 84,6 and 71,5, respectively. Interestingly, a total of 15 isolates were assigned to assemblage B.

Conclusions:

There is growing interest in alternative methods to overcome the microscopy limitations. In this study, RDT showed the best performances, while DIF exhibited highest specificity and PCR the highest positivity. However, as there is no gold-standard test for the detection of *Giardia*, the use of two or more diagnostic methods is always desirable to make an accurate diagnosis. The high prevalence of *Giardia* in dog and cat, and the identification of zoonotic assemblages, underlines the potential risk for public health.

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057 / #870

Topic: *AS14. Infectious and emerging diseases*

EARLY ONSET OF IMMUNITY OF AN ORALLY ADMINISTERED BORDETELLA BRONCHISEPTICA VACCINE IN YOUNG PUPPIES

Berta Alberca Piany[1], Sharon Wappel[2], Vickie King[2], Gregory Ribble[2], Jacquelien Hoevers[2], Eline Abma[3], Susanna Martorell[1], Cheyenne Brockway[4], Lauren Wilmes[5], Anne Tague[2], Robert Cavanaugh[6], Jason Millership[2]
[1]Zoetis Manufacturing & Research Spain, S.L, Vmrd, Vall de Bianya (Girona), Spain, [2]Zoetis Inc., Vmrd, Kalamazoo, MI, United States of America, [3]Zoetis, Vmrd, Zaventem, Belgium, [4]Zoetis, Ars, Richland, MI, United States of America, [5]Zoetis, Vmrd - Lab Sciences, Lincoln, NE, United States of America, [6]Zoetis, Vmrd - Microbiology Support, Richland, MI, United States of America

Introduction:

Oral vaccination in dogs provide a better clinic experience for pet owners and ease of administration for veterinarians in comparison to intranasal and subcutaneous vaccination, yet still provide mucosal protection. The data obtained from this study was part of the required data for registration of an oral vaccine against *Bordetella bronchiseptica* (Bb) in dogs with an earlier onset of immunity (OOI) than the currently licensed product.

Objectives:

The objective of this study was to evaluate a 7-day OOI of an oral vaccine against virulent Bb via an experimental challenge in dogs.

Methods:

Forty, 8-week-old beagles were randomly assigned to two treatment groups. Twenty animals (T01) received a true placebo and 20 animals (T02) the Bb vaccine, orally (1 mL), using a needle-free system. All 40 dogs were challenged after 7 days with a virulent Bb strain via aerosolization. Blood samples for serology and nasal swabs for bacterial isolation (BI) were collected at specific time points. Tympanic temperatures and clinical signs were observed during vaccination and challenge phases.

Results:

The vaccine was shown to be efficacious by significantly reducing coughing (20% vs 85%) and clinical signs (median 15 vs 27 of total clinical score) in vaccinates. Although there were no significant differences in nasal BI frequency, a numerical reduction by day was observed and mean duration of nasal shedding was also numerically decreased in vaccinates (3.7 vs 5.2 days).

Conclusions:

The oral Bb vaccine protected 8-week-old dogs as early as 7 days after challenge by reducing clinical signs and shedding.

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058 / #214

Topic: *AS14. Infectious and emerging diseases*

DETECTION OF FELINE LEUKEMIA VIRUS IN FELINE ADIPOSE TISSUE DERIVED MESENCHYMAL/STROMAL CELLS

Agustina Algorta[1], Carolina Acevedo[2], Gabriela Franco[2], Victoria Marsiglia[1], Micaela Medina[1], Rocío Gonzales[3], Valentina Barrios[2], Kevin Yaneselli[1]
[1]Facultad de Veterinaria, Universidad de la República, Unidad De Inmunología E Inmunoterapia, Dpto De Patobiología, Montevideo, Uruguay, [2]Facultad de Veterinaria, Universidad de la República, Unidad De Microbiología, Dpto De Patobiología,, Montevideo, Uruguay, [3]Facultad de Veterinaria, Universidad de la República, Departamento De Biología Celular Y Molecular, Montevideo, Uruguay

Introduction:

Felines presents chronic pathologies with reserved prognosis where feline mesenchymal stromal/stem cells (fMSCs) have been considered as a treatment when conventional therapy is not curative. A concern that arises from any allogeneic therapy is the possibility of transmitting infectious diseases to the recipient patient, in this case, through cell therapy. There are still no reports that verify whether retroviruses of clinical relevance in felines such as feline leukemia virus (FeLV) can infect fMSCs.

Objectives:

The aim of this study is to detect the presence or absence of FeLV provirus in feline adipose tissue-derived MSCs (fAT-MSCs).

Methods:

Blood and adipose tissue samples were taken from 9 felines during routine ovariectomy procedures. Cats blood was tested for FeLV p27 antigen by immunochromatography and FeLV provirus by nested PCR. Isolation and expansion of fAT-MSCs was performed and cells were tested for FeLV by nested PCR. Moreover, Sanger sequencing was performed in positive PCR product.

Results:

Isolation of fAT-MSCs was obtained in 7/9 adipose tissue samples. 1 FeLV positive result was obtained by immunochromatography, 3 positive blood samples by PCR and 3 PCR positive in cells cultures. One of the cats showed FeLV positive cells cultures by nested PCR and positive by immunochromatography test. Additionally, positive PCR product sequence coincided with FeLV.

Conclusions:

Preliminary results show for the first time that FeLV provirus can be detected in fAT-MSC culture. Therefore, it indicates that the virus could potentially be transmitted through cell therapy and molecular controls seem necessary in allogeneic application.

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059 / #662

Topic: *AS14. Infectious and emerging diseases*

FIRST CLINICAL AND MOLECULAR REPORT OF HEPATOZOON FELIS IN A CAT FROM PANAMA

Joao Varela Petrucelli[1], Yerika Jimenez[2], Gibzka Samaniego[2], Paula Ruybal[3], Pablo Borras[4]
[1]Ministerio de Desarrollo Agropecuario (Panama), Direccion Nacional De Sanidad Animal, Panama city, Panama, [2]Complejo Hospitalario Veterinario de Corozal, Medicina Interna, Panama city, Panama, [3]CONICET Argentina, Instituto De Investigaciones En Microbiología Y Parasitología Médica (impam), Buenos Aires, Argentina, [4]Hospital WellVet - CCV - Universidad Maimonides, Infectious And Parasitic Diseases Unit, Buenos Aires, Argentina

Introduction:

Hepatozoon felis is a vector-borne disease in cats around the world. Although most cases are subclinical, it has been associated with different clinical pictures in cats.

Objectives:

The purpose of this study was to describe the first clinical case of *Hepatozoon felis* in a cat from Panama.

Methods:

A 1-year-old male intact domestic shorthair cat was referred to the Hospital Veterinario de Corozal. It came from a cat colony on the outskirts of the city. It presented pain and inflammation in the forelimbs. The blood test revealed leukocytosis and the presence of gamonts of *Hepatozoon* spp. Total DNA was extracted from whole blood samples from EDTA tubes using a commercial kit according to the manufacturer's protocol. DNA was eluted in 180 µL of AE supplied by the kit. PCR was performed using primers HEMO 1 and HEMO 2 reported by Perkins & Keller, 2001, which amplifies a ≈900 bp from the 18s rRNA gene. Amplicons were outsourced for Sanger sequencing.

Results:

Periosteal bone proliferation was diagnosed by radiography. Sequence showed a 98.55% identity to *H. felis* isolate HCP08 (Genbank ACCN MT458171). FeLV and FIV tests were negative.The cat was treated with two doses of imidocarb (6mg/kg SC) and Toltrazuril (14mg/kg PO q24h) for fifteen days.

Conclusions:

This is the first report of *H.felis* in a cat from Panama and, probably, in Central America. The patient presented a picture of periosteal bone proliferation, an atypical presentation in cats. *H.felis* is an emerging vector-borne disease in Latin America that should be considered by clinicians, mainly in outdoor cats.

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060 / #646

Topic: *AS14. Infectious and emerging diseases*

DETECTION OF ANTIBODIES AGAINST FELINE MORBILLIVIRUS BY USING RECOMBINANT MATRIX ENZYME-LINKED IMMUNOSORBENT ASSAY

Surangkanang Chaiyasak[1], Chutchai Piewbang[2], Somporn Techangamsuwan[2]
[1]Faculty of Veterinary Science, Mahasarakham University, Pathobiology, Mahasarakham, Thailand, [2]Faculty of Veterinary Science, Chulalongkorn University, Pathology, Bangkok, Thailand

Introduction:

Feline morbillivirus (FeMV) is a new pathogen considered a renal epitheliotropic virus, even though the pathogenesis remains controversial. Besides the molecular assay, seroprevalence is epidemiological surveillance of FeMV infection. For FeMV antibody measurement, recombinant matrix (M) protein, the inner viral membrane which plays an essential role in the viral assembly and budding process, is constructed to use as an antigen in serological tests.

Objectives:

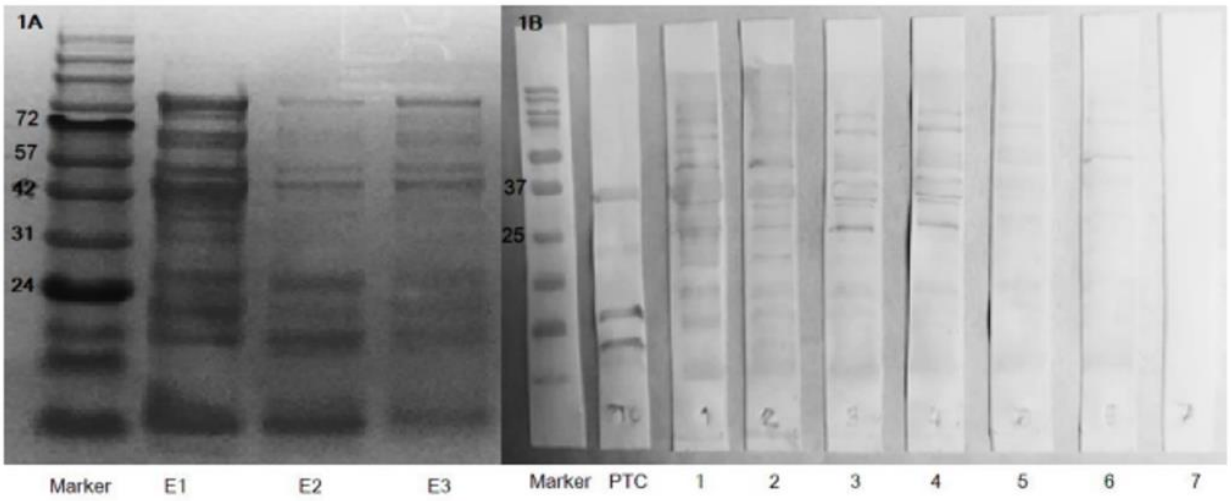
This study aimed to evaluate the presence of serum anti-FeMV antibodies in Thai cats.

Methods:

This study included blood samples from 136 cats (56 sheltered and 80 household cats). Before the serological test, all blood samples were initially detected FeMV by reverse-transcription real-time polymerase chain reaction (RT-qPCR). Later, the antibody level against FeMV was estimated in cat's sera by established indirect ELISA (i-ELISA) and compared with western blotting (WB) as a valid assay.

Results:

The result showed 8.1% (11/136; all from sheltered cats) positive for FeMV by RT-qPCR. Positive serological results were shown by i-ELISA and WB, which accounted for 68.4% (93/136) and 66.9% (91/136), respectively. Of note, there was 6.6% (6/91) of molecular positive samples among the immunopositivity by WB. The sensitivity, specificity, positive predictive value, and negative predictive value of i-ELISA were 90.1%, 75.6%, 88.2%, and 79.1%, respectively, with a good agreement between i-ELISA and WB analysis (A κ coefficient of 0.664, 95% CI from 0.529 to 0.799).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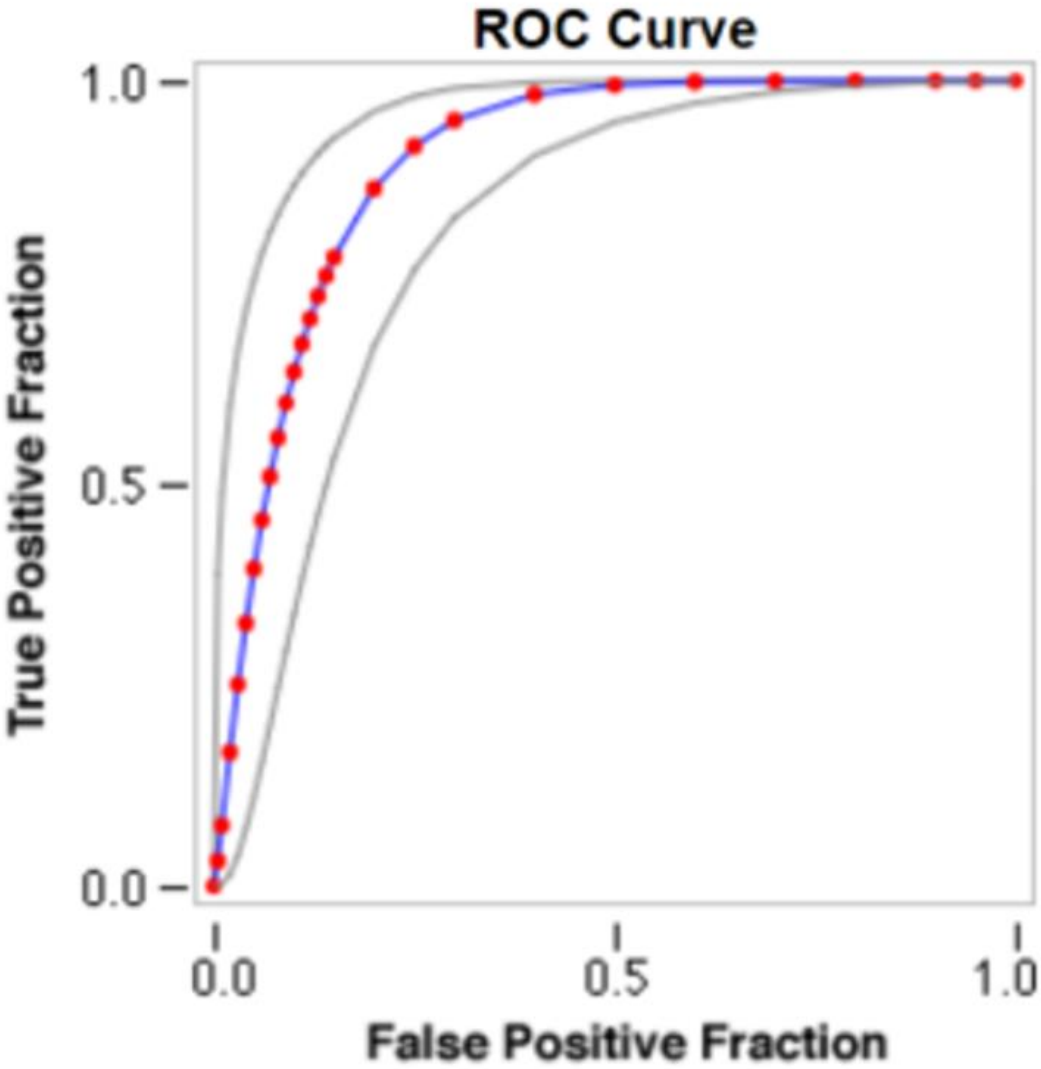

Conclusions:

This study provided the first evidence of seroprevalence against FeMV in Thai cats.

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061 / #861

Topic: *AS14. Infectious and emerging diseases*

LEISHMANIA INFANTUM INFECTION MONITORED IN DOGS IN THE UNITED KINGDOM USING DIAGNOSTIC TESTS RESULTS IN REAL-TIME THROUGH SAVSNET

Rocio Checa[1], Fernando Sánchez-Vizcaíno[2], Guadalupe Miró[3], Gina Pinchbeck[4], Hayley Jones[4], Peter-John Noble[4], Alan Radford[4]
[1]Faculty of Pharmacy, Complutense University of Madrid, Department Of Microbiology And Parasitology, Madrid, Spain, [2]University of Bristol, Bristol Veterinary School, Bristol, United Kingdom, [3]Faculty of Veterinary Science, Complutense University of Madrid, Animal Health Department, Madrid, Spain, [4]School of Veterinary Science, University of Liverpool, Department Of Livestock And One Health, Institute Of Infection, Veterinary And Ecological Sciences, Neston, United Kingdom

Introduction:

Leishmania infantum (*L.i.*) infection has been reported in many imported dogs in the UK, but its current epidemiological situation is unknown.

Objectives:

To estimate the percentage, temporal variation, and spatial distribution of positive dog samples for *L.i.* infection at commercial diagnostic laboratories and to identify factors associated with positive cases.

Methods:

The Small Animal Veterinary Surveillance Network (SAVSNET) collected *L.i.* serology and PCR data from six UK veterinary diagnostic laboratories, between June 2010 and October 2022, along with breed, sex and age of the dog, date of the diagnosis and postcode areas of submitting veterinary practice. Chi-square test was used to assess associations between categorical variables and the *L. infantum* positive result by serology and/or PCR. Significance was set at $p < 0.05$.

Results:

A total of 25,201 dog test results were recorded, including 20,424 serums tested by either ELISA (n=15,275) or IFAT and 4,777 DNA by PCR. *L.i.* antibodies were detected in 39.7% (95% CI: 39.1% − 40.4%) of dog samples. The percentage of seropositivity increased from 2013 (31.5%; 100/317) to 2022 (42%; 1,529/3,642). *Leishmania* DNA was detected in 11.8% (95% CI: 10.9%−12.8%) of dog samples (566/4,777). Serology and/or PCR samples submitted by veterinary practices in northeastern England (40%) and London (39%) had higher positivity rates. In addition, more positive cases were detected in pointing dog-type breeds and dogs aged between 3 and 8 years ($p \leq 0.001$).

Conclusions:

This study shows up-to-date epidemiologic data on *L.i.* infection in UK dogs, identifying seropositivity trends over the last twelve years.

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062 / #873

Topic: *AS14. Infectious and emerging diseases*

CURRENT SITUATION OF CANINE LEISHMANIOSIS IN THE UNITED KINGDOM: EPIDEMIOLOGICAL SURVEILLANCE USING ELECTRONIC HEALTH RECORDS.

Rocio Checa[1], Fernando Sánchez-Vizcaíno[2], Guadalupe Miró[3], Gina Pinchbeck[4], Hayley Jones[4], Peter-John Noble[4], Alan Radford[4]
[1]Faculty of Pharmacy, Complutense University of Madrid, Department Of Microbiology And Parasitology, Madrid, Spain, [2]University of Bristol, Bristol Veterinary School, Bristol, United Kingdom, [3]Faculty of Veterinary Science, Complutense University of Madrid, Animal Health Department, Madrid, Spain, [4]School of Veterinary Science, University of Liverpool, Department Of Livestock And One Health, Institute Of Infection, Veterinary And Ecological Sciences, Neston, United Kingdom

Introduction:

Canine leishmaniosis (CanL) cases have been increasing in the UK. Up-to-date epidemiologic data are essential for combating zoonotic diseases.

Objectives:

To determine risk factors for leishmaniosis in dogs attending a network of UK veterinary practices and to describe their travel history and the treatment they received against CanL.

Methods:

Electronic health records were collected through the Small Animal Veterinary Surveillance Network (SAVSNET) from 251 veterinary practices across the UK between 2014 and 2022. Text mining tools and manual reading of clinical narratives were used to identify CanL. A retrospective case-control study was conducted to determine risk factors for CanL (1 case: 5 controls). A multivariable logistic regression model was done, odds ratio (OR) and 95% confidence intervals were calculated.

Results:

A total of 386 dogs with CanL were identified from clinical narratives. Of these, 198 dogs had either visited or were imported from Spain (n=88), Greece (n=50), Cyprus (n=32) and other southern European countries (n=28). Allopurinol was the registered treatment used in 87.1% (203/233) of the clinical cases. Dogs between 3-6 years of age were 4.71 times more likely to have CanL (CI 3.36 – 6.67, $P < 0.001$) than 2 years or younger. Since 2017 there has been an increased risk of CanL cases (OR 3.32 CI 1.15 - 12.33, $P = 0.042$) compared to 2014. The UK region with higher number of cases was the Southeast of England (34.51%).

Conclusions:

This study identifies risk factors in dogs with CanL from the UK and countries likely associated with imported cases.

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063 / #939

Topic: *AS14. Infectious and emerging diseases*

IDENTIFICATION OF RISK FACTORS TO BUILD A TRIAGING TOOL FOR FELINE INFECTIOUS UPPER RESPIRATORY TRACT DISEASE

Ines Cunha Machado[1,2], Joana Ferreira[3], Miguel Maximino[3], Telmo Nunes[2,4], Luís Tavares[2,4], Nuno Sepúlveda[5,6], Virgílio Almeida[2,4], Solange Gil[2,4]
[1]CIISA, Faculty of Veterinary Medicine, University of Lisbon, Animal Health, Lisboa, Portugal, [2]Associate Laboratory for Animal and Veterinary Sciences, (al4animals), Lisboa, Portugal, [3]Faculty of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal, [4]CIISA - Centre for Interdisciplinary Research in Animal Health, Faculty Of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal, [5]Centro de Estatística e Aplicações da Universidade de Lisboa, University Of Lisbon, Lisbon, Portugal, [6]Faculty of Mathematics and Information Science, Warsaw University Of Technology, Warsaw, Poland

Introduction:

Infectious upper respiratory tract disease (URTD) is a common and highly contagious illness in cats, often resulting in serious health complications and even death. Detecting and isolating infected cats early is crucial to prevent disease spreading.

Objectives:

This study aimed to improve the identification and management of cats with URTD by establishing key epidemiological factors for their early recognition.

Methods:

A case-control study was conducted using data from 129 confirmed URTD cases and 134 unaffected cats. A simple logistic regression analysis was performed for each variable, and those with a p-value ≤0.05 were next included in a multiple regression model.

Results:

The simple logistic regression analysis results revealed that lifestyle, sex/neuter status, number of cats in the household, leukocyte count, and presence of other illnesses were significant factors ($p<0.05$). Then the multiple regression model identified the following risk factors for URTD hospitalization: living with three or more cats, absence of concomitant disorders ($p<0.001$), outdoor access ($p=0.03$), and not be neutered ($p<0.05$).

Conclusions:

These findings suggest that the number of cats in the household, outdoor access, neuter status, and presence of other underlying comorbidities are key input data to build triage models for the early selection of cats suspected of URTD. Further research with a larger sample is necessary to develop comprehensive URTD triage algorithms, such as decision trees.

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064 / #916

Topic: *AS14. Infectious and emerging diseases*

INFECTIONS BY ESBL-PRODUCING KLEBSIELLA IN COMPANION ANIMALS: A THREE YEAR STUDY

Laura Fernandes[1,2], Joana Moreira Da Silva[1,2], Juliana Menezes[1,2], Cátia Marques[3], Maria Constança Pomba[1,2,4], Cátia Caneiras[5,6]
[1]Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugal, Clinic, Lisboa, Portugal, [2]AL4AnimalS - Associate Laboratory for Animal and Veterinary Sciences, Clinic, Lisboa, Portugal, [3]Faculdade de Medicina Veterinária, Universidade Lusófona – Centro Universitário de Lisboa, Lisboa, Portugal, Clínica, Lisboa, Portugal, [4]Molecular Veterinary Diagnostic Laboratory, Genevet, Carnaxide, Portugal, [5]Institute of Environmental Health (ISAMB),Faculty of Medicine, University of Lisbon, Laboratory Of Microbiology Research In Environmental Health (envihealthmicro Lab), Lisboa, Portugal, [6]Faculty of Medicine, University of Lisbon, Institute Of Preventive Medicine And Public Health, Lisbon, Portugal

Introduction:

3rd and 4th generation cephalosporins resistance in Enterobacterales as well as the emergency of hypervirulent *Klebsiella* spp. are a well-established major public health problem.

Objectives:

Assess the frequency and trends (January 2020-June 2023) of ESBL-producing Enterobacterales (ESBL-E) infections in companion animals (CA), with focus on *Klebsiella* spp..

Methods:

Samples from clinical infections of CA were plated on standard media, as well as ESBL-selective plates. Antimicrobial susceptibility was assessed according to CLSI and EUCAST guidelines.

Results:

A total of 4275 samples were positive to Enterobacterales, with 906 (21,2%) of the strains presenting as ESBL-E. The most prevalent species was *Escherichia coli* with 2714 total isolates (63,5% of Enterobacterales). *Klebsiella* isolates (12,6% of Enterobacterales, n=537) were comparatively a much higher proportion of the ESBL-E isolates (53,4%, n=287) versus ESBL-producing *E. coli* (12,0%, n=325). Of the ESBL-producing *Klebsiella* infections, 41.5% were UTI and 58.5% were non-UTI. Invasive infections by ESBL-producing *Klebsiella* fluctuated, with an increase from 2020 (9.8%, n=5) to 2021 (21.3%, n=13), decrease in 2022 (11.7%, n=11) and new increase in the 2023 isolates (18,5%, n=15), despite only encompassing half of the year so far. ESBL-E percentages across the years remained relatively stable.

Conclusions:

Although ESBL-E numbers presented little variation across the years, the relatively high percentage of ESBL-producers in some species, such as *Klebsiella*, poses not only a public health challenge but may also signify an increase in more virulent, potentially untreatable infections.

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065 / #801

Topic: *AS14. Infectious and emerging diseases*

EVALUATION OF A NEW ELISA TEST FOR THE DETERMINATION OF ANTIBODIES AGAINST EHRLICHIA CANIS

Irene Ferrero[1], Paolo Poletti[1], Enrica Vittoria Giachino[1], Paola Dall'Ara[2], Joel Filipe[2]
[1]Agrolabo S.p.A, Research And Development, Scarmagno (TO), Italy, [2]Università degli Studi di Milano, Medicina Veterinaria E Scienze Animali, Lodi, Italy

Introduction:

Canine ehrlichiosis is a vector-borne rickettsial zoonotic disease of worldwide distribution. The main vector is the tick Rhipicephalus sanguineus, while dogs act as reservoir. Ehrlichia canis affects platelets, monocytes and granulocytes with multiorgan involvement.

The gold standard for serological diagnosis is the indirect Immunofluorescence Antibody Test (IFAT).

Objectives:

The aim of this work was the development of EhrlichiaCHECK Ab, a new rapid indirect ELISA test for the detection of E. canis antibodies in dog serum/plasma samples, with both visual and spectrophotometric reading.

Methods:

EhrlichiaCHECK Ab was developed after an extensive set-up, considering different concentrations of antigen/conjugate/controls and samples and different incubation times and temperatures to achieve the best test performance and set the most suitable cut-off with Youden's index and ROC curve.

The new ELISA kit was validated against the IFAT reference test by testing 132 canine sera (55 positives and 77 negatives for E. canis antibodies). A comparative study was also performed with INgezim Ehrlichia, another commercial indirect ELISA test (Gold Standard Diagnostics).

Results:

Compared to IFAT, EhrlichiaCHECK Ab agreed at 99.2%, with 98.2% sensitivity (95% confidence interval (CI): 89.0% – 99.9%) and 100% specificity (95% CI: 94.0% - 100%). This new test agreed with INgezim Ehrlichia at 96.2%. Intra- and inter-assay test accuracy gave coefficients of variation lower than 10%.

Conclusions:

The new ELISA test EhrlichiaCHECK Ab correctly identifies positive and negative samples with an excellent correlation with IFAT in a quick and easy way, with both visual and spectrophotometric reading.

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066 / #847

Topic: *AS14. Infectious and emerging diseases*

DEVELOPMENT OF A NEW ELISA TEST FOR THE DETECTION OF ANTIBODIES ANTI-FELINE CORONAVIRUS AS A DIAGNOSTIC SUPPORT FOR FELINE INFECTIOUS PERITONITIS (FIP)

Irene Ferrero[1], Sarah Dewilde[2], Paolo Poletti[1], Barbara Canepa[2], Enrica Vittoria Giachino[1], Paola Dall'Ara[3], Joel Filipe[3]
[1]Agrolabo S.p.A, Research And Development, Scarmagno (TO), Italy, [2]Gem Forlab SRL, R&d, Caluso, Italy, [3]Università degli Studi di Milano, Medicina Veterinaria E Scienze Animali, Lodi, Italy

Introduction:

Feline coronavirus (FCoV) belongs to the family Coronaviridae and includes two biotypes, the Feline Infectious Peritonitis Virus (FIPV) and the Feline Enteric Coronavirus (FECV). FIPV derives from mutation of FECV within the host, causing Feline Infectious Peritonitis (FIP), a progressive and often fatal disease characterized by effusive and dry forms. The diagnosis of FIP is complex and requires different examinations, including the gold standard indirect Immunofluorescent Antibody Test (IFAT) and ELISA tests.

Objectives:

The aim of this work was the development of FCoVCHECK Ab, a new rapid indirect ELISA test for the detection of FCoV antibodies in cat serum/plasma samples, with both visual and spectrophotometric reading.

Methods:

For the development of FCoVCHECK Ab, the cut-off was set with Youden's index and ROC curve, after an extensive evaluation of concentrations of antigen/conjugate/controls and samples, incubation times and temperatures. The new kit was validated by testing 110 feline sera (62 positives and 48 negatives) against the reference IFAT and two other rapid ELISA tests, INgezim Corona Felino (Gold Standard Diagnostics) and ImmunoComb Feline Coronavirus (FCoV) [FIP] Antibody Test Kit (Biogal).

Results:

Compared to the reference test, FCoVCHECK Ab agreed at 96.4%, with 93.5% sensitivity (95% confidence interval (CI): 83.5% - 97.9%) and 100% specificity (95% CI: 90.8% - 100%). This new test agreed at 93.6% with ImmunoComb FCoV and 82.7% with INgezim Corona Felino.

Conclusions:

The new ELISA test FCoVCHECK Ab correctly identifies positive and negative samples with a good correlation with IFAT, making it a good diagnostic aid for FIP.

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067 / #848

Topic: *AS14. Infectious and emerging diseases*

A NEW RAPID DIRECT ELISA TEST FOR SEROLOGICAL DIAGNOSIS OF FELINE LEUKEMIA

Irene Ferrero[1], Paolo Poletti[1], Enrica Vittoria Giachino[1], Paola Dall'Ara[2], Joel Filipe[2]
[1]Agrolabo S.p.A, Research And Development, Scarmagno (TO), Italy, [2]Università degli Studi di Milano, Medicina Veterinaria E Scienze Animali, Lodi, Italy

Introduction:

Feline Leukemia Virus (FeLV) is an oncogenic immunosuppressive virus belonging to Retroviridae family, transmitted by grooming or during pregnancy. FeLV infects and replicates in hematopoietic and lymphatic cells causing hematologic abnormalities, including anemia, lymphoma and leukemia. Diagnosis is usually performed by vets using rapid ELISA or lateral flow immunoassays that detect FeLV antigen.

Objectives:

The aim of this work was the development of FeLVCHECK Ag, a new rapid direct ELISA test for the detection of FeLV antigen (p27) in undiluted cat serum/plasma samples, with both visual and spectrophotometric reading.

Methods:

FeLVCHECK Ag was developed after a wide set-up considering different concentrations of antibody/conjugate/controls and samples and different incubation times and temperatures to achieve the best test performance and set the most suitable cut-off with Youden's index and ROC curve.

A comparative study was performed by using 112 feline sera (43 positives and 69 negatives for FeLV) with two other rapid direct ELISA tests, ViraCHEK/FeLV (Zoetis) and INgezim FeLV DAS (Gold Standard Diagnostics).

Results:

Compared with ViraCHEK/FeLV as reference test, FeLVCHECK Ag agreed at 97.3%, with 97.6% sensitivity (95% confidence interval (CI): 86.0% – 99.9%) and 97.1% specificity (95% CI: 89.1% – 99.5%), while with INgezim FeLV DAS the agreement was 90.2%. Intra- and inter-assay accuracy and precision gave coefficients of variation always lower than 10%.

Conclusions:

The new ELISA test FeLVCHECK Ag is a simple and really quick test that permits to identify FeLV Ag in undiluted samples with both visual and spectrophotometric reading.

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068 / #849

Topic: *AS14. Infectious and emerging diseases*

A NEW RAPID INDIRECT ELISA TEST FOR SEROLOGICAL DIAGNOSIS OF FELINE IMMUNODEFICIENCY

Irene Ferrero[1], Paolo Poletti[1], Enrica Vittoria Giachino[1], Paola Dall'Ara[2], Joel Filipe[2]
[1]Agrolabo S.p.A, Research And Development, Scarmagno (TO), Italy, [2]Università degli Studi di Milano, Medicina Veterinaria E Scienze Animali, Lodi, Italy

Introduction:

The Feline Immunodeficiency Virus (FIV) is a lentivirus belonging to Retroviridae family, mainly transmitted through biting or in utero. FIV affects immune cells causing a progressive immunosuppression, eventually leading to feline AIDS. Diagnosis is usually performed by vets using rapid ELISA or lateral flow immunoassays that detect FIV antibodies, whose production persist throughout the infected cat life.

Objectives:

The aim of this work was the development of FIVCHECK Ab, a new rapid indirect ELISA test for the detection of FIV antibodies in cat serum/plasma samples, with both visual and spectrophotometric reading.

Methods:

FIVCHECK Ab was developed after a meticulous set-up to achieve the best test performance and set the optimal cut-off with Youden's index and ROC curve.

The new kit was validated by testing 115 feline sera (38 positives and 77 negatives for FIV antibodies) against the ELISA rapid test SNAP FIV/FeLV Combo (IDEXX). Moreover, 103 sera (28 positives and 75 negatives) were also analyzed with two other rapid indirect ELISA tests, INgezim FIV (Gold Standard Diagnostics) and VetLine FIV (Novatec).

Results:

Compared to SNAP, FIVCHECK Ab agreed at 100%, both 100% of sensitivity (95% confidence interval (CI): 88.5% - 100%) and specificity (95% CI: 94.0% - 100%), and at 100% with INgezim FIV and at 92.2% with VetLine FIV. Intra- and inter-assay accuracy and precision gave coefficients of variation lower than 10%.

Conclusions:

The new ELISA test FIVCHECK Ab is a simple, quick test that correctly identifies FIV positive and negative samples with both visual and instrumental reading.

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069 / #851

Topic: *AS14. Infectious and emerging diseases*

A NEW RAPID SEMI-QUANTITATIVE INDIRECT ELISA TEST FOR THE SERODIAGNOSIS OF LEISHMANIA INFANTUM INFECTION IN DOGS

Irene Ferrero[1], Paolo Poletti[1], Enrica Vittoria Giachino[1], Paola Dall'Ara[2], Joel Filipe[2]
[1]Agrolabo S.p.A, Research And Development, Scarmagno (TO), Italy, [2]Università degli Studi di Milano, Medicina Veterinaria E Scienze Animali, Lodi, Italy

Introduction:

Canine leishmaniasis is a vector-borne protozoan disease caused by Leishmania infantum and transmitted by sand fly bites. Leishmania has two stages: promastigotes, present in the insect gut, and amastigotes that multiply in dog monocytes and macrophages. Leishmania infection, whose evolution depends on many factors (eg., genetics, age, parasitic load, host's immune response), can be diagnosed by microscopic and serologic methods, such as indirect Immunofluorescence Antibody Test (IFAT), the main gold standard, or ELISA.

Objectives:

The aim of this work was the development of LeishmaCHECK Ab, a new indirect semi-quantitative ELISA for the detection of L. infantum antibodies in dog serum/plasma samples.

Methods:

LeishmaCHECK Ab was developed after an extensive set-up, considering different concentrations of antigen/conjugate/controls and samples, and different incubation times and temperatures to achieve the best test performance and set the most suitable cut-off with Youden's index and ROC curve.

The new test ELISA was validated against the IFAT gold standard reference test by testing 146 canine sera (81 positives and 65 negatives for L. infantum antibodies). A comparative study was also performed with Leiscan, another commercial indirect ELISA test (Ecuphar).

Results:

Compared to IFAT, LeishmaCHECK Ab agreed at 100%, with 100% sensitivity (95% confidence interval (CI): 94.4% - 100%) and 100% specificity (95% CI: 93.0% - 100%). Intra- and inter-assay accuracy gave coefficients of variation lower than 10%.

This new test agreed with Leiscan at 67.12%.

Conclusions:

The new ELISA test LeishmaCHECK Ab provides a semi-quantitative evaluation of L. infantum antibodies with an excellent correlation with IFAT.

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070 / #731

Topic: *AS14. Infectious and emerging diseases*

A PROPOSAL FOR RELIABLE ANTEMORTEM DIAGNOSIS OF RABBIT HEMORRHAGIC DISEASE VIRUS (RHDV) THROUGH FINE NEEDLE ASPIRATION SAMPLES

Filipe Fontes Pinto[1,2,3,4], Joana Abrantes[2,3,5], Paula Gomes Ferreira[6,7], Ricardo Marcos[8]
[1]HIPRA, Rabbits, Malveira, Portugal, [2]CIBIO - Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, Universidade do Porto, Immunity And Emerging Diseases (imed), Vairão, Portugal, [3]BIOPOLIS Program in Genomics, Biodiversity and Land Planning, CIBIO, Vairão, Portugal, Immunity And Emerging Diseases (imed), Vairão, Portugal, [4]UMIB - Unit for Multidisciplinary Research in Biomedicine, ICBAS - School of Medicine and Biomedical Sciences, University of Porto, Umib, Porto, Portugal, [5]Faculdade de Ciências, Universidade do Porto, Biologia, Porto, Portugal, [6]UMIB - Unit for Multidisciplinary Research in Biomedicine, ICBAS - School of Medicine and Biomedical Sciences, University of Porto, Anatomia, Porto, Portugal, [7]ITR - Laboratory for Integrative and Translational Research in Population Health, University of Porto, Itr, Porto, Portugal, [8]ICBAS - School of Medicine and Biomedical Sciences, University of Porto, Cytology And Hematology Diagnostic Services, Laboratory Of Histology And Embryology, Department Of Microscopy, Porto, Portugal

Introduction:

Rabbit hemorrhagic disease (RHD) is a fatal and highly infectious disease caused by a highly resistant virus that leads to acute fatal hepatitis, the RHD virus (RHDV). When suspected RHDV-infected rabbits are admitted, RHDV threatens all veterinary centers.

RHDV variants of the GI.2 serotype have been associated with variable clinical courses: hyperacute, acute, and subacute/chronic forms. Since the reliable RHD diagnosis is only made *postmortem*, this potentiates the spreading of RHDV to other rabbit patients.

Objectives:

Our main objective is to present a novel diagnostic technique for RHD to achieve a reliable *antemortem* diagnosis. This technique merges a fine needle aspiration (FNA) of the liver with the cell tube block (CTB) methodology.

Methods:

Ten rabbits (*Oryctolagus cuniculus*) suspected of RHD were identified and the disease was *postmortem* confirmed by PCR testing. In each case, a liver FNA was obtained, and the needle content was rinsed in a saline solution. This content was centrifuged and converted into CTBs. Moreover, liver samples were collected at necropsy. These, along with the CTBs, were routinely processed for paraffin embedding. Sections were stained with H&E and immunohistochemistry for RHDV antigen.

Results:

The morphology and cellular detail obtained in rabbit liver CTB sections were similar to the histological liver samples obtained in conventional paraffin-embedded material, with the additional advantage of allowing immunohistochemistry.

Conclusions:

This study confirms the utility of CTB methodology for RHD diagnosis. This technique may provide a reliable *antemortem* diagnosis in suspected cases of RHD when rabbits are admitted to veterinary centers.

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071 / #703

Topic: *AS14. Infectious and emerging diseases*

MULTIFOCAL MYOCARDIAL NECROSIS AND MINERALIZATION ASSOCIATED WITH NATURAL DISTEMPER VIRUS INFECTION IN A DOG

Aster Patricia Bento, Asheley Henrique Pereira, José Miguel Hernandez, Felipe Marlon Machado, Thalita Brandt, Luciana Da Hora, Vivian Carvalho, Ticiana França
Universidade Federal Rural do Rio de Janeiro, Departamento De Epidemiologia E Saúde Pública, Seropédica, Brazil

Introduction:

Distemper is a common disease of worldwide distribution caused by *Morbillivirus*, family *Paramyxoviridae*, a pantropic viral pathogen of dogs. Despite causing respiratory and enteric symptoms as well as severe and frequent neurological disorders, cardiac necrosis and mineralization are rare.

Objectives:

The aim of this study was to describe mineralization and necrosis cardiac associated with natural distemper virus infection in a pup.

Methods:

The case study involved in a 5-month-old male Golden Retriever dog that recovered from respiratory and digestive sympthoms after supportive treatment. Thirty-three days after the first clinical sign, he presented skin lesions and nervous system signs, including seizures. He was treated for 30 days with phenobarbital and levetiracetam but there was no improvement and he was euthanized. The tissue fragments collected at necropsy were fixed in 10% formalin, routinely processed, cut to 4 µm, and stained with hematoxylin–eosin. Antigen tests were performed, with positive results for distemper virus and negative results for parvovirus and coronavirus.

Results:

At necropsy, hyperkeratotic, crusted, and desquamative lesions were observed around the eyes and on the nose, ears, limbs, and paw pads. The lungs did not collapse when the thorax was opened. Microscopy revealed epidermal hyperplasia, with some syncytial cells, vacuolization of keratinocytes, intraepidermal and subcorneal pustules, and considerable hyperkeratosis. In cardiomyocytes, marked coagulation necrosis and multifocal mineralization were observed. Furthermore, lymphoid tissue depletion, mild interstitial pneumonia with a few syncytial cells, and intranuclear inclusions in cerebellar astrocytes were verified.

Conclusions:

Necrosis with cardiac mineralization, although infrequent, can occur in natural distemper virus infection in pup.

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072 / #934

Topic: *AS14. Infectious and emerging diseases*

SIRS IN FELINE PATIENTS – IDENTIFICATION OF RISK AND PROGNOSTIC FACTORS USING VIRAL PANLEUKOPENIA AS A MODEL

Marta Carmo[1], Ines Cunha Machado[2,3], Telmo Nunes[2,3], Luís Tavares[2,3], Solange Gil[2,3]
[1]Faculty of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal, [2]Associate Laboratory for Animal and Veterinary Sciences, (al4animals), Lisboa, Portugal, [3]CIISA - Centre for Interdisciplinary Research in Animal Health, Faculty Of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal

Introduction:

Sepsis and Systemic Inflammatory Response Syndrome (SIRS) are serious medical conditions responsible for many deaths among animals. Understanding potential risk factors for SIRS in feline patients, as well as prognostic factors is crucial for effective management and prompt identification of sepsis.

Objectives:

To investigate risk factors for SIRS and prognostic factors in cats, using panleukopenia as a model.

Methods:

Seventy panleukopenia-positive cats were analyzed retrospectively. All cats underwent the 1991 and 2001 SIRS criteria. Fisher's exact test was performed to assess associations with the outcome. Univariate analysis and multivariate logistic regression analysis followed, to evaluate potential independent risk factors for SIRS. The focus was then narrowed to 25 SIRS positive cats and univariate analysis was performed to determine whether any variables were associated with the outcome.

Results:

Results. Both SIRS criteria may be useful in a clinical setting, if there are two abnormal physical exams within a 24-hour period. Hypoalbuminemia, hypoglycemia, and lymphopenia were found to be crucial risk factors for SIRS ($p<0.05$). Lymphopenia, maintenance or onset of anorexia/hyporexia, dehydration and abnormal mental status during hospitalization can be considered negative prognostic factors ($p<0.05$).

Conclusions:

Our study contributes to a better understanding and clinical management of feline SIRS, enhancing the ability to identify cats at-risk and improving prognostic assessments for tailored and effective treatment interventions and management approaches.

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073 / #941

Topic: *AS14. Infectious and emerging diseases*

PREDICTIVE PROGNOSIS VALUE OF REACTIVE PROTEIN C MEASUREMENT IN DOGS WITH PARVOVIROSIS

Diana Lopes[1], Luísa Mateus[2,3], Luís Tavares[2,3], Ines Cunha Machado[2,3], Solange Gil[2,3]
[1]Faculty of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal, [2]Associate Laboratory for Animal and Veterinary Sciences, (al4animals), Lisboa, Portugal, [3]CIISA - Centre for Interdisciplinary Research in Animal Health, Faculty Of Veterinary Medicine, University Of Lisbon, Lisboa, Portugal

Introduction:

Canine Parvovirosis is a highly contagious viral infectious disease that compromises the intestinal barrier, allowing bacteria and their toxins to enter the bloodstream. C-reactive protein (CRP), is an acute phase protein, commonly used as a biomarker of inflammation and infection, increasing rapidly post-stimulation.

Objectives:

This study aimed to evaluate CRP concentration in serum samples from dogs hospitalized for parvovirosis and assess its potential as an early diagnostic tool, to monitor treatment progress and predict prognosis.

Methods:

A total of 60 samples were analysed using the Catalyst CRP Test (IDEXX®), 45 from laboratory-confirmed parvovirosis cases (PG), and 15 from healthy animals (CG). Spearman's Correlation Test and ROC curve analysis performed in R®, were used to correlate CRP values with the presence of Systemic Inflammatory Response Syndrome (SIRS) and determine the CRP/Albumin Ratio (CAR) value.

Results:

The study revealed significantly higher CRP concentrations in the PG compared to CG group (mean value of 5,52±0,45mg/dl and 0,43±0,08mg/dl, respectively; p=7.25x10-4). A positive correlation was observed between CRP levels and SIRS (ρ=0.30). Furthermore, a CAR value of 1.6 was calculated, signalling SIRS in dogs with parvovirosis (sensitivity 93.5%; specificity 85.7%).

Conclusions:

The results from this study suggest that CRP and CAR can be valuable additions to the analytical panel of parvovirosis cases. They can potentially serve as early diagnostic tools, help monitor treatment progress and provide prognostic indications for disease outcomes.

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074 / #372

Topic: *AS14. Infectious and emerging diseases*

EXPERIMENTAL INFECTION AND TRANSMISSION OF SARS-COV-2 DELTA AND OMICRON VARIANTS IN BEAGLE DOGS

Kwang-Soo Lyoo, Seunggyen Lee, Ranhee Yoon, Yongkwan Won, Jinyoung Park
Jeonbuk National University, Veterinary Medicine, Iksan, Korea, Republic of

Introduction:

The first case of SARS-CoV-2 infection in pet animals was reported in Hong Kong. Because pet dogs share living space with humans and are a major companion animal, more studies would be needed to determine susceptibility of dogs to SARS-CoV-2 infection.

Objectives:

The objective of this study is to assess the susceptibility of dogs to SARS-CoV-2 Delta and Omicron variants and the transmissibility of SARS-CoV-2 variants from infected dogs to naïve animals.

Methods:

Nine beagle dogs (9-months-old, male) were used, and each two beagle dogs were inoculated intranasally with the SARS-CoV-2 Omicron variant and Delta variant, respectively. Twenty-four hours after infection, two naïve beagle dogs and another two naïve dogs were cohoused in separate large animal isolators with dogs infected with Delta or Omicron variants, respectively. Body temperature and weight were recorded, and blood, nasal swabs, and rectal swabs were collected during 10 days-post-infection (dpi) or days-post-transmission (dpt). All dogs were euthanized on 10 dpi or 10 dpt, and histopathological examination, viral loads, blood chemistry were tested.

Results:

The dogs were susceptible to infection and transmitted both strains via direct contact. Despite no clinical signs, microscopic lesions were observed in the lungs of the infected and transmission dogs. Among the blood chemistry parameters, creatine kinase levels were markedly increased in Omicron variant-infected dogs.

Conclusions:

It is hypothesized that pets could transmit to other humans in a zoonotic infection process. Therefore, concerns about possible spillover between humans and pet animals could be raised, and continuous surveillance is required to monitor novel SARS-CoV-2 variants in companion animals.

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075 / #853

Topic: *AS14. Infectious and emerging diseases*

PORTUGAL REMAINS AT THE TOP OF THE EUROPEAN PREVALENCE FOR FELINE LEUKEMIA VIRUS INFECTION? A 4-YEAR RETROSPECTIVE STUDY

Pedro Morais De Almeida[1], Adriana Belas[1], Joana De Oliveira[1], Mauro Bragança[2], Carlos Viegas[3]
[1]Universidade Lusófona, Faculdade De Medicina Veterinária, Lisboa, Portugal, [2]Universidade de york, Heslington, York, United Kingdom, [3]CITAB, Centre For The Research And Technology Of Agro-environmental And Biological Sciences, Universidade De Trás-os-montes E Alto Douro (utad), Vila Real, Portugal

Introduction:

In the 2019 Pan-European Study conducted by the European Advisory Board on Cat Diseases Portugal showed the highest prevalence of the Feline Leukemia Virus Infection (FeLV). Previously, studies in several other European countries pointed to a prevalence stagnation. It is thus fundamental to evaluate the current scenario.

Objectives:

The aim of this study was to know the prevalence of FeLV viremia in cats taken to veterinary facilities along with their environment and welfare information.

Methods:

A retrospective study was carried out between January 2019 and December 2022. This included 839 domestic cats, from a teaching hospital, in Lisbon. All cats were tested by for proviral DNA or RNA by quantitative polymerase chain reaction (qPCR) or reverse transcriptase qPCR, respectively, blood samples were collected into EDTA tubes. For p27 antigen detection by ELISA heparin tubes were used.

Results:

The overall FeLV prevalence was 12.8% (n=107). Of these 56.1% were pet-owned cats, 32.7% came from shelters and were free-roaming and 3.0% of the cases were stray cats. Concerning multi-household/housing, in the group of cats where this information was available, 31.6% were kept as single cats, 49.7% of the cats lived in multicat environments (> 2 cats) and 31.3% had outdoor access.

Conclusions:

This work encompasses the largest sample in the longer time frame of FeLV prevalence data in Portugal. The heterogeneity of the cats' lifestyle allows us to have a more global and realistic view. There is a significant association of FeLV and outdoor access. Overall, FeLV prevalence seems to be continuing to grow.

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076 / #809

Topic: *AS14. Infectious and emerging diseases*

MOLECULAR AND SEROPREVALENCE OF SARS-COV-2 IN SHELTER CATS FROM LATVIA

Gundega Murniece[1], Zanete Steingolde[2], Aivars Berzins[1,2], Kaspars Kovalenko[1]
[1]Latvia University of Life Sciences and Technologies, Institute Of Food And Environmental Hygiene Of The Faculty Of Veterinary Medicine, Jelgava, Latvia, [2]Institute of Food Safety, Animal Health and Environment "BIOR", Serology Division Of Animal Diseases, Riga, Latvia

Introduction:

SARS-CoV-2 is of zoonotic origin and has shown reverse zoonotic transmissibility. Since domestic cats are susceptible to SARS-CoV-2 infection, the occurrence of trans-species transmission needs to be monitored. Several case reports and seroprevalence studies have been conducted on owned cats. However, information on SARS-CoV-2 infection in animal shelters or other multi-cat environments is lacking.

Objectives:

The aim of this study was to investigate molecular and seroprevalence of SARS-CoV-2 in shelter cats from Latvia.

Methods:

This cross-sectional study included 218 cats from eight animal shelters in Latvia. During the second wave of COVID-19, serum, oropharyngeal, and rectal swab samples were collected from each cat. The swabs were analyzed for SARS-CoV-2 RNA by RT-PCR, and the serum was tested for the presence of specific antibodies against SARS-CoV-2 using ELISA.

Results:

In total 436 swab samples from cats were analysed, and none of the specimens had detectable SARS-CoV-2 viral RNA. Five of 218 cats (2.3%; CI 95%: 0.7-5.3%) were seropositive. The seropositive cats originated from three different shelters.

Conclusions:

Our data demonstrated that cats are susceptible to productive SARS-CoV-2 infection; however, the prevalence was low. This indicates that the probability of human-to-cat or cat-to-cat transmission of SARS-CoV-2 is low, even in substantial cat populations. It is unlikely that cats serve as a reservoir of the virus.

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077 / #812

Topic: *AS14. Infectious and emerging diseases*

CONTINUOUS INFUSION OF CALCIUM GLUCONATE IN DOGS WITH CANINE VISCERAL LEISHMANIASIS SUBMITTED TO THERAPEUTIC PLASMATIC EXCHANGE BY CENTRIFUGATION

Fábio Nogueira[1], Pryscilla Okamoto[2], Suellen Maia[2], Silvano Geraldes[2], Maria Gabriela Azevedo[2], Maria Lucia Lourenço[3], Regina Takahira[3], Alessandra Melchert[2]
[1]FUNDAÇÃO EDUCACIONAL DE ANDRADINA, ClÍnica VeterinÁria, Andradina, Brazil, [2]FMVZ UNESP BOTUCATU, ClÍnica VeterinÁria, Botucatu, Brazil, [3]Unesp - School of Veterinary Medicine and Animal Science, Veterinary Clinics, Botucatu, Brazil

Introduction:

Introduction:

Therapeutic plasma exchange (TPT) represents a promising therapy in veterinary medicine, however, hypocalcemia may be a potential effect of the procedure, inducing the risk of clinical complications.

Objectives:

Objectives

To evaluate the response of continuous infusion of calcium gluconate in dogs with canine visceral leishmaniasis (CVL) submitted to TPT.

Methods:

Methods

Nine dogs with CVL were prospectively selected and submitted to a daily session of TPT by centrifugation applied on three consecutive days, totaling the evaluation of 27 sessions. One TPT volume per session was performed and all dogs received at least 50% fresh frozen plasma as part of the replacement fluid. Infusion of 1mL/kg/h of 10% calcium gluconate was given to all dogs during the procedure. Analysis of ionized calcium was performed before and after the sessions, as well as constant physical monitoring.

Results:

Results

Even with continuous infusion of calcium gluconate, mean values of ionized calcium were significantly lower after the TPT procedure in all evaluated sessions (1.07 mmol/L ± 0.28; 1.14 mmol/L ± 0.18; 1.11 ± 0.10, respectively). However, the replacement prevented pronounced cases of hypocalcemia from occurring. One dog presented emesis and another became apathetic during the procedure, both presented hypocalcemia at the end of the session, which was corrected with additional replacement.

Conclusions:

Conclusions

Continuous infusion with 10% calcium gluconate at a rate of 1ml/kg/h reduces the risk of pronounced hypocalcemia in dogs undergoing TPT. Replacement of this electrolyte using higher infusion rates can be considered.

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078 / #906

Topic: *AS14. Infectious and emerging diseases*

SPATIAL ANALYSIS OF FELINE SPOROTRICHOSIS CASES FOLLOWED AT THE EVANDRO CHAGAS NATIONAL INSTITUTE OF INFECTIOUS DISEASES (INI)/FIOCRUZ - RIO DE JANEIRO, BRAZIL (1998-2018)

Anna Figueiredo[1], Mônica Magalhães[2], Isabella Gremião[1], Rodrigo Menezes[1], Maria Correa[1], Sandro Pereira[1]
[1]Fundação Oswaldo Cruz, Instituto Nacional De Infectologia Evandro Chagas, Laboratório De Pesquisa Clínica Em Dermatozoonoses Em Animais Domésticos, Rio de Janeiro, Brazil, [2]Fundação Oswaldo Cruz, Instituto De Comunicação E Informação Científica E Tecnológica Em Saúde, Rio de Janeiro, Brazil

Introduction:

Feline sporotrichosis is a public health problem in Brazil due to its zoonotic character. The Rio de Janeiro metropolitan region (RMRJ) is currently hyperendemic. At INI/Fiocruz, the first feline cases were diagnosed in 1998.

Objectives:

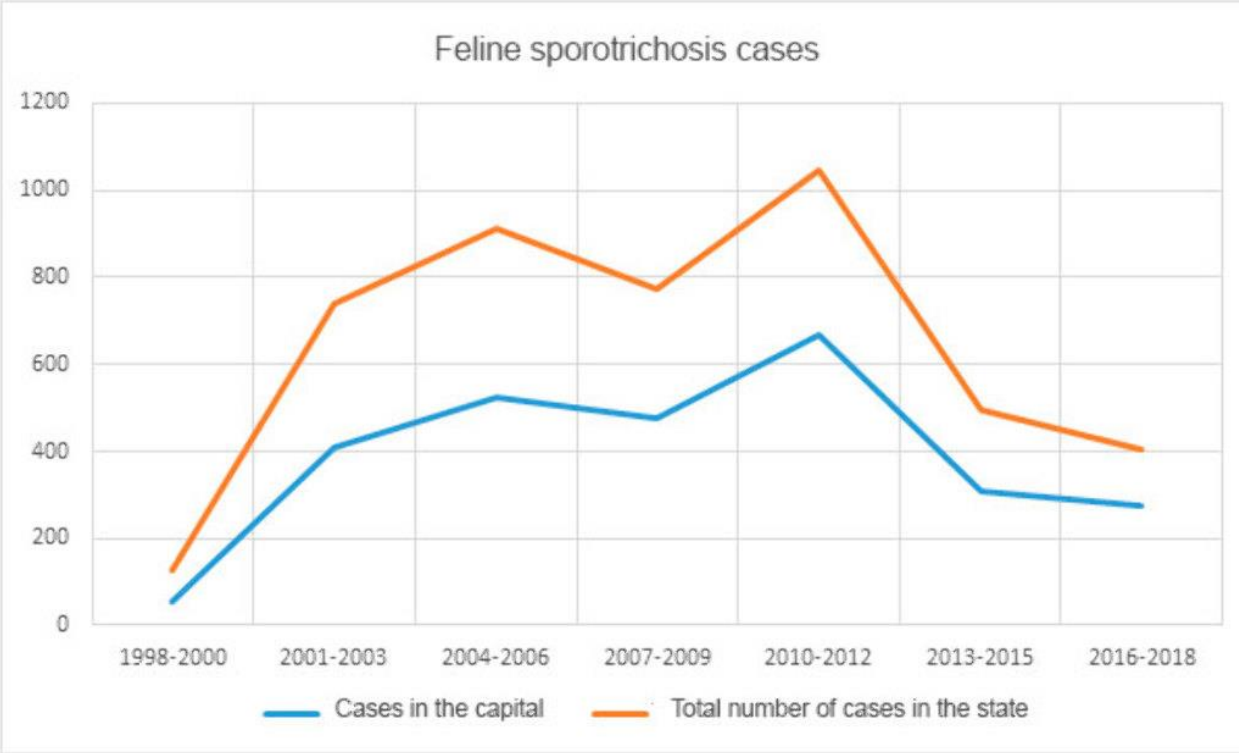
To evaluate the space-time distribution of feline sporotrichosis cases in INI/Fiocruz (1998-2018) from the state of Rio de Janeiro.

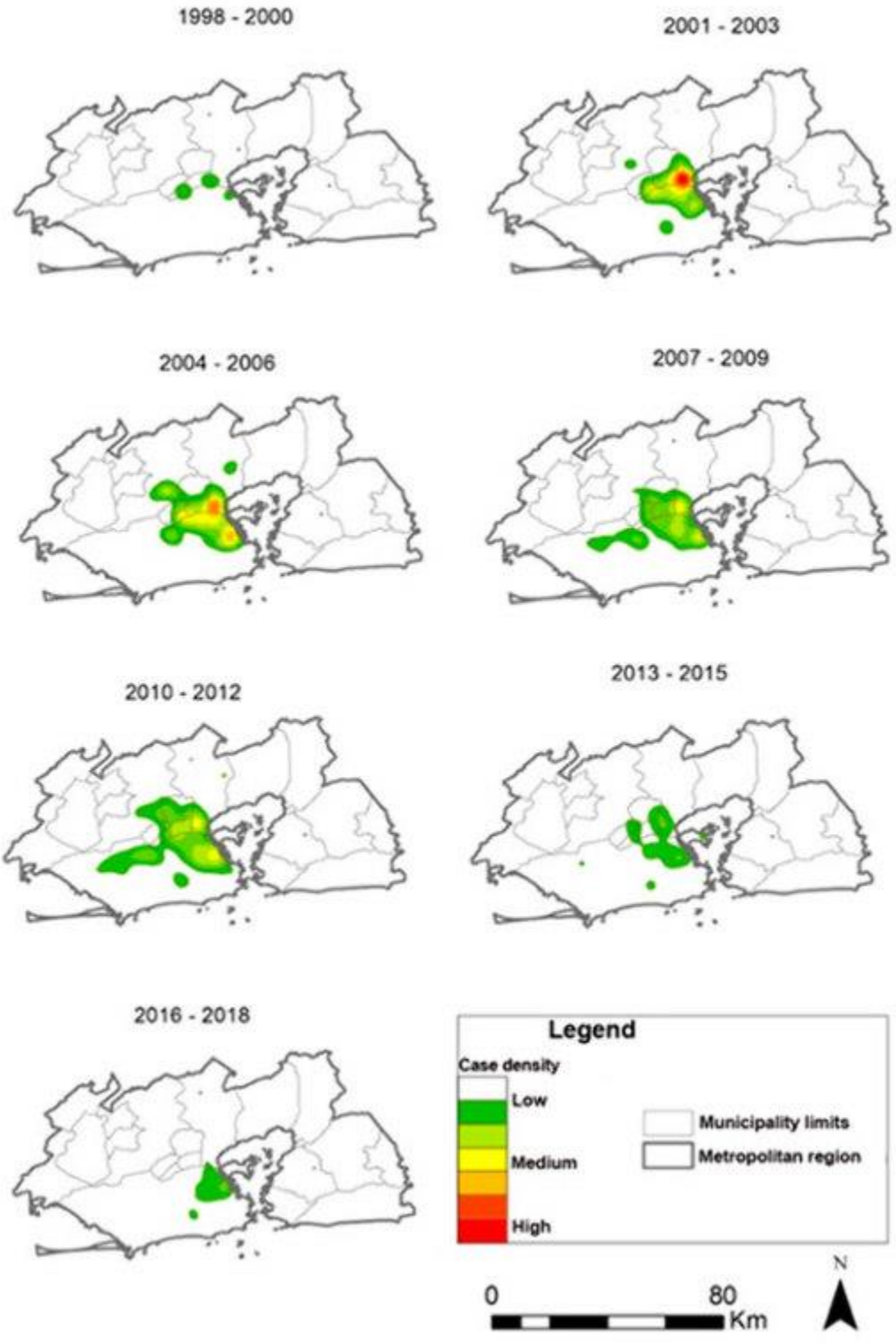
Methods:

The addresses of feline cases were georeferenced for an exploratory spatial analysis, with kernel maps.

Results:

Of the 5,113 feline cases, 4,502 addresses were georeferenced. Figure 1 shows an increase in the number of cases diagnosed cases over the years, with a decrease from 2013 onwards. Most cases were referred to INI before 2013, when diagnosis and treatment of animals have both become available in other public institutions. Most cats affected were male (68.1%), young (86.75% of males and 80.80% of females less than 48 months old), mongrel (88.9%) and sexually intact (77 .4%). Figure 2 shows kernel maps made from georeferenced points. There was a spread of the disease over time throughout the RMRJ, forming the “sporotrichosis belt”. There was a greater concentration of cases in economically disadvantaged areas, where cats generally live in houses and have free access to the street.


Feline sporotrichosis cases
1200
1000
800
600
400
200
0
1998-2000
2001-2003
2004-2006
2007-2009
2010-2012
2013-2015
2016-2018
Cases in the capital
Total number of cases in the state



Conclusions:

RMRJ is the main area of occurrence of feline sporotrichosis in the world. Interventions are needed to control caseloads in high-risk areas through the implementation of geographically targeted prevention programs using the One Health approach.

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079 / #723

Topic: *AS14. Infectious and emerging diseases*

CANIVORE CHAPHAMAPARVOVIRUS-1 (CACHPV-1) INFECTION IN DOGS WITH DIARRHEA

Chutchai Piewbang, Somporn Techangamsuwan
Faculty of Veterinary Science, Chulalongkorn University, Pathology, Bangkok, Thailand

Introduction:

Carnivore chaphamaparvovirus-1 (CaChPV-1), a novel virus belonging to parvovirus, is recently identified in dogs. Association of infection with enteric diseases is controversial, and information on whether the tissue tropism persists is lacking.

Objectives:

To obtain a detailed understanding of the disease association of CaChPV-1 in dogs with diarrhea and to investigate tissue localization and genetic diversity of the CaChPV-1.

Methods:

We investigated CaChPV-1 infection in suffered puppies that died from fatal enteric disease and designed a retrospective study to determine whether the presence of CaChPV-1 is associated with diarrhea in 305 dogs. Tissue localization of CaChPV-1 was determined using in situ hybridization, and CaChPV-1 complete genomes were analyzed.

Results:

CaChPV-1 was detected in 6.56% (20/305) of tested dogs that was significantly found in puppies ($P < 0.00001$), and significant in dogs with diarrhea ($P = 0.0476$). CaChPV-1 was localized in the stromal and endothelial cells of intestinal villi and pulmonary alveoli, and rarely detected in lymph nodes. Phylogenetic analysis indicated genetic diversity of CaChPV-1 Thai strains that were mostly clustered within the sequences found in China.

Conclusions:

Although definitive pathogenesis of CaChPV-1 remains undetermined, this study provides evidence supporting that CaChPV-1 localizes in canine cells and could play a potential role as an enteric pathogen.

080 / #636

Topic: *AS14. Infectious and emerging diseases*

RAPID DEVELOPMENT OF NEUTRALIZING MONOCLONAL ANTIBODIES THROUGH A PHAGE DISPLAY LIBRARY PANNING

Nara Shin[1], Sung-Young Lee[1], Seong-In Lim[2], Min Ji Kim[2], Mijung Kwon[2], Eui Hyeon Lim[2], Bang Hun Hyun[2], Yoon Hee Lee[2]
[1]YntoAb Co., Ltd., Research And Development, Seongnam-si, Korea, Republic of, [2]Animal and Plant Quarantine Agency, Viral Disease Division, Gimcheon-si, Korea, Republic of

Introduction:

Monoclonal antibodies are gaining popularity in the biological market for the treatment of both pets and humans, and the use of antibodies for therapeutic purposes is required for a variety of diseases. Nevertheless, there are considerably fewer clinical trials on the development of veterinary medicines using this. It takes a long time and costs a lot of money to generate monoclonal antibodies using the conventional approach.

Objectives:

The primary objective is to rapidly develop neutralizing antibodies as a time and money-saving technique, phage display library planning, and we would like to confirm whether the scFv-Fc-type fusion protein is clinically useful. In the end, it's expected that the developed antibodies will serve as a fresh option.

Methods:

1. Selection of antigen-specific scFv by phage display library panning

2. Production of scFv-Fc proteins

3. Surface Plasmon Resonance(SPR) analysis

4. Experimental canine parvoviral infection and application of scFv-Fc in mice

Results:

Here are the results of two types of antibodies targeting canine parvovirus 2 (CPV2) and canine interleukin (IL-31) developed using phage display methods, which can save significant time and money. It has been established that the anti-CPV2 antibody has a much greater ability of neutralization than hyperimmune serum, despite the clinical performance of the anti-canine IL-31 antibody still being confirmed.

Conclusions:

In conclusion, we demonstrated that neutralizing antibodies can be produced quickly using promising antibody development techniques, and they also have a high level of efficacy. Additionally, it implies that it is a shortcut to find gemstones that can take the place of current materials.

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081 / #804

Topic: *AS14. Infectious and emerging diseases*

A CANINE PARVOVIRUS TYPE-2 AND TYPE-2C VACCINE ARE BOTH HIGHLY EFFECTIVE IN PROTECTING AGAINST FELINE PARVOVIRUS CHALLENGE

Jacqueline Pearce[1], David Sutton[2]
[1]MSD Animal Health, R&d, Boxmeer, Netherlands, [2]MSD Animal Health, Global Marketing, Milton Keynes, United Kingdom

Introduction:

African Wild Dogs (AWDs) can be infected with Feline Parvovirus (FPV) and this virus has been implicated as the cause of severe disease in a captive AWD litter. Since captive AWDs are commonly vaccinated with vaccines containing canine parvovirus (CPV) it has been questioned whether these will adequately protect against disease caused by FPV.

Objectives:

The objective of the study was to use domestic cats as a surrogate FPV-susceptible host and in this way to measure the efficacy of two commercial canine vaccines containing different CPV strains (one containing a CPV-2 strain and the other a CPV-2c strain) against FPV challenge.

Methods:

Thirteen SPF domestic shorthaired cats were divided into three groups. Groups 1 and 2 each comprised five cats and Group 3 comprised 3 cats. The Group 1 and 2 cats received a single vaccination with either the CPV-2 vaccine or the CPV-2c vaccine respectively. The Group 3 cats were unvaccinated controls. All cats were challenged oronasally with FPV 28 days later and then monitored for clinical signs of disease, weight loss and leukopenia. The excretion of vaccine or challenge virus in the faeces was measured after both vaccination and challenge.

Results:

Both groups of vaccinated cats were equally protected against clinical signs of disease, leukopenia and viral excretion.

Conclusions:

A single vaccination, with either CPV vaccine, protected cats against clinical signs, leukopenia and viral excretion of FPLV.

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082 / #686

Topic: *AS14. Infectious and emerging diseases*

ARE VECTOR-BORNE BACTERIA ANTIMICROBIAL RESISTANCE GENE FREE?

Márton Papp[1], Adrienn Tóth[1], Gábor Valcz[2], László Makrai[3], Sára Nagy[1], Róbert Farkas[4], Norbert Solymosi[1]
[1]Uninversity of Veterinary Medicine Budapest, Centre For Bioinformatics, Budapest, Hungary, [2]Eötvös Loránd Research Network-Semmelweis University, Translational Extracellular Vesicle Research Group, Budapest, Hungary, [3]Uninversity of Veterinary Medicine Budapest, Department Of Microbiology And Infectious Diseases, Budapest, Hungary, [4]Uninversity of Veterinary Medicine Budapest, Department Of Parasitology And Zoology, Budapest, Hungary

Introduction:

According to our present views, several aspects of life may change in the near future. Climate change brings alterations in the distribution of vectors, including ticks that may transfer infectious diseases. Such tick-borne diseases (TBDs) are often caused by bacteria. Bacteria, however, are associated with another pressing threat; emerging resistance against antimicrobial agents. Antimicrobial resistance (AMR) is driven by antimicrobial resistance genes (ARGs).

Objectives:

The purpose of our work was to assess the ARG-set of pathogenic tick-borne bacteria.

Methods:

Throughout our study, the resistome of tick-borne pathogenic bacteria, namely 1550 isolates of the genera Anaplasma (n = 20), Bartonella (n = 131), Borrelia (n = 311), Coxiella (n = 73), Ehrlichia (n = 13), Francisella (n = 959) and Rickettsia (n = 43) was investigated. The bioinformatic genome analysis was conducted on related short- and long-read sets from the Sequence Read Archive (SRA) repository of the National Center for Biotechnology Information (NCBI).

Results:

While 98.9% of the Francisella tularensis samples contained the FTU-1 beta-lactamase gene that is the part of the F. tularensis representative genome, only 16.3% contained additional ARGs. Moreover, only 2.2% of isolates from other genera (Bartonella: 2, Coxiella: 8, Ehrlichia: 1, Rickettsia: 2) contained any ARGs.

Conclusions:

Our results indicate a surprising lack of ARGs in tick-borne, pathogenic bacteria.

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083 / #681

Topic: *AS14. Infectious and emerging diseases*

MONITORING OF LEISHMANIA INFANTUM IN OWNED DOGS FROM CENTRAL ITALY

Michele Trotta[1], Caterina Fani[1], Valeria Leto[1], Simone Trichei[2], Adriana Augello[2], Simona Gabrielli[2]
[1]CDVET, Veterinary Laboratory, ROME, Italy, [2]SAPIENZA UNIVERSITA DI ROMA, Sanita Pubblica E Malattie Infettive, ROME, Italy

Introduction:

Canine leishmaniosis (CanL) caused by *Leishmania infantum* is an important zoonosis in Mediterranean basin where dogs, as domestic animals in close contact with humans, are the main reservoir hosts. CanL is endemic in Italy, with highest prevalence in southern and insular regions, according to the distribution of the sand fly vectors and of the main dog reservoirs. In Central Italy, CanL has been scantly investigated with a recent prevalence of 2.5% reported in kennel dogs.

Objectives:

A cross-sectional study was conducted from April to December 2022 to evaluate the seroprevalence for *L. infantum* in owned dogs admitted at the CDVet Research laboratory for routine screening or with clinical suspicion of leishmaniosis.

Methods:

Sera were subjected to an indirect immunofluorescence antibody test (IFAT) for the detection of specific IgG against *L. infantum* (MegaFLUO Leish, Megacor Diagnostik GmbH) using the cut-off dilution of 1:80, as recommended.

Results:

2584 dogs out of 7284 admitted to the laboratory were positive for *L. infantum* antibodies (35.47%), demonstrating a high circulation of the parasite, comparable to that observed in the highly endemic regions of southern Italy.

Conclusions:

Our findings evidenced a high prevalence of CanL in domestic dogs in Central Italy. Further investigations are in progress to collect and analyze the residential address of positive cases. Geographical data will be useful to perform map of the distribution of CanL and to detect possible hot spot of infections in the Central Italy.

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084 / #45

Topic: *AS14. Infectious and emerging diseases*

MOLECULAR DETECTION OF VECTOR-BORNE PATHOGENS IN BLOOD FROM APPARENTLY HEALTHY FERAL CATS IN SPAIN

Sergio Villanueva[1], Ingo Schäfer[2], Ana Gonzalez[3], Diana Marteles[1], Delia Lacasta[1], Pablo Rueda[1], Antonio Fernandez[1], Ard Nijhof[4], Elisabeth Müller[2], Michele Trotta[1], Teresa Navarro[1], Maite Verde[1]
[1]ZARAGOZA VETERINARY FACULTY, Animal Pathology, ZARAGOZA, Spain, [2]LABOKLIN GmbH and Co., Laboratory, Bad Kissingen, Germany, [3]Veterinary Teaching Hospital, Laboratory, Zaragoza, Spain, [4]Freie Universität Berlin, Institute Of Parasitology And Tropical Veterinary Medicine, Berlin, Germany

Introduction:

Feline vector-borne infections are caused by pathogens transmitted by blood-feeding arthropods and their importance is increasing due to changing climate, expanding habitats of potential vectors and pathogen reservoirs.

Objectives:

The aim of this study was to determine the molecular prevalence of vector-borne infections in feral cats in Zaragoza (Spain).

Methods:

A retrospective study including feral cats (n=332) presented to the veterinary faculty in Zaragoza from 02/2020 to 10/2022 were included. Blood PCR-testing was used for detecting *Anaplasma phagocytophilum*, *Anaplasma platys*, *Ehrlichia* spp., *Rickettsia* spp., hemotropic Mycoplasmas, *Bartonella* spp., *Leishmania* spp., *Hepatozoon* spp., piroplasms, and microfilaria. In Complete Blood Count and general examination, no abnormalities were detected.

Results:

158 tested positive for vector-borne infections (47.6%, *Hepatozoon* spp. 25.6%, *Mycoplasma* spp. 22.9%, *Bartonella* spp. 9.3%, *Leishmania* spp. 2.1%). Male sex had a statistically significant impact on test results. None of the cats tested positive for *Anaplasma phagocytophilum*, *Anaplasma platys*, *Ehrlichia* spp., *Rickettsia* spp., piroplasm and microfilariae. In 56/158 cats (35.4%) tested positive, coinfections with other pathogens were detected.

Conclusions:

An important amount of the cats (47.6%) tested positive for at least one vector-borne pathogen. Therefore, feral cats are important as pathogen reservoirs and may contribute to the spread of vector-borne pathogens.

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085 / #163

Topic: *AS14. Infectious and emerging diseases*

SEROLOGICAL EXPOSURE TO INFLUENZA A IN FERAL CATS FROM AN AREA WITH THE PRESENCE OF CASES OF WILD BIRD POSITIVE TO AVIAN INFLUENZA

Sergio Villanueva, Alex Gomez, Hector Ruíz, Ana Gonzalez, Diana Marteles, Delia Lacasta, Pablo Rueda, Dolores Perez, Teresa Navarro, Antonio Fernandez, Michele Trotta, Maite Verde
ZARAGOZA VETERINARY FACULTY, Animal Pathology, ZARAGOZA, Spain

Introduction:

Influenza A is an emerging zoonotic virus with a worldwide distribution. There is no information about the Influenza A exposure in stray cats in regions with positive cases detected in wild birds. In general, the infection in mammals is probably linked to feeding on infected wild birds.

Objectives:

The objective of this study was to determine the seroprevalence of anti-influenza A antibodies in feral cats from a Spanish region with positive cases in birds.

Methods:

A cross-sectional study from feral cats (n=184) from 2022 to 2023 were included. The presence of antibodies against Influenza A were tested using a modified commercial indirect ELISA kit, adapted for this study.

Results:

During sample collection, no cats showed any clinical signs indicating illness. Four out (3 males and 1 female) of 184 (2,17%) animals showed anti-Influenza A antibodies by ELISA. None of these samples cross-reacted with SARS-CoV-2 RBD antibodies tested by other in-house indirect ELISA.

Conclusions:

This study demonstrates for the first time that feral cats are exposed to Influenza A virus, possibly for hunting and scavenging wild birds. Due to the low number of positive cases detected, is not possible to suggest an important epidemiological role of the cats in Influenza A transmission. Further epidemiological studies are necessary to determine the risk for other mammals can be infected by Influenza A in urban areas.

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086 / #951

Topic: *AS14. Infectious and emerging diseases*

EVERYDAY CANINE SOCIAL ACTIVITIES ARE LIKELY TO BE A SIGNIFICANT YET UNDERESTIMATED RISK FACTOR FOR CANINE INFECTIOUS RESPIRATORY DISEASE

Kevin Whelan[1], David Sutton[2]
[1]MSD Animal Health, Associate Director - Global Marketing, Dublin, Ireland, [2]MSD Animal Health, Global Technical Director, Milton Keynes, United Kingdom

Introduction: Canine Infectious Respiratory Disease (CIRD) is a common, contagious, multifactorial disease. It is traditionally associated with activities such as kennelling and is often referred to as “kennel cough”. However, it is recognised that everyday social activities where dogs come into contact are also a potential source of infection.

Objectives: Quantitative market research study targeting vets and dog owners was developed to better understand potential sources of infection and risk factors.

Methods: Quantitative online survey was conducted by a global professional market research organisation in accordance to global market research guidelines and codes of conduct among a representative sample of 1,207 pet owners and 456 companion animal veterinarians across six European countries. The veterinarian research included a review of the most recent CIRD cases from patient records, to help ensure the findings were accurately recorded. Fieldwork took place between 29 March and 18 April 2022.

Results: Veterinarians see over three times as many cases of CIRD, than other common infectious diseases including parvovirus and distemper. Almost 40 percent of cases were reported to be associated with everyday social activities such as playing with other dogs in the park or public spaces, meeting another dog outside the home, or just going for a walk with other dogs, whereas only 20 percent was associated with kennelling.

Conclusions: CIRD is common and everyday social activities are an important risk factor for disease exposure.

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087 / #355

Topic: *AS16. Internal medicine (other)*

RESTROSPECTIVE STUDY OF 63 ANIMALS WITH CONTACT WITH THAUMETOPOEA PITYOCAMPA BETWEEN 2017-2023

Cláudia Brás, Gabriel Galhano, Inês Gomes, Pilar Rocha, Camila Cartana
Hospital Veterinário da Bicuda, Hospital Veterinário Da Bicuda, Cascais, Portugal

Introduction:

Thaumetopoea pityocampa, also known as pine processionary caterpillar, is considered a plague in southern Europe, Central Asia and North Africa. The irritating hair of the larvae can cause severe reactions and necrosis. Pets are attracted to the visual procession of the larvae and frequently try to lick or eat them.

Objectives:

Describe the cases of animals affected by Thaumetopoea pityocampa at a veterinary hospital between 2017 and 2023.

Methods:

Patients with confirmed or suspected interactions were eligible for the study, totaling 63 animals. Animal information, clinical signs, treatment and outcome were analyzed.

Results:

Of the 63 animals, 57 were dogs, and 6 were cats, with median age of 3.6 years, indicating younger animals were more affected. 6% already had previous contact.

Hypersalivation (63%), vomiting (24%) and facial edema (15%) were observed.

Decontamination was performed under sedation, and tongue (92%) and sublingual (29%) edema were present.

All animals received topic sucralfate mixed with lidocaine. Antihistaminic was administered to 92% of animals, and corticosteroids to 98%. Antibiotics were required by 33% and pain management in 32% of cases. One animal needed debridement of the tongue, and 8% of the cases required a feeding tube. On average, animals ate independently after 1 day and were discharged after 1.4 days. On follow-up 30% of animals had lost part of the tongue.

Conclusions:

Thaumetopoea pityocampa can cause devastating consequences, such as loss of the tongue in several cases. Early anti-inflammatory therapy may play an important role in reducing these harms.

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088 / #155

Topic: *AS16. Internal medicine (other)*

USE OF LASER THERAPY AS AN ADJUNCT IN THE TREATMENT OF A SEVERE CASE OF LINGUAL AND LABIAL NECROSIS DUE TO PROCESSIONARY CATERPILLAR (THAUMETOPOEA PITYOCAMPA).

Manuel Fuertes-Recuero[1], Angel Soto Bustos[2], Maria Daza González[2], Guillermo Lizasoain Sánz[2], Adrian Barahona Díaz[2], María Suárez Redondo[2]
[1]School of Veterinary Medicine, Complutense University of Madrid, Department Of Physiology, Madrid, Spain, [2]College of Veterinary Medicine, Complutense University of Madrid, Department Of Animal Medicine And Surgery, madrid, Spain

Introduction:

Contact with the pine processionary caterpillar (PPC) (*Thaumetopoea pityocampa*) produces a severe inflammatory reaction on contact with skin and mucosa. Necrosis and tissue loss are common. Regular management includes flushing the area and systemic supportive treatment.

Objectives:

To determine the use of laser therapy in lingual necrosis.

Methods:

A 7-month-old West-Highland-Terrier, with suspected contact with PPC, was presented after being hospitalized and treated for the last 48 hours in another hospital. Physical exam revealed severe edema and swelling of the sublingual and laryngeal area; dark, cold, and congestive tongue; extensive swelling and necrosis of the lips, submandibular sialocele, and severe swelling in cervical region.

Results:

PARAMETERS	DIRECT INTRAORAL AND LIP TREATMENT	TRANSCUTANEOUS TREATMENT OF SIALOCELE AND LARYNX
WAVELENGTHS	660, 800, 905 Y 970 NM (SIMULTANEOUS)	
DOSAGE	10 J/CM^2	5 J/CM^2
TOTAL ENERGY PER SESSION	INTRAORAL: 600 J LIPS: 500 J	500J
FREQUENCY OF SESSIONS DURING HOSPITAL ADMISSION	INITIAL: TWICE A DAY FOR THE FIRST 3 DAYS, THEN 1/DAY	
POWER	AVERAGE 1.8 W, PEAK 3.6 W	AVERAGE 3 W, PEAK 6 W
AVERAGE POWER DENSITY	0.2-0.3 W/CM2	0.6 W/CM2
MODE OF DELIVERY	CW+PULSED UP TO 20,000HZ	

Table 1. Parameters and pattern of laser treatment used.

Supportive treatment was administered, including a nasal feeding tube, as well as photobiomodulation treatment based on laser therapy (LT), with a total of 10 treatments over the course of a week. Doses of 2-10J/cm^2 were used, combining 660, 800, 905, and 970nm.

A progressive improvement was noted: the sialocele and cervical oedema resolved after 3 days, the tongue caudal to the frenulum was viable, necrotic tissue in the lips was removed and wounds healed well. The patient was able to drink and eat spontaneously after a week.

Conclusions:

Laser therapy improves vascularization and oxygenation of tissues promotes epithelialization and has an anti-inflammatory and analgesic effect. Although this is the first reported case of the use of LT in PPC lesions, several studies describe its usefulness in other oral processes that present inflammation and ulceration.

In this case, LT could have contributed to tissue viability, resolution of inflammation, and epithelialization.

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089 / #23

Topic: *AS16. Internal medicine (other)*

MITOTANE TREATMENT FOR RECURRENT ADRENOCORTICAL CARCINOMA FOLLOWING ADRENALECTOMY

Paula Garcia Dominguez, Andrea Di Bella
Southern Counties veterinary specialists, Internal Medicine, ringwood, United Kingdom

Introduction:

Adrenalectomy is the main tool to treat adrenal tumour, but medical treatment with mitotane has been described in cases when surgery is not possible.

Objectives:

An 8-year-old Staffordshire Bull terrier male neutered was referred for further investigation into polyuria and polydipsia.

Methods:

Investigations showed a right adrenal mass, adrenalectomy was performed, and histopathology reported a carcinoma with local invasion. The presenting clinical signs resolved after surgery, suggesting that most of the neoplasia was removed. There are no guidelines for treating microscopic disease after adrenalectomy for a cortisol-producing carcinoma, so carboplatin was selected as adjuvant chemotherapy as it has been used in human medicine.

Results:

It is unclear if it delayed the recurrence of carcinoma, as restaging after 6 months did not show clear signs of recurrence. Clinical signs recurred after 9 months, at that time staging was consistent with recurrence of the carcinoma near the site of previous adrenalectomy with local hepatic invasion. The mitotane ablative protocol was chosen, which uses a high dose as induction to ablate completely adrenal tissue. Our patient developed mineralocorticoid deficiency 60 days later, but never developed clinical signs of cortisol deficiency as he was started on prednisolone at mitotane induction.

Conclusions:

Kintzer and Peterson reported that dogs with metastatic disease experienced poorer response to mitotane and shorter survival time. Our patient, in contrast, responded to mitotane very well with no side effect and remission of all clinical signs. The patient is alive at time of writing 10 months after starting the mitotane and 22 months after the diagnosis.

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090 / #816

Topic: *AS16. Internal medicine (other)*

SUCCESSFUL TREATMENT ON EFFUSIVE FELINE INFECTIOUS PERITONITIS : A CASE REPORT

Loisa Loisa[1], Dewi Prabuwati[1], Asfi Latifah[2], Odi Prayoga[1], Putri Verleansyah[2], Amyra Putrikirana[2]
[1]Lo Veterinary Clinic, Small Animal Practice, Karawang, Indonesia, [2]Lo Veterinary Clinic, Small Animal Practitioner, Karawang, Indonesia

Introduction:

Title : SUCCESSFUL TREATMENT ON EFFUSIVE FELINE INFECTIOUS PERITONITIS : A CASE REPORT ABSTRACT Introduction Feline Infectious Peritonitis (FIP) is a lethal virus for cats at any stages of life. Originate from Feline Corona Virus (FCoV), this virus causes effusive form with hydrothorax or ascites, or dry form which is more complicated to be diagnosed.

Objectives:

Objectives To describe a good progressive case of effusive FIP and its treatment for 12 weeks.

Methods:

Methods A 2 years-old male cat patient was presented on severely dehydrated condition, lethargic, pyrexia, and jaundice. Patient was tested positive on FIP. White blood cell, monocyte, neutrofil, reticulocyte, MCHC, ALT, and blood glucose were elevated. Albumin and globulin ratio was 0.6. On the 3rd day of hospitalization, patient showed clinical sign of undulated abdomen.

Results:

Results Patient was treated with intravenous fluid, ampicillin, antipyretic, liver supplements, and diuretic. Remdesivir injection was used for 10 days, continued with molnupiravir tablets until 12 weeks. Patient was hospitalized for 14 days. On the 5th day, undulated abdomen was no longer observed. On the 7th day jaundice started to decrease. Blood evaluation was done every two weeks. On 14th day, ALT has been normal. Other elevated blood parameters became normal on 7th week. On 12th week, patient was healthy and showed no clinical signs of FIP.

Conclusions:

Conclusions FIP is known as a lethal disease. However, antiviral treatment such as remdesivir or molnupiravir can be considered and gives good result on FIP-positive patient. Keywords: Feline Infectious Peritonitis, Virus, Infectious Disease

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091 / #743

Topic: *AS16. Internal medicine (other)*

CANINE PRIMARY HYPERALDOSTERONISM (PH)

Sheila Pedrosa[1], Doroteia Bota[2], Carla Silveira[3]
[1]Anicura Restelo Hospital Veterinario, General Pratice, Lisboa, Portugal, [2]Anicura Restelo Hospital Veterinario, Internal Medicine, Lisboa, Portugal, [3]SciLinguo Technical and Medical Writing, Internal Medicine, London, United Kingdom

Introduction:

PH is the excessive secretion of aldosterone by the adrenal gland and is extremely rare in dogs. It should be part of the differentials in patients with systemic hypertension, weakness and hypokalemia. High serum aldosterone levels and findings of adrenal tumours help confirming the diagnosis. Unilateral disease treated by adrenalectomy may be associated with a good prognosis.

Objectives:

To report a case of PH caused by unilateral disease successfully managed by adrenalectomy.

Methods:

A 10-year-old female neutered french bulldog presented with PUPD, hypokalemia, systemic hypertension, ventricular hypertrophy (secondary to arterial hypertension) and hyperaldosteronemia. A large left adrenal mass was confirmed by ultrasound and CT scan. The patient was treated with calcium gluconate, spironolactone and a combination of antihypertensives (benazepril hydrochloride, Angiotensin II receptor blocker), and later staging and adrenalectomy was performed. Histopathological examination confirmed the presence of a well-differentiated adrenal cortical tumor (uncertainty on an adenoma or an adenocarcinoma).

Results:

The patient's clinical signs resolved and all medication have been discontinued.

Conclusions:

In this patient's case adrenalectomy successfully cured an adrenal tumour causing PH, with full resolution of the clinical signs.

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092 / #657

Topic: *AS17. Nephrology and Urology*

EVALUATION OF THE CLINICAL UTILITY OF URINE ALBUMIN-TO-CREATININE RATIO (UAC) AS A SCREENING MARKER FOR CHRONIC KIDNEY DISEASE IN CATS

Ye Eun Cha[1], Soo Yeol Lee[1], Dong-Jae Kang[1], Hyun Min Kang[1], Min Hee Kang[2], Hee Myung Park[1]
[1]Konkuk University, College of Veterinary Medicine, Department Of Veterinary Internal Medicine, Seoul, Korea, Republic of, [2]Jangan University, Bio-animal Care, Gyeonggi-do, Korea, Republic of

Introduction:

Measurement of urine albumin-to-creatinine ratio (UAC) is a preferred method for assessing microalbuminuria in humans to evaluate patients with chronic kidney disease (CKD). Urinary excretion of albumin is associated with glomerular and tubular lesions and recognized as a risk factor for kidney disease progression.

Objectives:

This study aimed to evaluate the clinical utility of UAC based on IRIS staging in CKD cats.

Methods:

A total of 249 client-owned cats were enrolled in this study. Fifty-nine healthy cats were included as controls, and 190 cats with CKD were classified based on the IRIS staging (Stage 1; n=22, Stage 2; n=100, Stage 3; n=46, Stage 4; n=22). UAC in spot urine samples was measured and compared with other renal markers: SDMA, BUN, CREA, UPC, and USG.

Results:

The values of UAC were significantly higher in CKD cats than in the control group ($p<0.001$). Of cats with CKD, UAC values correlated with IRIS stage ($p<0.001$). However, no significant differences were found between IRIS CKD stages 1 and 2. UAC values showed a significant correlation with other biomarkers ($p<0.001$). The area under the ROC curves for UAC was 0.742 ($p<0.001$), and the cut-off value for predicting the risk of CKD was 16.3 mg/g (sensitivity=43.7%, specificity=100%) in cats.

Conclusions:

In veterinary practice, UAC could be a useful renal diagnostic test for assessing and predicting the risk of CKD in cats.

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093 / #945

Topic: *AS17. Nephrology and Urology*

URINARY ALDOSTERONE/CREATININE RATIO TO STUDY ALDOSTERONE BREAKTHROUGH IN CATS

Susana Flores[1,2,3], Manuela Morato[3,4], Margarida Duarte-Araújo[3,5]
[1]ICBAS - UP, School Of Medicine And Biomedical Sciences (icbas), University Of Porto (up), Porto, Portugal, [2]Flores Vet, Veterinary Clinic, Gondomar, Portugal, [3]LAQV@REQUIMTE (UP), ---, Porto, Portugal, [4]Faculty of Pharmacy UP, Laboratory Of Pharmacology, Department Of Drug Sciences, Porto, Portugal, [5]ICBAS-UP, Departament Of Immuno-physiology And Pharmacology, Porto, Portugal

Introduction:

Chronic kidney disease (CKD) is highly prevalent in cats (1.0-3.0%). The staging of CKD is primarily based on serum creatinine (sC), with additional sub-staging considering proteinuria [1]. Proteinuric cats, with urine protein/creatinine ratio (uP/C)>0.4, should initiate treatment RAAS inhibitors, like Angiotensin-Converting Enzyme Inhibitors (ACEI). Intriguingly, sometimes ACEI fail to suppress aldosterone, and aldosterone breakthrough (ABT) occurs [2].

Objectives:

The aim was to understand if urinary aldosterone/creatinine ratio (uA/C) could be useful to evaluate the progression of feline CKD and/or to identify ABT.

Methods:

In this case-control study, sC levels, uP/C ratio, urine specific gravity (USG) and sediment of client-owned cats were evaluated. 11 Cats were included as controls and 4 cats were diagnosed with CKD and proteinuria (stages 2-4, uP/C>0.4) and uA/C ratios were determinated.

Results:

Determination of uA/C ratios showed a significant difference between controls (0.128±0.117 µg/g) and cats with CKD (0.247±0.060 µg/g, $p<0.05$). In one cat with CKD, 3 weeks after the beginning of ACEI treatment uA/C ratio increased from 0.287 to 0.410 µg/g, above the cut off ABT, calculated as previously described for dogs with CKD (0,363 µg/g) [2]. Interestingly, the uA/C ratio in the following 3 months returned to pre-treatment values, which may indicate a transient phenomenon.

Conclusions:

These preliminary data suggest that uA/C ratio may be a useful to identify and study ABT in cats with proteinuric CKD, but more studies are needed to validate and understand this mechanism.

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094 / #669

Topic: *AS17. Nephrology and Urology*

EVALUATION OF EARLY RENAL DIAGNOSTIC UTILITY OF URINE ALBUMIN-TO-CREATININE RATIO BETWEEN HEALTHY DOGS AND DOGS WITH CHRONIC KIDNEY DISEASE

Soo Yeol Lee[1], Ye Eun Cha[1], Hyun Min Kang[1], Dong-Jae Kang[1], Min Hee Kang[2], Hee Myung Park[1]
[1]Konkuk University, College of Veterinary Medicine, Department Of Veterinary Internal Medicine, Seoul, Korea, Republic of, [2]Jangan University, Bio-animal Care, Gyeonggi-do, Korea, Republic of

Introduction:

Recently, symmetric dimethylarginine (SDMA) and urine protein-to-creatinine ratio (UPC) have been used as diagnostic biomarkers for early renal disease in dogs. In human medicine, albumin-to-creatinine ratio is used to evaluate patients with chronic kidney disease (CKD) alongside estimated glomerular filtration rate.

Objectives:

This study aimed to compare the renal diagnostic utility between urine albumin-to-creatinine ratio (UAC) and other renal biomarkers in healthy dogs and dogs with CKD.

Methods:

Client-owned healthy dogs (n=99) and dogs with CKD (n=122) from private animal hospitals in the Republic of Korea were included. UAC and other renal biomarkers, such as SDMA, blood urea nitrogen, serum creatinine, urine specific gravity, and UPC, were measured in healthy dogs and dogs with CKD at every International Renal Interest Society (IRIS) stage (stage 1, n=46; stage 2, n=30; stage 3, n=23; and stage 4, n=23). Renal biomarkers, including UAC, were assessed statistically to determine significance, depending on the IRIS CKD stage.

Results:

UAC (mg/g) of dogs with CKD were significantly higher than those of healthy dogs ($p<0.001$). The UAC correlated significantly with the IRIS stages and renal biomarkers ($p<0.01$). Additionally, UAC was significantly different between the healthy dogs and dogs with CKD at every IRIS stage ($p<0.001$). ROC curve analysis of the UAC had an AUC of 0.817 ($p<0.001$) and cut-off value of 19.20 mg/g, with a sensitivity of 72% and specificity of 71% between the healthy dogs and dogs with CKD.

Conclusions:

UAC can be used for diagnosing early renal diseases in dogs when compared with other renal biomarkers.

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095 / #881

Topic: *AS17. Nephrology and Urology*

THE IMPACT OF THE CLINICAL PRESENTATION ON THE PROGNOSIS OF 46 CATS DIAGNOSED WITH CHRONIC KIDNEY DISEASE

Tomás Magalhães[1,2,3], Gonçalo Petrucci[4,5], Luís Lobo[5,6], Ana Lourenço[2,3,7], Ronald Corbee[8], Felisbina Queiroga[1,2,3,9]
[1]University of Trás-os-Montes and Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [2]University of Trás-os-Montes and Alto Douro, Animal And Veterinary Research Centre (cecav), Vila Real, Portugal, [3]University of Trás-os-Montes and Alto Douro, Associate Laboratory For Animal And Veterinary Sciences (al4animals), Vila Real, Portugal, [4]Vasco da Gama University School, Vasco Da Gama Research Center (civg), Coimbra, Portugal, [5]OneVet Group, Hospital Veterinário Do Porto, Porto, Portugal, [6]Lusófona University of Humanities and Technologies, Faculty Of Veterinary Medicine, Lisbon, Portugal, [7]University of Trás-os-Montes and Alto Douro, Department Of Animal Science, Vila Real, Portugal, [8]Utrecht University, Department Of Clinical Sciences, Faculty Of Veterinary Medicine, Utrecht, Netherlands, [9]University of Porto, Center For The Study Of Animal Sciences (ceca-iceta), Porto, Portugal

Introduction:

Feline chronic kidney disease (CKD) results from progressive loss of kidney function and can be considered in early (1 and 2) or late (3 and 4) stages, according to International Renal Interest Society (IRIS).

Objectives:

To characterize the clinical presentation of a sample of CKD cats and investigate prognostic factors.

Methods:

Feline patients diagnosed with CKD were retrospectively searched at two veterinary clinical centers in Portugal. Only cats that died within the past 5 years from CKD-related causes with a minimum survival time (ST) of 2 months and without comorbidities were included. Several epidemiological and clinical variables were analyzed in association with survival.

Results:

Forty-six cats were included with a median age of 12 years (range: 2 - 19 years) and a median weight of 3.4 kg (range: 1.6 - 6.4 kg). At presentation, more than half of the patients showed anorexia (n=24; 52.2%) and weight loss (n=29; 63.0%) and the median serum concentrations of creatinine, urea and phosphorus were 2.7 (range: 1.4 - 16.1), 96.2 (range: 21.4 - 465.7) and 6.1 mg/dl (range: 3.1 - 15.0), respectively. Median overall ST was 320.5 days (range: 61 - 2442 days) and a significantly shorter median ST was recorded in cats weighing less than 3.4 kg (231 days versus 458 days; p=0.046) and in late IRIS CKD stages (272 days versus 382 days; p=0.030).

Conclusions:

Most cats already had significant clinical and laboratory abnormalities at diagnosis. Lower body weight and late IRIS CKD stages were considered negative prognostic factors. Further studies are required to ascertain this correlation.

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096 / #922

Topic: *AS17. Nephrology and Urology*

ENVIRONMENTAL AND NUTRITIONAL MANAGEMENT OF CATS WITH FELINE LOWER URINARY TRACT DISEASE

Natalia Dos Santos[1], Alessandra Melchert[1], Reiner Moraes[1,2], Mary Marlene Molina[1], Priscylla Tatiana Guimarães-Okamoto[1]
[1]São Paulo University State - School of Veterinary Medicine and Animal Science, Departmento Of Veterinary Clinic, Botucatu, Brazil, [2]FMVZ UNESP BOTUCATU, ClÍnica VeterinÁria, Botucatu, Brazil

Introduction:

Feline Lower Urinary Tract Disease (FLUTD) is widespread in the veterinary routine. It includes diseases that cause inflammation of the bladder or urethra of cats. In male cats, it is more often that it results in obstruction because of the urethral diameter and length. It is known to have multifactorial causes, especially stress and nutrition. Obese and overweight cats, which drink less water and eat food *ad libitum*, young cats, and neutered seem more likely to develop obstructive FLUTD.

Objectives:

The study aimed to analyze the nutritional habits and environment of cats with FLUTD and identify the possible predisposing factors.

Methods:

Fifty cat owners answered a questionnaire. Information about gender, breed, age, neutering status, environment, and nutritional habits was obtained. The body condition score (BCS) of the cats was evaluated, on a nine-point scale.

Results:

The majority of cats were fed with only dry food (62%). Most of the cats were neutered (86%) and young adults (82%), 42% were overweight (BCS= 6 or 7) or obese (BCS= 8 or 9), and suffered from chronic or acute stress recently (90%). Most cats were not fed super premium commercial foods (96%).

Conclusions:

A higher BCS, in addition to an exclusive dry food diet with not super premium commercial food, and stress factors were frequently observed in the cats with obstructive FLUTD. Recognizing risk factors is important to guide cat owners, promoting health and well-being.

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097 / #844

Topic: *AS17. Nephrology and Urology*

CONSUMPTION OF TWO NEW COMPLEMENTARY FEEDS (RENAL+CURE®) IN CATS WITH CHRONIC KIDNEY DISEASE, A SINGLE-BLINDED PET-OWNER EVALUATION

Christelle Navarro[1], Carole Baise[2], Clémence Boudjedir-Rouffy[3], Bruno Jahier[4]
[1]MP Labo, Marketing & Communication, Grasse, France, [2]MP Labo, Pharmaceutical Affairs, Grasse, France, [3]Technisens, Consumer Research Department, La Rochelle, France, [4]MP Labo, Scientific Affairs, Grasse, France

Introduction:

Chronic kidney disease (CKD) is a common condition in elderly cats. Its management requires the use of a therapeutic diet and phosphate binders. As CKD is frequently associated with poor appetite, it may impair the intake of complementary feeds in sick cats versus healthy cats.

Objectives:

This study evaluated the rate of consumption of 2 new complementary feeds in cats with CKD.

Methods:

41 owners of cats with CKD were randomly assigned to Group 1 (G1 = Renal+Cure® Early, MP Labo, France, n=21) or Group 2 (G2 = Renal+Cure® Advanced, MP Labo, France, n=20). Products were masked. Cats received 1 measuring spoon of powder for 5kg BID for 5 days with a meal. On D1 and D5, owners rated the meal consumption: 100%, 90 to 100%, 50 to 90%, 5 to 50%, less than 5%, or nothing. Total and partial consumption were respectively defined as 100% and more than 50% of intake. Khi2 test was used to compare proportions of cats between days in each group.

Results:

At the end of the study, total consumption was reported for 43% and 30% of cats and partial consumption for 72% and 75% of cats in G1 and G2, respectively. No statistical differences were found on D5 vs D1, except in G2 for ’90 to 100%’ and ‘50 to 90%’. 86% and 90% of owners found products easy to give in G1 and G2, respectively.

Conclusions:

The new feed supplements (Renal+Cure®) showed an acceptable level of intake in cats with CKD over a 5-day period.

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098 / #841

Topic: *AS17. Nephrology and Urology*

EVALUATION OF SERUM CONCENTRATION OF PROINFLAMMATORY CYTOKINES IN DOGS WITH UREMIC SYNDROME SUBMITTED TO INTERMITTENT HEMODIALYSIS

Fábio Nogueira[1], Suellen Maia[2], Silvano Geraldes[2], Maria Gabriela Azevedo[2], Reiner Moraes[2], Henry Garcia[2], Regina Takahira[3], Adriano Okamoto[2], Alessandra Melchert[2], Maria Lucia Lourenço[4], João Carlos Pinheiro Ferreira Ferreira[3]
[1]Unesp - School of Veterinary Medicine and Animal Science, Veterinary Clinics, Andradina, Brazil, [2]FMVZ UNESP BOTUCATU, ClÍnica VeterinÁria, Botucatu, Brazil, [3]Unesp - School of Veterinary Medicine and Animal Science, Veterinary Clinics, Botucatu, Brazil, [4]Unesp - School of Veterinary Medicine and Animal Science, Veterinary Clinic, Botucatu, Brazil

Introduction:

Introduction:

Intermittent hemodialysis (IHD) represents an important therapy in dogs with nephropathy, however, it is not known if there is an additional inflammatory potential of the procedure in the same way that it has been described in humans.

Objectives:

Objectives

To evaluate the concentration of interleukin 6 (IL-6) and tumor necrosis factor-alpha (TNF-α) in dogs with uremic syndrome submitted to IHD without bypass and IHD with bypass.

Methods:

Methods

Eight dogs with the uremic syndrome were selected and divided into two groups: IHD without bypass (GIHD-SB - n=4) and IHD with bypass (GIHD-CB - n=4). Four healthy dogs made up the control group (CG). Serum IL-6 and TNF-α assessments were performed 30 minutes before (M0), during (one, two, three, and four hours of the session - M1, M2, M3, and M4), and after (30 minutes after - M5) the first IHD session. The animals in the CG had cytokines evaluated only at the beginning of the study.

Results:

Results

The average concentration of IL-6 increased in the GIHD-SB from M1 and remained at similar levels until M5. In the GIHD-CB, however, there were no changes in the mean concentration of this cytokine at any of the evaluated moments. Both GIHD-SB and GIHD-CB had mean TNF-α values greater than those observed in the CG, however, variations over time did not demonstrate linear changes.

Conclusions:

Conclusions

Variations in pro-inflammatory cytokines in dogs with uremic syndrome submitted to IHD with and without bypass are not sufficient to determine additional acute inflammation resulting from the procedure.

099 / #31

Topic: *AS17. Nephrology and Urology*

MANAGEMENT OF SYSTEMIC HYPERTENSION WITH ACEI AND CCB IN DOGS UNDERGOING INCREMENTAL HEMODIALYSIS USING HIGH AND LOW FLUX DIALYZERS

Randhir Singh, Akashpreet Singh, Dheeraj Gupta, Rajsukhbir Singh
Guru Angad Dev Veterinary And Animal Sciences University, Department Of Teaching Veterinary Clinical Complex, Ludhiana, India

Introduction:

Incremental intermittent hemodialysis (*i*-IHD) involves tailoring the initial hemodialysis prescription to less than thrice weekly model or reducing the dialysis dose in patients with significant residual kidney function.

Objectives:

To evaluate the effect of *i*-IHD on systemic hypertension (SHT) in dogs with chronic kidney disease (CKD), involving high and low-flux membranes.

Methods:

Thirty dogs with CKD having creatinine level > 5mg/dl were randomly divided into two groups i.e., group I: *i*-IHD with high-flux membrane and group II: *i*-IHD with low-flux membrane. Systolic blood pressure (SBP) was monitored both pre and post dialysis (day 0, 2, 4, 19 and 34). Dogs with SBP 160-179 mmHg were treated with angiotensin converting enzyme inhibitor (ACEI), enalapril (0.5 mg/kg body weight orally once daily) and dogs with SBP ≥ 180 mmHg were managed with combination of enalapril (0.5 mg/kg body weight orally once daily) and calcium channel blocker (CCB), amlodipine (0.5 mg/kg body weight orally once daily).

Results:

There was significant reduction in post-dialysis SBP readings after day 2, 4 and 19. The mean SBP also reduced significantly from day 0 (pre-first session) to 34th day (post-fifth session) from 167.53 and 162.5 in group I and II, respectively to 148.90 and 143.6 mmHg. Dialysis adequacy based on urea reduction ratio (URR) did not reveal any significant difference in the clearance of high-flux and low-flux membranes.

Conclusions:

In conclusion, SHT in dogs with CKD undergoing *i*-IHD can be efficiently managed with ACEI (SBP 160-179 mmHg) and ACEI and CCB combination (SBP ≥ 180 mmHg).

100 / #368

Topic: *AS18. Neurology/Neurosurgery*

MORPHOLOGICAL DIFFERENCES OF ATLAS AND AXIS BETWEEN MALTESE WITH AND WITHOUT ATLANTOAXIAL SUBLUXATION

Dongwook Kim, Dongwoo Chang, Gonhyung Kim
Veterinary Teaching Hospital, College Of Veterinary Medicine, Chungbuk National University, Cheongju, Korea, Republic of

Introduction:

Atlantoaxial subluxation (AAS) is generally a congenital condition that mainly affects toy breed dogs. Previous studies revealed that toy breed dogs with AAS had a relatively high proportion of incomplete ossification (IO) of the atlas and dens anomalies compared to dogs without AAS. These anatomical characteristics may be important in surgical decision-making.

Objectives:

The purpose of this study was to identify the anatomical features of the atlas and axis between Maltese dogs with and without AAS.

Methods:

The medical records of Maltese dogs with and without AAS from 2015 to 2020 were analyzed. Abnormalities of the atlas and axis were evaluated using computed tomography (CT). A total of 45 dogs were reviewed.

Results:

Maltese dogs with AAS revealed a higher ratio of IO of the atlas (56%) than non-affected dogs (19%). Dens anomalies were identified in 78% of the dogs with AAS and in 26% of non-affected dogs. Dogs that revealed IO of the dorsal arch of the atlas showed significantly lower CT values than dogs without IO. The CT values of the midline of the dorsal arch were significantly lower than those of the outer surrounding region. A significantly lower dens-to-axis length ratio was identified in dogs with AAS than in non-affected dogs.

Conclusions:

Dorsal arch of the atlas is composed of thin cortical bone with a vulnerable midline region. As dogs with AAS are more likely to be afflicted with abnormalities in the atlas and axis, considering these morphological features is important for the surgical stabilization.

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101 / #837

Topic: *AS18. Neurology/Neurosurgery*

PLACEMENT OF BILATERAL DOUBLE PIN & PMMA IN THORACOLUMBAR VERTEBRAL LUXATION OF DOG WITH 3-DIMENSIONALLY PRINTED PATIENT-SPECFIC DRILL GUIDE

Ingoo Kwak, Myungryul Yang, Sungbin Park, Namsoo Kim
Jeonbuk national university, Department Of Surgery, Iksan, Korea, Republic of

Introduction:

Vertebral luxation is a displacement of the normal alignment of vertebral body, mainly caused by trauma. Increasing the number of implants provides greater strength and stiffness to the structure In surgical stabilization for vertebral luxation, but requires precise preoperative planning of trajectory that does not compromise the pedicle wall. The use of 3-Dimensionally printed Patient-specific Drill Guide(3DPDG) can help with accurate pin placement with a preplanned trajectory.

Objectives:

To confirm the accuracy of pin placement and to evaluate surgical outcome of surgical stabilization with pin and PMMA using 3DPDG in a canine with vertebral luxation.

Methods:

The patient presented with paraplegia in hindlimb after a dog-bite injury. On clinical examination, the proprioception and posture reaction was lost. The dog was scored grade 1 according to the modified frankel score. Vertebral luxation was diagnosed with imaging and CT scan. 3DPDG was designed for bilateral pin placement at T11-12. Postoperative CT scan was performed to assess spinal alignment, presence of intraoperative microfracture, and pin placement. Modified zdichavsky classification was used to assess pin placement.

Results:

Surgical stabilization of vertebral luxation using 3DPDG was performed without intraoperative complications. All 8 pins were inserted bilaterally at T11-12. Following zdichavsky classification, 6 pins were assessed as grade-1 and 2 pins as grade-2a. in clinical examination 3 months after surgery, The proprioception and postural reaction was restored and the modified frankel score was assessed as grade 5.

Conclusions:

The use of 3DPDG in surgical stabilization of vertebral luxation is feasible and can ensure a preoperatively planned trajectory.

102 / #918

Topic: *AS18. Neurology/Neurosurgery*

SURGICAL MANAGEMENT OF INTRACRANIAL ASTROCYTOMA IN ONE DOG

Mária Kuricová[1], Tomáš Lipták[1], Scarlett Marešová[1], Bishal Bhattarai[2], Marian Hluchý[1]
[1]University of Veterinary Medicine and Pharmacy in Kosice, Small Animal Clinic, Košice, Slovak Republic, [2]Rector of the Moscow State Academy of Veterinary Medicine and Biotechnology, Surgery, Moscow, Russian Federation

Introduction:

A 4-year-old Cane Corso male intact dog, 55kg, presented to the clinic with uncoordinated gait, reduced interest in surroundings over the previous three weeks. Symptoms described by the owner began after a brief seizure 21 days ago; during seizure, dog fell down to the ground and had convulsions, as per the owner

Objectives:

At admission, quiet and responsive; with signs of central ataxia, mild left sided hemiparesis, and no other cranial/spinal nerves deficits. Haematology; biochemistry; SNAP4DX, IDEX, urinalysis were all within normal limits. MRI of the brain demonstrated right sided intra-axial space occupying mass (27x23x29mm) with surrounding oedema and minimal bleeding in parietal lobe. Severe right lateral ventricle, right thalamus, corpus callosum compression; diffuse cerebral cortical oedema and midline shift.

Methods:

Fronto-parietal right-sided craniotomy was performed to remove the intracranial mass. Perioperative care consisted of mannitol infusion and intravenous antibiotics, postoperative analgesia and cage rest. Neurological examination post-surgery showed improvement of the mental state after uneventful awakening with slow improvement of coordination during first weeks of follow up.

Results:

Histological findings demonstrated spindle-shaped and round-shaped cells with nucleoli in the nucleus, locally multinucleated with vesicular nuclei, diffuse proliferation of the mentioned cell types, focal oedema, haemorrhage, necrosis, apoptosis. The IHC staining demonstrated GFAP positive cells in these samples, which confirmed the diagnosis of astrocytoma.

Conclusions:

Owners declined radiation therapy, four months after surgery the dog underwent generalized seizure, treated with phenobarbital. Following 10 months, the dog was stable on regular phenobarbital dosage, with no reported seizure, then passed away after generalized seizure at home.

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103 / #742

Topic: *AS18. Neurology/Neurosurgery*

TITLE: HYDROCEPHALUS AND SURGICAL TREATMENT TYPE: POSTER

Sheila Pedrosa[1], Luis Carvalho[2], Carla Silveira[3]
[1]Anicura Restelo Hospital Veterinario, Internment, Lisboa, Portugal, [2]Anicura Restelo Hospital Veterinario, Neurology, Lisboa, Portugal, [3]SciLinguo Technical and Medical Writting, Internal Medicine, London, United Kingdom

Introduction:

Hydrocephalus is an increase in the volume of cerebrospinal fluid (CSF) within the brain, wich increases intracranial pressure (ICP) and the risk of cerebellar herniation. VentriculoPeritoneal Shunt (PVS), is a surgical intervention that may help neurological recovery and reduce symptoms by controlling ICP.

Objectives:

To document a case where surgical management of congenital hydrocephalus was successful (after prior poor response to medical management)

Methods:

A 2-month-old bitch with congenital hydrocephalus presented for slow but progressive deterioration of its neurological status, requiring hospitalization and emergency therapy to control ICP. The patient had previously had the hydrocephalus confirmed via MRI (ventriculomegaly and cortical atrophy), accompanied by symptoms (cognitive, behavioral and gait changes) and findings on physical examination (open fontanelles, dome-shaped skull) consistent with this condition. Medical treatment with corticosteroid (methylprednisolone 2 mg/kg/daily) and diuretics (furosemide 2 mg/kg) had been unsuccessful. An SVP with an adjustable differential pressure valve, was placed at 5 months of age alongside treatment with corticotherapy, antibiotics, analgesia and physiotherapy.

Results:

A slow but positive progression of the several neurological indicators was observed (within 3 weeks). Valve pressures were maintained between 8 and 12 cmH2O, allowing for effective fluid drainage and brain decompression, and permitting a gradual reduction in corticosteroids.

Conclusions:

SVP placement can be considered a treatment option for patients with hydrocephalus unresponsive to medical treatment, and can improve quality of life. Frequent neurological examinations and imaging studies are essential for differential valve pressure adjustment.

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104 / #803

Topic: *AS19. Nutrition*

EVALUATION OF ALTERNATIVE MARINE SOURCES AS PROTEIN INGREDIENTS IN PET FOOD

Joana Guilherme-Fernandes[1], Carolina Barroso[1], Tiago Aires[2], António José Mira Fonseca[1], Sofia Antunes Costa Lima[1], Margarida Rosa Garcez Maia[1], Ana Rita Jordão Cabrita[1]
[1]ICBAS - University of Porto, Laqv, Requimte, Porto, Portugal, [2]SORGAL, Sociedade De Óleos E Rações S.a., S. João Ovar, Portugal

Introduction:

Pet owners are increasingly favouring the functional value of food to assure preventive health and well-being of their pets. Alternative marine protein sources with potential functionality may contribute to achieve these goals.

Objectives:

Evaluate the dietary inclusion of increasing levels of shrimp hydrolysate and squid meal on palatability, diet digestibility, and faecal characteristics and metabolites of adult Beagle dogs.

Methods:

Two-bowl tests with twelve dogs were performed to determine palatability by pairwise comparison of a commercial diet without and with 15% inclusion of either marine source. Two *in vivo* digestibility trials designed according to a replicated Latin square 3x3, with six dogs, three experimental periods (10 days each) and three inclusion levels (5, 10 and 15% of either source replacing the commercial diet) were performed to evaluate effects on diet digestibility, metabolizable energy content, and faecal characteristics.

Results:

First approach and taste were not affected by 15% marine sources inclusion, but animals showed a preference for the commercial diet. Inclusion of shrimp hydrolysate up to 15% had no detrimental effect on the measured parameters, whereas squid meal at 15% significantly increased protein digestibility and faecal pH.

Conclusions:

Shrimp hydrolysate and squid meal constitute promising protein sources for dogs. Future research will be directed to unveil their functional properties for dogs.

Acknowledgements

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105 / #880

Topic: *AS19. Nutrition*

EFFECTS OF CONTROLLED WEIGHT LOSS ON THE QUALITY OF LIFE AND CLINICAL PARAMETERS OF OBESE AND OVERWEIGHT DOGS

Alessandra Melchert[1], Natalia Dos Santos[1], Allanah Venturini[1], Julia Dos Santos[1], Pryscilla Okamoto[2], Ana Camila Urrego[1], Thais Gentini[1]
[1]São Paulo University State - School of Veterinary Medicine and Animal Science, Departmento Of Veterinary Clinic, Botucatu, Brazil, [2]FMVZ UNESP BOTUCATU, ClÍnica VeterinÁria, Botucatu, Brazil

Introduction:

Obesity is a significant health concern characterized by excessive adipose tissue, leading to localized and systemic disorders that reduce both quality and life expectancy.

Objectives:

This study aimed to promote supervised weight loss in obese dogs (body condition score - BCS = 8 and 9) and overweight dogs (BCS=7), evaluating clinical outcomes, comparing the progress of these two categories, and assessing owner satisfaction.

Methods:

Both the obese group (n=15) and the overweight group (n=14) received a prescribed therapeutic weight loss diet (high-protein, high-fiber diet) based on the target weight (TW) to be achieved. The formula kcal/day= 70x(TW)^0,75 was used. The BCS was based on a 9-point scale. Biweekly follow-ups were conducted for reevaluation, and the owners were committed to increasing physical activities with their dogs.

Results:

The time taken to reach the TW varied between 11.1 and 47.1 weeks, with the obese group requiring a longer duration. The average time was 23.4 and 36.3 weeks for the overweight and obese groups, respectively. Remarkable increases in physical exercise were observed, surpassing 90% for both groups. Furthermore, owners reported enhancements in their dogs' quality of life, including a reduction in respiratory and osteoarticular issues, increases in vitality, mobility, and noticeable improvements in their animals' behavior, reflecting a happier demeanor.

Conclusions:

This study demonstrated successful achievement of healthy weight loss and improved quality of life in obese and overweight dogs effectively preventing the complications associated with obesity. Initiating therapy as early as possible is essential for reducing treatment duration.

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106 / #612

Topic: *AS19. Nutrition*

PERCEPTION OF CAT OWNERS ON THE USE OF INSECTS AS FEED INGREDIENTS FOR CATS.

Carolina Valenzuela
Universidad de Chile, Fomento De La Producción Animal, Santiago, Chile

Introduction:

Currently, insects represent a sustainable alternative to animal-based ingredients for pet food, but there is little information on the willingness of cat owners to incorporate insects into their pet diets.

Objectives:

To assess the perception of cat owners to feed insect-based feed.

Methods:

An on-line survey was provided to cat owners in Chile, focusing on the willingness of cat owners to feed their cats insect-based ingredients and food (treats, insect meal or whole insects). Willingness was evaluated with a 10-point scale. Comparisons between the willingness to use different insect products were performed by repeated measures ANOVA analysis and LSD test ($p<0.05$).

Results:

The total of participants (1684), the majority were female (89.2%), with university education (73%) and omnivorous eating habits (63.7%). Participants had an average of 2 cats per household with indoor lifestyle (70.2%). Most participants (63.6%) were willing to feed insects to their cats. Participants were more willing to feed their cats treats containing 20% insect meal (OW = 7.1 ± 3.1), than insect meal (OW = 4.9 ± 3.3) or whole insects (OW = 4.4 ± 3.3). Cricket meal treats were the most acceptable. Acceptance toward insects increased when mentioning the environmental benefits of insect production (OW= 7.6 ± 2.9). The reasons for not wanting to include insects in cat feed were disgust, unfamiliarity and preference for traditional pet foods.

Conclusions:

These results suggest that processed insects may become an acceptable ingredient for inclusion in cat feeds.

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107 / #638

Topic: *AS20. Oncology*

UNCOMMON MULTIFOCAL PRESENTATION OF SUBCUTANEOUS EXTRASKELETAL OSTEOSARCOMA IN A CAT

Larissa Caroline Cordeiro De Andrade[1], Natalia Noreika Kano[2], Giovanna Bonatto[2], Thiago Bizari[2], Renato Souza[3], Vinicius Gonzalez Peres Albernaz Albernaz[4]
[1]PAV - veterinary improvement program, Soft Tissue Surgery Of Dogs And Cats, São Paulo, Brazil, [2]Intern Program of Veterinary Medicine, Universidade Federal do Paraná (UFPR), Intern Program Of Veterinary Medicine, Universidade Federal Do Paraná (ufpr), Curitiba, Brazil, [3]Assistant Professor, Departament of Veterinary Pathology, Universidade Federal do Paraná (UFPR), Assistant Professor, Departament Of Veterinary Pathology, Universidade Federal Do Paraná (ufpr), Curitiba, Brazil, [4]Universidade Federal do Paraná (UFPR, Universidade Federal Do Paraná (ufpr, Curitiba, Brazil

Introduction:

Osteosarcoma (OSA) is a malignant mesenchymal tumor of bone cells. The OSA of medullar origin is the most common in cats and the extraskeletal osteosarcoma (EOSA) is an uncommon presentation.

Objectives:

To describe the case of a cat with a multifocal EOSA.

Methods:

A 15-year-old cat had neoformation in the right elbow (4 x 3.7 x 3.5 cm) and left ilium wing (4.5 x 3.5 x 3.2cm). The neoformation were firm, nonpainful, subcutaneous, regular, adhered to underlying tissues with progressive growth. The FNA cytology suggested a malignant mesenchymal neoplasm. Radiographies showed the tumors were composed of soft and osseous density tissue but there was not involvement of bone structures and was not evidence of metastasis. Because of the tumor's size, the invasive aspect, and multifocal distribution, the surgical resection was not indicated. Instead, palliative treatment was chosen.

Results:

Normally, the subcutaneous EOSA presents as a solitary neoformation involving the muscular layer and subcutis, sparing the bone tissue and, the surgery is the treatment of choice. In this case, the cat had a multiple tumors in their elbow and pelvis, and this fact largely impacted treatment decision. The highly invasive aspect of the tumors would prevent both wide resections, because an aggressive approach with amputation of the right forelimb was possible, but resection of the mass close to the ilium would probably result in hemipelvectomy and further amputation of the left hindlimb significantly affecting the quality of life.

Conclusions:

The etiology of EOSA is insufficiently understood, and factors like trauma or injection must be studied.

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Topic: *AS20. Oncology*

IMMUNE CHARACTERIZATION OF TUMOR MICROENVIRONMENT IN CANINE PRIMARY INTRACRANIAL TUMORS

Pablo Delgado-Bonet[1], Paula Cuadros-Ruiz[1], Jesús Borreguero-Hernández[1], Fernando Vázquez[2], Isidro Mateo[3], Ana Perisé-Barrios[1]
[1]Universidad Alfonso X el Sabio, Biomedical Research Unit (uib-uax), Villanueva de la Cañada, Spain, [2]Universidad Alfonso X el Sabio, Department Of Pathology, Villanueva de la Cañada, Spain, [3]Universidad Alfonso X el Sabio, Department Of Neurology, Villanueva de la Cañada, Spain

Introduction:

Intracranial neoplasia is a common clinical condition in dogs, being the most common meningiomas, gliomas or choroid plexus carcinoma. Several treatment options are available but are usually associated with a poor outcome. The use of immunotherapy in humans has shown promising results, but several veterinary clinical trials have shown limited response rates. Understanding the immune population in the tumor microenvironment (TME) could allow us to pursue more specific immunotherapies improving the clinical responses in intracranial tumors.

Objectives:

Describe the immune population in the tumor microenvironment of primary canine intracranial tumours.

Methods:

Forty-three canine samples of spontaneous brain tumors were analyzed. Tumor samples were collected by a necropsy after euthanasia due to treatment failure. Samples were used to detect CD3, CD20, CD4, CD8, FoxP3, IBA1, S100A8/S100A, Arginase and Ki67 by immunohistochemistry. The inmune infiltrated cells in the tumor, and also the proliferation were quantified.

Results:

The samples were divided depending on the tumor type, meningiomas (n=20), gliomas (n=18) and choroid plexus carcinomas (n=5). TME in meningiomas tend to have more macrophagic component when compared to the gliomas, while 76% of the samples had less than 1% of CD3+ cells. High infiltration of M2 macrophages in TME correlates with lower infiltration of CD3+ cells, while an increase in M1 macrophage infiltration correlates with high CD3+ cells.

Conclusions:

TME of intracranial tumors has a high infiltration of M2 macrophages, while the lymphocyte component is low. The correlation between M1 and M2 macrophages and CD3+ cells could mean that therapies repolarizing macrophages could benefit the outcome of these patients.

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Topic: *AS20. Oncology*

IMMUNOPHENOTYPE OF MAMMARY TUMORS AND RESPECTIVE NODAL METASTASES IN DOGS.

Mayara De Souza[1], Maylla Gava[2], Mayra Flecher[3], Bruna Sena[4], Felipe Sueiro[5], Andrigo De Nardi[4], Rodrigo Horta[4]
[1]Unesp, Cirurgia, Jaboticabal, Brazil, [2]Maylla Gava Patologia, Patologia Animal, Vila Velha, Brazil, [3]Universidade Vila Velha, Veterinary Medicine, Vila Velha, Brazil, [4]Universidade Federal de Minas Gerais (UFMG), Departament Of Veterinary Medicine And Surgery, Veterinary School, Belo Horizonte, Brazil, [5]Vetpat, Patologia, São Paulo, Brazil

Introduction:

Mammary gland tumors (MGT) are highly frequent in non spayed bitches and although the metastatic potential is highly variable and dependent of prognostic factors, metastasis were recently recognized in 11,6% of 301 dogs with MGT and complete staging, and lymph node metastasis represented 85,7% of cases resulting in decreased survival time (Nunes et al., 2018). Nevertheless, despite its importance little is known about the molecular aspects of metastasis and few studies evaluated the immunoexpression of relevant prognostic factors on the metastasis.

Objectives:

The present work aimed to evaluate the expression of estrogen receptor (ER), progesterone receptor (PR), COX-2 and VEGF on canine malignant MGT and respective metastatic lymph nodes.

Methods:

Retrospectively, 26 female dogs with MGT with confirmed lymph node metastasis (stage IV) were selected. Samples were evaluated by histopathology and immunohistochemistry for expression of ER, PR, COX-2 and VEGF. Cohen´s kappa test was used for concordance evaluation.

Results:

Accordingly to Cohen´s kappa test there was a weak agreement for ER (0.141) and PR (0.385) between primary MGT and metastatic lymph nodes, however, there was substantial agreement for COX-2 (0.693) and VEGF (0.601). COX-2 immunolabeling was also related to prognosis and median survival time was not reached for score < 6 and it was reached at 80 days for score ≥ 6 (p=0.0068).

Conclusions:

This study suggests that MGT tends to loose immunolabeling for ER and PR during disease progression, while keeping the immunoexpression score for COX-2 and VEGF, both related to enabling hallmarks of cancer.

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Topic: *AS20. Oncology*

A PILOT, UNCONTROLLED STUDY OF POSTSURGICAL TREATMENT WITH MONOCYTE-DERIVED AUTOLOGOUS DENDRITIC CELL IN 19 DOGS WITH MAST CELL TUMOUR GRADE III

Thomas Grammel[1], Tina Hawacker[1], Zita Grammel[2]
[1]Tiergesundheitszentrum Südharz, Tgz-suedharz, Osterode am Harz, Germany, [2]Tiergesundheitszentrum Dr. Großendorf, Tgz, Bramsche, Germany

Introduction:

The treatment with monocyte derived dendritic cells is a proven concept in the immunologic treatment of dogs with mast cell tumour. In this study a group of 19 dogs (9 female, 10 male) with a medium age of 9.3 years at the onset of the disease is presented. The treatments were performed between January 2017 and October 2021.

Objectives:

19 dogs with a mast cell tumour of the trunk and limbs were surgically treated. After a confirmed patho-histological diagnosis of mast cell tumour grade III, the dogs underwent an immunologic treatment course of three autologous monocyte-derived dendritic cell treatments in a monthly interval. The treatment was performed intradermally. Two of the treated dogs received an intermittent treatment of masitinib.

Methods:

For each treatment course, a fresh whole blood sample from the patient was processed by gradient centrifugation and an adherence step to derive a population of monocytes. These monocytes were cultivated with specific cytokines to derive autologous dendritic cells. On day 7, the unprimed dendritic cells were harvested, re-suspended and injected intradermally.

Results:

2 of 19 dogs are still living. The censored median survival is 311 days post primary treatment, the mean survival time 522 (59 - 1963) days.

Conclusions:

The autologous treatment with primed dendritic cells of dogs with mast cell tumour grade III is a promising postsurgical treatment option which should be considered as an alternative to chemotherapeutical interventions. This pilot study shows interesting results which should be followed up in a larger study.

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Topic: *AS20. Oncology*

EXTENSIVE REGIONAL LYMPHADENECTOMY IN A CAT WITH METASTATIC APOCRINE SWEAT GLAND ADENOCARCINOMA (ASGAC)

Paloma Helena Silva[1], Pedro Antônio Pimentel[1], Bruna Sena[1], Isabella Almeida[1], Mariana Costa[1], Anelise Nepomuceno[1], Geovanni Cassali[2], Rodrigo Horta[1]
[1]Universidade Federal de Minas Gerais (UFMG), Departament Of Veterinary Medicine And Surgery, Veterinary School, Belo Horizonte, Brazil, [2]Universidade Federal de Minas Gerais (UFMG), Departament Of Pathology, Institute Of Biological Sciences, Belo Horizonte, Brazil

Introduction:

Regional lymphadenectomy is recommended for treating head and neck human carcinomas, but there is insufficient data available for apocrine sweat gland adenocarcinoma (ASGAC) in cats.

Objectives:

To report an extensive lymphadenectomy in a cat diagnosed with ASGAC.

Methods:

A neutered male mixed-breed cat was presented with a diagnosis of ASGAC in the right mentonian region treated with surgical resection and after recurrence, surgery and electrochemotherapy. On physical exam there was no sign of local recurrence but there was enlargement of the right mandibular lymph node (LN). Cytology was compatible with ASGAC metastasis. Full staging was performed with abdominal ultrasound, head, neck and thorax computed tomography. There was enlargement of bilateral mandibular and medial retropharyngeal LNs. Lipiodol® Ultra Fluid (1ml) was administered in the scar related to the tumour excision with contrast´s drainage to the same LNs.

Results:

For lymphadenectomy a median ventral cervical incision was performed between the mandibular angular processes to the cranial aspect of the larynx, resulting in bilateral removal of dorsal and ventral mandibular, and medial retropharyngeal LNs. Histopathology confirmed carcinoma macrometastasis in the right ventral mandibular LN, but the remaining nodes were free of neoplastic cells. The patient recovered well from surgery and is currently undergoing carboplatin chemotherapy and oncological follow-up.

Conclusions:

ASGAC metastases to distant LNs or other organs are uncommon, even in cases of enhanced aggressiveness (relapse, LN metastasis and increased mitotic index). Computed tomography and lymphography are valuable imaging exams; but intraoperative histopathology might also be useful for a more selective lymphadenectomy.

112 / #641

Topic: *AS20. Oncology*

IDENTIFICATION OF HEAD AND CERVICAL´S LYMPHATIC DRAINAGE AND LYMPH NODES IN CATS BY DIRECT LYMPHOGRAPHY: A POST-MORTEM STUDY

Thais Lopes, Paloma Helena Silva, Carlos Eduardo Lopes, Paula Turquete, Rodrigo Horta, Roselene Ecco
Universidade Federal de Minas Gerais (UFMG), Departament Of Veterinary Medicine And Surgery, Veterinary School, Belo Horizonte, Brazil

Introduction:

Neoplasms of epithelial origin are commonly diagnosed in cats and spread preferentially to lymph node (LN). Transoperative identification, although challenging, can be facilitated by direct lymphography.

Objectives:

This study aimed to describe the lymphatic drainage and to identify the LNs in the head and cervical regions of cats, using the patent blue violet dye 2.5% (PBV).

Methods:

The study was carried out at the Veterinary Hospital UFMG, Brazil (CEUA nº 125/2022). Cat cadavers (n=25) without skin lesions were selected. PBV (2mg/kg) was administered intradermally in the right pinna (RP), left preauricular alopecia (LPA) and nasal plane (NP). Lymphadenectomy was performed after 15 minutes.

Results:

Drainage occurred in 23/25 cases, resulting in 125 stained and histologically confirmed LNs. RP drained exclusively to right parotid LN (number from 1 to 4) in 82.6% ($p < 0.0001$), but also to right superficial cervical or right retropharyngeal LNs. LPA drained exclusively to left parotid LN (number from 1 to 4) in 91.3% ($p > 0.0001$), but also to left superficial cervical LN (8.6%). NP drainage was the most variable, but predominantly to both right (number from 1 to 3) and left (number from 1 to 3) mandibular LNs in 65.2% ($p < 0.0029$).

Conclusions:

Direct lymphography proved to be an efficient and fast technique for locating the LNs involved in the head and neck lymphatic drainage. Although a most frequent LN was related to drainage of each region, the lymphatic drainage was highly variable, as the number of LNs in each anatomical site.

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Topic: *AS20. Oncology*

SMALL MOLECULAR WP1130 INHIBITOR IS POTENTIALLY EFFECTIVE AGAINST CANINE HEMANGIOSARCOMA - IN VITRO STUDY

Karolina Kapturska[1], Aleksandra Pawlak[2]
[1]Wroclaw University of Environmental and Life Sciences, Department Of Pharmacology And Toxicology, Faculty Of Veterinary Medicine, Wroclaw, Poland, [2]Wroclaw University of Environmental and Life Sciences, Department Of Pharmacology And Toxicology, Wroclaw, Poland

Introduction:

Canine hemangiosarcoma (cHSA) is a malignant vascular tumor with high metastatic potential and short survival times. Targeted therapy including Ubiquitin Specific Proteases (USPs) Inhibitors receives special interest based on recently identified molecular changes underlying HSA tumorigenesis. USPs are enzymes responsible for maintaining homeostasis of proteins involved in cellular pathways, crucial for apoptosis, metabolism modification, and sensitivity of cancer cells. The activity of WP1130 has not been evaluated in cHSA.

Objectives:

To determine the effect of small molecular WP1130 inhibitor with the potency of USP9x, USP5, USP14 and UCH37 inhibition on cHSA cell lines, DD-1 and DHSA-1426.

Methods:

Commercially available canine hemangiosarcoma cell lines have been incubated with increasing concentrations (0.625 - 20 mM) of WP1130 for 24, 48, and 72h. Subsequently, flow cytometry (FC), longer-term colony-forming assay (CFA), and Western Blot (WB) tests have been performed.

Results:

WP1130 showed antiproliferative activity in a time and concentration-dependent manner on DD-1, and a concentration-dependent manner in DHSA-1426. DD-1 remains more resistant than DHSA-1426 in a 24h incubation period, p-value < .05. In FC, incubation with a concentration range of 0.625 – 2.5 mM, PI-staining revealed up to 16.67% and 15.19% necrotic cells, respectively, with no difference compared to control.

Cell line	DHSA-1426			DD-1		
Incubation Time	24h	48h	72h	24h	48h	72h
IC-50	3.56[a]	3.37[a]	2.22[a]	8.48	4.11[a]	3.62[a]
SD	0.53	0.19	0.66	0.67	0.27	0.14

Conclusions:

The USP inhibitor, WP1130, exhibits antiproliferative activity against canine hemangiosarcoma cells *in vitro*, potentially becoming a new direction for research on a new type of cancer therapy in patients with HSA.

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114 / #867

Topic: *AS20. Oncology*

DIAGNOSTIC ACCURACY AND YIELD VALUE OF WHOLE-BODY COMPUTED TOMOGRAPHY IN VETERINARY ONCOLOGY: DATA FROM A REFERRAL VETERINARY HOSPITAL IN NORTHERN PORTUGAL

Maria De Almeida[1,2], Hugo Gregório[1,3], André Pereira[1], Tomás Magalhães[2,4,5], Adriano Ferreira[6], Felisbina Queiroga[2,4,5,7]
[1]AniCura, Chv Porto, Porto, Portugal, [2]University of Trás-os-Montes and Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [3]CESPU, Institute For Research And Advanced Training In Health Sciences And Technologies, Gandra, Portugal, [4]University of Trás-os-Montes and Alto Douro, Animal And Veterinary Research Centre (cecav), Vila Real, Portugal, [5]University of Trás-os-Montes and Alto Douro, Associate Laboratory For Animal And Veterinary Sciences (al4animals), Vila Real, Portugal, [6]Federal University of Campina Grande (UFCG), Department Of Veterinary Medicine, Patos, Brazil, [7]University of Porto, Center For The Study Of Animal Sciences (ceca-iceta), Porto, Portugal

Introduction:

Whole-body computed tomography (WBCT) provides detailed information on the entire body being particularly useful for cancer staging or in distinguishing internal primary tumours from distant metastasis. WBCT yield value is the measure of previously unrecognized disease, diagnosed as result of WBCT screening. However, limited information is available respecting WBTC yield value in companion animal veterinary oncology.

Objectives:

Evaluate the use of WBCT in canine and feline oncological patients and ascertain its yield value.

Methods:

Clinical files of dogs and cats submitted to WBCT for oncological evaluation, between January 2016 and May 2023, were searched for descriptive analysis.

Results:

Seventy-seven animals (61 dogs and 16 cats) were included, either for tumor staging (n=61; 79.2%) or oncological diagnostic investigation (n=16; 20.8%). Primary tumor sites were spleen (n=15; 24.6%) and liver (n=10; 16.4%) in dogs; mammary gland (n=6; 37.5%) and skin (n=3; 18.8%) in cats. Metastases were detected in 19 dogs [7 (multiple sites), 5 (lungs), 3 (regional lymph nodes), 2 (skeleton), 1(liver) and 1(pancreas) corresponding to a yield value of 31.1 %], and seven cats [6 (lungs) and 1 (regional lymph nodes) with a yield value of 43.8 %]. Overall, four neoplasms/metastasis were detected outside thoracic and abdominal cavities. No adverse effects were recorded during the procedures.

Conclusions:

WBCT allowed detection of metastasis in more than 30% of cases, including outside thoracic and abdominal cavities, suggesting a potential higher sensitivity compared to radiography and ultrasound. Our findings support the use of WBCT as a useful and safe exam for tumor staging and/or oncological diagnosis in dogs and cats.

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115 / #888

Topic: *AS20. Oncology*

THE ROLE OF NEUTROPHIL/LYMPHOCYTE RATIO (NLR), NEUTROPHIL/ RED BLOOD CELL RATIO (NRR) AND PLATELET/LYMPHOCYTE RATIO (PLR) IN THE DIAGNOSIS AND PROGNOSIS OF CANINE SPLENIC HEMANGIOSARCOMA

Ana Marques[1], Gonçalo Petrucci[2,3], Tomás Magalhães[1,4,5], Hugo Gregório[6,7], Luís Lobo[3,8,9], Joaquim Henriques[10], Ana Figueira[2,11], Hugo Vilhena[2,4,11], Carla Marrinhas[2,12], Felisbina Queiroga[1,4,5,9]
[1]University of Trás-os-Montes and Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [2]Vasco da Gama University School, Vasco Da Gama Research Center (civg), Coimbra, Portugal, [3]OneVet Group, Hospital Veterinário Do Porto, Porto, Portugal, [4]University of Trás-os-Montes and Alto Douro, Animal And Veterinary Research Centre (cecav), Vila Real, Portugal, [5]University of Trás-os-Montes and Alto Douro, Associate Laboratory For Animal And Veterinary Sciences (al4animals), Vila Real, Portugal, [6]CESPU, Institute For Research And Advanced Training In Health Sciences And Technologies, Gandra, Portugal, [7]AniCura, Chv Porto, Porto, Portugal, [8]Lusófona University of Humanities and Technologies, Faculty Of Veterinary Medicine, Lisbon, Portugal, [9]University of Porto, Center For The Study Of Animal Sciences (ceca-iceta), Porto, Portugal, [10]OneVet Group, Hospital Veterinário De Berna, Lisbon, Portugal, [11]OneVet Group, Hospital Veterinário Universitário De Coimbra, Coimbra, Portugal, [12]OneVet Group, Hospital Veterinário Do Baixo Vouga, Águeda, Portugal

Introduction:

Blood cell count ratios have been used in the diagnosis and prognosis of several human neoplasms, but similar studies in dogs are lacking. Canine splenic hemangiosarcoma (HSA) is an aggressive tumor associated with short survival times.

Objectives:

To investigate the association between neutrophil-to-lymphocyte ratio (NLR), neutrophil to red blood cell ratio (NRR) and platelet-to-lymphocyte ratio (PLR) with the diagnosis and prognosis of dogs with splenic HSA.

Methods:

A retrospective study was carried out in five Portuguese veterinary hospitals. Only dogs submitted to splenectomy between 2018 and 2022, with a histopathological diagnosis of splenic lesion ("hemangiosarcoma" or "other") and with available information about pre-surgical blood counts and outcome were included. Blood cell count ratios were calculated and their associations with relapse and mortality rates were investigated.

Results:

A total of 154 dogs were included. Dogs diagnosed with HSA (n=63) had a significantly higher mean NRR value than dogs diagnosed with other splenic lesions (3.7 ± 2.6 versus 2.7 ± 3.7; $p<0.001$). The mean PLR value was significantly lower in patients with HSA compared to others (139.4 ± 160.0 versus 259.9 ± 278.0; $p<0.001$). A greater risk of relapse and overall death was significantly associated with patients with higher NRR values ($p=0.002$ and $p=0.012$, respectively) and with lower PLR values ($p=0.015$ and $p=0.033$, respectively). No statistically significant association was found between NLR values and these variables.

Conclusions:

These findings support the use of NRR and PLR values as predictive factors for diagnosis and prognosis in dogs with splenic HSA, although further studies are still needed.

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Topic: *AS20. Oncology*

HISTOLOGICAL CHARACTERISTICS ASSOCIATED WITH PROGNOSTIC FACTORS IN MALIGNANT CANINE MAMMARY TUMOURS

Sara Perdigão Marques, José Catarino, Joaquim Henriques, Joana De Oliveira
Universidade Lusófona - Centro Universitário de Lisboa, Faculdade De Medicina Veterinária, Campo Grande, Portugal

Introduction:

Canine malignant mammary tumours (CMMT) are a common neoplasm in female dogs. Several prognostic factors have been found among clinicohistopathological features. However, further clinical evidence their role regarding outcomes is still needed.

Objectives:

To evaluate age, tumour size, histological grade, TNM stage, and surgical margins as prognostic factors. To assess the relationship between histological grade and the occurrence of metastases. To correlate tumour size and histological grade with the presence of necrosis, tissue infiltration and vascular invasion.

Methods:

A series of 30 CMMT was studied between November 2017 and April 2022. Age, tumour size, histological grade, TNM stage, surgical margins and the occurrence of metastases were studied using the log rank test. Tumour size and histological grade were compared with the presence of necrosis, tissue infiltration and vascular invasion using the chi-square test.

Results:

Survival Time (ST) was correlated with tumour size (p=0.002) and histological grade (p=0.001). A borderline correlation was found between ST and both TNM stage (p=0.066) and age (p=0.076). No correlation was found between ST and surgical margins (p=0.589). Histological grade (p=0.001) was correlated with the occurrence of metastases. Tissue infiltration and vascular invasion was positively correlated with tumour size (p=0,004; p=0,046) and with a highest histological grade (p=0,032; p=0,017).

Conclusions:

Both tumour size and histological grade have shown to have negatively influence ST. On the opposite hand, surgical margins had no influence on ST. Although a higher histological grade was significantly related with the occurrence of metastases, it did not ultimately influence ST in this work.

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Topic: *AS20. Oncology*

FELINE RENAL STROMAL SARCOMA

Marilia Melo, Marina Nogueira
Universidade Federal de Minas Gerais, Veterinary Clinic And Surgery, Belo Horizonte, Brazil

Introduction:

An 8-year-old spayed mixed-breed female feline was admitted with a history of prostration and weight loss and, negative for FIV and FeLV. On physical examination, the animal was prostrate, with a body score of 8/10. On abdominal palpation, there was an increase in volume in the right renal topography and pain.

Objectives:

The aim was to clarify if this process could be a renal neoplastic process.

Methods:

Abdominal ultrasonography and pathohistological exams were performed.

Results:

The right kidney had an irregular, enlarged contour (4.06x2.3x2.23cm), with loss of definition of the corticomedullary junction due to a vascularized, heterogeneous, parenchymal neoformation (4.78x4.23x4.13cm), with irregular margins and cystic areas filled with anechoic and particulate content. The feline underwent a nephrectomy of the right kidney, and the specimen was sent for pathohistological examination. Macroscopically, the cut surface was heterogeneous, 90% solid and whitish, and 10% forming cysts filled with brownish and gelatinous material. Microscopically, there was poorly delimited, non-encapsulated neoplastic proliferation supported by dense fibrovascular stroma, 80% forming bundles in different directions and 20% solid area. In both regions, there was moderate to intense cellular and nuclear pleomorphism, with 1 to 5 mitoses in 10 high-power fields. In areas with a solid pattern, large intracytoplasmic vacuoles were seen, displacing the nucleus to the periphery, indicating an undifferentiated malignant neoplasm. In immunohistochemistry, neoplastic cells expressed S100 and desmin and did not express 1A4, AE1/AE3 and lysozyme. Ki67, for cell proliferation, was positive in 20% of the cells.

Conclusions:

The results led to the diagnosis of feline renal stromal sarcoma.

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Topic: *AS20. Oncology*

IMMUNOHISTOCHEMICAL EXPRESSION AND PROGNOSTIC VALUE OF COX-2 AND CANCER-ASSOCIATED FIBROBLASTS IN FELINE MAMMARY CARCINOMAS

Jayne Guimarães[1], Gonçalo Petrucci[2], Isabel Pires[3], Justina Prada[3], Luis Lobo[4], Felisbina Queiroga[3]
[1]Universidade de Trás-os-Montes e Alto Douro, Depart. Veterinary Sciences,, Vila Real, Portugal, [2]Hospital Veterinário do Porto, Onevet Group,, Onevet Group, Porto, Portugal, [3]Universidade de Trás-os-Montes e Alto Douro, Centro De Ciência Animal E Veterinária, Vila Real, Portugal, [4]Universidade Lusófona de Humanidades e Tecnologia, Faculdade De Medicina Veterinária, Lisboa, Portugal

Introduction:

Feline mammary carcinomas (FMC) are aggressive tumors with poor prognosis. Molecular markers such as cyclooxygenase (COX)-2 and Cancer-Associated Fibroblasts (CAFs) have been studied in other tumor types being associated with poor prognosis but the information is still scarce or not available for FMC.

Objectives:

To evaluate immunoexpression of COX-2 and CAFs positive for Alpha Smooth muscle actin (α-SMA) in FMC, together with the association with clinicopathological variables, disease-free survival (DFS), and overall survival (OS) times.

Methods:

Tumor samples were subject to immunohistochemistry for Cox-2 (1:100) and α-SMA (1:40, Clone 1A4) detection (both from Richard Allan Scientific Co., Kalamazoo, Michigan, USA). Animals were followed up for 2,5 years. Survival curves were generated by the Kaplan–Meier method and survival rates were compared using the Log-rank test.

Results:

Fifty FMC were included in this study. Follow-up was carried out for a mean period of 393 days (minimum 53, maximum 973 days). Cox-2 overexpression was associated with a high mitotic index (p=0.031), a high degree of malignancy (p=<0.001), and the presence of lymph node metastases (p=<0.001). For CAFs, it was observed an association with a high mitotic index (p=0.004) and the presence of lymph node metastases (p= 0.027). Overexpression of both markers showed a statistically significant association with a poor prognosis [for Cox-2, DFS (p=0.048); OS (p=0.034) and for CAFs, DFS (p=0.004); OS (p=0.043)].

Conclusions:

COX-2 and CAFs positive to α-SMA may have a role in tumor progression arising as promising biological markers to identify a subset of cases that could benefit from adjuvant chemotherapy after surgery.

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Topic: *AS20. Oncology*

COMPARATIVE EPIDEMIOLOGICAL STUDY OF BREAST CANCER IN HUMANS AND CANINE MAMMARY TUMORS: INSIGHTS FROM PORTUGAL

Paulo Carvalho[1], João Niza-Ribeiro[1,2,3], Irina Amorim[4], Ana Ribeiro[2,3,5], Felisbina Queiroga[6], Milton Severo[2], Katia Pinello[1,2,3]
[1]Universidade do Porto, Vet-onconet, Departamento De Estudo De Populações, Icbas, Instituto De Ciências Biomédicas Abel Salazar, Porto, Portugal, [2]ISPUP, Laboratório Para A Investigação Integrativa E Translacional Em Saúde Populacional (itr), Porto, Portugal, [3]Universidade do Porto, Epiunit—instituto De Saúde Pública, Porto, Portugal, [4]ICBAS-Universidade do Porto, Departamento De Patologia E Imunologia Molecular, Porto, Portugal, [5]Faculdade de Medicina, Universidade do Porto., Departamento De Ciências Da Saúde Pública E Forenses E Educação Médica, Porto, Portugal, [6]Centro de Ciência Animal e Veterinária, Universidade De Trás-os-montes E Alto Douro, Vila Real, Portugal

Introduction:

Dogs spontaneously develop mammary gland tumors (MGT) and exhibit striking similarities in clinical and epidemiological characteristics to human breast cancer (HBC).

Objectives:

Descriptive and comparative analysis of HBC and canine MGT with a focus on evaluating similarities and geographical distribution.

Methods:

HBC cases were obtained from North Regional Oncological Registry (RORENO) (2010-2015) and canine MGT cases from Vet-OncoNet (2019-2022). Analyses were performed based on published and well-accepted classification systems (ICD-O-3.2 for humans and Vet-ICD-O-canine-1). Incidence risks (IR) per Porto municipalities were calculated using the 2021 Portuguese census (INE) and data from the Portuguese animal registration system (SIAC).

Results:

Among 7,674 HBC cases and 1,140 MGT cases, a similar age and sex distribution pattern was observed. Approximately 69.2% of HBC cases were between 40 and 69 years old, while 66.9% of MGT cases were diagnosed between 7 and 12 years old (mean age of 9.6 years, SD=2.6). In women, Infiltrating Duct Carcinoma (8500/3) was the most common histological type (n=5,679, 74%) while in dogs it was Complex Carcinoma (8983.1/3) (n=205, 39%). Cocker and Yorkshire Terriers exhibited the highest relative risks (3.2 and 1.6, $p<0.05$, respectively) when compared to crossbreed dogs. The municipalities' IR of the two species exhibited a high correlation ($R=0.85$, $p<0.01$) and the cluster analysis revealed higher IR values in urbanized areas compared to rural areas in Porto District.

Conclusions:

This research sheds light on the shared features and geographical correlation between HBC and canine MGT, highlighting the potential of cross-species environmental oncology studies.

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Topic: *AS20. Oncology*

COMPLETE REMISSION OF FELINE PROGRESSIVE HISTIOCYTOSIS AFTER MULTIMODAL TREATMENT INCLUDING ELECTROCHEMOTHERAPY - CASE REPORT

Bruna Sena, Paula Turquete, Isabella Almeida, Pedro Antônio Pimentel, Paloma Helena Silva, Gleidice Lavalle, Paulo Ricardo Paes, Rodrigo Horta
Universidade Federal de Minas Gerais (UFMG), Departament Of Veterinary Medicine And Surgery, Veterinary School, Belo Horizonte, Brazil

Introduction:

Feline progressive histiocytosis (FPH) is a rare histiocytic disease. It is usually presented in the cutaneous form, and may progress to a malignant histiocytic neoplasm with metastases to lymph nodes and to various organs. Diagnosis and treatment are challenging and there is no reported effective treatment.

Objectives:

The aim of this study was to report, for the first time, the use of electrochemotherapy in a case of FPH and its inclusion in multimodal therapy.

Methods:

A 6-year-old female mixed-breed cat was presented with an ulcerated lesions located on the facial region (nose, periocular, chin), tail, digits, and dorsum. The histopathological diagnosis revealed histioproliferative neoplasia, confirmed by immunohistochemical examination with positive Iba1 staining, indicative of FPH. Initially, the animal was treated with chemotherapeutic regimens including lomustine and doxorubicin, but failed to respond, leading to lesion progression. Toceranib phosphate (10mg/cat mon-wed-fri) and chlorambucil (2mg/cat mon-wed-fri) resulted in stable disease. Electrochemotherapy was also performed with intravenous bleomycin (15 UI/m^2) administered 8 minutes before administration of electrical pulses (8 pulses, 100ms, 5KHz, 900-1300V/cm).

Results:

ECT resulted in complete remission after 6 treatments. The interval between sessions ranged from a minimum of 22 days to a maximum of 134 days, with a median of 32 days. The last ECT session was 62 days ago, and no relapses or new lesions have been observed. The current survival is 447 days.

Conclusions:

ECT was effective for controlling FPH, resulting in improved life quality and survival. This report encourages the use of combined ECT for the treatment of FPH.

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Topic: *AS20. Oncology*

CLINICAL AND HISTOLOGICAL EVALUATION, NAGAMINE'S GRADING AND IMMUNOEXPRESSION OF COX-2 IN FELINE CUTANEOUS SQUAMOUS CELL CARCINOMA

Isabella Almeida[1], Bruna Sena[1], Leonardo Gorza[1], Luana Cordeiro[1], Gleidice Lavalle[1], Mayra Flecher[2], Geovanni Cassali[3], Rodrigo Horta[1]
[1]Universidade Federal de Minas Gerais (UFMG), Departament Of Veterinary Medicine And Surgery, Veterinary School, Belo Horizonte, Brazil, [2]Universidade Vila Velha, Veterinary Medicine, Vila Velha, Brazil, [3]Universidade Federal de Minas Gerais (UFMG), Departament Of Pathology, Institute Of Biological Sciences, Belo Horizonte, Brazil

Introduction:

As in humans "non-melanoma" skin cancer, feline cutaneous squamous cell carcinoma (CSCC) is often induced by ultraviolet radiation and usually presents a variable degree of associated inflammation. COX-2 is associated to inflammation but also tumor initiation, promotion and progression. While COX-2 immunoexpression seems common in feline CSSC no study investigated its association with histological grade and outcome.

Objectives:

This study aimed to evaluate the expression of COX-2 in CSCC in domestic cats and correlation with clinical and histopathological features.

Methods:

The medical records and histological samples of feline CSCC were revised using Nagamine´s grading system for CSCC. Immunolabeling for COX-2 (SP-1, 1:50, Invitrogen) was scored according to Lavalle et al. (2009).

Results:

There were 19 cases of invasive CSCC. Nagamine's grading system resulted in 15.7% grade I, 73.8% grade II and 10.5% grade III. Cox-2 immunolabeling was positive in 89.5%, with 41.2 and 58.8% presenting low and high immunoexpression, respectively. There was a moderately significant correlation between the distribution of COX-2 immunolabeling and mitotic index ($p<0.05$). Furthermore, there was no significant correlation between COX-2 immunoexpression score and clinical staging, histopathological Nagamine grade, disease-free interval or survival ($p>0.05$).

Conclusions:

This study showed a high immunoexpression of COX-2 in feline CSCC and new studies can elucidate its prognostic and predictive relevance.

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Topic: *AS20. Oncology*

SERUM LACTATE DEHYDROGENASE LEVELS IN CATS WITH FELV ASSOCIATED LYMPHOMA

Tatiana Gorenstein[1], Isabella Almeida[1], Tâmara Jaretta[2], Bruna Sena[1], Larissa De Souza[2], Emy Hiura[2], Mariana Costa[1], Rodrigo Horta[1]
[1]Universidade Federal de Minas Gerais (UFMG), Departament Of Veterinary Medicine And Surgery, Veterinary School, Belo Horizonte, Brazil, [2]Universidade Vila Velha, Veterinary Medicine, Vila Velha, Brazil

Introduction:

Lactate dehydrogenase (LDH) is an enzyme utilized as a serum prognostic indicator in cancer patients. It is related to anaerobic glycolysis, the preferential metabolic pathway of rapidly proliferating neoplasms.

Objectives:

This study aimed to correlate LDH levels in FeLV negative cats (G1), asymptomatic FeLV carriers (G2) and symptomatic FeLV carriers (G3) with lymphoma, at diagnosis.

Methods:

37 cats participated in the study: G1-11, G2- 12, G3-14. LDH was measured in patient serum using the KIT Bioclin® k014-2, processed in the semi-automatic biochemical analyzer Humanstar 80. Kolmogorov-Smirnov test was used to access the values distribution and Kruskall-Wallis test was used to compare the medians between groups.

Results:

Descriptive analysis of LDH dosage in each group is displayed in Table 1. FeLV cats presented higher values of LDH and the median value of G3 was significantly higher than G1 (p = 0,01).

Table 1 – Descriptive analysis of lactate dehydrogenase (LDH) values in IU in groups G1, G2 and G3

	G1 (n = 11)
Minimum value	45.00
Maximum value	467.0
Median	301.0
Mean	285.7
Standard deviation	131.2

Conclusions:

Healthy patients express lower serum LDH values compared to FeLV-positive cats associated with lymphoma, demonstrating that LDH is a potential predictive factor for diagnosis of lymphoma in FeLV-positive cats.

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Topic: *AS20. Oncology*

SINGLE NUCLEOTIDE POLYMORPHISMS IN CANINE FOLLICULAR LYMPHOID HYPERPLASIA AND INDOLENT B-CELL LYMPHOMA

Sirintra Sirivisoot, Anudep Rungsipipat
Faculty of Veterinary Science, Chulalongkorn University, Center Of Excellence For Companion Animal Cancer, Department Of Pathology, Bangkok, Thailand

Introduction:

Canine indolent lymphomas develop from follicular lymphoid hyperplasia (LFH). They are classified as low-grade lymphoma due to low mitosis and slow progressive disease. Indolent lymphomas of B-cell origin are included follicular lymphoma (FL), mantle cell lymphoma and marginal zone lymphoma (MZL). At the present, no study has been reported on single nucleotide polymorphisms (SNPs) in canine LFH and indolent nodular B-cell lymphoma (BCL).

Objectives:

In this study, dogs with LFH, FL, and MZL were evaluated SNPs genotyping by the MassARRAY.

Methods:

Five paraffin blocks (Two FLs, one MZL, and two LFH) from two dog breeds; Shih Tzu (ST) and Golden retriever (GR), were performed DNA extraction and determined for 35 mutational genetic variants using the MassARRAY (Agena Bioscience).

Results:

Indolent BCL and LFH harbored lesser single nucleotide variants than high-grade BCL in both ST and GR. *C-kit* c.1275 A>G, *SNORD3A* 14:11463068 G>A, *POT1* c.1747_1748insT, *PTEN* c.975 C>T, *DIO2* 8:52321507 A>C, *SATB1*c.1259A>C and *SEL1L* 8:53354569 A>G were observed in indolent BCL. SNPs of *SEL1L* (8:53336337 T>C and 8:53344119 A>G), *DIO2*, and *SPAM1* (c.1445 A>G) were detected in LFH. In ST dogs, SNP locations of indolent BCL were similar to GR except for *TRAF3* c.908dup and *TRAF3* c.850_851insT. Similar variants were also noted in ST with LFH except for *C-kit* c.1275_1276insG and *SATB1* c.1259A>C.

Conclusions:

Some SNPs locations were presented in LFH and indolent BCL; however, the significance of these gene mutations is not determined in this study. For further investigation, germline or somatic testing with increased sample size should be performed to determine the contribution of these SNPs to lymphomagenesis.

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Topic: *AS21. One health*

EPIDEMIOLOGICAL DESCRIPITIVE STUDY OF DOG BITES FROM 2012 AND 2022IN AYSEN, CHILE

Delia Araus[1], María José Ubilla Carvajal[2], Hernan Canon Jones[1]
[1]Universidad de Las Américas, Chile, Facultad De Medicina Veterinaria Y Agronomía, Santiago, Chile, [2]Universidad de O´Higgins, Escuela Ciencias Agroalimentarias, Animales Y Ambientales, San Fernando, Chile

Introduction:

Dog bites are complex incidents influenced by a variety of factors, including the dog's breed, individual temperament, past experiences, and socialization. Understanding dog behaviour is crucial in preventing bites and ensuring the safety of both humans and canines.

Objectives:

The aim of this study was to understand the epidemiology of dog bites occurring in urban and rural zones of Patagonian Chile.

Methods:

We collected 4559 bites records from health centres in Aysén region of Chile between 2012 and 2022 and analysed sociodemographic information, whether the bite was on the street or in their homes, and if the dog was known or not by the human.

Results:

Dog bites did not decrease throughout the years (414+/-170 bites/year, X^2=10, df=10, p=0,144). Most bites were directed to adults (64%, X^2=3314, df=3, p< 0,001) in urban locations (89%, X^2= 2901, df=1, p< 0,01) independent of gender (X^2=1,01, df=1, p=0,31). Most dogs were unknown (91%, X^2=1,0, df=1, p=0,31), and bites occurred on the street (86%, X^2=1,0, df=1, p=0,31). A high number of dog bites occurred in children (19,7%) occurring mainly on the street (74%, X^2=1,0, df=1, p=0,31) by unknown dogs (85%, X^2=1,0, df=1, p=0,31).

Conclusions:

We conclude that dog bites in Aysén are carried out by stray dogs in the streets, and dog population plans should include education of owners and people about dog behaviour.

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Topic: *AS21. One health*

PREVALENCE OF ECHINOCOCCUS GRANULOSUS SENSU LATO AND OTHER INTESTINAL PARASITES IN SHEPHERD DOGS IN SARDINIA, ITALY.

Gaia Muroni[1], Angela Peruzzu[1], Cinzia Santucciu[1], Jacek Karamon[2], Pavlo Maksimov[3], Gerald Umhang[4], Adriano Casulli[5], Giovanna Masala[1], Piero Bonelli[1]
[1]IZS della Sardegna, National Reference Laboratory For Echinococcosis, Sassari, Italy, [2]National Veterinary Research Institute in Pulawy, Parasitology And Invasive Diseases, Pulawy, Poland, [3]Federal Research Institute for Animal Health, Institute For Epidemiology, Greifswald-Insel Reims, Germany, [4]ANSES Nancy, Lnr Echinococcus Spp., Malzeville, France, [5]Istituto Superiore di Sanità, Department Of Infectious Diseases, Roma, Italy

Introduction:

Cystic echinococcosis (CE) is a severe zoonotic disease caused by the larval form of *Echinococcus granulosus sensu lato (s.l.).* In geographical areas traditionally dedicated to extensive sheep farming, CE is mainly maintained by a dog-sheep cycle. Infected dogs are responsible of parasite transmission to livestock and humans.

Objectives:

This investigation, as part of the MEmE project (One Health EJP), aimed to determine the presence of *E. granulosus s.l.* in shepherd dogs in Sardinia (Italy).

Methods:

To this purpose, 203 fecal samples of dogs were collected from 90 sheep farms and a questionnaires were administered to the owners. DNA extracted from fecal samples was analysed using a multiplex PCR able to detect *E. granulosus s.l.* and *Taenia* spp. Faecal flotation was also performed to evaluate the presence of other intestinal parasites.

Results:

Molecular analyses evidenced 21 samples positive for *E. granulosus s.l.* and 20 for *Taenia* spp. Copromicroscopy revealed the presence of common intestinal parasite eggs: taeniid cestodes (8.9 %), dilepidid cestodes (5.4 %), gastrointestinal nematodes (21.2 %) and coccidia (4.9 %). The prevalence of *E. granulosus s.l* in shepherd dogs in Sardinia found in this study was 10.3%. Dogs infected with *E. granulosus s.l.* did not to received any anthelmintic treatment or were improperly treated.

Conclusions:

Our findings pointed out that a reassessment of the strategic interventions to accelerate prevention and control of CE in Sardinia is needed. Major efforts must be directed toward the establishment of deworming programmes and a renewed farmers' awareness about the risks for human health associated to parasitic diseases.

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Topic: *AS21. One health*

IMPACT OF SOCIOECONOMIC VULNERABILITY CONDITIONS ON THE HEALTH OF DOGS AND CATS

Simone Freitas[1], Ianei Carneiro[1], Hernán Argibay[2], Breno Silva[1], Roberta Do Nascimento[2], João Victor Moreira[2], Thais Auxiliadora Mattos[2], Beatriz Couto[2], João Crésio Pires[2]
[1]Universidade Salvador, Microbiology, Salvador, Brazil, [2]Instituto Gonçalo Moniz, Fundação Oswaldo Cruz, Microbiology, Salvador, Brazil

Introduction:

The structural and environmental conditions within a community are significant factors for the health of both humans and animals. Little is reported about the impact of socioeconomic vulnerability situations on the health of dogs and cats, potential hosts of zoonoses.

Objectives:

To evaluate changes in the overall health status of domestic animals exposed to different socioeconomic conditions.

Methods:

A cross-sectional epidemiological study was conducted using blood tests from dogs (n=244) and cats (n=78) from vulnerable neighborhoods (group 1), compared to results from dogs (n=133) and cats (n=67) without a history of infectious disease, treated in a private clinic (group 2). Firstly, a mixed model was applied to define the hematological variables with the best performance to compare the means between the two groups using the Mann-Whitney test.

Results:

The variables total plasma proteins (TPP), hematocrit (HCT), white blood cells (WBC), neutrophils (Neut), lymphocytes (Linf), and eosinophils (Eos) showed good performance for comparison. Dogs showed a significant difference in HCT ($p=0.014$), TPP ($p<0.001$), WBC ($p<0.001$), Neut ($p=0.047$), and Eos ($p<0.001$), except for Linf ($p=0.483$). In cats, differences were found in HCT ($p=0.007$), TPP ($p=0.012$), WBC ($p<0.001$), Linf ($p<0.001$), Eos ($p<0.001$), with Neut ($p=0.469$) being the exception.

Conclusions:

Vulnerable animals (group 1) show a higher immunological stimulus, which may be associated with greater pathogen exposure, indicating a greater need for medical attention.

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Topic: *AS21. One health*

ZOONOSES IN DOG AND CAT SHELTERS: STUDY AND DEVELOPMENT OF AN INTEGRATED STRATEGY FOR EFFECTIVE HEALTH MANAGEMENT

Elisa Mazzotta[1], Laura Lucchese[1], Letizia Ceglie[1], Mery Campalto[1], Lara Cavicchio[1], Laura Bellinati[1], Monica Mion[1], Marilena Carrino[1], Michela Corrò[1], Elena Spagnolo[1], Patrizia Danesi[2], Alda Natale[1]
[1]Istituto Zooprofilattico Sperimentale delle Venezie, Struttura Complessa Di Padova, Vicenza E Rovigo (sct3), Diagnostica In Sanità Animale, Laboratorio Di Virologia Diangostica, Legnaro, Italy, [2]Istituto Zooprofilattico Sperimentale delle Venezie, Scs3 – Diagnostica Specialistica, Istopatologia E Parassitologia Laboratorio U.o. Parassitologia E Micologia, Legnaro, Italy

Introduction:

Dogs and cats shelters represent a crucial point for prevention and control of zoonotic diseases.

Objectives:

The research investigated the real and perceived risk for zoonoses present in northeastern Italian companion animal shelters, contextualizing the infectious disease monitoring of known and emerging or potential zoonotic agents, epidemiological information and social research.

Methods:

The study employed serological and/or molecular and cultural techniques investigate: *Leptospira* spp., *Brucella canis*, *Leishmania infantum*, Dermatophytes, Intestinal parasites, Antibiotic-resistant bacteria, *Capnocytophaga* spp., *Bartonella henselae*, Norovirus, Rotavirus, Cowpox virus, Mammalian Orthoreovirus, Hepatitis E virus, Coronavirus (SARS-CoV-2), Influenza. Social investigation focused on citizens, shelter staff and vets was performed.

Results:

In 391 cats and 264 dogs, the prevalence of some “known” zoonoses, for which the perceived risk is high, was in line with the literature and recent reports. Differently, other zoonotic agents for which the perceived risk is low reported significant prevalence in companion animals in shelters (Table 1 and 2). The social survey highlighted the need for specific public information on zoonoses and for targeted training of shelter staff on infectious and zoonotic diseases, biorisk management and ethology of companion animals.

Table 1. Feline group: pathogen investigated and analysis performed, prevalence (%, positive on total animals) and 95%CI (confidence intervals).

Pathogens	Positive/Total	Prevalence (%)	95 % CI
Serological test - serum			
Bartonella hensele	273/389	70,18	65,45 - 74,51
Epatite E	0/386	0	0,00 - 0,01
SARS-CoV-2	3/383	0,78	0,00 - 0,01
Microbiological test – oral (*) and rectal (**) swabs			
Capnocytophaga spp. (*)	23/391	5,9	3,9-8,7
Bacteria ESBL (**)	28/389	7,2	5,03 - 10,21
Bacteria MRSCP (**)	0/388	0	0,00 - 0,01
Bacteria VRE (**)	0/388	0	0,00 - 0,01
Coprological test – feces (□) and mycological culture – hair/ skin lesions (•)			
Intestinal parasites (□)	72/143	50,35	42,25 - 58,43
Cestoda (□)	3/132	2,27	0,78 - 6,47
Dermatophytes (•)	7/390	1,79	0,87 - 3,66
Molecular biology – blood (¥),oral (*) and rectal (**) swabs, feces (□), hair/skin lesions (•)			
Bartonella hensele (¥)	100/387	25,84	21,73 - 30,42
Capnocytophaga spp. (*)	252/389	64,8	59,9-69,4
Epatite E (□)	0/142	0	0,00 - 0,03
Influenza (*)	0/218	0	0,00 - 0,02
Norovirus (**)	0/297	0	0,00 - 0,01
Cowpoxvirus (•)	0/194	0	0,00 - 0,02
Mammalian Orthoreovirus (*, **)	11/388	2,84	1,59-5,01
Rotavirus (**)	13/390	3,33	1,96-5,62
SARS-CoV-2 (*, **)	3/392	0,77	0,26 - 2,23

ESBL: Extended-Spectrum Beta-Lactamases; MRSCP: Methicillin-resistant coagulase positive Staphylococci. VRE: Vancomycin resistant Enterococci.

Table 2. Canine group: pathogen investigated and analysis performed, prevalence (%, positive on total animals) and 95%CI (confidence intervals).

Pathogens	Positive/Total	Prevalence (%)	95 % CI
Serological test - serum			
Leptospira spp.	114/206	43,85	37,95 - 49,92
Leishmania infantum	65/260	25,0	20,13- 30,60
Brucella canis	4/253	1,58	0,62 - 3,99
Epatite E	0/176	0	0,00 - 0,02
SARS-CoV-2	8/246	3,25	1,66 - 6,28
Microbiological test – oral (*) and rectal (**) swabs			
Capnocytophaga spp. (*)	23/261	12.3	8,8-16,8
Bacteria ESBL (**)	81/257	31,52	26,15 - 37,43
Bacteria MRSCP (**)	0/256	0	0,00 - 0,01
Bacteria VRE (**)	0/256	0	0,00 - 0,01
Coprological test – feces (□) and mycological culture – hair/skin lesions (•)			
Intestinal parasites (□)	35/177	19,77	14,58 - 26,26
Cestoda (□)	0/175	0	0,00 - 0,02
Dermatophytes (•)	3/259	1,16	0,00 - 0,01
Molecular biology – urine (§), oral (*) and rectal (**) swabs, feces (□)			
Leptospira spp. (§)	2/260	0,77	0,00-1,83
Capnocytophaga spp (*)	252/257	82,5	77,4-86,6
Epatite E (□)	0/142	0	0,00 - 0,03
Influenza (*)	0/175	0	0,00 - 0,02
Norovirus (**)	0/193	0	0,00 - 0,02
Mammalian Orthoreovirus (*, **)	1/261	0,38	0,07 - 2,14
Rotavirus (**)	2/255	0,78	0,21-2,81
SARS-CoV-2 (*, **)	0/260	0	0,00 - 0,01

ESBL: Extended-Spectrum Beta-Lactamases; MRSCP: Methicillin-resistant coagulase positive Staphylococci. VRE: Vancomycin resistant Enterococci

Conclusions:

The approach to the prevention and control of zoonotic diseases must be reconsidered by focusing on the complex human-animal-ecosystem interaction, particularly in context such as companion animal shelters, which are key point for both disease surveillance and zoonotic risk management.

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128 / #702

Topic: *AS21. One health*

METHICILLIN-RESISTANT STAPHYLOCOCCUS SPP. IN A HOUSEHOLD: EVIDENCE OF HORIZONTAL TRANSMISSION BETWEEN A DOG AND ITS FAMILY?

Mareliza Menezes[1], Filippo Bernardes[1], Leandro Silva[2], Mayara Paglione[1], Paola Moraes[1], Marita Cardozo[3]
[1]School of Agrarian and Veterinary Sciences, São Paulo State University, Departament Of Veterinary Clinic And Surgery, Jaboticabal-SP, Brazil, [2]School of Agrarian and Veterinary Sciences, São Paulo State University, Departament Of Pathology, Reproduction And One Health, Jaboticabal, Brazil, [3]Minas Gerais State University, Department Of Biomedical And Health Sciences, Passos, Brazil

Introduction:

Methicillin-resistant *Staphylococcus* spp. (MRS) is an opportunistic pathogen associated with surgical site infection in dogs. Horizontal transmission between pets and their family members has been reported.

Objectives:

The aim of this prospective study was to screen for MRS carriage in humans and pets living with a dog infected by MRS.

Methods:

A 4-year-old bullterrier was diagnosed with osteomyelitis caused by MRS. The isolate was classified by biochemical analysis as *intermedius* group. Methicillin-resistance gene (*mecA*) was confirmed by PCR. Nasal and cutaneous swabs were collected from the patient (n=1), owners (n=5), co-living dog (n=1), and veterinarian surgeon (n=1). The samples were spread onto Mannitol Salt Agar supplemented with Oxacillin (0.5mg/L and 8mg/L). When growth was observed, PCR was performed to confirm *mecA* gene.

Results:

The patient's nose and skin were colonized by MRS. Seven of the 14 (50%) samples obtained from the owners, co-living dog, and veterinarian presented growth in Oxacillin Mannitol Salt Agar and were positive for *mecA* (Table 1). Only one family member was negative for MRS phenotype and genotype screening.

Table 1. Phenotype and genotype screening for Methicillin-resistant *Staphylococcus* spp. (MRS) carriage between family members of a dog with osteomyelitis caused by MRS.

Sample	Source	MSA + 0.5mg/L Oxacillin	MSA + 8mg/L Oxacillin	*mecA*
Patient	Skin	+	+	+
	Nose	+	+	+
Co-living dog	Skin	+	+	+
	Nose	-	-	-
Owner 1	Skin	+	+	+
	Nose	+	+	-

Table 1. Phenotype and genotype screening for Methicillin-resistant *Staphylococcus* spp. (MRS) carriage between family members of a dog with osteomyelitis caused by MRS.

Sample	Source	MSA + 0.5mg/L Oxacillin	MSA + 8mg/L Oxacillin	*mecA*
Owner 2	Skin	-	-	-
	Nose	-	-	-
Owner 3	Skin	+	+	+
	Nose	-	-	-
Owner 4	Skin	+	+	+
	Nose	-	+	+
Owner 5	Skin	-	-	-
	Nose	+	+	-
Surgeon	Skin	+	+	+
	Nose	+	+	+

Conclusions:

Close contact with an animal or person infected by multidrug-resistant bacteria is a risk factor to acquire these strains. Our study showed MRS colonizing family members in the same household. The infected dog has been treated with antimicrobials for a long period. We hypothesized patient-to-family member transmission. Further analyses are being carried out to elucidate this hypothesis.

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129 / #194

Topic: *AS21. One health*

METHICILLIN-RESISTANT STAPHYLOCOCCUS SPP. COLONIZING DOG'S SKIN, SURGEON'S HANDS, AND OPERATION ROOM DURING THE INTRAOPERATIVE PERIOD IN A VETERINARY TEACHING HOSPITAL IN BRAZIL

Mareliza Menezes[1], Natália Pereira[2], Mariana Bugov[1], Romário Rodrigues[2], Paola Moraes[1], Marita Cardozo[3]
[1]School of Agrarian and Veterinary Sciences, São Paulo State University, Department Of Veterinary Clinic And Surgery, Jaboticabal-SP, Brazil, [2]School of Agrarian and Veterinary Sciences, São Paulo State University, Department Of Pathology, Reproduction And One Health, Jaboticabal, Brazil, [3]Minas Gerais State University, Department Of Biomedical And Health Sciences, Passos, Brazil

Introduction:

Methicillin-resistant *Staphylococcus* spp. (MRS) is a common cause of surgical site infection (SSI) in dogs and humans. The colonization by these strains is one of the main risk factors to acquire it.

Objectives:

The aim of this prospective study was to characterize genotypically *Staphylococcus* spp. isolated from dogs, surgeons, and the operation room during the intraoperative period.

Methods:

Samples collected from the dogs' superficial surgical site (n=30) and surgeons' hands (n=30) during clean/clean-contaminated (G1; n=20) and contaminated surgery (G2; n=10) were spread onto 5% bovine blood agar. An opened Petri plate with BHI agar was positioned nearly to the surgery table during each procedure. All plates were incubated aerobically at 37°C for 24 hours. Up to three different colonies with morphological characteristics of *Staphylococcus* spp. were collected from each plate and were identified by MALDI-TOF. PCR and PFGE were performed to detect the methicillin-resistance gene (*mecA*) and to compare the similarity between the strains, respectively.

Results:

Eighteen and twenty isolates were obtained from G1 and G2, respectively (Figure 1). Nine isolates from each group were *mecA*-positive (G1=50%; G2=45%). Strain genotyping by PFGE showed genetic diversity and minimal similarity between the isolates obtained from different sources (Figure 2).

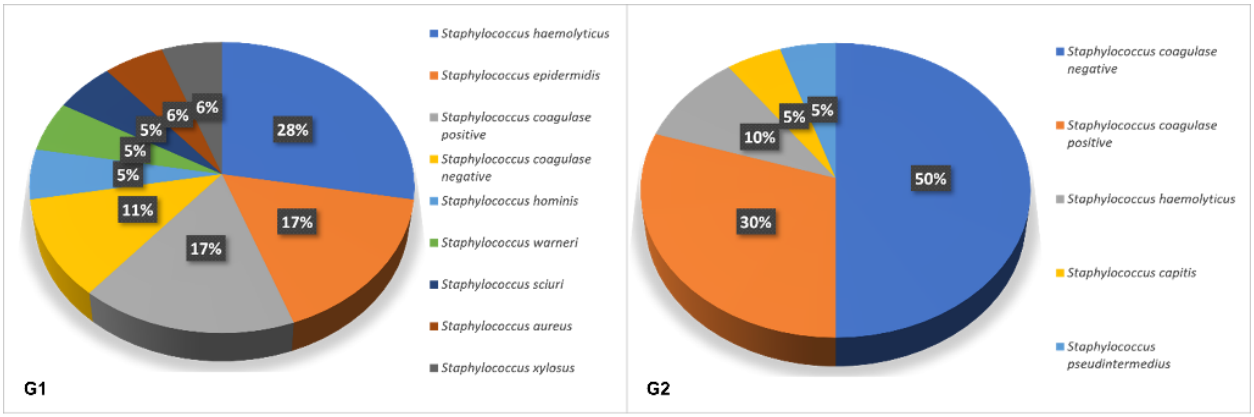
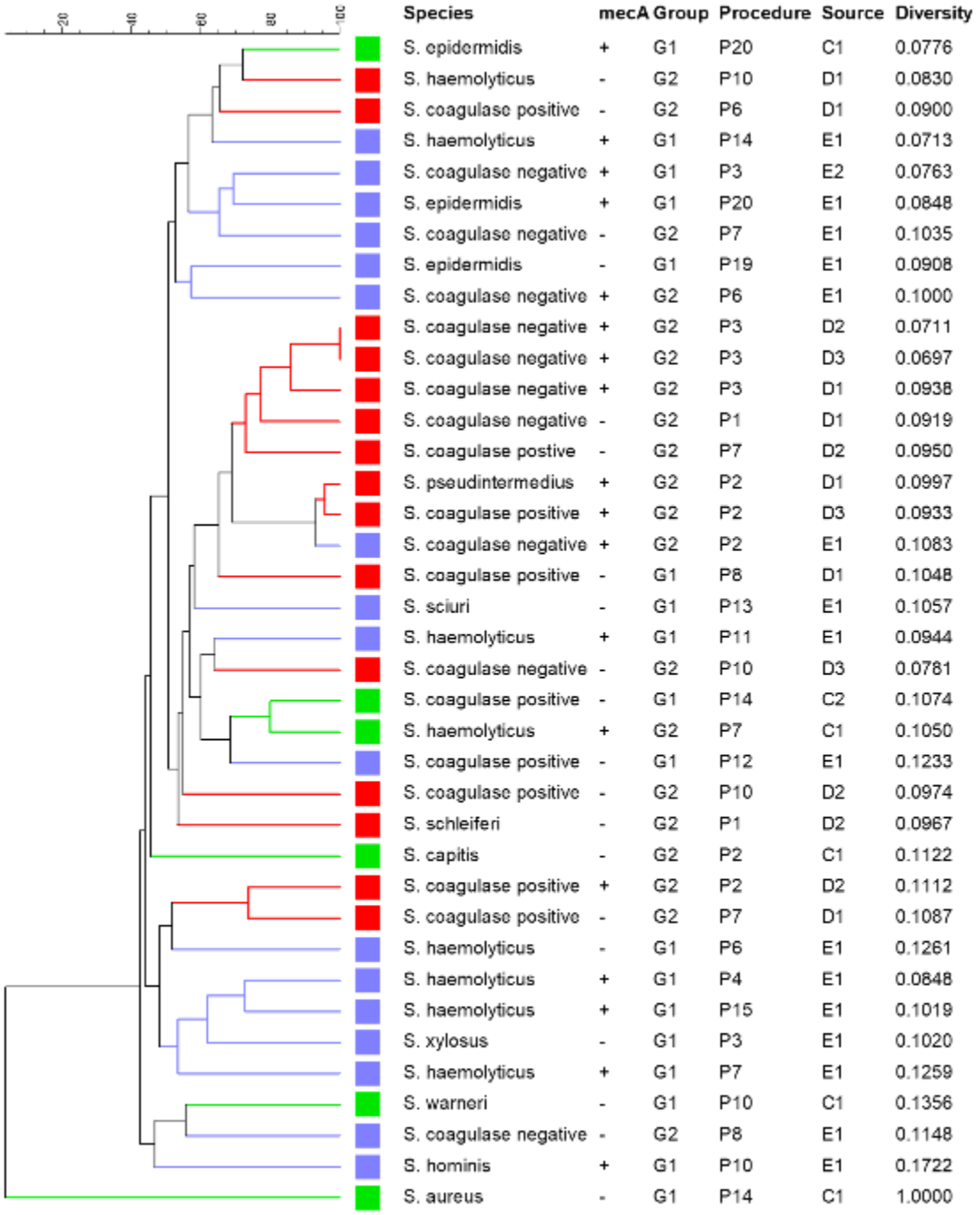


Figure 1. Percentual distribution of *Staphylococcus* species isolated from dogs' superficial surgical site, surgeons' hands and operation room during clean/clean-contaminated (G1; n=18) and contaminated (G2; n=20) surgeries.



Species	mecA	Group	Procedure	Source	Diversity
S. epidermidis	+	G1	P20	C1	0.0776
S. haemolyticus	-	G2	P10	D1	0.0830
S. coagulase positive	-	G2	P6	D1	0.0900
S. haemolyticus	+	G1	P14	E1	0.0713
S. coagulase negative	+	G1	P3	E2	0.0763
S. epidermidis	+	G1	P20	E1	0.0848
S. coagulase negative	-	G2	P7	E1	0.1035
S. epidermidis	-	G1	P19	E1	0.0908
S. coagulase negative	+	G2	P6	E1	0.1000
S. coagulase negative	+	G2	P3	D2	0.0711
S. coagulase negative	+	G2	P3	D3	0.0697
S. coagulase negative	+	G2	P3	D1	0.0938
S. coagulase negative	-	G2	P1	D1	0.0919
S. coagulase postive	-	G2	P7	D2	0.0950
S. pseudintermedius	+	G2	P2	D1	0.0997
S. coagulase positive	+	G2	P2	D3	0.0933
S. coagulase negative	+	G2	P2	E1	0.1083
S. coagulase positive	-	G1	P8	D1	0.1048
S. sciuri	-	G1	P13	E1	0.1057
S. haemolyticus	+	G1	P11	E1	0.0944
S. coagulase negative	-	G2	P10	D3	0.0781
S. coagulase positive	-	G1	P14	C2	0.1074
S. haemolyticus	+	G2	P7	C1	0.1050
S. coagulase positive	-	G1	P12	E1	0.1233
S. coagulase positive	-	G2	P10	D2	0.0974
S. schleiferi	-	G2	P1	D2	0.0967
S. capitis	-	G2	P2	C1	0.1122
S. coagulase positive	+	G2	P2	D2	0.1112
S. coagulase positive	-	G2	P7	D1	0.1087
S. haemolyticus	-	G1	P6	E1	0.1261
S. haemolyticus	+	G1	P4	E1	0.0848
S. haemolyticus	+	G1	P15	E1	0.1019
S. xylosus	-	G1	P3	E1	0.1020
S. haemolyticus	+	G1	P7	E1	0.1259
S. warneri	-	G1	P10	C1	0.1356
S. coagulase negative	-	G2	P8	E1	0.1148
S. hominis	+	G1	P10	E1	0.1722
S. aureus	-	G1	P14	C1	1.0000

Figure 2. Dendogram produced by comparing the similarities in PFGE banding patterns of *Staphylococcus* spp. isolates obtained from dogs' superficial surgical site (red), surgeons' hands (green) and operation room (blue) during the intraoperative period.

Conclusions:

Our study showed a high prevalence and diversity of MRS colonizing the surgical environment which could lead to antimicrobial prophylaxis failure, and increase the incidence of SSI caused by multidrug-resistant strains. Furthermore, the presence of these strains in the hospital environment poses a big threat in the One Health context.**Acknowledgments:** Grant#2019/20585-0, São Paulo Research Foundation(FAPESP).

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130 / #811

Topic: *AS21. One health*

LUNGWORMS AND GASTROINTESTINAL PARASITES IN DOMESTIC CATS FROM THE LISBON METROPOLITAN AREA, PORTUGAL: PREVALENCE AND RISK FACTORS

Mafalda Monteiro[1], Margarida Alves[1,2], Adrian Cruz[3], Beatriz Ramalhete[3], Ana Rocha[1], Bárbara Trindade[1], Clara Santos[1], Ricardo Parreira[4], Carla Maia[4], David Ramilo[1,5], André Pereira[1,3,4]
[1]Universidade Lusófona, Faculdade De Medicina Veterinária, Lisboa, Portugal, [2]Universidade Lusófona, Centro De Investigação De Biociências E Tecnologias Da Saúde (cbios), Lisboa, Portugal, [3]Instituto Politécnico da Lusofonia, Escola Superior De Saúde E Bem Estar Animal, Lisboa, Portugal, [4]Universidade NOVA de Lisboa, Global Health And Tropical Medicine (ghtm), Lisboa, Portugal, [5]Laboratório Associado para a Ciência Animal e Veterinária, (al4animals), Lisboa, Portugal

Introduction:

Endoparasitic infections have a significant impact on cats' health, potentially causing gastrointestinal and pulmonary diseases. Additionally, certain parasites that these felids can host have zoonotic potential, thereby posing a risk to public health.

Objectives:

To determine the prevalence of lungworms and gastrointestinal parasites in cats from the Lisbon Metropolitan Area (LMA), Portugal, and to assess the risk factors contributing to their occurrence.

Methods:

A cross-sectional study was carried out between November 2022 and May 2023. A total of 116 fecal samples were collected from household cats (*n* = 42), cats from breeders (*n* = 28), and stray/shelter cats (*n* = 46) in the LMA. Modified centrifugal flotation, sedimentation, Ziehl-Neelsen staining, and Baermann-Wetzel techniques were employed for the detection of endoparasites.

Results:

Endoparasites were identified in 27.6% of the sampled cats, comprising protozoa (16.4%), gastrointestinal helminths (12.9%), and lungworms (5.2%). *Giardia duodenalis* was the species most frequently detected (8.7%). Co-infections were observed in 8.6% of the cats. Statistical analysis revealed that parasitic infections were significantly higher in stray/sheltered cats (*odds ratio* = 5.474) and in cats with loss of fecal consistency (*odds ratio* = 7.040).

Conclusions:

This study highlights the non-negligible prevalence of endoparasitic infections in cats from the LMA and suggests that fecal consistency loss and lifestyle may serve as predictors of parasitic infection in cats. The high occurrence of *G. duodenalis* warrants further investigation through parasite genotyping to elucidate the risk to public health through an approach based on the One Health concept.

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131 / #924

Topic: *AS21. One health*

SMALL ANIMAL VETERINARY PRACTICES AS RESERVOIRS OF ANTIMICROBIAL-RESISTANCE: DISSEMINATION OF OXA-23-PRODUCING ACINETOBACTER SPECIES ON THE ENVIRONMENT AND MRSA NASAL COLONIZATION OF VETERINARY STAFF

Joana Moreira Da Silva[1,2], Juliana Menezes[1,2], Laura Fernandes[1,2], Andreia Amaral[1,2], Cátia Marques[3], Maria Constança Pomba[1,2,4]
[1]Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugal, Clinic, Lisboa, Portugal, [2]AL4AnimalS - Associate Laboratory for Animal and Veterinary Sciences, Clinic, Lisboa, Portugal, [3]Faculdade de Medicina Veterinária, Universidade Lusófona – Centro Universitário de Lisboa, Lisboa, Portugal, Clínica, Lisboa, Portugal, [4]Molecular Veterinary Diagnostic Laboratory, Genevet, Carnaxide, Portugal

Introduction:

Small animal veterinary practices (SAVPs) face the same challenges as human healthcare facilities regarding the dissemination of multidrug-resistant (MDR) bacteria.

Objectives:

The aim of this study was to determine the prevalence of MDR bacteria in SAVPs.

Methods:

Environmental swab samples from critical surfaces were collected from eight SAVPs and nasal swabs were voluntarily obtained from staff. Samples were cultured in selective agar plates for the detection of beta-lactam resistance and methicillin resistance. Gram-negative and Staphylococci isolates were screened by PCR for the presence of beta-lactamases and *mecA* gene, respectively. WGS was performed for carbapenemase-producing strains.

Results:

Resistant isolates were found in 18.9% (n=34/182) of the surfaces analysed. These included MDR *Acinetobacter* spp. (44.1%, n=15/34), methicillin-resistant coagulase negative Staphylococci (44.1%, n=15/34) and MR *Staphylococcus pseudintermedius* (11.8%, n=4/34). One SAVP had 20% (n=4/20) of the surfaces analysed positive for OXA-23-producing *Acinetobacter* spp.. One *Acinetobacter schindleri* was isolated on the waiting room weight-scale and three *Acinetobacter lwofii* were isolated on the treatment room weight-scale, table and computer's keyboard. In all strains, bla_{OXA-23} gene was located on transposon Tn*2008,* inside plasmids with a high degree of homology to a plasmid found on a human nosocomial strain. Forty-nine percent (n=40/81) of workers were colonized by *mecA*-carrying Staphylococci isolates, 22.5% (n=9/40) of which were MRSA carriers.

Conclusions:

The finding of carbapenem-resistant isolates on critical surfaces of a SAVP highlights the need for implementing infection, prevention and control (IPC) guidelines directed at antimicrobial-resistance in Veterinary Medicine. These are key to prevent the dissemination of these MDR bacteria onto humans and pets.

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132 / #937

Topic: *AS21. One health*

TRANSMISSION AND CARRIAGE OF ESBL-CARBAPENEMASE-PRODUCING ENTEROBACTERALES BETWEEN COMPANION ANIMALS AND HUMANS IN HOUSEHOLDS FROM PORTUGAL AND THE UNITED KINGDOM

Juliana Menezes[1,2], Siân Frosini[3], Cátia Marques[1,2,4], Joana Moreira Da Silva[1,2], Laura Fernandes[1,2], Anette Loeffler[3], Andreia Amaral[1,2], Maria Constança Pomba[1,2,5]
[1]Centre for Interdisciplinary Research in Animal Health, Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugal, Clinic, Lisbon, Portugal, [2]AL4AnimalS - Associate Laboratory for Animal and Veterinary Sciences, Clinic, Lisbon, Portugal, [3]Department of Clinical Sciences and Services, Royal Veterinary College, University of London - North Mymms, Hertfordshire (United Kingdom), Clinical Sciences And Services, Hawkshead, United Kingdom, [4]Faculty of Veterinary Medicine, Lusófona University, Clinic, Lisbon, Portugal, [5]Molecular Veterinary Diagnostic Laboratory, Genevet, Carnaxide, Portugal

Introduction:

Companion animals contributes to the maintenance and dissemination of clinically-important antimicrobial-resistant pathogens.

Objectives:

In this study, we sought to determine whether owners of dogs and cats with community acquired skin and soft tissue or urinary tract infections could be colonized by ESBL- or carbapenemase-producing Enterobacterales animal clinical strains.

Methods:

Between 2018-2021, clinical samples, faecal samples and nasal swabs from diseased animals and their owners were screened for ESBL- and carbapenemase-producing Enterobacterales carriage in Portugal (n=43 households) and the UK (n=22 households) in a prospective study. WGS analyses (Illumina NovaSeq) was performed to estimate genetic relatedness between animal and human strains.

Results:

WGS SNPs analysis confirmed interhost sharing of *Escherichia coli* and *Klebsiella pneumonia* clinical strains in three Portuguese households (Figure 1).

Infection Type	Household	Host	Type of Sample	Bacterial species	MLST	CTX-M-15	CTX-M-65	CMY-2	SHV-11	TEM-1
SSTI	PT110	Dog 1	Clinical	*Escherichia coli*	ST2179	Absent	Present	Absent	Absent	Present
SSTI	PT110	Dog 1	Faecal	*Escherichia coli*	ST2179	Absent	Present	Absent	Absent	Present
SSTI	PT110	Human 1	Faecal	*Escherichia coli*	ST2179	Absent	Present	Absent	Absent	Present
UTI	PV003	Dog 2	Clinical	*Klebsiella pneumoniae*	ST556	Present	Absent	Absent	Present	Present
UTI	PV003	Dog 2	Faecal	*Klebsiella pneumoniae*	ST556	Present	Absent	Absent	Present	Present
UTI	PV003	Human 2	Faecal	*Klebsiella pneumoniae*	ST556	Present	Absent	Absent	Present	Present
UTI	PV003	Human 3	Faecal	*Klebsiella pneumoniae*	ST556	Present	Absent	Absent	Present	Present
UTI	PV004	Cat 1	Clinical	*Escherichia coli*	ST131	Absent	Absent	Present	Absent	Absent
UTI	PV004	Cat 1	Faecal	*Escherichia coli*	ST131	Absent	Absent	Present	Absent	Absent
UTI	PV004	Human 4	Faecal	*Escherichia coli*	ST131	Absent	Absent	Present	Absent	Absent

Antimicrobial resistant determinants — Present — Absent

Regarding carriage, high ESBL-producing Enterobacterales carriage occurred among companion animals (Portugal=24/43; UK=9/22) and among owners (Portugal=28/78; UK=4/24). WGS analysis identified clusters of animals-owners sharing similar strains in both countries (Portugal=7/43; UK=2/22). Concerning carbapenemase-producing Enterobacterales, one dog from Portugal (1/43) was colonised by a multidrug-resistant ST410 *Escherichia coli* harbouring a IncX3 $bla_{OXA-181}$-containing plasmid. Another dog from the UK (1/22) was colonised by two multidrug-resistant *E. coli* (ST410 and ST648) harbouring the bla_{NDM-5} gene on a IncX3 plasmid.

Conclusions:

This study provides evidence of companion animal-human sharing of ESBL- and/or carry carbapenemase-producing Enterobacterales within households. It also illustrates the importance of the companion animal-human unit in the epidemiology of antibiotic-resistance, and further highlights the value of a One Health approach, integrating human and animal health.

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133 / #615

Topic: *AS22. Ophthalmology*

USE OF INJECTABLE MESENCHYMAL STEM CELLS SUPPLEMENTED WITH OR WITHOUT ORAL OMEGA 3 IN THE TREATMENT OF KERATOCONJUNCTIVITIS SICCA IN DOGS

Silvia Franco Andrade[1], João Victor Passareli[2], Giovana Estanho[2], Gismelli Angeluci[2], William Villa[2], Layla Gasparotto[3], Giovana Cristina Santos[3], Ana Maria Silveira[1], Gisele Nai[2], Michele De Barros[4]
[1]Universidade do Oeste Paulista (UNOESTE), Hospital Veterinário, Presidente Prudente, Brazil, [2]Universidade do Oeste Paulista (UNOESTE), Post-graduate Program In Animal Science, Presidente Prudente, Brazil, [3]Universidade do Oeste Paulista (UNOESTE), Faculty Of Veterinary Medicine,, Presidente Prudente, Brazil, [4]PUC Campinas, Faculty Of Veterinary Medicine,, Campinas, Brazil

Introduction:

Keratoconjunctivitis sicca (KCS) is a predominantly immune-mediated disease affecting the production and quality of tear film in dogs.

Objectives:

To evaluate the effectiveness of injectable mesenchymal stem cells (MSC) supplemented with or without oral omega 3 (ω-3), in dogs with KCS.

Methods:

Twenty dogs with KCS were observed for 6 months, divided into two groups/10 dogs each: MSC group (injectable MSC/0.3 ml/1x10^6), and MSCO group (injectable MSC/0.3 ml/1x10^6 + ω-3 oral/1 capsule of 500 mg/10 kg/day or 1 capsule of 1000 mg > 10 kg/day), and lubricating eye drops (one drop twice daily). MSC were administered to the upper and lower palpebral conjunctiva as well as the third eyelid gland once a month/maximum three applications. Dogs were evaluated at baseline (M0) and every month for 6 months (M1 to M6) using a slit lamp, the Schirmer Tear Test-1 (TLS-1), and Tear Film Break-up Time (TBUT).

Results:

There was a significant increase ($p < 0.05$) in TLS and TBUT in both groups from M0 to M6, with no statistically significant difference ($p > 0.05$) in TLS between groups, but there was a significant increase ($p < 0.05$) in TRFL in the MSCO compared to the MSC group from M3 to M6.

Conclusions:

It was concluded that both the KCS treatment groups (MSC and MSCO) in dogs showed effectiveness in both quantity and quality tear improvement, however, the MSCO group exhibited greater improvement in tear quality at the end of the study, which showed the importance of oral ω-3 supplementation.

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134 / #722

Topic: *AS22. Ophthalmology*

HOMOLOGOUS PLATELET-RICH PLASMA SUPPLEMENTED WITH OR WITHOUT ORAL OMEGA 3 IN THE TREATMENT OF KERATOCONJUNCTIVITIS SICCA IN DOGS

Silvia Franco Andrade[1], William Villa[2], João Victor Passareli[2], Giovana Estanho[2], Gismelli Angeluci[2], Daniel Vieira[3], Letícia Pando[3], Mariana Zilliani[3], Gisele Nai[2], Cecilia Laposy[2]
[1]Universidade do Oeste Paulista (UNOESTE), Hospital Veterinário, Presidente Prudente, Brazil, [2]Universidade do Oeste Paulista (UNOESTE), Post-graduate Program In Animal Science, Presidente Prudente, Brazil, [3]Universidade do Oeste Paulista (UNOESTE), Faculty Of Veterinary Medicine,, Presidente Prudente, Brazil

Introduction:

Keratoconjunctivitis sicca (KCS) is a chronic inflammatory ophthalmopathy. Platelet-rich plasma (PRP) is rich in bioactive proteins that promote tissue regeneration. Omega 3 (ω-3) is an essential fatty acid with anti-inflammatory properties.

Objectives:

To evaluate whether combining oral ω-3 supplementation with injectable homologous PRP (HPRP) enhances the effectiveness of KCS treatment in dogs.

Methods:

Twenty-two dogs with KCS were observed for 6 months, divided into two groups: HPRP group (n=11 dogs) (0.3 ml injectable) and HPRPO group (n=11 dogs) (HPRP 0.3 ml + oral ω-3/1 capsule 500 mg/10 kg/day or 1 capsule of 1000 mg > 10 kg/day, lubricating eye drops 1 drop twice daily). HPRP was administered on the upper (0.1 ml) and lower palpebral (0.1 ml) conjunctiva and gland of the third eyelid (0.1 ml), 1 application/month, maximum of three applications. Dogs were evaluated at baseline (M0) and monthly for 6 months (M1 to M6) using a slit lamp, Schirmer Tear Test-1 (STT-1), and Tear Film Break-up Time (TBUT).

Results:

There was a significant increase ($p < 0.05$) in STT-1 and TBUT in both the groups from M0 to M6, with no statistically significant difference ($p > 0.05$) in STT-1. However, from M3 to M6, the HPRPO group exhibited a more significant increase ($p < 0.05$) in TBUT compared to the HPRP group.

Conclusions:

In conclusion, both the HPRP and HPRPO treatment groups effectively improved tear quantity and quality in dogs with KCS. However, the HPRPO group was superior in improving tear quality, which shows the importance of oral ω-3 supplementation.

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Topic: *AS22. Ophthalmology*

DIAGNOSIS AND MEDICAL MANAGEMENT OF ANTERIOR SEGMENTAL OCULAR AFFECTIONS IN DOGS

Rambabu Kalaka[1], Rajesh Babu Kunche[2], Sreenu Makkena[3], Sadasiva Rao K[4]
[1]College of Veterinary Science, Sri Venkateswara Veterinary University, Veterinary Clinical Complex, PRODDATUR, India, [2]Animal Husbandry Andhra Pradesh, Ahd, Kakinada, India, [3]NTR College of Veterinary Science,Sri Venkateswara Veterinary University, Veterinary Surgery And Radiology, Gannavaram, India, [4]NTR College of Veterinary Science, Sri Venkateswara Veterinary University, Veterinary Gynaecology And Obstetrics, Gannavaram, India

Introduction:

In India, ophthalmology remains the domain of general veterinary surgeon, the important field remains more or less neglected. Ocular affections are of common occurrence in animal patients and their diagnosis and management throws up a challenge for the veterinarians unless they are adequately equipped with instrumentation and sound knowledge to deal with these affections.

Objectives:

To record the incidence and diagnosis of anterior segmental conditions in dogs.

To adopt appropriate diagnostic and treatment methods.

Methods:

The present study was carried on clinical cases presented to the DSR, DVCC, NTR CVSc, Gannavaram and DVCC, Proddatur, Andhra Pradesh, INDIA related to anterior segmental ocular affections in canines over a period of 13 months from December 2019 to January 2021. Dogs were subjected to clinical and detailed ophthalmic examinations to arrive at confirmatory diagnosis of anterior segmental ocular affections in dogs.

Results:

In Anterior segment 8 cases i.e Purulent Conjunctivitis in a Pomeranian (OU), Allergic Conjunctivitis in a Rottweiler (OU), Corneal Opacity in a Chow-Chow (OU), Chronic Superficial Keratitis/Pannus in a Mongrel Dog (OD), Descemetocele in a German Shepherd Dog (OS), Superficial Corneal Ulcer in a Mongrel Dog (OU), Glaucoma in a Labrador (OS) with bilateral corneal opacity (OU) and Kerato Conjunctivitis Sicca (KCS) in a Shih-Tzu (OD) were recorded and treated by medical management will be discussed.

Conclusions:

The present study our investigation has revealed poor documentation of cases on anterior segment of ocular affections presented at the study area and need for proper case documentation and proper management of anterior segment of ocular affections.

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Topic: *AS22. Ophthalmology*

DIAGNOSIS AND SURGICAL MANAGEMENT OF ANTERIOR SEGMENTAL OCULAR AFFECTIONS IN DOGS

Rambabu Kalaka[1], Rajesh Babu Kunche[2], Sreenu Makkena[3], Sadasiva Rao K[4]
[1]College of Veterinary Science, Sri Venkateswara Veterinary University, Veterinary Clinical Complex, PRODDATUR, India, [2]Animal Husbandry Andhra Pradesh, Ahd, Kakinada, India, [3]NTR College of Veterinary Science,Sri Venkateswara Veterinary University, Veterinary Surgery And Radiology, Gannavaram, India, [4]NTR College of Veterinary Science, Sri Venkateswara Veterinary University, Veterinary Gynaecology And Obstetrics, Gannavaram, India

Introduction:

Studies on the eye and its structures are considered important because of the greater skill and precision ocular interventions demand and also the need to prevent loss of vision.

Objectives:

To record the incidence and diagnosis of cular anterior segmental diseases in dogs.

To adopt appropriate diagnostic and surgical methods.

Methods:

Study was carried on clinical cases presented to the teaching hospitals of Gannavaram and Proddatur, Andhra Pradesh, INDIA related to anterior segmental ocular affections in canines over a period of 13 months. Dogs were subjected to clinical and detailed ophthalmic examinations to arrive at confirmatory diagnosis of anterior segmental ocular affections in dogs, amongst those which were found suitable for surgical correction formed the subject of the study.

Results:

In which 12 cases were diagnosed i.e Proptosis in a Pomeranian, Eyelid Tumor in a Pomeranian, Eyelid Laceration in a Pomeranian, Cherry Eye in a Beagle, Cherry eye in an uncontrollable Rottweiler, Chronic Bilateral Cherry Eye in a Beagle, Cherry Eye in a Rottweiler, Cherry Eye in a Rottweiler, Everted T Cartilage in a Great Dane, Everted T Cartilage in a Labrador, Penetrating Corneal Wound in a Lhasa Apso and Deep Corneal Ulcer in a Pug and specific followup treatment was followed by suitable surgical management will be discussed.

Conclusions:

From the study it could be concluded that an early presentation of the case by early identification of the pets discomfort, enables an ophthalmologist to identify a progressing ocular disease to minimize the diagnostic opportunities by adopting specific ophthalmic diagnostic protocols.

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Topic: *AS22. Ophthalmology*

MULTIDRUG-RESISTANT BACTERIA ISOLATED FROM ULCERATIVE KERATITIS IN DOGS IN TWO VETERINARY TEACHING HOSPITALS IN BRAZIL

Pamella Casemiro[1], Mareliza Menezes[1], Jaqueline Da Silva[1], Mayara Paglione[1], Romário Rodrigues[2], Alexandre De Andrade[3], Marita Cardozo[4], Paola Moraes[1]
[1]School of Agrarian and Veterinary Sciences, São Paulo State University, Departament Of Veterinary Clinic And Surgery, Jaboticabal-SP, Brazil, [2]School of Agrarian and Veterinary Sciences, São Paulo State University, Department Of Pathology, Reproduction And One Health, Jaboticabal, Brazil, [3]School of Veterinary Medicine, São Paulo State University, Department Of Clinic, Surgery And Animal Reproduction, Araçatuba, Brazil, [4]Minas Gerais State University, Department Of Biomedical And Health Sciences, Passos, Brazil

Introduction:

Ulcerative keratitis is a painful clinical condition that could progress to loss of vision or loss of the eye. This disease is commonly associated with a bacterial infection. Immediate and accurate treatment is necessary. Understanding the patterns of antimicrobial resistance is essential to achieve a successful treatment.

Objectives:

To determine the incidence and antimicrobial resistance rates in bacteria isolated from ulcerative keratitis in dogs treated in two veterinary teaching hospitals in the southeast of Brazil.

Methods:

Eighty-three conjunctival swabs were collected prospectively from 83 dogs diagnosed with ulcerative keratitis. Seventy-two isolates were obtained from 66 dogs. Swabs were processed by standard bacterial isolation on BHI, identification by MALDI-TOF, and antimicrobial susceptibility testing by disk diffusion.

Results:

Staphylococcus spp. (n=21), *Pseudomonas aeruginosa* (n=12), and Enterobacterales (n=16) were the most common species isolated in both hospitals (Figure 1). *Staphyloccocus* spp. (Figure 2) were mostly resistant to penicillin (98.48%), trimethoprim-sulfamethoxazole (61.90%), and tetracycline (57.14%); *Pseudomonas aeruginosa* to fluoroquinolones and imipenem (11.11%); and the Enterobacterales (Figure 3) to amoxicillin and ampicillin (68.75%). Multidrug resistance (MDR) was observed in 22.22 % (16/72) of the isolates.

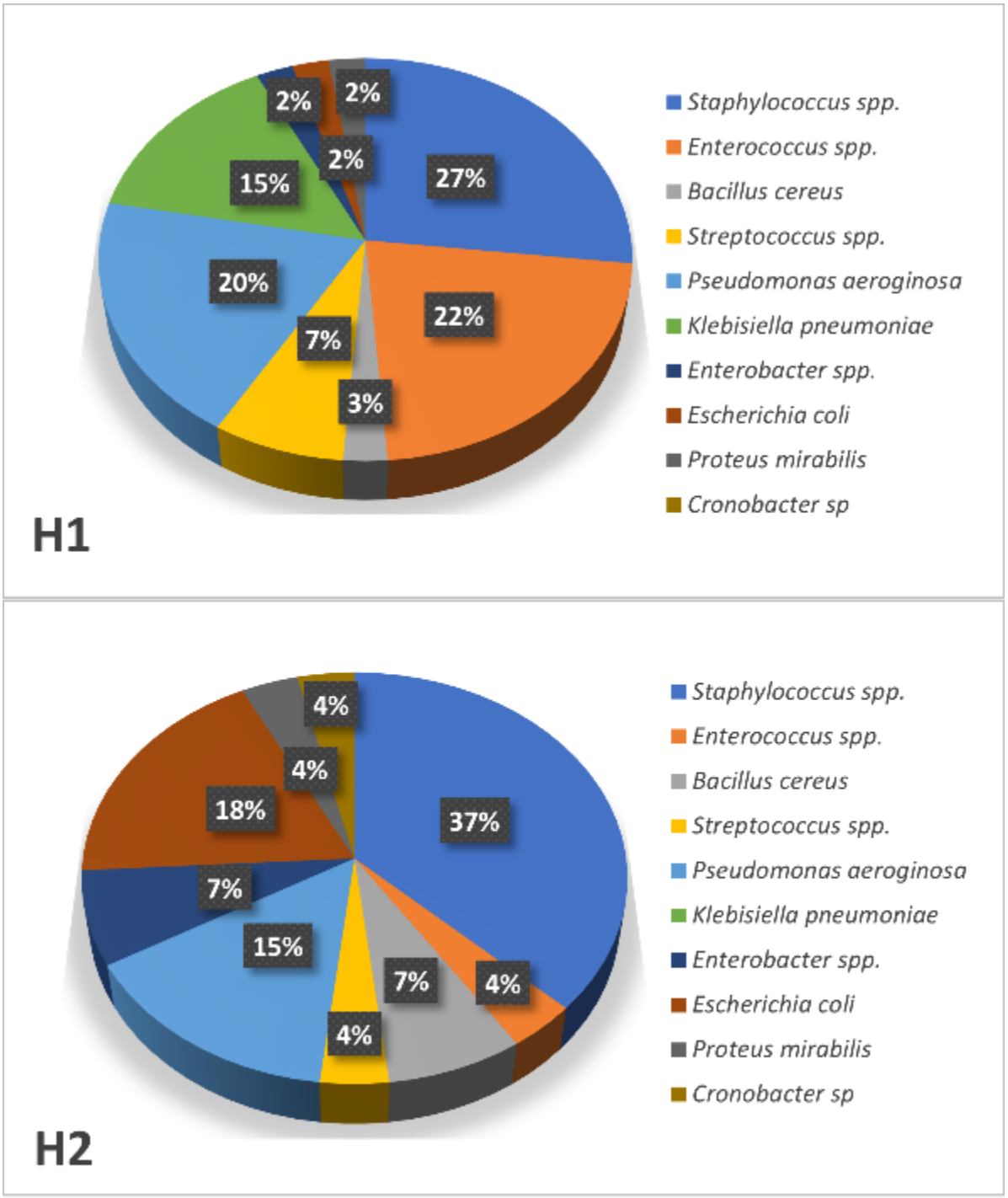

Figure 1. Percentage distribution of bacterial species isolated from ulcerative keratitis in dogs in two veterinary hospitals in São Paulo State, Brazil.

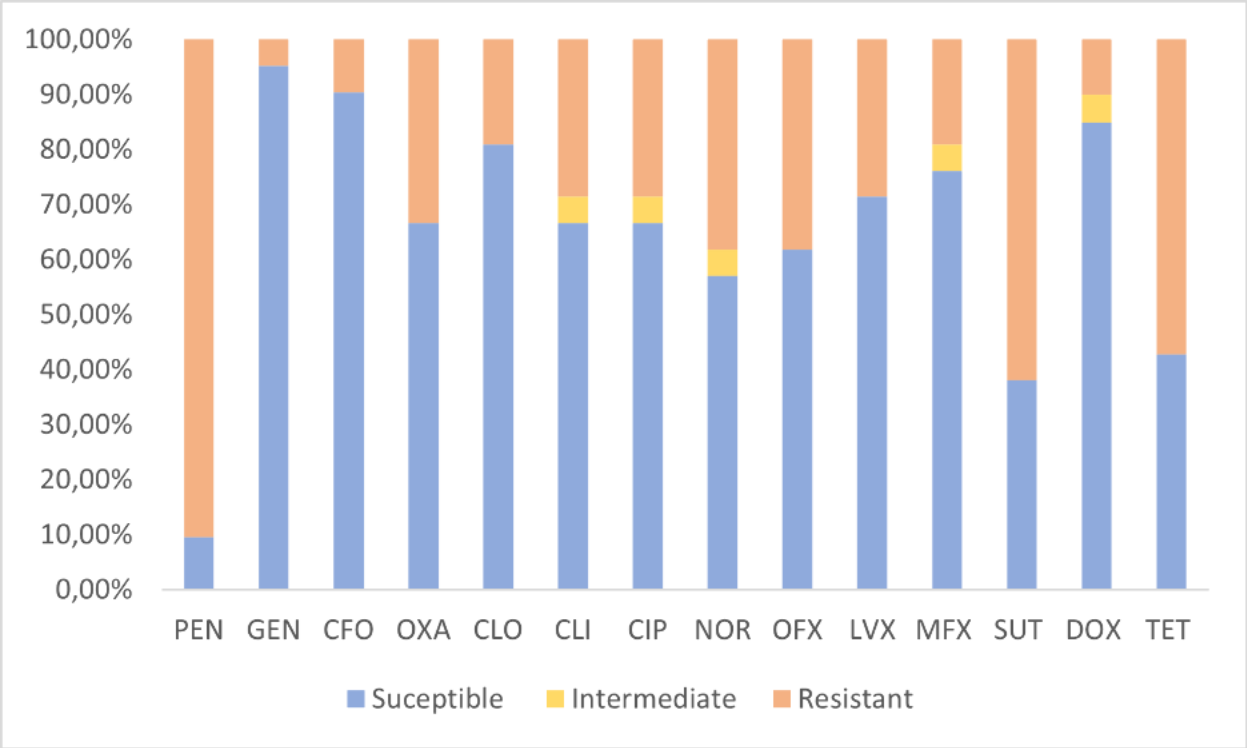

Figure 2. Percentage distribution of antimicrobial susceptibility in *Staphylococcus* spp. isolated from ulcerative keratitis in dogs in two veterinary hospitals in São Paulo State, Brazil.

Legend: PEN: penicillin; GEN: gentamicin; CFO: cefoxitin; OXA: oxacillin; CLO: chloramphenicol; CLI: clindamycin; CIP: ciprofloxacin; NOR: norfloxacin; OFX: ofloxacin; LVX: levofloxacin; MFX: moxifloxacin; SUT: trimethoprim-sulfamethoxazole; DOX: doxycycline; TET: tetracycline.

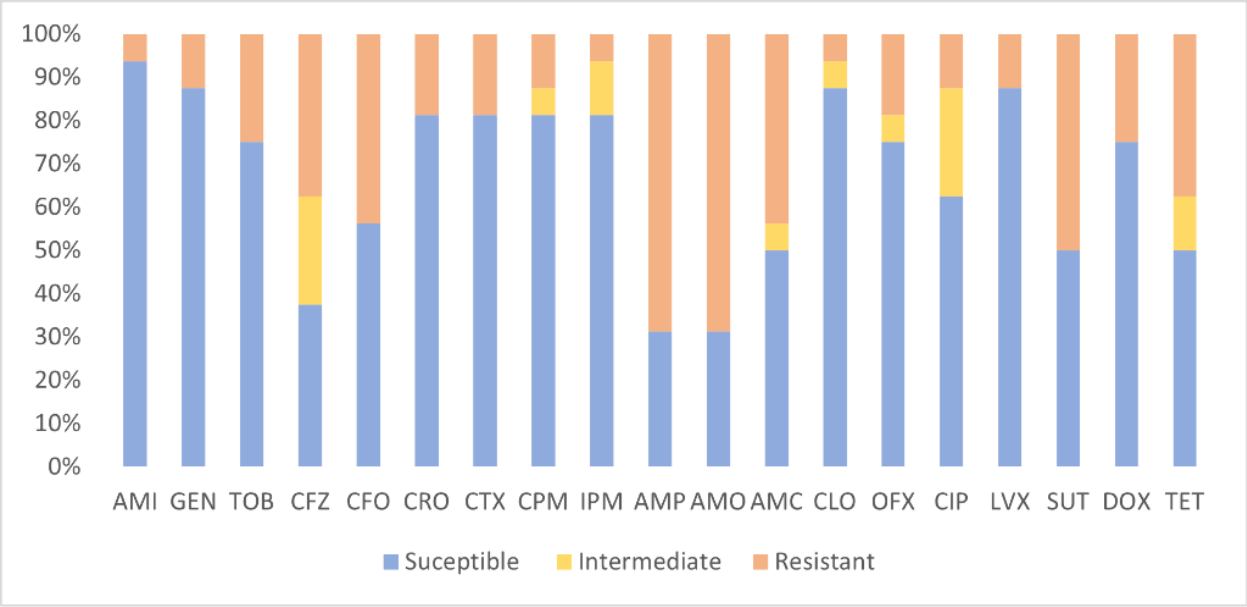

Figure 3. Percentage distribution of antimicrobial susceptibility in Enterobacterales isolated from ulcerative keratitis in dogs in two veterinary hospitals in São Paulo State, Brazil.

Legend: AMI: amikacin; GEN: gentamicin; TOB; tobramycin; CFZ: cefazolin; CFO: cefoxitin; CRO: ceftriaxone; CTX: cefotaxime; CPM: cefepime; IPM: imipenem; AMP: ampicillin; AMO: amoxicillin; AMC: amoxicillin with potassium clavulanate; CLO: chloramphenicol; CIP: ciprofloxacin; OFX: ofloxacin; LVX: levofloxacin; SUT: trimethoprim-sulfamethoxazole; DOX: doxycycline; TET: tetracycline.

Conclusions:

Staphylococcus spp. and *Pseudomonas aeruginosa* were the most common bacteria associated with ulcerative keratitis in this study. The antimicrobial resistance and MDR rate were considerably high, especially for antimicrobials commonly used in general clinical care. Regarding the antimicrobials used in topical ophthalmic formulation, the resistance rate was lower. Continuous surveillance and application of antimicrobial stewardship programs are essential to minimize the dissemination of resistant bacteria.

Acknowledgments: Grant#2019/20585-0, São Paulo Research Foundation (FAPESP).

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138 / #179

Topic: *AS23. Orthopedics*

DIAGNOSIS AND TREATMENT OF A CAT WITH POLYTRAUMA AND TRANSECTED URETHRA BY A FEMORAL FRACTURE. CASE REPORT

Astilean Andreea Niculina[1], Lucia Bel[2], Ana Costin[2], Felix Lucaci[3], Liviu Oana[2]
[1]Faculty of Veterinary Medicine, University of Agricultural Science and Veterinary Medicine, 400372 Cluj-Napoca, Romania, Department Of Surgery, Anesthesiology And Intensive Care, Cluj Napoca, Romania, [2]Faculty of Veterinary Medicine, University of Agricultural Science and Veterinary Medicine, Department Of Surgery, Anesthesiology And Intensive Care, Cluj Napoca, Romania, [3]Faculty of Veterinary Medicine, University of Agricultural Science and Veterinary Medicine, Department Of Radiology And Imaging, Cluj Napoca, Romania

Introduction:

Polytrauma is an emergency condition and is frequently associated with presence of significant injuries in multiple body regions. Some femoral fractures can create damage on other organs compromising the patient's physiology.

Objectives:

This paper highlights the pre- and intraoperative management of a severe polytrauma in a cat with the fracture of the femur causing the transection of the pelvic urethra.

Methods:

A 6-month-old domestic shorthair intact male cat was presented with polytrauma injuries after hit by a car. Clinical examination revealed severe swelling on a left inguinal region, severe lameness on the left hindlimb, crepitation and pain at thigh palpation. Abdominal and thoracic-focused assessment with sonography in trauma reveled peritoneal effusion. The radiographic examination showed a short oblique fracture in the left femur with medio-proximal displacement and eventration of the urinary bladder at the inguinal region. Positive retrograde urethrocystogram and descending pyelography was performed and the leakage of the contrast material in the pelvic tissues was confirmed. Primary repair of the intrapelvic urethra, indwelling urinary catheter for 2 weeks, cystostomy and femur elastic plate osteosynthesis with 2 mm LC-DCP were performed.

Results:

Transection of the intrapelvic urethra, uroabdomen, eventration of the urinary bladder, and fracture of the femur were diagnosed. A good long-term outcome was noticed after primary repair of the urethra and elastic plate osteosynthesis of the femur according to owner statement.

Conclusions:

This paper describe a successful outcome of a complex polytrauma in a cat, with transected pelvic urethra by a femoral diaphyseal fracture.

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Topic: *AS23. Orthopedics*

PRELIMINARY USE OF CANINE ADIPOSE-DERIVED ALLOGENIC MESENCHYMAL STEM CELLS SEED ON A B-TRICALCIUM PHOSPHATE SCAFFOLD AS TREATMENT FOR A TARSAL ARTHRODESIS NON-UNION

Marta Montolío Torrell, Jordi Franch, David Herrera
Veterinary school of Barcelona, Surgery Dept., Bellaterra, Spain

Introduction:

Mesenchymal stem cells (MSC) are multipotent adult cells that can self-renew and differentiate into multiple tissues, including bone. Beta-Tricalcium phosphate (β-TCP) is an excellent scaffold material due to its osteoconductive properties.

Objectives:

The objective of this study was to prove the efficacy of a β-TCP scaffold seeded with allogenic MSCs applied in a tarsal non-union.

Methods:

The adipose-derived canine MSCs were thawed out, centrifugated, and the freezing media was discarded. A fresh media was applied, and the cells were seeded for their expansion and incubation. Cellular confluency was assessed every day until obtaining a 90% of confluency. Cells were resuspended and a prefixed amount was applied slowly on the scaffold's surface. Seeded scaffolds were incubated and 48hs later were washed with PBS and conserved in a sterile Eppendorf tube until the surgery. The plated tarsal arthrodesis was performed previously on the medial side so the bioactive scaffolds were applied laterally in the non-union area after curettage of the bone ends.

Results:

The use of thawed mesenchymal stem cells showed a huge capacity for expansion and proliferation and the seeding procedure on a β-TCP scaffold was completely successful. A complete healing of the non-union was observed radiographically with no inflammatory signs related to the allogeneic nature of the transferred cells.

Conclusions:

Allogeneic MSCs seeded on β-TCP scaffolds showed excellent results and although further research must be performed in this field, they could be considered as an innovative and effective treatment for critical bone defects and non-unions.

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Topic: *AS23. Orthopedics*

EVALUATION OF OSSEOINTEGRATION AND BONE HEALING USING PURE-PHASE B-TCP CERAMIC IMPLANT IN BONE CRITICAL DEFECTS. A SYSTEMATIC REVIEW.

Daniel Garcia[1,2], Larissa Mingrone[2], Marcelo De Sá[1]
[1]Federal University of Campina Grande (UFCG), Surgery, Patos - Paraíba, Brazil, [2]Animal Care Barueri Clínica Veterinária, Surgery, Barueri - São Paulo, Brazil

Introduction:

The gold standard for osseointegration remains autogenous bone graft, but biomaterials such as β-TCP in its pure-phase showed promising results to be practical bone substitutes due to their osseoconductive, biocompatibility, bioactivity, and absorptive properties.

Objectives:

Carry out a systematic review to evaluate features related to osseointegration when using the pure-phase β-TCP in critical bone defects.

Methods:

A systematic review was conducted using Cochrane Library, PubMed, Scielo, Medline-Bireme and Google Scholar databases for searching published studies between January 1st 2011 and June 15th 2021. Only clinical and experimental studies, and case reports were included in this research. Human and animal studies published only in Portuguese or English with clinical, radiologic, and histologic evidence of new bone formation, osseoconduction and osseointegration were included. This systematic review was reported according to PRISMA guidelines.

Results:

Approximately 14.500 articles were initially found. After advanced searching, a total of 11 articles were included. There are experimental works, retrospective study, randomized controlled clinical study, randomized prospective study, prospective observational study, and case report. Effectiveness in bone integration was observed in 100% of included articles by clinical, radiological and/or histologic assessment. Implant shape and porosity seem to have influence in osseointegration process. New bone formation and low infection rates are related β-TCP use.

Conclusions:

β-TCP is widely used in dentistry and there is a lack of information about its use for filling critical bone segmental defects in veterinary medicine. Published papers are only related to small defects and experimental studies, with no clinical cases performed in animals with a longer observation time.

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141 / #865

Topic: *AS23. Orthopedics*

HEMIMANDIBULECTOMY IN A SEVERE CASE OF OSTEONECROSIS OF THE JAW IN A CANINE PATIENT

Jon Moral Angulo[1], Juan José Fuertes González[1], Juan José Esteban Jiménez[1], Ana Whyte Orozco[1], Ana González Inglán[1], Enrique Castells Pérez[2], Fidel Sanromán-Llorens[1,2]
[1]Hospital Veterinario de la Universidad de Zaragoza, Medicina Y Cirugía Animal, Zaragoza, Spain, [2]Centro Clínico Veterinario de Zaragoza, Cirugía, Zaragoza, Spain

Introduction:

Osteonecrosis of the jaw (ONJ) is a clinical term that refers to chronically exposed mandibular or maxillar bone. Although it has been more widely described in human medicine, it has been only anecdotally reported in dogs. Its etiopahology remains unclear, but there are identified inciting or risk factors reported in humans such as the administration of certain systemic medications, osteomyelitis due to odontogenic infection, oral surgery, and radiation therapy to the head and neck. ONJ can have devastating clinical consequences, and aggresive medical and surgical intervention is often warranted.

Objectives:

To report a clinical case of chronic and severe ONJ in a canine patient.

Methods:

A three year old labrador retriever female dog presented with a two month history of fever, ptyalism, oral bleeding, halitosis and progressive anorexia. After general examination, preop x-rays and a CT scan were performed, revealing massive affection of the mandibular body and ramus, with large areas of periosteal proliferation, cortical disruption and destructive osteolysis. Surgical debridement and medical therapy was unsuccessful in this patient. Due to progressive deterioration of the patient total hemimandibulectomy was considered and performed.

Results:

Hemimandibulectomy resulted in complete recovery of this patient. One month after the surgery the dog was asymptomatic and doing normal life.

Conclusions:

Early diagnosis and treatment are essential for succesful management of this disease. Although less severe cases are generally treated with focal surgical debridement and oral antibiotics, in more advanced and severe cases aggresive procedures as maxillectomies and mandibulectomies can be necessaries to avoid progressive deterioration of the patient.

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Topic: *AS23. Orthopedics*

INVERTED SUBUNGUAL PAPILLOMA AS A CAUSE OF CHRONIC LAMENESS IN A DOG - CASE REPORT

Ana Ribeiro[1,2], Martinho Capelão[3], Cristina Oliveira[2]
[1]Universidade de Trás-os-Montes e Alto Douro, Phd Student, Vila Real, Portugal, [2]AniCura Restelo Centro Veterinário, Rehabilitation And Sports Medicine, Lisbon, Portugal, [3]AniCura Restelo Hospital Veterinário, Ortopedic Surgery, Lisbon, Portugal

Introduction:

Nala, a 2-year-old, spayed, female *Australian Shepherd* dog presented to our canine rehabilitation center, for a second opinion after left hindlimb lameness of one year duration. After orthopedic examination, no alterations were found on left hindlimb joints, the only abnormality found was a small endophytic mass, that was present on the ventral aspect of the distal third digit and nail, which was painful at palpation . To ensure no other mild changes were present, orthpedic consulta and computed tomography (CT scan) were suggested.

Objectives:

CT scan showed no evidence that would justify the clinical signs.

Methods:

For further diagnostic purposes, antibiotics and anti-inflammatory treatment was suggested for 3 weeks in a row, no positive evolution was obtained, digital pain and lameness persisted. Intradigital infiltration was then performed, with bupivacaine (2,5 mg/ml) to confirm that the source of pain and lameness was indeed for the mass on the ventral aspect of the distal third digit and nail. 30 minutes after anesthetic intradigital administration, no lameness was observed. Amputation was suggested to the owners.

Results:

After amputation Nala, hasn’t experienced lameness again. No other papilloma lesions were observed.

Conclusions:

Inverted subungual papillomas, are a rare condition in a dog, but when in site can be quite painfull. In this particular case the amputation was the best treatment option, even as dramatic as it can sound to the owner, it was the only way to resolve Nala's chronic lameness.

143 / #725

Topic: *AS23. Orthopedics*

APPLICATION OF PATELLAR GROOVE REPLACEMENT USING PATIENT-SPECIFIC SAW GUIDE FOR PATELLAR LUXATION WITH SEVERE STIFLE JOINT OSTEOARTHRITIS

Myungryul Yang, Ingoo Kwak, Sungbin Park, Namsoo Kim
Jeonbuk national university, Department Of Surgery, Iksan, Korea, Republic of

Introduction:

Patellar groove replacement (PGR) has been suggested as a probable treatment for severe femoro-patellar osteoarthritis (OA). Also, moderate limb deformities (femoral varus-valgus, tibial torsion) can be compensated with PGR. The surgeon's experience is crucial to decrease intraoperative complications. Patient-specific guides have gained importance in veterinary medicine due to precise surgical procedures.

Objectives:

To confirm the accuracy of the PGR procedure using a patient-specific saw guide (PSSG) in a dog with medial patellar luxation (MPL), severe stifle joint OA, and minor femoral varus deformity.

Methods:

The patient presented with persistent non-weight-bearing lameness of the left hindlimb. On clinical examination, grade 4 MPL accompanied by joint thickening was observed. Radiography and CT scan revealed left stifle joint. PSSG was designed to achieve three main goals; to obtain rigid contact with the bone, to precisely cut the degenerated femoral trochlea, and to direct the position of the PGR implant to compensate for femoral varus deformity. A surgical simulation was performed preoperatively with a 3D-printed bone model.

Results:

PGR procedure with PSSG was performed without intraoperative complications. Postoperative orthogonal radiography confirmed the osteotomy line, and the angle of implant positioning was made as planned. Short-term (3 months), mid-term (6 months), and long-term (9 months) gait assessments revealed a gradual improvement to a normal gait with a lameness score of 2 (short-term), 1(mid-term), and 0(long-term).

Conclusions:

PGR procedure using the patient-specific saw guide was effective when creating a precise saw line and guiding accurate implant positioning for femoral varus compensation with excellent long-term outcomes.

144 / #738

Topic: *AS24. Other*

PHYLOGENETIC STUDY OF DIPYLIDIUM CANINUM ISOLATED FROM CATS (FELIS DOMESTICA) AND DOGS (CANIS FAMILIARIS) INTESTINE.

Musafer Al-Ardi
ministry of education, Qadisiyah General Director Of Education, Hamza, Iraq

Introduction:

Knowing the parasites' genotypes and establishing their phylogenetic tree help to define their route of evolution and determine their origin. On the other hand, understanding the variation in genome sequences aids in the development of techniques for identifying diseases and selecting the best and most efficient treatments.

Objectives:

This study used worms isolated from cats and dogs intestines to genotyping and draw phylogenetic tree of *Dipylidium caninum*.

Methods:

This study approach involved isolating worms directly from the intestines of dogs and cats, and confirming infection through molecular diagnosis using primers designed by the author. Genotyping using primers for the rRNA gene (encodes to 28s rRNA) revealed sequences of DNA products that were deposited in the GenBank. Finally, these sequences were aligned with previous sequences deposited in the GenBank, and gene sequences in cats were compared with their counterparts in dogs.

Results:

Three sequences (OQ987885 to OQ987887) isolated from dogs and another (OQ987888 to OQ987890) isolated from cats have been deposited in the Gen Bank. Phylogenetic tree comparing these sequences and showing the genetic distance between them. Sequences deposited from this study recorded high alignment with (MG587892.1) and (OK523385.1) sequences dating back to *D. caninum*.

Conclusions:

The host species influences the species and ability of the parasite that will infect it, and possibly the genotypes as well. Canine fleas can infect dogs and cats, while feline fleas can infect cat only. so the parasite must adapt to continue living, and one of the ways to adapt is heterogeneity of genotypes.

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Topic: *AS24. Other*

CELLULAR VIABILITY AND EXPRESSION OF CANINE ADIPOSE-DERIVED MESENCHYMAL STEM CELLS AFTER THREE YEARS STORED AT -80ºC

Marta Montolío Torrell, Jordi Franch, David Herrera
Veterinary school of Barcelona, Surgery Dept., Bellaterra, Spain

Introduction:

Canine Mesenchymal Stem cells are an alternative treatment in veterinary orthopedics. Freezing is the gold standard for conserving cells but this process must follow a freezing protocol including cryoprotective agents.

Objectives:

Our aim in this report is to prove that cMSCs that have been frozen for more than three years maintain the capacity of proliferating and conserve their identity as cMSCs.

Methods:

cMSCs stored at -80ºC in the Cell Bank, were thawed and transferred to incubating flasks. The confluency of cells was assessed every two days and the media was changed, unless flasks had arrived at confluency that they were reseeded. They were observed to confirm their proliferation. On the fourth day, a sample of cells was taken to perform a cytometry. Cells were resuspended at 10^6 cells/ml into PBS to perform cytometry for CD45, CD90, and MHCII.

Results:

Thawed cMSCs showed good proliferation rates, reaching confluency on the 3th and 4th days. These cells resulted in a negative for CD45 and MHCII, and positive for CD90 which confirmed they maintain cMSCs properties.

Conclusions:

A standardized protocol was followed optimizing the thawing time and getting cells ready to use in only 4 days. Moreover, cMSCs can survive and proliferate after more than three years frozen at -80ºC with cell cryogenic media maintaining their properties as Stem Cells. However, further research must be performed to prove their limitations in being long-time frozen cells.

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146 / #857

Topic: *AS24. Other*

TACKLING CANINE OBESITY USING AN ELECTRONIC HEALTH DATA APPROACH – UNCOVERING OVERWEITGHT CANINE PATIENTS AND UNDERSTANDING OVERWEIGHT STATUS RECORDING DESCRIBED IN VETERINARY CLINICAL NARRATIVES

Ivo Salgueiro Fins[1], Alan Radford[1], Alexander German[2], Peter-John Noble[1]
[1]University of Liverpool, Small Animal Veterinary Surveillance Network (savsnet), Leahurst Campus, United Kingdom, [2]University of Liverpool, Institute Of Life Course And Medical Sciences, Liverpool, United Kingdom

Introduction:

The Small Animal Veterinary Surveillance Network (SAVSNET) collects large volumes of electronic health records (EHRs) from a sentinel network of UK veterinary practices. Obesity is a common medical condition in dogs with significant impact on health and welfare. Frustratingly, veterinary EHRs remain an unexploited resource for investigating canine obesity, particularly when relevant clinical information is in unstructured text, such as in clinical narratives.

Objectives:

We developed a regular expression-based tool (RegexT) to extract information around the overweight status of dogs from EHRs stored in the SAVSNET database, based on Body Condition Score (BCS) assessments and words/word-pairs.

Methods:

To develop RegexT we used a *word2vec* model trained on veterinary narratives to identify words/word-pairs used to describe obesity. After analysis, we subdivided the words/word-pairs related to *'overweight*' and '*obese*', containing the common misspellings, acronyms, and qualifiers into two main categories: textual descriptors, and numeric scales for BCS. RegexT went through iterations of optimisation and was then used to screen SAVSNET database. 95% CIs were calculated by modified-Wald method.

Results:

In a sample dataset (n=4,415), RegexT Precision was 100% (95% CI 94.81–100%), Recall was 76.58% (95% CI 67.84–83.53%), F1 score was 0.87. RegexT retrieved 305,037 EHRs of overweight patients. 83.95% EHRs were from overweight patients recorded using a BCS 9-point scale, 14.27% using a BCS 5-point scale, and 1.78% of EHRs only presented a textual descriptor (no BCS information).

Conclusions:

Developing tools to extract clinical information from veterinary EHRs is vital to phenotype canine patients for monitoring canine obesity trends.

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147 / #673

Topic: *AS24. Other*

FREQUENCY OF MDR1 GENE MUTATIONS IN SMOOTH COLLIES IN THE CZECH REPUBLIC

Tereza Blatakova, Eva Voslarova, Vladimir Vecerek
University of Veterinary Sciences Brno, Department Of Animal Protection And Welfare And Veterinary Public Health, Brno, Czech Republic

Introduction:

A mutation of the MDR1 gene in dogs is characterized by hypersensitivity to certain classes of drugs and can lead to potentially fatal neurotoxicity.

Objectives:

To evaluate the frequency of occurrence of the MDR1 gene mutation in Smooth Collies in the Czech Republic.

Methods:

Data on dogs (sex, colour) and their MDR1 status were obtained from the online database www.smooth-collie.net. Only dogs registered in the Czech Stud Book between 2012-2021 were included in the analysis. The Chi-Square test was used to examine the differences between categorical variables. The Spearman correlation coefficient was used to assess trends.

Results:

Out of 1,384 dogs registered in the Czech Stud Book in the monitored period, MDR1 status was recorded for 698 (50.4%) dogs in the online database. Among them, 136 were negative (N/N), 270 were affected (N/P) and 292 were positive (P/P). While the proportion of dogs tested every year (out of the number of dogs registered in the Stud Book) has not changed over the monitored period, the number healthy dogs significantly increased whereas the number of positive-tested dogs decreased during the monitored period. The effect of sex was not found. However, the effect of colour was found as more affected than negative-tested dogs were found in sable and especially blue-merle dogs.

Conclusions:

The results show that a mutation of the MDR1 gene is present in a considerable number of dogs in the Czech Republic. Testing is highly recommended, especially in sable and blue-merle dogs.

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148 / #714

Topic: *AS26. Pharmacology*

A FIELD STUDY ASSESSING THE EFFICACY OF BRAVECTO CHEWABLE TABLETS IN REDUCING THE RISK OF INFECTION WITH DIPYLIDIUM CANINUM BY FLEAS IN DOGS

Rafael Chiummo[1], João Pedro Araújo[2], Eva Zschiesche[1], Ani Vodica[3], Dhimitër Rapti[4], Rezart Postoli[4], Balázs Capári[5]
[1]MSD Animal Health, Clinical Research, Schwabenheim, Germany, [2]Hospital Veterinário do Bom Jesus, Clínica, Braga, Portugal, [3]Food Safety and Veterinary Institute, Veterinary Medicine, Tirana, Albania, [4]Agricultural University of Tirana, Faculty Of Veterinary Medicine, Tirana, Albania, [5]Kapriol Bt., Veterinary Medicine, Sümeg, Hungary

Introduction:

Under laboratory conditions, BRAVECTO 12-week chewable tablets for dogs ("BRAVECTO", active substance: fluralaner) reduces the risk of infection with *Dipylidium* (*D.*) *caninum* for up to 12 weeks by killing the vector prior to pathogen transmission.

Objectives:

Investigation of the efficacy of BRAVECTO in reducing the risk of infection with *D. caninum* transmission to privately-owned dogs in Europe under field conditions.

Methods:

On Day -9 of this GCP-compliant, multi-centered, randomized and examiner-masked trial, dogs had their flea number counted and received a cestocide. Between Day -5 and -2, fecal samples were collected and entirely checked for *D.caninum* proglottids. Each sample was inspected unaided and with a stereomicroscope, and three subsamples were examined using the flotation method.

A household was included in the study only if at least one dog had ≥4 fleas and all animals were *D.caninum*-free.

On Day 0, dogs were assigned to the Bravecto-treated (25-56 mg fluralaner/kg BW) group or left untreated.

On Days 42±4 and 84±4, fecal samples were collected for three consecutive days and analyzed for proglottids. Efficacy compared the incidence rate between the groups.

Results:

The *D.caninum* infection incidence was 0% in the Bravecto-treated group (0/139), while it was 6.15% in the untreated group (8/130). The difference was statistically significant (p=0.0027), demonstrating a 100% reduction in the risk of *D. caninum* infection.

Conclusions:

The administration of Bravecto chewable tablets to dogs at the recommended dose resulted in a 100% reduction of the risk of infection with *Dipylidium caninum* for up to 12 weeks in privately-owned dogs under European field conditions.

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149 / #772

Topic: *AS28. Professional wellness/wellbeing*

INTRODUCING SUSTAINABILITY IN VETERINARY PRACTICES AND MEASURING THE IMPACT ON RETENTION AND MOTIVATION WITHIN THE TEAM

Robert Culen[1], Sofia Louro[2]
[1]independent vet care evidensia, Small, yaxley, United Kingdom, [2]independent vet care evidensia, Small, st neots, United Kingdom

Introduction:

The idea of raising environmental consciousness within the veterinary industry has led us to the belief that by implementing well-managed internal change, such as a reduction in medical waste, and increased environmentally friendly activities, we can trigger improved staff retention and well-being.

Objectives:

To determine the impact of using sustainability initiatives to improve motivation and increase staff retention and well-being.

Methods:

The data was collected via an online questionnaire of veterinary employees and employers investigating factors contributing to introducing sustainability initiatives. The questionnaire was distributed via a specialist veterinary associations' email from September 2022 to May 2023. The case study includes 51 full-time or equivalent veterinary surgeons. The study group consists of 6 veterinary practices from the United Kingdom that are already introducing sustainability initiatives within their practice environment. The results of the questionnaires were used alongside analysing KPI.

Results:

The retention in all practices in the trial is over 90% on average within a 3-to-6-month time period compared to the results of the Veterinary Practice Survey Report 2021–22, where 60% of respondents indicated that their practice was experiencing staff shortages

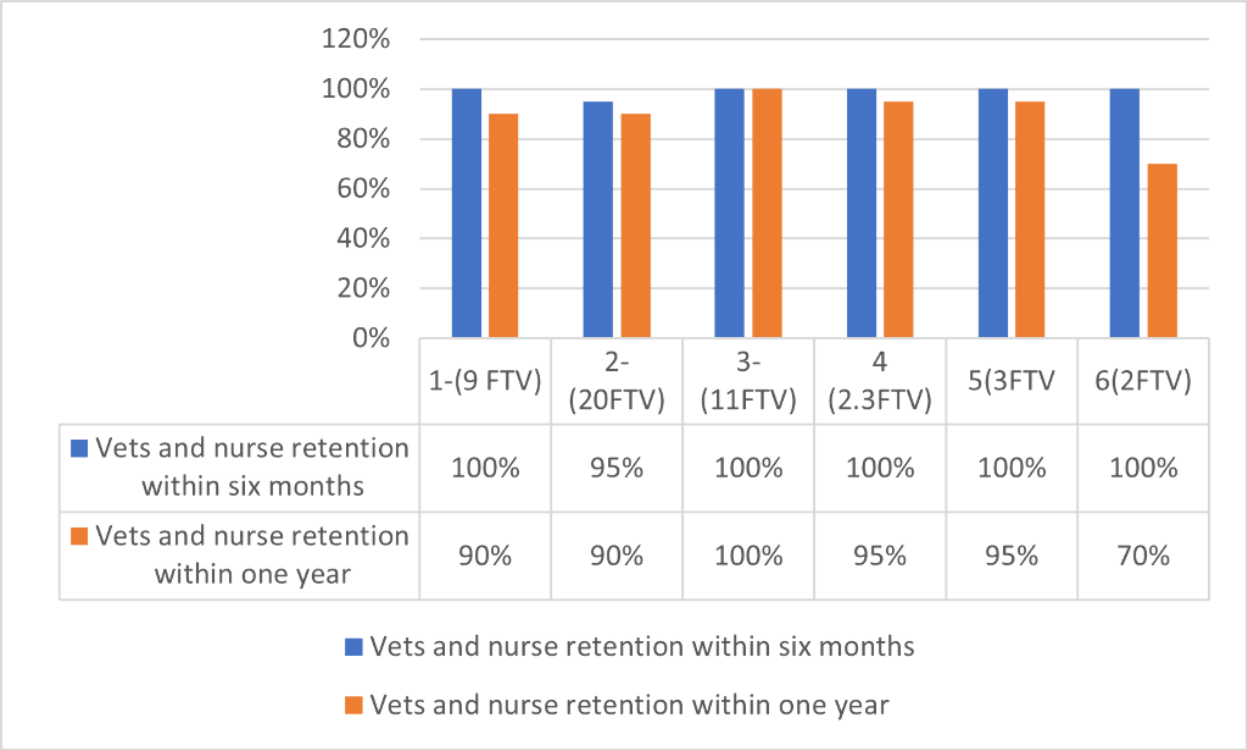


Figure 1. Veterinary staff retention on six practices in UK

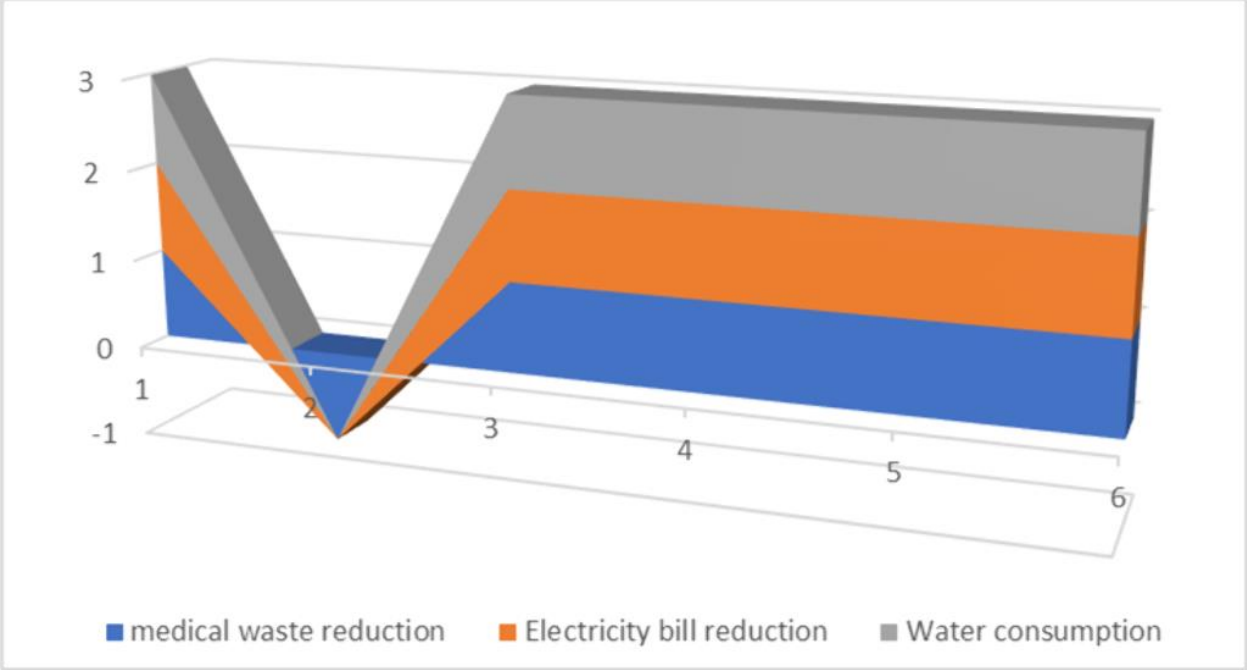


Figure 2. Change in medical waste, electricity and water consumption

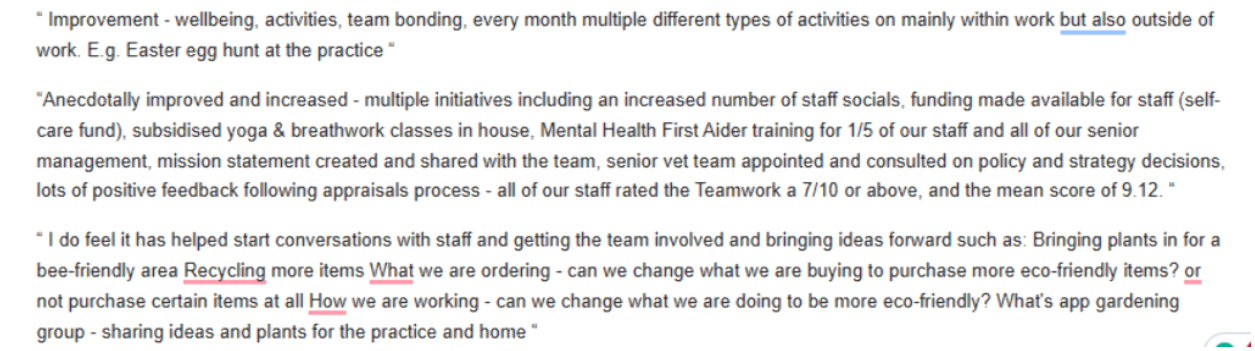


Figure 3. Citations from results :

Conclusions:

Veterinary employers should consider the inclusion of a green or sustainability agenda in their day-to-day portfolio, which could facilitate a better work-life balance, in order to retain veterinary employees successfully.

150 / #767

Topic: *AS29. Reproduction, pediatrics*

OPIOID VS NON-OPIOID ANESTHETIC PROTOCOL FOR C-SECTION AND EFFECTS ON THE BITCH AND VITALITY OF THE NEWBORN PUPPIES

Klara Klašterka, Nino Mačešić, Tugomir Karadjole, Juraj Šavorić, Silvijo Vince, Ivan Folnožić, Goran Bačić, Ivan Butković
Veterinary Faculty University of Zagreb, Department Of Obstetrics And Reproduction, Zagreb, Croatia

Introduction:

The ideal anesthetic protocol for the pregnant animal does not exist. Last two decades opioids have been excessively used because of their safety for critical and unstable patients. Side effects of the opioids are respiratory depression, ileus and addiction (even in animals). Opioid free anesthesia is a form of multimodal analgesia which provides a good quality anesthesia without needing opioids. The use of medetomidine in the premedication provides an adequate sedation, analgesia, myorelaxation while not causing cardiovascular depression nor a bad APGAR score and puppy vitality.

Objectives:

To determine how opioid and non-opioid anesthesia effects the APGAR score and vitality of the puppies and the bitch.

Methods:

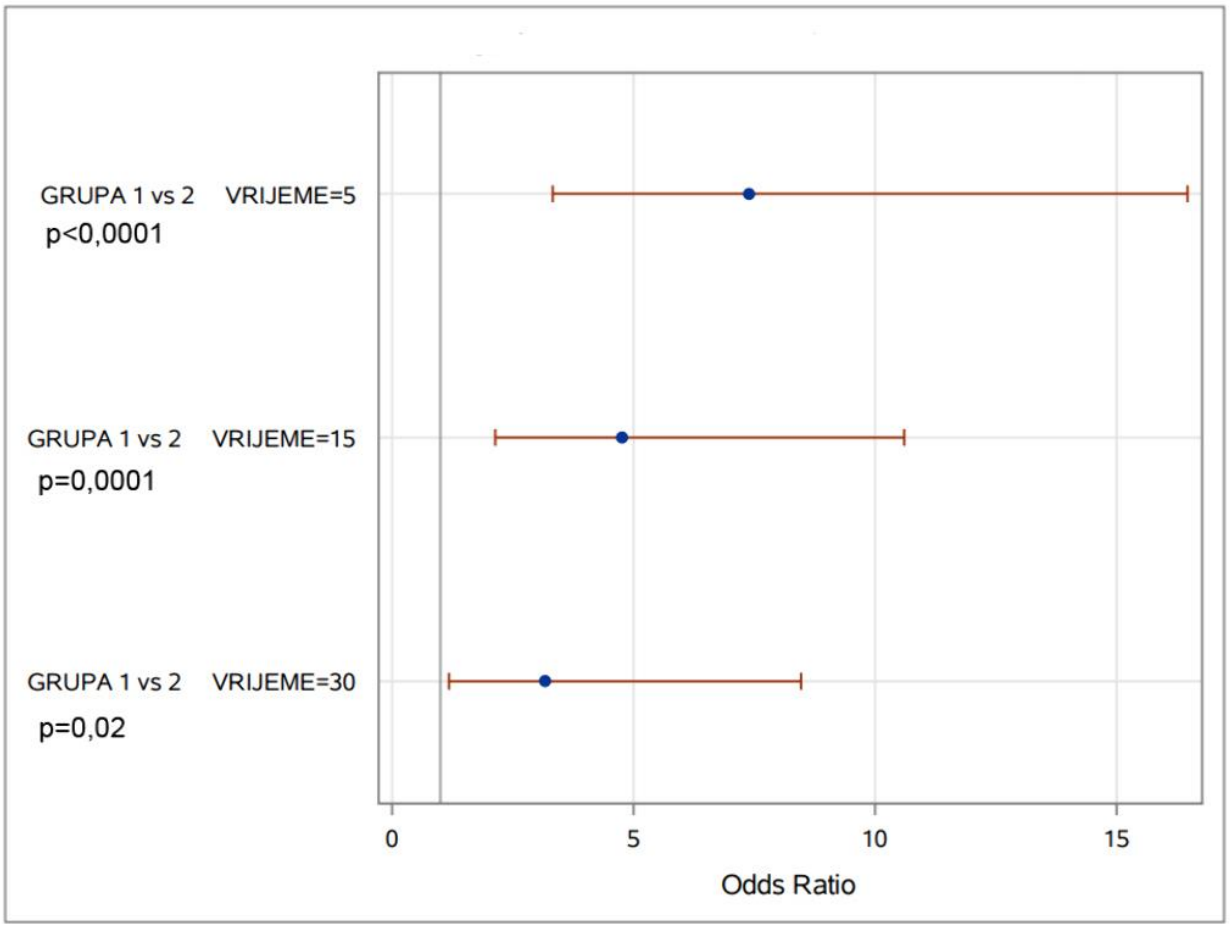
In this retrospective study, 26 bitches were included and divided into two groups. Group 1 was premedicated with atropine and fentanyl followed by induction with a propofol. Anesthesia was maintained with isoflurane after the puppies were extracted from the uterus. Group 2 was premedicated with medetomidine. The rest of the protocol was the same as in group 1. APGAR score and neurological reflex expression was determined 5 ,15 and 30 minutes after the birth.

Results:

Puppies from the group 2 had a better chance for individual APGAR score and neurological reflex expression 5 and 15 minutes after the birth. After 30 minutes there was no difference between the groups.

Conclusions:

Fentanyl was associated with a lower total and individual APGAR score and neurological reflexes expression in comparison to medetomidine. Patients that received fentanyl had higher intraoperative pulse which may indicate breach of pain.


GRUPA 1 vs 2 VRIJEME=5
p<0,0001
GRUPA 1 vs 2 VRIJEME=15
p=0,0001
GRUPA 1 vs 2 VRIJEME=30
p=0,02
0
5
10
15
Odds Ratio

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151 / #774

Topic: *AS29. Reproduction, pediatrics*

CLINICAL ASPECTS OF NEONATAL SEPSIS IN DOGS – HOW TO IDENTIFY NEWBORN AT RISK?

Keylla Helena Pereira, Kárita Fuchs, Júlia Mendonça, Gleice Xavier, Maria Lucia Lourenço
Unesp - School of Veterinary Medicine and Animal Science, Veterinary Clinic, Botucatu, Brazil

Introduction:

Failure in early diagnosis of neonatal sepsis in dogs is still common, mainly due to the veterinarian's lack of knowledge about the neonatal particularities and identification of the clinical signs of these patients, resulting in inadequate assistance.

Objectives:

To describe the clinical aspects of neonatal sepsis in dogs.

Methods:

This retrospective study was conducted at the Veterinary Hospital of Unesp, Botucatu, Brazil. Attendances of 762 newborn dogs were recorded during 2019 and 2020.

Results:

Of the 762 neonates attended, 113 were included in the sepsis group, 19 of whom were included in the septic shock group, and 419 in the healthy group. The most observed changes in the leukogram were leukopenia 85.8% (97/113), neutropenia 64.6% (73/113), lymphopenia 59.3% (67/113), left shift 23% (26/113), and toxic neutrophils 38.9% (44/113). The main clinical signs observed were neonatal triad, reduced sucking reflex, weight loss, diarrhea, hematuria, abdominal/body erythema, omphalophlebitis, abdominal hematomas, cyanotic or necrotic limb extremities. Significant differences ($p<0.0001$) were observed in the clinical parameters when comparing the healthy neonates, sepsis and septic shock groups: heart rate (238 ± 19.5; 200 ± 7.68; 110 ± 44.3), respiratory rate (33.2 ± 5; 37 ± 9; 12 ± 4), blood glucose (mg/dL) (125.4 ± 22.6; 81 ± 36.5; 37.6 ± 32.3), body temperature (°C) (36 ± 0.61; 34 ± 1.6; 32.5 ± 0.85) and peripheral oxygen saturation (%) (99 ± 0; 98.6 ± 0.65; 66.2 ± 19.8).

Conclusions:

Knowledge of neonatal clinical aspects of sepsis is essential for proper clinical management and longer survival.

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152 / #778

Topic: *AS29. Reproduction, pediatrics*

ESCHERICHIA COLI SEPSIS IN NEONATAL PUPPIES AND USE OF FRESH FROZEN PLASMA AS AN ADJUVANT IN THE TREATMENT – CASE REPORT

Keylla Helena Pereira, Kárita Fuchs, Júlia Mendonça, Gleice Xavier, Maria Lucia Lourenço
Unesp - School of Veterinary Medicine and Animal Science, Veterinary Clinical, Botucatu, Brazil

Introduction:

Sepsis represents an unregulated systemic response to acute generalized infection, which can lead to organ dysfunction and high mortality.

Objectives:

To describe a case of sepsis due to Escherichia coli in newborn dogs and the use of blood plasma as an additional treatment.

Methods:

This case study was conducted at the Veterinary Hospital of FMVZ Unesp, Botucatu, Brazil. A Pitbull bitch, three years old, was submitted to cesarean section due to uterine atony. The female had leukopenia of 2.1 thousand leukocytes. Of the puppies, six were born alive, three were stillborn and two were macerated. The neonates had omphalitis, hyperemia in the abdominal region, diarrhea, weight 206 to 264 grams, present reflexes, blood glucose 57 to 86 mg/dL and body temperature 32.3 to 39.2°C. Leucograms (10^3/µL) showed leukopenia (2.7 to 4.2) in four neonates and leukocytosis due to neutrophilia (27 to 32) in two neonates. The culture of the uterine contents showed the bacterium *Escherichia coli*, which was sensitive to cephalosporins in the antibiogram. Treatment was performed with ceftriaxone 50 mg/kg, IV and then SC, every 12 hours, for seven days; heating in incubator; 12.5% glucose replacement, 0.5 ml/100 g of body weight, orally; and blood plasma 2 ml/100 g of body weight, SC, as a source of passive immunity. The bitch was spayed and treated with ceftriaxone 50 mg/kg.

Results:

After seven days, the newborns showed normalization of clinical signs and blood counts without alterations.

Conclusions:

Diagnosis and early intervention are essential for the survival of these patients.

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153 / #781

Topic: *AS29. Reproduction, pediatrics*

SOURCES OF INFECTION AND MAIN BACTERIAL AGENTS OF NEONATAL SEPSIS IN DOGS

Keylla Helena Pereira, Kárita Fuchs, Júlia Mendonça, Gleice Xavier, Maria Lucia Lourenço
Unesp - School of Veterinary Medicine and Animal Science, Veterinary Clinical, Botucatu, Brazil

Introduction:

The neonatal period in dogs is associated with high rates of morbidity and mortality. Sepsis is the main cause of neonatal losses during the first three weeks of life.

Objectives:

To describe the main sources of infection and bacterial agents isolated in neonatal sepsis in dogs.

Methods:

This retrospective study was conducted at the Veterinary Hospital of FMVZ Unesp, Botucatu, Brazil. Attendances of 152 litters and 762 newborn dogs were recorded during 2019 and 2020.

Results:

Of the 762 neonates seen, 14.8% (113/762) had sepsis or septic shock. Bacterial cultures and antibiograms of newborns and their mothers were performed. The bacterial agents isolated were Escherichia coli 25.6% (29/113), Staphylococcus sp. 8.8% (10/113), Streptococcus sp. 5.3% (6/113), beta-hemolytic Streptococcus 12.3% (14/113), alpha-hemolytic Streptococcus 4.4% (5/113), Proteus mirabilis 5.3% (6/113), Mannheimia hemolytica 7.9% (9/113), Enterococcus sp. 4.4% (5/113), Pseudomonas sp. 3.5% (4/113), Klebsiella sp. 3.5% (4/113), Pasteurella multocida 2.6% (3/113) and Enterobacter sp. 1.7% (2/113). In 14.1% (16/113), the agents were not identified. The mother was the main source of infection for 87.6% (99/113) of neonates. The main sources of infection for neonates were maternal systemic infection 40.7% (46/113), intrauterine infection 27.5% (31/113), colostrum/breast milk 16% (18/113), omphalophlebitis 4.4% (5/113), maternal oropharyngeal secretions 3.5% (4/113), and environmental contamination 7.9% (9/113). The mortality rate was 25.6% (29/113). However, 74.4% (84/113) of neonates were successfully treated.

Conclusions:

The main source of infection for these agents is maternal systemic infection. These results demonstrate the importance of prenatal care to prevent this condition in newborns.

Fapesp Research Funding number 2022/10710-4

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154 / #609

Topic: *AS29. Reproduction, pediatrics*

CANINE EPIDIDYMAL SPERMATOZOA AGEING IS REFLECTED BY VARIATIONS IN FUNCTIONAL QUALITY AND PROTEOMIC CHARACTERISTICS

Marzena Mogielnicka-Brzozowska[1], Anna Zmudzinska[1], Jerzy Wisniewski[2], Piotr Mlynarz[2], Beata Olejnik[2], Aleksandra Cichowska[1]
[1]University of Warmia and Mazury in Olsztyn, Animal Biochemistry And Biotechnology, Olsztyn, Poland, [2]Wroclaw University of Science and Technology, Department Of Biochemistry, Molecular Biology And Biotechnology, Wroclaw, Poland

Introduction:

Male ageing is usually associated with a significant reduction in semen quality. However, little is known about the epididymal sperm ageing and proteome changes resulting from this process.

Objectives:

The study was conducted on 30 male dogs divided into three age groups. G1 – 12 to 41 months old, G2 – 42 to 77 months old and G3 – 78 to 132 months old.

Methods:

The epididymal sperm samples were analysed using a computer-assisted semen analysis (CASA). The sperm proteins were analyzed using SDS-PAGE, nano-liquid chromatography coupled to quadrupole time of flight mass spectrometry (NanoUPLC-Q-TOF/MS) and bioinformatic tools.

Results:

Sperm quality parameters were significantly lower in older dogs. NanoUPLC-Q-TOF/MS identification resulted in 865 proteins found in the G1, 472 in G2 and 435 in G3. Seven proteins were present in all three age groups, and four of them: actin beta, protein CE10, intracellular cholesterol transporter 2 and cystein-rich secretory protein 2 showed significant changes among the studied groups.

Conclusions:

Age-dependent variations were detected in the sperm proteome composition and were related to important metabolite pathways, which might suggest that several proteins are implicated in sperm maturation and could be potential aging biomarkers.

Project financially supported by the Minister of Education and Science under the program entitled “Regional Initiative of Excellence” for the years 2019-2022, Project No. 010/RID/2018/19, amount of funding 12.000.000 PLN.” UWM in Olsztyn project No. 11.610.003-300.

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155 / #724

Topic: *AS29. Reproduction, pediatrics*

TO PREDICT UNPREDICTABLE - OSMOTIC CHALLENGE TESTS AS FREEZABILITY MARKERS FOR FELINE SEMEN

Sylwia Prochowska, Maria Eberhardt, Barbara Smalec, Wojciech Niżański
Wrocław University of Environmental and Life Sciences, Department Of Reproduction And Clinic Of Farm Animals, Wrocław, Poland

Introduction:

Recently, we observe a growing demand from breeders for feline semen cryopreservation. However, for cats, there are no markers in fresh semen that will allow to predict its post-thaw quality and help to choose the best donor for semen banking.

Objectives:

To check if osmotic challenge tests can predict feline semen freezability.

Methods:

Semen was collected by urethral catheterization from 20 male cats. After basic evaluation of semen, $20x10^6$ spermatozoa were cryopreserved; the rest were subjected to osmotic challenge tests. For the latter, the sperm were divided into three aliquots: one kept in 75 mOsm sucrose (hypoosmotic test), the second kept in 1200 mOsm sucrose (hyperosmotic test), and a control group kept in isosmotic conditions (300 mOsm TRIS extender). After 5 min, spermatozoa were returned to isosmotic conditions and viability was assessed by flow cytometry (SYBR-14 and PI staining). Thawed samples were assessed by flow cytometry (viability, acrosome integrity, mitochondrial potential). The Pearson correlation between live spermatozoa after osmotic challenge and post-thaw parameters was assessed.

Results:

There was a significant and positive correlation between post-thaw viability (36.3-67.3%) and fresh semen viability (control, 71.9-92.7%; $r=0.55$, $p=0.013$) and viability after the hypoosmotic challenge test (11.1-82.9%, $r=0.54$, $p=0.015$). No correlations were found for any other post-thaw quality parameter, nor for the hyperosmotic challenge test ($p>0.05$).

Conclusions:

Both fresh semen viability and hypoosmotic challenge test can be used as predictors of post-thaw viability of feline spermatozoa.

The study was financed by a Polish National Science Center grant: NCN 2019/35/D/NZ3/02533.

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156 / #911

Topic: *AS30. Soft tissue surgery and Oncosurgery*

TEMPORARY COLOSTOMY IN A DOG FOR MANAGEMENT OF RECTAL INFECTION DUE TO COMPLICATION AFTER UNILATERAL PERINEAL HERNIORRHAPHY

Paloma Helena Silva[1], Renato Pereira[1], Paula Turquete[1], Mayara De Souza[2], Rodrigo Horta[1]
[1]Universidade Federal de Minas Gerais (UFMG), Departament Of Veterinary Medicine And Surgery, Veterinary School, Belo Horizonte, Brazil, [2]Unesp, Cirurgia, Jaboticabal, Brazil

Introduction:

Colostomy consists of a temporary opening of the colon through a cutaneous stoma on the flank as a way of diverting the caudal gastrointestinal tract to treat pathologies in the rectum.

Objectives:

This study aimed to report a surgical a temporary colostomy performed in a dog after development of rectocutaneous fistulas draining fecal material into the perineum due to a complication after unilateral perineal herniorrhaphy surgery.

Methods:

An 8-year old neutered male Shih Tzu dog with a history of recurrent perineal hernia, being already submitted to two surgical procedures, with traditional perineal herniorrhaphy and use of a polypropylene mesh. However, there was a new recurrence and signs of infection probably due to rectal perforation and contamination of the polypropylene mesh used for the synthesis of the pelvic diaphragm, culminating in three fistulous paths between the rectum and the perineal skin. The fistulous tracts were removed together with the contaminated mesh, and a colostomy was performed, creating a temporary communication for the descending colon in the left flank whose synthesis was performed with 4-0 Poliglecaprone simple continuous suture involving the seromuscular layer of the colon with the muscular wall of the flank, and the second layer involving the mucosal and submucosal layers of the colon with the skin of the flank with a simple suture separated.

Results:

The patient showed significant clinical improvement and healing of the perineum, becoming fit for definitive herniorrhaphy and resumption of the normal route of the gastrointestinal tract.

Conclusions:

Temporary colostomy allowed recovery from the infection and a favorable outcome.

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157 / #34

Topic: *AS30. Soft tissue surgery and Oncosurgery*

A CLINICAL CASE REPORT OF INGUINAL NODE HEMANGIOMA IN INGUINAL HERNIATION OF A GERMAN SHEPHERD DOG AND IHC STAINING WITH CD34 AND FACTOR VIII MARKERS

Hamidreza Fattahian[1], Roozbeh Moridpour[2], Hasti Azarabad[3], Alireza Rezaeianzabi[4], Mehdi Ghanaatpishe[5], Mahya Jazinidorcheh[1]
[1]Department of Clinical science, Science and Research Branch, Islamic Azad University, Tehran, Iran, Department Of Clinical Science, Tehran, Iran, [2]Department of Surgery, Hamidreza Fattahian Small Animal Hospital, Tehran-Iran, Department Of Surgery, Tehran, Iran, [3]Department of Pathology, Hamidreza Fattahian Small Animal Hospital, Tehran-Iran, Department Of Pathology, Tehran, Iran, [4]Department of internal medicine, Hamidreza Fattahian Small Animal Hospital, Tehran-Iran, Department Of Internal Medicine, Tehran, Iran, [5]Department of Diagnostic Imaging, Hamidreza Fattahian Small Animal Hospital, Tehran-Iran, Department Of Diagnostic Imaging, Tehran, Iran

Introduction:

Hemangioma is a benign tumor of endothelial cells and may be classified as capillary or cavernous based on the size of the vascular channels formed. This mass usually finds solitary, oval, red-black features.

Objectives:

Tumor differentiation from vascular abnormalities and granulation tissue may be difficult. Hemangiomas occur more often in older dogs.

Methods:

A 7-year-old neutered male German shepherd dog was referred with request of elective castration. After preparing the patient in a routine manner for surgery and lying on dorsal position, a bulge was observed in the right inguinal area indicating the presence of an inguinal hernia and herniorrhaphy was done. During the repair of the mesenteric tissue in the protruding area, an unknown mass measuring 10x10x10 mm^3 with a round cross section and a dark color was separated from the area and sent to the laboratory for pathology examination. Then IHC staining with CD34 and factor VIII markers were done for confirming the diagnosis.

Results:

The mesentery and omentum were seen in affected region. Microscopic examination shows lymph node with multiple proliferations of vessels with erythrocytes on the inside of mass. Vascular proliferation was prominent in the medullary region. According to IHC staining, hemangioma was distinguished.

Conclusions:

Based on IHC staining, the removed mass was lymph node hemangioma in inguinal region of the day who suffered from old inguinal herniation.

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158 / #382

Topic: *AS30. Soft tissue surgery and Oncosurgery*

PRIMARY HEPATIC HEMANGIOSARCOMA IN A YORKSHIRE TERRIER DOG: IMMUNOHISTOCHEMICAL FEATURES

Hamidreza Fattahian[1], Roozbeh Moridpour[2], Hasti Azarabad[3], Mehdi Ghanaatpishe[4], Mohammadreza Salarbehzadi[5], Mahya Jazinidorcheh[1]
[1]Department of Clinical Science, Science And Research Branch, Islamic Azad University, Tehran, Iran, [2]Department of Surgery, Hamidreza Fattahian Small Animal Hospital, Tehran, Iran, [3]Department of Pathology, Hamidreza Fattahian Small Animal Hospital, Tehran, Iran, [4]Department of Diagnostic Imaging, Hamidreza Fattahian Small Animal Hospital, Tehran, Iran, [5]Department of Internal Medicine, Hamidreza Fattahian Small Animal Hospital, Tehran, Iran

Introduction:

Hemangiosarcoma (HSA) is a highly malignant tumor of vascular endothelial origin.

Objectives:

Primary hepatobiliary neoplasms are rare in dogs which represent approximately 5% of all non-cutaneous primary malignant neoplasms.

Methods:

A 11-year-old spayed male Yorkshire terrier dog with signs of anorexia, lethargy, lateral recumbency, abdominal distention and high hepatic enzymes was presented to pet hospital. In ultrasound study, Heterogeneous echotexture of hepatic parenchyma with increased in echogenicity and presence of several hyperechoic nodular lesions on hepatic lobes with maximum size of 89 mm. After standard preparation and approach, partial hepatectomy (right medial and lateral lobes) due to large masses were done. Masses also were seen on left lateral and quadrate lobes but lobectomy due to development of masses margin was not possible. The masses were sent for histopathological evaluation.

Results:

In microscopic examination, densely cellular, unencapsulated, infiltrative cystic and hemorrhagic mass with foci of marked hemorrhage, fibrin, edema, and necrosis were present. Neoplastic spindle-shaped cells exhibiting moderate nuclear pleomorphism IHC examination for CD31 and factor VIII related antigens revealed positive staining (positive rate of 40%-50%). The histopathological diagnosis was consistent with hepatic hemangiosarcoma.

Conclusions:

The life expectancy of dogs that have undergone both successful surgical treatment and chemotherapy is an average of 7 to 9 months, with 10% of dogs surviving past one year. The patient was not diagnosed at the right time, and after being referred to this hospital and after the tumor removal, the patient died after one day due to unfavorable general conditions.

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159 / #866

Topic: *AS30. Soft tissue surgery and Oncosurgery*

PANCREATIC CYST IN A CAT

João Martins[1], Ana Tereso[2], Leonor Lima[1], Liege Martins[2], Sonia Campos[1], Luis Duarte[2]
[1]Universidade Lusófona, Faculdade De Medicina Veterinária, Lisboa, Portugal, [2]Universidade Lusofona, Faculdade De Medicina Veterinária, Lisboa, Portugal

Introduction:

Pancreatic cysts are a rare condition in dogs and cats. They are enclosed structures surrounded by a capsule and filled with liquid or semi-solid content. The approach to these clinical cases can be complex, and requires good planning.

Objectives:

To describe the approach to a large pancreatic cyst in a cat.

Methods:

A 11-year-old domestic shorthair cat, presented with history of lethargy, hyporexia and weight loss. Abdominal computed tomography showed a 14mm length structure adherent to the left pancreatic lobe and involving almost entirely the spleen. A surgical planning was carried out in order to remove the cyst.

Results:

Partial pancreatomy (1cm of the left pancreatic lobe) and total splenectomy were performed with a vessel sealer (Caiman®) in order to remove the cystic structure (140mm length× 115mm wide × 45mm depth). The histopathology's result was a pancreatic cyst with moderated chronic pancreatitis and pyogranulomatous steatites. The content of this cyst was a non-septic liquid. The cat recovered well from the procedure and to date the outcome is excellent.

Conclusions:

Although pancreatic cysts are rare in cats, they should be considered as a differential diagnosis in cats with non-specific symptoms. Advanced imaging exams are needed to plan the surgical procedure and find which organs are involved. Cats may experience a period of diabetes shortly after surgery, but long-term prognosis is good.

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160 / #682

Topic: *AS30. Soft tissue surgery and Oncosurgery*

IMPLEMENTATION OF TWO INTRAOPERATIVE CYTOLOGICAL TECHNIQUES FOR EVALUATION OF CLEAN STATUS MARGINS IN FELINE MASTECTOMY

João Martins[1], Rute Penim[2], Pedro Faisca[2], Diogo Dos Santos[3], Sonia Campos[2], Patricia Cabral[3], Liege Martins[2], Nuno Leal[2], Joana Fonseca[2], José Catarino[2]
[1]Universidade Lusófona, Faculdade De Medicina Veterinária, Lisboa, Portugal, [2]Universidade Lusofona, Faculdade De Medicina Veterinária, Lisboa, Portugal, [3]CECAV, Veterinary Science, Vila Real, Portugal

Introduction:

The main goal of oncological surgery is the removal of all neoplastic cells and achieve a clean margin status to prevent local recurrence. To improve patient care in feline mammary tumors surgery, it is necessary to develop or improve techniques that improve recognition of residual tumor cells during intraoperative period. During intraoperative period, imprint cytology (IC) and scrape cytology (SC) provide a reasonable assessment of the adequacy of surgical resection limits helping the surgeon to make an intra-operative decision regarding proceeding with further extension of surgical margins.

Objectives:

Determine agreement between margin status with IC and SC in feline unilateral radical mastectomy.

Methods:

Twelve female cats were submitted for unilateral radical mastectomy. Intraoperative surgical field margins assessment was accomplished through SC and fresh mastectomy specimen margins assessment by IC. A total of 69 cranial and caudal margins (lateral, medial and deep) were evaluated by the 2 methods. Agreement between methods was evaluated by the Cohen Kappa Coefficient. McNemar test evaluated differences in positive margin detection rates between methods.

Results:

Positive margin detection rates didn't differ between methods on McNemar test *(P= 0.625)* (Table 1) and a moderate agreement between methods was observed with Cohen Kappa coefficient (0.489).

Conclusions:

IC and SC proved to be reliable methods in assessment of clean status margins during the intraoperative period. SC was found to have a higher positive margin detection rate when compared to IC, but no significant differences were observed between methods.

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161 / #726

Topic: *AS30. Soft tissue surgery and Oncosurgery*

BRANCHIAL CYST IN CAT:CASE REPORT

Liege Martins, João Martins, Pedro Faisca, Pedro De Almeida, Patricia Cabral, Rute Canejo-Teixeira, Ana Santana, Joana Fonseca
Universidade Lusofona, Faculdade De Medicina Veterinária, Lisboa, Portugal

Introduction:

Neoplasia is the most frequent cause of mediastinal masses in the cat. Differentials include lymphoma, thymoma (including cystic thymoma), ectopic thyroid tissue, heart-based tumors and metastatic neoplasia. Non-neoplasic condtions causing a mediastinal mass are rare and include abscess or granuloma, benign thymic hyperplasia, hemorrhage and cysts. The origins of the few reported cysts causing cranial mediastinal masses in the cat include thymic, branchial, parathyroid, pericardial, and mediastinal.

Objectives:

To descript a clinical case of a cat with a branchial cyst.

Methods:

A 3- year- old female cat, weighting 4 kg, presented with a 2-day history of lethargy and inappetence. On X-rays a mediastinal mass and a pleural effusion was detected . Ultasound showed liquid content on this mass and citology analysis reveald a possible inflammatory granuloma. On Computed Tomography a 6x4cm trabecular mass was observed in the cranial mediastinum, extending to the left hemithorax, attached to the pleura and pericardium.

Results:

A median sternotomy was performed. The mass was multilocular, had a thin and transparent capsule, with many adhesions around the thoracic structures. The mass was completely removed with a blunt dissection and sent for histopathology analisys and a diagnosis of branchial cyst was obtained. The cat remained with a thoracoscopy tube for 72 hours and was discharged after 7 days.

Conclusions:

Branchial cyst is a very rare condition in cats with only a few cases described worlwide. Despite the size and complexity of these masses, with a good diagnostic and correct surgical aproach it is possible to obtain a good outcome as observed in this cat.

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162 / #784

Topic: *AS30. Soft tissue surgery and Oncosurgery*

A COMPARATIVE STUDY ON THE APPLICABILITY OF SUBTOTAL CHOLECYSTECTOMY AND TOTAL CHOLECYSTECTOMY IN DOGS.

Shozo Okano[1], Kenichi Maeda[2], Satomi Iwai[2]
[1]Kitasato University, School Of Veterinary Medicine, towada, Japan, [2]Kitasato University School of Veterinary Medicine Graduate School of Veterinary Medicine, Laboratory Of Small Animal Surgery 2, Towada, Aomori, Japan

Introduction:

Total cholecystectomy is commonly indicated for gallbladder mucocele. However, severe inflammation around the gallbladder can potentially lead to damage to the bile ducts and cystic arteries during the procedure.

Objectives:

To determine whether subtotal cholecystectomy is also applicable in dogs.

Methods:

Study 1 was conducted using laparotomy and divided into two groups: the OC group (n=5), where the gallbladder was completely removed using a standard technique, and the OSC group (n=5), where a partial opening was made in the gallbladder wall. Study 2 was performed laparoscopically and followed a similar classification as Study 1, with the LC group (n=6) representing complete gallbladder removal and the LSC group (n=6) representing partial gallbladder wall preservation. During total cholecystectomy, the gallbladder was detached from the liver after clipping the cystic duct and cystic artery. In subtotal resection, the cystic duct and cystic artery were similarly clipped, followed by cutting the gallbladder wall, while leaving the part attached to the liver. The measured parameters included operation time, C-reactive protein levels, cortisol concentration, complete blood count, blood biochemistry, and complications.

Results:

In Study 1, the OSC group exhibited a significantly lower cortisol concentration and a significantly higher lymphocyte count compared to the OC group ($p<0.05$). In Study 2, the OSC group had a significantly longer operation time ($p<0.05$), but they showed a significantly lower cortisol concentration and a higher lymphocyte count compared to the LC group ($p<0.05$).

Conclusions:

The absence of significant complications in subtotal cholecystectomy suggests that it may be safely performed in dogs.

163 / #26

Topic: *AS30. Soft tissue surgery and Oncosurgery*

THE EFFICACY OF OZONE THERAPY IN THE HEALING PROCESS OF A LARGE DISTAL LIMB LACERATION REPAIRED WITH A FREE SKIN GRAFT IN A PUPPY

Nicusor Oros, Ober Ciprian, Maria Moraru, Calin Repciuc, Liviu Oana
Faculty of Veterinary Medicine, University of Agricultural Sciences and Veterinary Medicine, Department Of Surgery, Cluj-Napoca, Romania

Introduction:

Free skin grafts are a viable option for reconstructing limb defects with extensive tissue loss. The success rate of this technique may be improved by using complementary supportive therapies.

Objectives:

This study aims to assess the therapeutic efficiency of topical ozone, applied both pre and postoperatively in a puppy with a distal forelimb degloving injury.

Methods:

A 4-week-old male puppy was referred for the treatment of a large distal forelimb degloving injury. The necrotic tissue was debrided, resulting in a 27.5 cm^2 wound. Due to extensive necrosis, the phalanges of all four digits required excision. Ozone bagging therapy at a concentration of 60 µg/ml daily was used to treat the wound for the first 5 days. Two more sessions at 30 µcg/ml concentration were performed 3 days apart until healthy granulation tissue was observed. On the 11th day, the free skin graft surgery was performed. The surgical procedure was followed by 4 ozone bagging therapy sessions, applied every 3 days at a concentration of 20 µcg/ml.

Results:

20 days after the surgical procedure the limb no longer required bandaging and the graft acceptance rate was 100%.

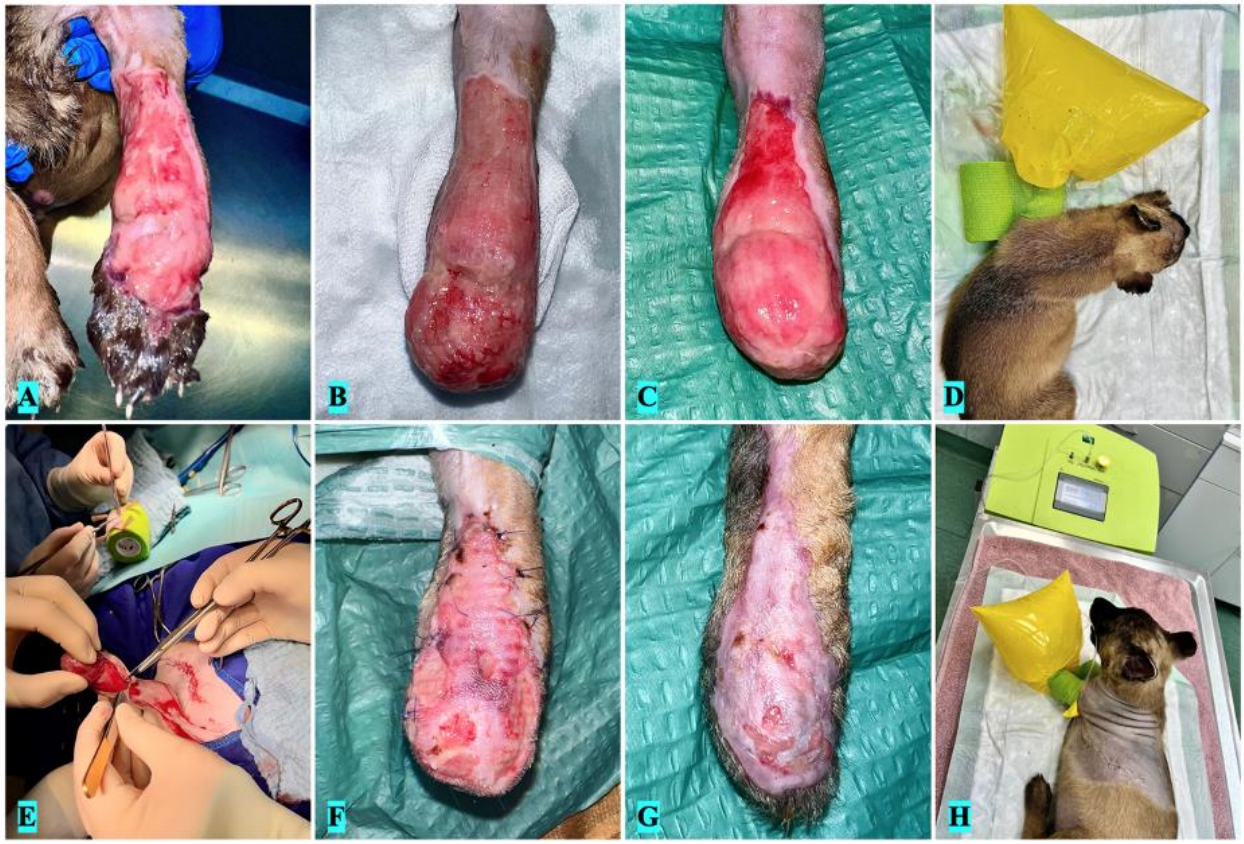

Figure 1. Wound progression under ozone therapy. (**A**)-Initial wound appearance with necrosis of the phalanges. (**B**)-Wound on day 5 after 5 sessions of ozone therapy. (**C**)-Wound on day 11 after 7 sessions of ozone therapy with healthy granulation tissue and with the edges of the wound undergoing epithelization. (**D**)-Ozone application (first session). (**E**)-Application of the skin graft. (**F**)-3 days postoperatively. (**G**)-12 days postoperatively. (**H**)-Ozone application (last session).

Conclusions:

According to our knowledge, this is the first report of using ozone therapy to accelerate healing in a puppy with a distal limb laceration repaired with a free skin graft. Our findings suggest that ozone therapy may be an effective strategy to accelerate the healing process and acceptance rate of free skin grafts in puppies. However, further controlled prospective studies are required to validate these results.

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Topic: *AS30. Soft tissue surgery and Oncosurgery*

USING OZONE THERAPY TO SUPPORT A MESH SKIN GRAFT IN A CAT

Nicusor Oros[1], Lucia Bel[1], Calin Repciuc[1], Liviu Oana[2]
[1]Faculty of Veterinary Medicine, University of Agricultural Sciences and Veterinary Medicine, Department Of Surgery, Cluj-Napoca, Romania, [2]Faculty of Veterinary Medicine, University of Agricultural Science and Veterinary Medicine, Department Of Surgery, Anesthesiology And Intensive Care, Cluj Napoca, Romania

Introduction:

Wounds of the extremities in cats accompanied by considerable loss of substance are frequently encountered in current practice and their therapeutic management and choice of closing method is a challenge for the veterinarian while also exerting an influence on the evolution of healing.

Objectives:

The objective of this study is to assess the therapeutic effect of ozone applied to a grafted wound, pre- and post-operative in the distal hind limb of a domestic shorthair cat.

Methods:

A 1.5-year-old male ESH cat with a 34 cm^2 extensive full thickness skin defect at the level of the dorsal metacarpal-phalangeal area of the right forelimb was admitted to our clinic. The wound was treated by ozone bagging with 60 mcg/ml and ozonated saline solution lavages every day in the first 5 days and every 3 days for the following 15 days until healthy abundant granulation tissue developed. After 20 days a full thickness free skin grafting was performed and ozone bagging was performed every 3 days after the grafting procedure with an ozone concentration of 20 mcg/ml.

Results:

The viability of the graft after 9 days was 100% with visible contraction and epithelization. After 15 days of post-surgical ozone therapy, the wound was completely healed and no more bandage or therapy was required. Full hair growth was observed on day 60 after surgery with complete functional and esthetic recovery.

Figure 1 (**A**) Degloving injury in a cat underwent open wound management until (**B**) healthy granulation tissue developed after 20 days with ozone therapy using (**C**) the bagging method and ozonated saline solution lavages. (**D**) Three days after grafting. (**E**) Nine days after grafting. (**F**) The appearance of the leg 60 days after grafting.

Conclusions:

The favorable and accelerated recovery of our case encourages the use of ozone therapy as a protocol to support skin grafts in cats.

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165 / #800

Topic: *AS30. Soft tissue surgery and Oncosurgery*

AXIAL PATTERN SKIN FLAP BASED ON A DORSAL PERINEAL ARTERY IN DOGS

Ondřej Pomahač[1], Michaela Popková[1,2]
[1]Animal Clinic - Bílá Hora, Small Animal Medicine, Prague, Czech Republic, [2]Charles University, First Faculty of Medicine, Department Of Physiology, Prague, Czech Republic

Introduction:

Surgical wound management in the tail and perineum is challenging. Axial pattern flaps (APF) supplied by direct cutaneous arteries are frequently used in dogs and cats. Flap based on the dorsal perineal artery has been previously documented in one feline case report and one feline anatomic study. However, a paper describing this surgery in dogs is lacking.

Objectives:

To establish viability and practical use of axial pattern skin flap based on the dorsal perineal artery in dogs.

Methods:

Dorsal perineal APF was used in three dogs. The existence of the same cutaneous angiosome in the perineal region and caudal thigh as in feline patients was supposed. These anatomical landmarks were used for creating the skin flap: ischiorectal fossa, furrow created by the biceps femoris and semitendinosus muscle, and popliteal fossa. The length and width of the flap were planned individually to consider diameter and localization of recipient area, and local properties of skin at the donor area.

Results:

The flaps were completely healed with no sign of complications in all cases. There was a dehiscence of surgery wound at the donor area in two cases. These complications were treated by secondary intention healing or revision surgery.

Conclusions:

This APF can be used to reconstruct soft tissue wounds in the perineal region and in the cranial third of the tail with no need for tail amputation. All complications were caused by excessive tension to wound only in the donor area. More studies are needed to establish anatomical landmarks and to exclude potential individualities of angiosomes in dogs.

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166 / #768

Topic: *AS30. Soft tissue surgery and Oncosurgery*

NILE TILAPIA (OREOCHROMIS NILOTICUS) SKIN: ITS APPLICATION IN AN EXTENSIVE AND INFECTED WOUND IN A CAT

Mônica Kienzle[1,2], João Requicha[2,3], Paulo Rema[4,5], Daniel Gonçalves[6], Maria Dias[2,3,7], Maria Saavedra[1,2,3,5,7]
[1]University of Trás-os-Montes e Alto Douro, Antimicrobials, Biocides And Biofilms Unit (a2bunit), Vila Real, Portugal, [2]Universidade de Trás-os-Montes e Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [3]University of Trás-os-Montes e Alto Douro, Animal And Veterinary Research Centre (cecav) - Associated Laboratory For Animal And Veterinary Science (al4animals), Vila Real, Portugal, [4]University of Trás-os-Montes e Alto Douro, Aquaculture Unit, Vila Real, Portugal, [5]University of Porto, Interdisciplinary Centre Of Marine And Environmental Research (ciimar), Matosinhos, Portugal, [6]Hospital Veterinário +Ani+, Surgery, Maia, Portugal, [7]University of Trás-os-Montes e Alto Douro, Centre For The Research And Technology Of Agro-environmental And Biological Sciences (citab) - Associate Laboratory For Innovation, Capacity Building And Sustainability Of Agri-food Production (inov4agro), Vila Real, Portugal

Introduction:

Skin wounds are of great importance in veterinary clinical practice. Wound pathogenic agents compromise the cellular and biochemical events of the healing process. It is known that Nile tilapia skin (*Oreochromis niloticus*) has antimicrobial properties and promotes healing due to its high concentration of collagen type I.

Objectives:

Describe the application Nile tilapia skin in the treatment of an extensive and infected wound defect in a cat.

Methods:

A 3-year-old female European Shorthair cat was attended with an extensive wound in the thoracoabdominal region from traumatic origin. The lesion was open, contaminated, and with necrosis of the dermis and epidermis. Under sedation, surgical debridement was performed. As it was not possible to close completely, it was left to heal by second intention, and the antibiotics amoxicillin with clavulanic acid and enrofloxacin, meloxicam, and buprenorphine was given to the cat.

Results:

Upon one week, as the wound was not evolving positively, a sample from the wound was submitted to bacteriological examination (VITEK 2 BioMérieux®) and a polymicrobial microbiota with *Pseudomonas aeruginosa* and *Enterobacter cloacae* complex was identified, being the first resistant to ertapenem. Nile tilapia skin, obtained from UTAD vivarium, was applied to act as an occlusive biological dressing to improve wound healing. Then, it was possible to observe a positive healing evolution, reducing their extent and necrosis.

Conclusions:

Nile tilapia skin can be considered a complement or alternative to reconstructive surgery of extensive open wounds in companion animals. Considering the increasing concern of antibiotic resistance, the development of new antimicrobial strategies is mandatory.

167 / #730

Topic: *AS30. Soft tissue surgery and Oncosurgery*

SURGICAL CORRECTION OF DISTAL OESOPHAGEAL OBSTRUCTION WITH SPIROCERCA LUPI IN A CROSS-BRED DOG – CASE STUDY IN SRI LANKA

Dayani Siriwardane, Janaki Collure, Umasha Hemachandra, Chandika Wickramasinghe, Lara Muttiyah, Imasha Rangani, Chamila Binduhewa, Champa Ranasinghe, Hasanthi Rathnadiwakara, Nivethika Shobisan
Pet Vet Clinic, Surgical And Medical Department, Colombo, Sri Lanka

Introduction:

Spirocerca lupi, a parasitic nematode affects dogs in tropics and subtropics, causing significant morbidity and mortality. *Spirocerca* larvae penetrate gastric mucosae migrating along arteries entering the thoracic aorta and adult worm encysts within the wall of thoracic oesophagus.

Objectives:

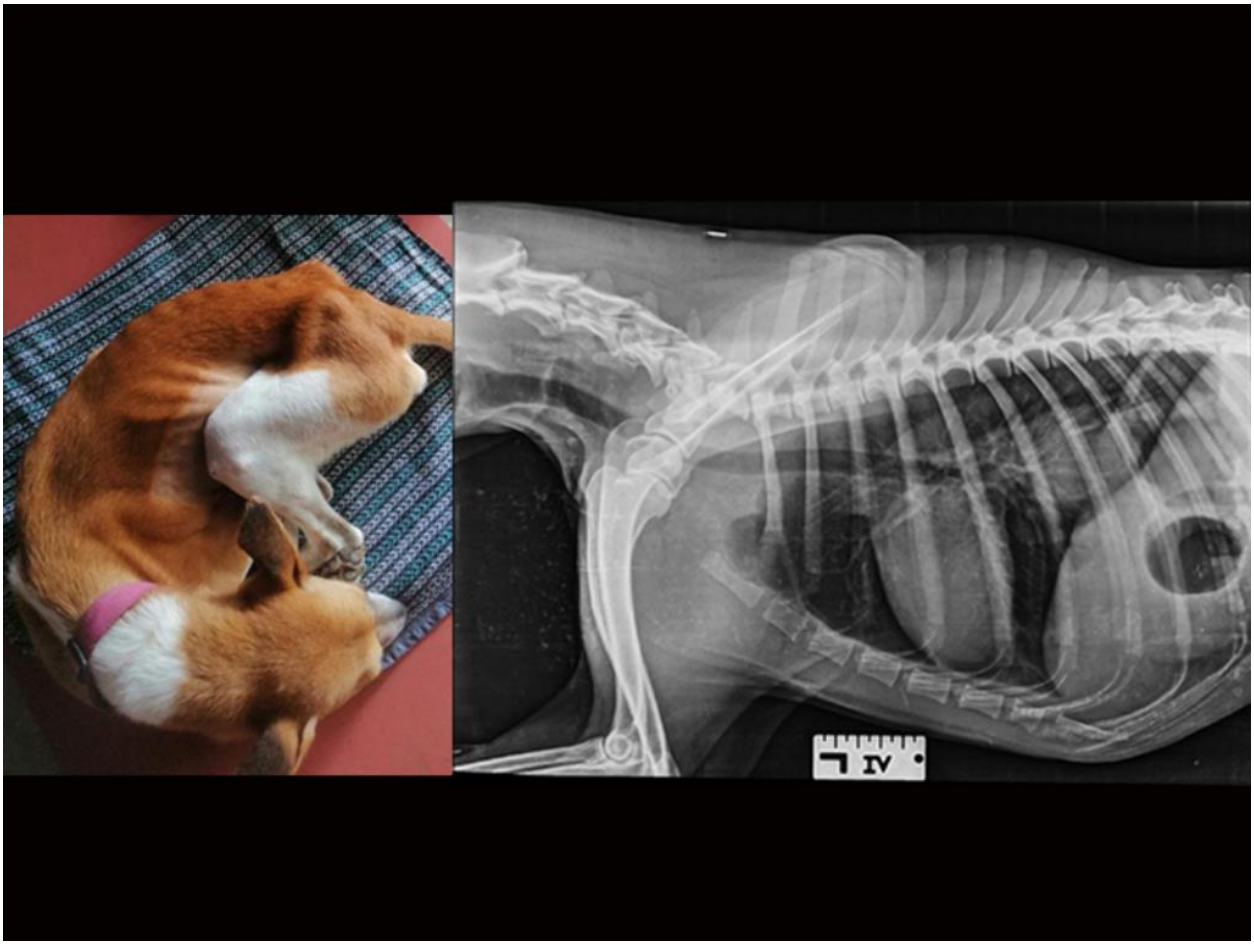
To describe surgical intervention and management of *Clinical Spirocercosis.*

Methods:

Four-year old, 10kg, semi-roaming spayed female cross-bred dog was presented with chronic intermittent vomiting, cough, hypersalivation, and weight loss. The diagnosis was based on clinical examination, routine hematology, survey radiographs, contrast radiography and subsequent exploratory celiotomy.

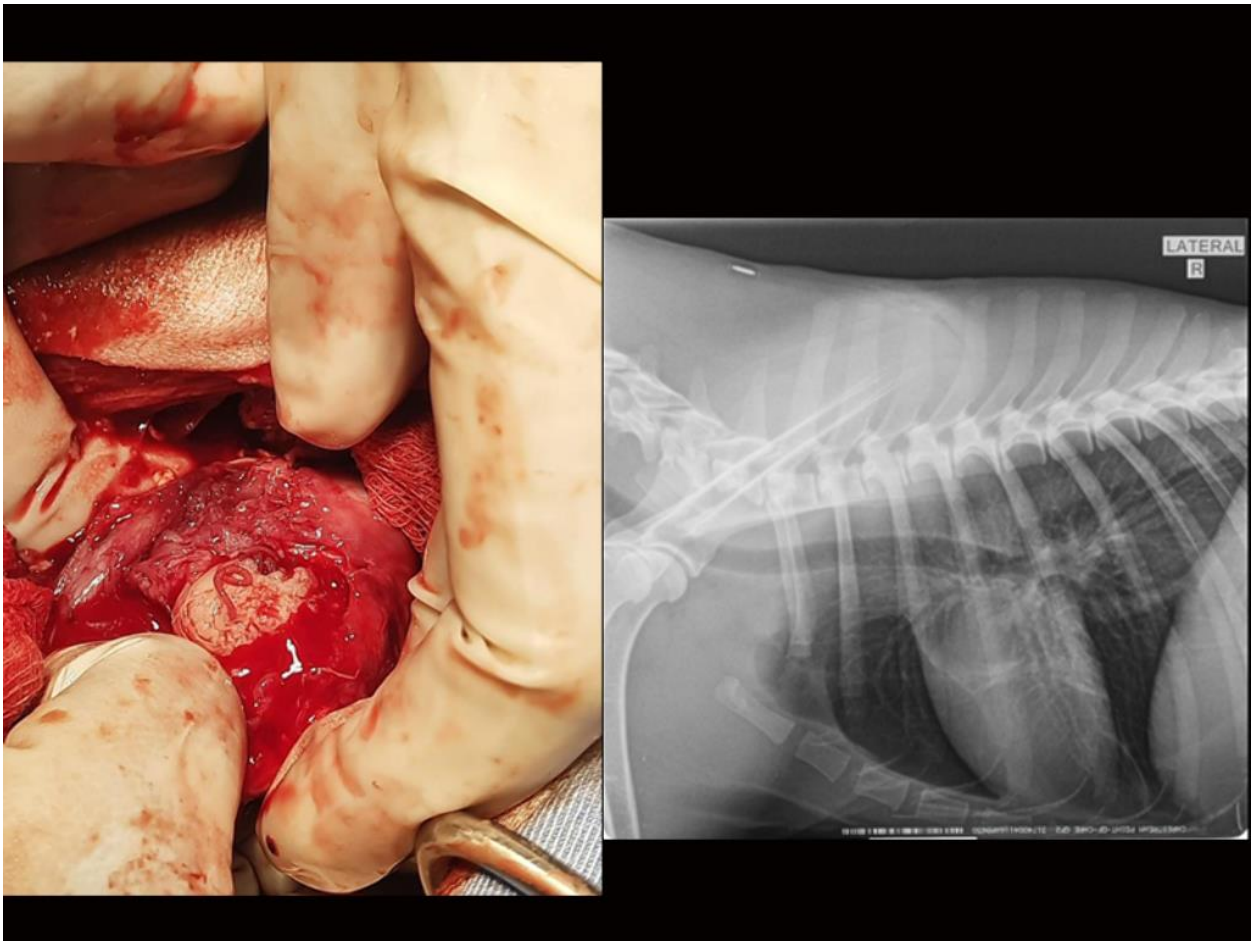
Results:

Hematology results were unremarkable except moderate hyperglobulinemia. Survey radiographs revealed radiopacity in caudal mediastinum. Contrast radiographs showed dappled appearance. Following celiotomy, the oesophagus was approached through left diaphragmatic wall.

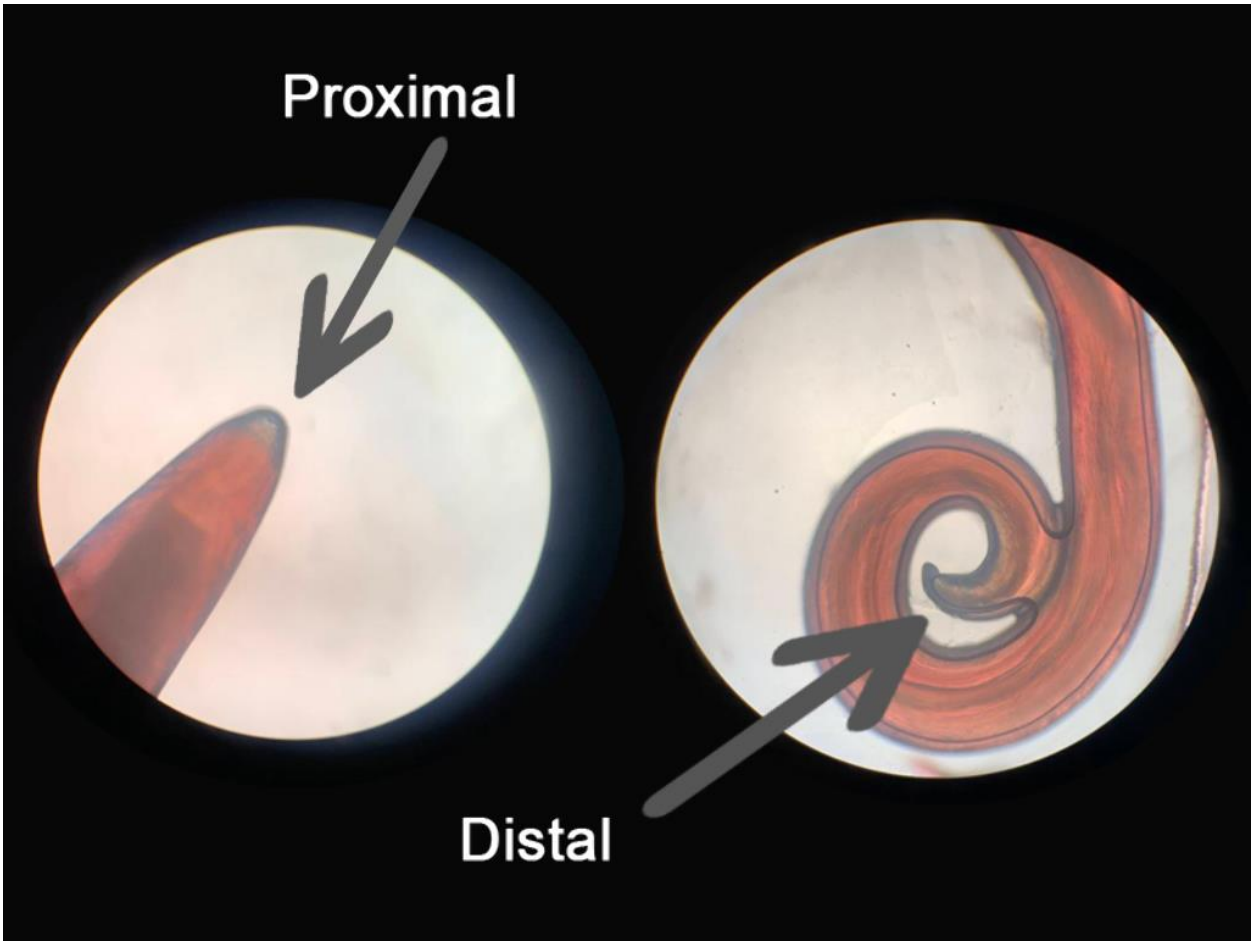


Palpable mass was detected in left wall of Oesophagus. Oesophagostomy was performed through midline and extended longitudinally.

The nodule was incised up to sub mucosae and partially debulked, resulting removal of red eight long viable worms. Oesophageal, diaphragmatic and celiotomy closure was done by routine suturing. Immediate post-surgical pneumothorax resolved by intervension. Jejunum adhesion to the diaphragmatic suture-site corrected one month later.



Nematode was confirmed by microscopic morphology. Dog was treated with oral Ivermectin twice at two-week intervals.



Eventually vomiting and coughing ceased, although occasional hyper salivation continued. Weight was increased by 3kg.

Conclusions:

Though uncommon, surgical intervention proves to be valuable approach in resolving the condition when endoscopy is unavailable. The occasional hypersalivation observed post-surgery may be attributed due to altered neuromuscular function of distal esophagus. Following intervention, dog's quality of life improved and remains active to-date.

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168 / #744

Topic: *AS31. Sports Medicine and Rehabilitation*

AN INNOVATIVE SURFACE ELECTROMYOGRAPH FOR VETERINARY NEUROREHABILITATION – A PILOT STUDY IN DOGS

Ana Ribeiro[1,2], Dinis Pereira[3], Guilherme Bastos Gaspar[3], Margarida Costa Dos Santos[3], João Requicha[4,5], Hugo Plácido Da Silva[3,6]
[1]AniCura Restelo Centro Veterinário, Rehabilitation And Sports Medicine, Lisbon, Portugal, [2]University of Trás-os-Montes e Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [3]Instituto Superior Técnico, Department Of Bioengineering, Lisboa, Portugal, [4]Universidade de Trás-os-Montes e Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [5]University of Trás-os-Montes e Alto Douro, Animal And Veterinary Research Centre (cecav) - Associated Laboratory For Animal And Veterinary Science (al4animals), Vila Real, Portugal, [6]Instituto de Telecomunicações, Instituto De Telecomunicações, Aveiro, Portugal

Introduction:

Surface electromyography (sEMG) is a non-invasive diagnostic technique used to record and monitor the electrical activity of muscle fibers during muscle contraction, it is widely used in human neurorehabilitation and sports medicine.

Objectives:

The present pilot study aims to develop and validate an innovative sEMG device developed at the Instituto Superior Técnico for non-invasive evaluation of the muscular activity of the paraspinal muscles in dogs affected by intervertebral disc disease IVDD.

Methods:

At AniCura Restelo Veterinary Center, the sEMG device was applied in the paraspinal region between the T12 and L2 vertebrae of healthy dogs used as control (n=2), and a dog affected by IVDD diagnosed by CT scan (n=1). Signal acquisition was performed in the following conditions: accelerating treadmill (A), standing on a wobbler board (B), decelerating treadmill (D), stable walking treadmill (N), standing still (P), animal walking on a treadmill (N), standing up (P) and front paws on a donut ball isometric position (K).

Results:

The sEMG device was able to detect differences in amplitude (mV) and frequency (Hz) between healthy control group and IVDD group, as summarized in the table. The considered spectral analysis limit was 500Hz.

	Movement	Mean (amp)	Standard Deviation (amp)	Root Mean Square (amp)	Power_Integral	F_max (Hz)	F_mean (Hz)	F_median (Hz)		
Healthy	A	117,36	70,45	137,45	1,71E+07	25,07	89,56	69,68	A	Accelerating, treadmill
	B	20,30	18,09	27,39	4,19E+05	11,72	78,63	42,50	B	Wobbler, balançando
	D	128,28	79,59	152,88	1,92E+07	18,20	84,83	59,69	D	Decelerating, treadmill
	N	99,33	64,51	119,44	1,40E+07	15,27	88,74	63,74	N	Stable walking, treadmill
	P	18,41	5,88	19,43	2,29E+05	20,15	92,17	67,97	P	Standing Still
	K	47,48	11,82	49,24	1,47E+06	35,68	148,46	128,61	K	Donut
Pathology	A	96,67	46,48	107,27	5,70E+06	15,44	119,84	79,33		
	B	23,25	11,05	25,74	3,33E+05	12,57	130,14	57,37		
	D	74,01	44,23	86,37	3,92E+06	15,12	122,45	83,59		

Conclusions:

Although differences were detected, further research is needed in a larger population. This study is a contribution for development of new tools applied in electromyography of companion animals.

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169 / #697

Topic: *AS32. Teaching/Education*

STUDENT PERCEPTION OF INTERDISCIPLINARY INTEGRATION IN THE INTEGRATED MASTERS OF VETERINARY MEDICINE

Joana Catita[1,2,3], Mariana Batista[1,2,3], Eduardo Marcelino[1,2,3], Ana Santana[1,4,5,6], Rute Canejo-Teixeira[1,4,5,6]
[1]Universidade Lusófona, Faculdade De Medicina Veterinaria, Lisboa, Portugal, [2]Faculty of Veterinary Medicine, University of Lisbon, Ciisa – Centre For Interdisciplinary Research In Animal Health, Lisboa, Portugal, [3]Associate Laboratory for Animal and Veterinary Sciences, (al4animals), lisboa, Portugal, [4]UTAD, Veterinary And Animal Research Center (cecav), Vila Real, Portugal, [5]Associate Laboratory for Animal and Veterinary Sciences, (al4animals), Vila Real, Portugal, [6]Instituto Politécnico da Lusofonia, Escola Superior De Saúde, Proteção E Bem-estar Animal, Lisboa, Portugal

Introduction:

In traditional medical curricula, understanding how basic sciences' curricular units (CU) are interconnected is challenging for students and often misunderstood, leading to lack of motivation, apathy and poor engagement in learning. Gaining consciousness of these relations reinforces CU relevance, encouraging engagement and deeper learning. Problem-based learning (PBL) allows for students to explore connections among disciplines and topics while working to solve real world problems.

Objectives:

To design and implement an interdisciplinary PBL project with CU from 1st to 4th year (anatomy, medical propaedeutics, and imaging) and evaluate students' perception and understanding on the interconnection of these CU.

Methods:

First (n=35), 2nd (n=7), 3rd (n=38) and 4th year (n=37) students were divided into 14 groups. Students of each year/CU were considered experts in their subjects. Each group was asked to workup a clinical case during a semester. Clinical history, blood work and imaging results were provided. The groups then presented their solutions via online platforms. Exit surveys were performed and students (n=97) were asked if they improved their understanding of their individual CU and its interconnection with other CU.

Results:

All students who completed the survey stated the project had increased their understanding of how their individual UC was interconnected with others within the course.

Conclusions:

PBL is a powerful teaching method that brought together junior and senior students, successfully enabling self-regulated and cooperative learning. This project allowed students to acknowledge the contribution of each CU in veterinary medicine curricula and its application in realistic contexts, leading to increased motivation and better learning performances.

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170 / #67

Topic: *AS32. Teaching/Education*

GENERATION OF 3D MODELS FOR SURGICAL EDUCATIONAL TRAINING: CANINE INTRANASAL TUMOR

Juan Andrés De Pablo-Moreno[1], Ana Óvilo-Garmendia[2], Manuel Fuertes-Recuero[2], Pedro Plaza[3], Gustavo Ortiz-Díez[4], Andrea Miguel-Batuecas[1], Luis Revuelta[2]
[1]School of Biology, Complutense University of Madrid, Department Of Genetics, Physiology And Microbiology, Madrid, Spain, [2]School of Veterinary Medicine, Complutense University of Madrid, Department Of Physiology, Madrid, Spain, [3]DBvet, Diagnostic Imaging Service, Alcorcón, Spain, [4]College of Veterinary Medicine, Complutense University of Madrid, Department Of Animal Medicine And Surgery, Madrid, Spain

Introduction:

Intranasal tumors in dogs have an incidence of malignancy of 80%. The main techniques for diagnosis are radiography, rhinoscopy, and computed tomography scan (CT) and as possible treatments are surgery, radiotherapy, or medical treatment.

Objectives:

The purpose of this work is to provide the surgeon with 3D virtual tools for study, training, and future treatment, as well as preparation for surgery if necessary.

Methods:

CT scans were performed in a healthy patient and in two patients with suspected nasal tumors. Moreover, the images in DICOM format were processed with 3D Slicer, obtaining a 3D virtualized model that was uploaded to the Sketchfub repository with explanatory annotations. On the other hand, the STL files were printed on nylon powder to be used as physical models.

Results:

The material is available on https://www.ucm.es/fisioanimvet/english-1.

Conclusions:

Nasal cavity surgery in the veterinary field is complicated and it is characterized by limited training, knowledge, and experience. Together with its complex anatomy, poor prognosis, and low casuistry, it is difficult to perform surgery in a non-specialist referral center. Therefore, this work provides a tool for a veterinary surgeon to complement his anatomical knowledge of the nasal cavity and surgical planning, as well as to reduce surgical times or the possible appearance of complications during such surgery. The use of virtualized models and 3D printed devices could support the surgeon's surgical training in the nasal cavity, which would be a great help in the field of veterinary surgery. In addition, these models would allow for individualized patient treatment and surgical planning.

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171 / #790

Topic: *AS36. Veterinary Communication*

INEFFECTIVE CLIENT COMMUNICATION IS THE MAIN REASON FOR COMPLAINTS FROM VETERINARY SERVICES IN PORTUGAL

Pedro Fabrica[1], Manuel Magalhães-Sant'Ana[2,3,4], Ricardo Barroso[5], Felisbina Queiroga[6,7,8]
[1]Centro de Ciência Animal e Veterinária, Universidade De Trás-os-montes E Alto Douro, Rio de Mouro, Portugal, [2]Ordem dos Médicos Veterinários, Conselho Profissional E Deontológico, Lisboa, Portugal, [3]Universidade de Lisboa, Faculdade De Medicina Veterinária, Lisboa, Portugal, [4]Laboratório Associado para Ciência Animal e Veterinária, (al4animals), Lisboa, Portugal, [5]Universidade de Trás-os-Montes e Alto Douro (UTAD), Education And Psychology Department, Vila Real, Portugal, [6]Centro de Ciência Animal e Veterinária, Universidade De Trás-os-montes E Alto Douro, Vila Real, Portugal, [7]University of Trás-os-Montes and Alto Douro, Department Of Veterinary Sciences, Vila Real, Portugal, [8]University of Trás-os-Montes and Alto Douro, Associate Laboratory For Animal And Veterinary Sciences (al4animals), Vila Real, Portugal

Introduction:

Veterinary clinical services involve close contact with clients but the role of ineffective veterinarian-client communication in Portugal has never been investigated. The Portuguese Veterinary Order (Ordem dos Médicos Veterinários, OMV) is the regulatory body responsible for assessing complaints against veterinary services through the Physical and the Electronic Complaints Books.

Objectives:

To characterize the impact of ineffective communication in clients' complaints received by the OMV through the Electronic Complaints Book.

Methods:

We retrospectively evaluated the electronic complaints received during the year 2022 (n= 117). After data cleaning, 103 complaints were considered eligible for analysis, following the error causation model from Oxtoby *et al*. 2015, supplemented by a finer analysis using the parameter "COMMUNICATION", suggested by Russel *et al*. 2021.

Results:

53.4% of complaints received were due to ineffective communication (table 1), namely failure to achieve mutual understanding (65.5%) and failure to transmit information (34.5%). In addition, 36% of the communication-based complaints had a negative impact (delay in treatment, potential harm, death) on the patients. Companion animals (dogs and cats) were involved in 89.3% of complaints.

Conclusions:

Most of the clients' complaints reported to OMV in 2022 in Portugal are due to ineffective communication. This cause of complaint may negatively impact about one-third of the clinical outcome of patients. Improving training in clinical communication skills is warranted, to reduce litigation and improve the quality of veterinary services.

177 / #81

Topic: *AS12. Gastroenterology and hepatology*

SUCCESSFUL MANAGEMENT OF POSTATTENUATION NEUROLOGIC SIGNS AND PORTAL HYPERTENSION IN A DOG WITH CONGENITAL PORTOAZYGOUS SHUNT

Jin-Young Kim, Joong-Hyun Song
Chungnam National University, Department Of Veterinary Internal Medicine, College Of Veterinary Medicine, Daejeon, Korea, Republic of

Introduction:

Postattenuation neurologic signs (PANS) and portal hypertension are reported to be devastating complications after attenuation of congenital portosystemic shunt.

Objectives:

A 6-year-old neutered male Poodle dog diagnosed with congenital extrahepatic portoazygous shunt. 5 days after surgical attenuation, the patient showed PANS. Mental dullness, hypoalbuminemia, anemia, and gastrointestinal bleeding were identified, indicating persistent hepatic encephalopathy and the presence of portal hypertension.

Methods:

Blood tests, radiography, ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI) data were acquired sequentially**.**

Results:

Postoperative CT findings (11 days) still revealed portal vein hypoplasia and no significant change in the diameter of shunt vessel compared to before the surgery. MRI findings identified cerebral cortical necrosis with brain atrophy. PANS were successfully managed with antiepileptic drugs, but third space fluid accumulation (e.g., ascites, peripheral edema) and phlebectasis were newly identified, suggesting marked portal hypertension. To resolve portal hypertension, telmisartan, spironolactone, carvedilol, and prednisolone were sequentially added. One month after the surgery, CT findings revealed a decrease in the diameter of shunt vessel and marked increase in the diameter of portal vein branch entering the liver, suggesting the alleviation of portal hypertension. 3 months after the surgery, both abnormal clinicopathological values and clinical signs were entirely resolved, indicating successful management of PANS and portal hypertension.

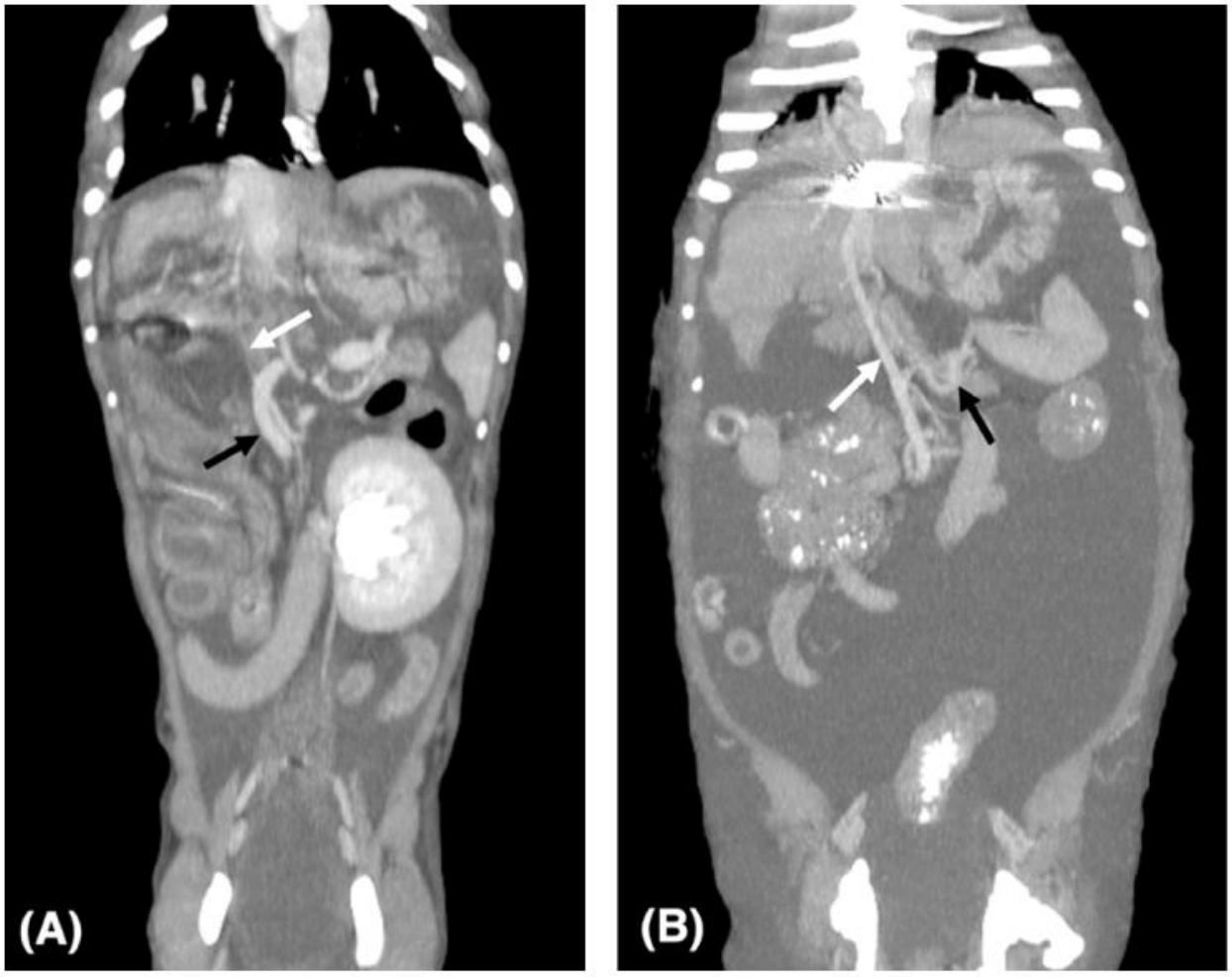

FIGURE 1. Dorsal view of postoperative abdominal CT imaging each after 11 days (A) and 28 days (B). Marked decrease in the diameter of shunt vessel (black arrow) and enlargement of the portal vein entering the liver (white arrow) was identified 28 days post-surgery (B), suggesting the alleviation of portal hypertension.

Conclusions:

We herein provide successful management strategies of PANS and portal hypertension in a dog with congenital portoazygous shunting after surgical attenuation.

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183 / #36

Topic: *AS23. Orthopedics*

SURGICAL MANAGEMENT OF CRANIODORSAL COXOFEMORAL LUXATION IN A DOG USING A NEW UHMWPE IMPLANT

Philippe Buttin[1], Bastien Goin[2,3,4], Antonin Crumiere[4], Eric Viguier[2], Thibaut Cachon[2]
[1]Itinerant surgeon, Itinerant Surgeon, Villaz, France, [2]Université de Lyon, VetAgro Sup, Interactions Cellules Environnement (ice), Marcy l'Etoile, France, [3]Univ Lyon, Univ Gustave Eiffel, Univ Claude Bernard Lyon 1, Lbmc Umr_t 9406, Lyon, France, [4]Novetech Surgery, R&d, Monaco, Monaco

Introduction:

Coxofemoral luxation (CFL) accounts for 90% of cases of joint luxation in dogs, mainly caused by trauma. Current treatment recommendations include extra- or intra-articular stabilization of the hip joint by iliofemoral suture or various synthetic implants, generally using toggle pins for acetabular fixation.

Objectives:

Treat an 8-year-old male bearded collie who was referred for left traumatic CFL subsequent to a dog fight.

Methods:

The orthopedic examination of the CF joint revealed pain and cracking, and a dorsal displacement of the greater trochanter. X-rays confirmed the diagnosis and discreet osteoarthritis was observed. Surgical treatment was performed by primary ligament repair, followed by the insertion of an UHMWPE implant which was pre-assembled with a cortical button and implanted with an interference screw for the intra-articular reconstruction of the round ligament. Immediate postoperative X-rays showed that the implantation of the interference screw followed the drilling axis.

Results:

The dog started using the operated hindlimb one day postoperatively. At four weeks postoperatively, orthopedic examination showed no lameness nor pain during mobilization, nor loss of joint mobility in the contralateral hindlimb. 4-week postoperative X-rays showed perfect cooptation of the operated coxofemoral joint.

Conclusions:

Reconstruction of the round ligament using an UHMWPE implant fixed by an acetabular cortical button and a femoral interference screw was an early success in this case report, as shown by postoperative X-rays and orthopedic control. However, owing to the short postoperative follow-up period, this result needs to be confirmed. A prospective study has already been launched to validate or refute these encouraging findings.

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184 / #37

Topic: *AS23. Orthopedics*

ACHILLES TENDON REPAIR USING AN ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE IMPLANT SECURED BY AN INTERFERENCE SCREW: A RETROSPECTIVE STUDY IN 37 CASES.

Philippe Buttin[1], François Fauqueux[2], Fabrice Bernard[3], Bastien Goin[4,5,6], Hélène Le Pommellet[7], Antonin Crumiere[6], Hervé Brissot[8], Pablo Rivier[9], Jonathan Pink[10], Benito De La Puerta[11], Elvin Kulendra[11], Eric Viguier[4], Thibaut Cachon[4]
[1]Itinerant surgeon, Itinerant Surgeon, Villaz, France, [2]Clinique vétérinaire Animed, Clinique Vétérinaire Animed, Gap, France, [3]CHV Saint-Martin, Chv Saint-martin, Allonzier la Caille, France, [4]Université de Lyon, VetAgro Sup, Interactions Cellules Environnement (ice), Marcy l'Etoile, France, [5]Univ Lyon, Univ Gustave Eiffel, Univ Claude Bernard Lyon 1, Lbmc Umr_t 9406, Lyon, France, [6]Novetech Surgery, R&d, Monaco, Monaco, [7]Ottawa animal emergency and specialty hospital, Animal Emergency And Specialty Hospital, Ottawa, Canada, [8]AzurVet, Centre De Vétérinaires Spécialistes, Saint-Laurent-du-Var, France, [9]OnlyVet, Centre Hospitalier Vétérinaire, Saint-Priest, France, [10]Linnaeus Veterinary Group Trading, Willows Veterinary Centre And Referral Service Ltd, Solihull, United Kingdom, [11]Willows Veterinary Centre & Referral Service, Orthopaedics, Bletchingley, United Kingdom

Introduction:

Immobilization after Achilles tendon repair remains challenging and associated with a high rate of complications.

Objectives:

The aim of this study is to report clinical outcome and complications in the use of an ultra-high molecular weight polyethylene (UHMWPE) implant with minimal post-operative immobilization.

Methods:

Thirty-five dogs from 9 referral centers were included in this study. Data from November 2018 to December 2022 were collected. All repairs were performed using a UHMWPE implant (Novaten, Novetech Surgery, Monaco) secured to the proximal native tendon with a modified overlock suture technique and to the calcaneus using a two tunnels technique and an interference screw. Post-operative immobilization consisted of 4 to 6 weeks of lateral splint. Clinical outcome was subjective evaluation from the surgeons based on orthopedic examination.

Results:

Thirty-seven repairs were included in this study. Mean duration of follow up was 8,6 months (1-34 m, sd 8,6). Eleven major complications (29,7%) were reported, including 8 post-operative infections (21,6%), 3 repair failures (8,1%) and 1 calcaneal fracture (2,7%). Four patients required an arthrodesis (10,8%). All patients requiring implants removal had a normal stance afterward. Outcome was good to excellent in 35/37 cases (96.5%). No catastrophic failure was reported.

Conclusions:

The use of a synthetic tendon as an internal bracing in Achilles tendon repair is a safe procedure that should be considered among other traditional techniques, according to those preliminary results. This

study showed that if the tendon healed properly over the implant, it was feasible and safe to remove the implants.

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185 / #38

Topic: *AS23. Orthopedics*

A NOVEL LESS INVASIVE TECHNIQUE FOR SURGICAL TREATMENT OF TRAUMATIC SHOULDER INSTABILITY IN A SMALL DOG

Julien Letesson[1], Antonin Crumiere[2], Bastien Goin[2,3,4]
[1]Clinique vétérinaire Lameilhé, Clinique Vétérinaire Lameilhé, Castres, France, [2]Novetech Surgery, R&d, Monaco, Monaco, [3]Université de Lyon, VetAgro Sup, Interactions Cellules Environnement (ice), Marcy l'Etoile, France, [4]Univ Lyon, Univ Gustave Eiffel, Univ Claude Bernard Lyon 1, Lbmc Umr_t 9406, Lyon, France

Introduction:

Traumatic medial shoulder instability in dogs is attributed to injury of the medial glenohumeral ligament (MGHL), subscapularis tendon and/or medial joint capsule. The common surgical treatment is stabilization of the shoulder joint by repairing these structures, supplemented by biceps tendon transposition or implantation of a braided implant with anchors.

Objectives:

To treat a 10-year-old female fox terrier presented with non-bearing lameness of the right forelimb four months after a dog fight.

Methods:

The orthopedic examination showed major medial instability with amyotrophy of the shoulder. A subluxation was observed upon palpation. Stress radiographs confirmed the medial instability with an angle of 100º in the sagittal plane. MRI showed tearing of the joint capsule and MGHL, as well as disinsertion of the subscapularis muscle. Surgical treatment consisted in the reconstruction of the joint capsule associated with the placement of an UHMWPE implant following the physiological axis of the MGHL, fixed by a pre-assembled cortical button through the glenoid and one humeral interference screw. A Velpeau sling was placed for 2 weeks.

Results:

At 16 days postoperatively, the dog started using her forelimb with improved lameness over time. 1-month postoperative stress radiographs showed perfect cooptation of the operated shoulder joint. 3.5 and 10-month postoperative radiographs revealed a widening of both tunnels without any impact on the successful locomotion outcome measured up to 3 years postoperatively.

Conclusions:

The use of an UHMWPE implant allows respecting the physiological joint anatomy, while effectively stabilizing the shoulder joint without any interference due to mechanical conflict between implant and joint structures.

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