22nd FAVA CONGRESS 2023
KUCHING • SARAWAK
MALAYSIA

33RD MALAYSIAN VETERINARY MEDICAL ASSOCIATION (MAVMA) CONGRESS 2023

E-Proceeding

Abstracts of Oral and Poster Presentations

FAVA Congress 2023

3rd November 2023 - 5th November 2023

Borneo Convention Centre Kuching

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Sarawak Veterinary Associations

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Malaysia Truly Asia

Sarawak More to Discover

Prof. Dato' Dr. Quaza Nizamuddin Hassan Nizam

Forward

It is my pleasure to announce that the **Malaysian Veterinary Medical Association, (MAVMA)** will be organising the **22nd Federation of Asian Veterinary Associations (FAVA) Congress 2023** which will be held from **3rd-5th November 2023** at **Borneo Convention Centre Kuching, Sarawak, Malaysia in conjunction with 33rd MAVMA Congress.**

FAVA is a regional organisation whose membership is composed of 27 different professional veterinary associations, associate, and affiliate members in the Asia Oceania region with more than 100, 000 veterinarians while MAVMA is a professional association for all registered veterinary surgeons under the Malaysian Veterinary Council.

This biannual Congress gathers veterinarians, academicians, and industry players to meet, discuss and exchange ideas, knowledge and expertise to improve the veterinary profession and to enhance the veterinary services to better serve the animal sector and society at large.

This year's Congress will look at the global threat of climate change, biodiversity loss, animal health and welfare. The size and diversity of the region is large and the consequences of these global threats on animal health may be affected by heat-related diseases and stress, extreme weather events, adaptation of animal production systems and emergence and re-emergence of infectious diseases, especially vector-borne diseases. In addition, the importance of animal welfare, food safety and antimicrobial resistance will need to be emphasised.

Hence, it is therefore crucial for countries to have strong and efficient veterinary services workforce whether in the public or private domain to be able to tackle the many challenges faced in the veterinary field and in the industry. We hope this compilation of abstracts from the Scientific Congress which includes a record of oral and poster presentations will be beneficial to all in the scientific community. Our fellow committee members are working hard to put together an impactful and relevant scientific programme, with specially crafted workshops and masterclasses with excellent invited speakers. We hope this Congress serves as an excellent platform for fellow FAVA country members to meet and greet, make connections and network.

I would like to extend my sincere invitation to fellow colleagues in FAVA and MAVMA to join us in the 22nd FAVA Congress 2023 and 33rd MAVMA Congress 2023 and to make this congress a great success.

On behalf of FAVA, MAVMA Executive Committee and the Organising Committee, we thank you for your support and look forward to seeing you at the congress!

Prof. Dato' Dr. Quaza Nizamuddin Hasan Nizam
Chairman 22nd FAVA & 33rd MAVMA Congress

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Transforming Malaysia Into a More Food-Secure Nation

Datuk Badrul Hisham bin Mohd

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(To be updated)

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Improving Livestock Health and Production Through Optimal Animal Welfare

Prof. Dr. Temple Grandin

Abstract
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The Veterinarian's Role Towards Sustainable Livestock Transformation in the Asia-Pacific Region

Dr. Kachen Wongsathapornchai

Abstract
(To be updated)

Challenges in the Prevention and Control of Transboundary Animal Diseases (TADs) and Zoonoses in Asia-Pacific Region

Dr. Ronello Abila

Abstract
(To be updated)

Abstracts of Oral Presentations (*Invited Speakers*)

Session 1: Small Animal Medicine & Surgery

What If The Seizures Don't Stop? Common Problems In Epilepsy Management

Steven De Decker
Royal Veterinary College, United Kingdom

Abstract

It is important to go back to the basics when things don't go to plan. This can be done by following the 'tripe D' mnemonic; Disease, Dose and Drug.

DISEASE:

A common reason for unsuccessful therapy with anti-epileptic drugs (AEDs) is that the animal does not suffer from epileptic seizures. Several conditions can mimic seizures, which include syncope, REM-sleep disorders, and movement disorders. Movement disorders are especially difficult to differentiate from seizures.

DOSE:

Another common cause of unsuccessful treatment is an insufficient dose of AEDs. Assessment of the correct dose of common AEDs, such as phenobarbitone, can only be evaluated by therapeutic serum concentrations. Two common mistakes in the management of epilepsy are (1) failure to obtain therapeutic serum concentrations and (2) adding an additional AED before the first AED has been given maximum opportunity to be effective.

DRUG:

It should be considered to add a second AED when no satisfactory response is reached despite adequate therapeutic serum concentrations of the first AED. Only a few AEDs can be used as maintenance drug. The AEDs that can be used as maintenance drug include phenobarbitone, potassium bromide, Imepitoin and zonisamide.

Although Levetiracetam is a popular AED, which is useful in emergency situations, it is not effective as a maintenance AED in dogs. Studies have demonstrated a decreased effectiveness when levetiracetam is administered for a prolonged period of time, which has been referred to as the 'honeymoon' phenomenon.

When patients do not respond to a second AED, it becomes unlikely they will respond to any AED. Drug-resistant or refractory epilepsy is considered when an animal does not satisfactorily respond to two well-established AEDs with evidence of adequate therapeutic serum concentrations.

Unravelling Anaemia In Cats And Dogs

Malaika Watanabe (DVM, PhD, DAiCVIM)
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Abstract

Anemia is a common condition encountered in small animal practice and a systematic approach to the diagnosis can help the clinician narrow down the differentials. The initial step in the diagnosis is to categorize the anemia as either regenerative or non-regenerative. This can be readily achieved through examination of a blood smear and analyzing the RBC parameters from a complete blood count. Nonregenerative anemias are usually normocytic normochromic and RBC morphology is typically normal on a blood smear. In cases of regenerative anemia one would expect to see macrocytosis and hypochromasia and blood smears would reveal the presence of significant polychromasia and anisocytosis. Reticulocyte counts can provide evidence of regeneration however it must be interpreted in light of the degree of anemia. Once the regenerative status has been determined, more specific causes for either category can then be investigated. The most common cause of nonegenerative anemia is anemia of inflammatory disease however there are other possible causes including retroviral infections in cats, therefore an array of tests may be indicated to pinpoint the exact cause. If the anemia has been determined to be regenerative, the next step is to differentiate blood loss anemia from hemolysis and the easiest way to do this is to identify a decrease in total solids which would be consistent with a blood loss anemia. Diagnostic investigation would then focus on determining the exact nature and location of the blood loss. Finally hemolysis is considered when blood loss has been ruled out. The most common cause of hemolysis in dogs and cats is IMHA which can be primary or secondary. A diagnosis of IMHA is supported by one or more of the following; autoagglutination, positive Coombs test result, spherocytosis (in dogs) and increased osmotic fragility. Elucidating the exact cause of anemia may be discouraging at times however a systematic approach often leads to a correct diagnosis.

Clinical Approach to Respiratory Infectious Diseases of Dogs and Cats

Paweł M. Bęczkowski 1,2
1 Therapeutic Guidelines Group, World Small Animal Veterinary Association,
2 Department of Veterinary Clinical Sciences, Jockey Club College of Veterinary Medicine and Life Sciences, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong

Abstract

Normal microflora including Pasteurella multocida, Bordetella bronchiseptica, streptococci, staphylococci, and coliform bacteria, residing in the airways is usually harmless. Opportunistic infections however can occur when animal's respiratory defenses are compromised. This can occur due to primary viral infections (distemper, parainfluenza virus, or canine type 2 adenovirus in dogs, and rhinotracheitis virus or calicivirus in cats), exposure to harmful substances, environmental factors, predisposing anatomical abnormalities or co-morbidities and neoplastic diseases. This talk will review diagnostic and therapeutic approach to respiratory infections in a context of existing International Society for Companion Animal Infectious Diseases (ISCAID) guidelines for treatment of respiratory tract disease. Particular emphasis will be placed on antimicrobial treatment choices and clinical scenarios where antimicrobials are not required.

The Use of Computed Tomography (CT) in cases with Head and Neck Disease

Sivan Ayahsamy, DVM, PG Dip, Cert CT

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Abstract

Computed tomography (CT) greatly enhance the diagnostic possibilities and rapidly becoming an important tool in veterinary medicine particularly in small animal practices. CT is an imaging modality that utilizes x-rays and powerful computers to construct cross-sectional images of patient. They offer superior contrast resolution (capacity of a system to accurately represent differences in tissue) compared to radiology. In particular, with these advanced imaging techniques it is possible to differentiate between various types of soft tissues. CT is cross-sectional imaging techniques; this means that the head and body can be examined in slices thereby eliminating the disadvantage of superimposition which is found in conventional radiography.

CT of the head was one of the first applications of CT in veterinary patients and was initially used principally for the diagnosis of intracranial and nasal disease.

Key indications for head and neck CT include nasal diseases, pre-surgical staging and regional lymph node evaluation, ear disease, brachycephalic syndrome, inability to open or pain on the opening of mouth, head and neck masses, dental disease, ocular and orbital disease, head trauma and cervical vertebral disease.

Session 2:
Zoonosis & One Health in Asia

Management Of Zoonotic Diseases From DVS Perspective

Dr. Aida binti Muhid

Disease control and Veterinary Biosecurity, Department of Veterinary Services, Putrajaya, Malaysia

Abstract

Zoonotic diseases are infections transmitted between animals and humans. The prevalence of emerging infectious diseases has witnessed a global increase with around 70% of these infections being zoonotic. Similarly, there were zoonotic disease epidemics in Malaysia, and their management posed numerous obstacles. , including the High Pathogenic Avian Influenza, Nipah infection, Rabies, Brucellosis, Q fever, and Tuberculosis. The management of zoonoses necessitates a One Health strategy involving multidisciplinary and multiagency cooperation. Using the One Health approach, we have effectively contained disease outbreaks, beginning with Nipah disease and continuing through the last HPAI infection in Sabah in 2018.

This presentation will conduct an in-depth review of controlling zoonotic diseases, specifically focusing on Rabies infection. In July 2013, the approval for self-declaration-free Rabies was granted for peninsular Malaysia. Nonetheless, between 2015 and 2018, several cases of rabies infection were reported, and the disease was declared eradicated in January 2019. Rabies infection in Sarawak began on 1 July 2021 and continues to this day; as of 10 August 2023, there were 72 areas of infection, 68 human cases, and 59 fatalities. An immune belt has been implemented in the northern region of Peninsular Malaysia since 1955, with the purpose of serving as a containment zone to prevent the infiltration of the rabies virus into the country. Similarly, a separate immune belt was formed in 2017 between Sarawak and Kalimantan.

All dog owners needed to register and obtain pet licenses in territories designated as immunity belts. Additionally, annual vaccinations were necessary for these licensed dogs. Unlicensed and stray dogs were subjected to a compassionate euthanasia process. Furthermore, periodic activities such as campaigns, consultations, and simulation exercises were carried out in these locations. Vaccination is not obligatory in regions beyond the immunization belt, and the responsibility of licensing lies with the local government or the Department of Veterinary Services (DVS). The implementation of collaborative efforts and cooperation with many agencies encompassed a range of activities, such as ongoing training and simulation exercises, managing dog populations, awareness campaigns, managing dog bites, and surveillance of Rabies.

In conclusion, interagency cooperation, especially collaborative investigations, surveillance, and diagnosis, is crucial to ensure effective disease control and minimize resource waste.

Zoonotic Malaria in Southeast Asia: Challenges for Regional Malaria Control

Balbir Singh

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Abstract

Plasmodium knowlesi, *P. cynomolgi, P. inui, P. fieldi, P. coatneyi* and *P. simiovale* are malaria parasites typically found in nature in long-tailed and pig-tailed macaques in Southeast Asia. Naturally-acquired human infections with any of these simian malaria parasites were thought to be extremely rare, until a large number of human infections with *P. knowlesi* was reported in 2004 in Sarawak, Malaysian Borneo. Subsequently, cases have been described throughout Southeast Asia and in the Nicobar and Andaman Islands of India. More recently, a small number of human infections with *P. cynomolgi, P. inui, P. coatneyi* and *P. simiovale* have been described in Southeast Asia. Molecular detection methods are necessary to distinguish *P. knowlesi* from *P. malariae* since they are morphologically identical. Similar detection methods are also essential for the identification of the other zoonotic malaria parasites since they morphologically resemble *P. vivax, P. malariae* and/or *P. ovale*. Rapid Diagnostic Tests (RDTs) evaluated to date have poor sensitivity of detection of *P. knowlesi*. The molecular, entomological and epidemiological data indicate that knowlesi malaria is a zoonosis in Southeast Asia. Zoonotic malaria cases have continued to rise and over the past 4 years, *P. knowlesi* has become the sole cause of indigenous human malaria cases in Malaysia. Methods that are currently used to prevent and control human-to-human transmission of malaria, such as insecticide-treated bed nets and indoor residual spraying of houses, will be ineffective against zoonotic malaria since the vectors are forest-dwelling mosquitoes that are outdoor feeders. Furthermore, macaques and other non-human primate hosts of zoonotic simian malaria parasites are protected wildlife species and their large population serves as a reservoir for zoonotic malaria parasites. Novel methods of control, directed at the vectors and the non-human primate hosts, need to be developed together with sensitive RDTs, as these are essential for controling zoonotic malaria.

Pandemic Preparedness and Response: Zoonosis and One Health Approach

Dr. Vickneshwaran Muthu

Abstract

The ongoing global challenges posed by pandemic threats necessitate a re-evaluation of our approaches to public health, recognizing the intricate interplay between human, animal and environmental sectors. In recent years, zoonotic diseases have repeatedly crossed the species barrier, leading to widespread human health crises. There are necessities to recognise the imminent threat of potential pathogens that have the abilities to spillover between species causing catastrophic impact. Experts and stakeholders from the fields of human health, veterinary science, environmental science and public health are required to delve into the complexities of zoonotic diseases and the pivotal role of the One Health approach in pandemic prevention and management. By embracing the interconnectedness of human, animal, and environmental health, fostering interdisciplinary collaboration, and promoting sustainable practices, this approach offers a comprehensive and forward-thinking strategy for preventing, detecting, and managing pandemic threats.

Anthropogenic Habitat Alteration And The Dynamics of Zoonotic Disease Transmission

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Abstract

Anthropogenic changes in land use and habitat fragmentation are known to alter the dynamics, and increase the risks of zoonotic disease transmission. The displacement of sylvatic disease reservoirs from their natural habitat, their subsequent colonization into the peri-domestic environment and their close interactions with synanthropic animals, narrows the disease transmission interface. This substantially increases the risk of zoonotic spill-over from the sylvatic cycle.Several emerging zoonosis in the region have been linked to human-related alterations in the landscape, and have been attributed to partial or total destruction of natural habitats. While clearing of forests for agriculture, industry, and human inhabitation contributes to national development and economic progress, the challenge is to ensure that these practices are sustainable for the environment and its natural inhabitants. This presentation will encompass the changing dynamics of disease transmission of wildlife zoonotic diseases in the region, with focus on the spatial distribution and transmission of zoonotic primate malaria caused by Plasmodium knowlesi. This disease is now recognised as a major and fatal zoonosis in Southeast Asia and sustainable development efforts including impact assessments and habitat buffers need to be instituted to control the ongoing spread of the disease in humans. Emerging data has shown that peri-domestic non-human primates have higher prevalence of P. knowesi infection, and human-induced changes in the landscape and forest fragmentation correlate with higher parasite prevalence in the reservoir host. These findings suggest that ecological pressures are among the important determinants of zoonotic disease transmission dynamics. A comprehensive understanding of the impact of habitat alteration on disease spatial distribution patterns and epidemiological risk factors will facilitate better prevention and control measures for zoonotic diseases in the region.

FAVA One Health Initiative and FAVA One Health Fukuoka Office

Kurauchi Isao

President, FAVA and JVMA

Abstract

The origin of the concept of "One Health" dates back to the "Manhattan Principles" called "One World, One Health" proposed at a symposium hosted by the Wildlife Conservation Society at Rockefeller University in Manhattan in 2004. The Japan Medical Association (JMA) and the Japan Veterinary Medical Association (JVMA) have recognized the importance of close collaboration between physicians and veterinarians in implementing One Health. Both associations signed an agreement on the promotion of academic cooperation in 2013. In 2016, the second international conference on One Health by the World Veterinary Association and the World Medical Association was held in Fukuoka Prefecture, and the "Fukuoka Declaration" was adopted, which consisted of four items that physicians and veterinarians would work together on for the practice of One Health. Furthermore, the JVMA has established a "One Health Promotion Study Committee" since 2019 and has been engaging in request activities to various ministries and political parties for promoting practical measures for "One Health", as well as holding symposiums in collaboration with the JMA.

In 2020, the "Fukuoka Prefecture One Health Promotion Basic Ordinance," the first domestic ordinance related to One Health, was established, and in 2022, the "Ordinance on Promoting the Practice of One Health" was established to ensure the effectiveness of One Health efforts. Furthermore, in 2023, the "Tokushima Prefecture One Health Promotion Ordinance" was established, and the movement to establish One Health-related ordinances is spreading domestically.

Against this background, FAVA One Health Fukuoka Office (FOF) was established in August of this year to promote One Health initiatives in the Asian region. FOF will collect information from various countries in Asia and collaborate with organizations such as WOAH and FAO to lead practical activities for One Health, focusing on zoonotic diseases and antimicrobial resistance.

FAVA Strategic Plan 2021-2025 on Food Security and Food Safety

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Abstract

The FAVA Strategic Plan 2021-2025 which has six pillars: internal & collaboration, one health, Veterinary education, Animal welfare, Pharmaceutical Stewardship, and Food Security and Safety, was approved at the 42nd FAVA Council meeting in 2020 October and standing committees for respective pillars were established in 2021 January to establish practical and feasible plans. The standing committee for Food security and Food Safety decided to deal with two facets independently. For food security, two actions and underpinning activities were established. Under the first objective, two actions entailing three sequences of activities were established respectively. The first action, improve productivity, is supported by three activities: strengthening measure for productive disease, improving the genetic performance of livestock and improving farming techniques. The second action, disease control, is supported by three activities: early detection on the farm, strengthening measures to eradicate the disease and improving standards of livestock and aquatic animal hygiene management. For food safety, one objective: to strengthen the development and implementation of policies necessary to ensure the safety of livestock products was set. The standing committee focused on "Food Chain Approach" and decided to request Members to share information on the food chain approach and practical ways to implement the food chain approach amongst relevant national sectors. The FAVA strategic and implementation.

Session 3:

Empowering Veterinarians in Facing AMR Challenges in Asia : FAVA-WAAW 2023, A Hybrid Seminar

Challenges and the Federation of Asian Veterinary Associations (FAVA) Initiatives to tackle Antimicrobial Resistance (AMR) in the Asia-Pacific

Quaza Nizamuddin Bin Hassan Nizam
Immediate Past President, Federation of Asian Veterinary Associations (FAVA), Malaysia

Abstract

Worldwide an estimated four million human deaths were linked to AMR including 1.3 million human deaths directly caused by resistant bacteria in 2019. The Asia-Pacific region is an important livestock and aquaculture production area where farmers extensively use antimicrobials. It is critical that producers use antimicrobials responsibly and prudently to reduce the incidence of AMR. FAVA is a grouping of national veterinary associations from twenty-four countries which plays a key role in tackling AMR. In collaboration with FAO, FAVA have introduced AMR awareness webinars on AMR to members and eventually developed the FAVA Strategy to tackle AMR 2021-2025. This document is available on the FAVA website (favamember.org) for use by members and member associations. The theme "Empowering veterinarians in Asia towards fulfilling their roles on the Global Action Plan on Antimicrobial Resistance (GAP-AMR)" emphasises the role veterinarians can play to effectively combat AMR. FAVA has taken efforts to improve AMR awareness and understanding among veterinarians, veterinary students, and veterinary associations. FAVA had initiated a survey in several countries on bacterial pathogens in major livestock and aquatic animals. FAVA organised competitions for poultry and swine housing to identify appropriate housing models for use in this region with good biosecurity with the aim of preventing infection and disease control. The FAVA Antimicrobial Stewardship Subcommittee was formed and coordinated webinars and social media contents on the appropriate use of antimicrobials in animals. A copy of the Antimicrobial Veterinary Therapeutic guidelines for food animals was translated from Japanese to English for distribution among FAVA members which can be used to develop their own guideline. Progress on on the implementation of these strategies were monitored and evaluated. These various strategic approaches through FAVA have helped strengthen efforts and initiatives to tackle AMR in the Asia-Pacific region.

Tackling Antimicrobial Resistance in Food Producing Animals in Malaysia: Initiatives and Challenges.

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Abstract

Globally, antimicrobials including antibiotics are widely used in food producing animals to treat infections caused by bacteria, as well as by other microbes, such as viruses, parasites and fungi. The use of antimicrobials in food producing animals has an important impact not only for animal health and welfare, but also for food safety and global food security. Antimicrobial resistance (AMR) is the ability of bacteria to survive or grow in the presence of antimicrobials that are intended to stop or kill them. The increasing incidence of antimicrobial resistance to commonly used antimicrobials is a serious and critical global problem affecting humans, the environment and animals. This is related to the indiscriminate and excessive use of antimicrobials in each of these sectors of agriculture, animal husbandry and human medicine. Malaysia is tackling antimicrobial resistance in food producing animals through holistic action and comprehensive initiatives. These include having a clear policy on antimicrobial use, collaborative health efforts, implementing good animal management practices, increasing awareness and understanding of AMR through effective communication, ongoing AMR surveillance and promoting the use of vaccines and antimicrobial alternatives. In 2017, Malaysia took the initiative through the One Health approach to establish a National Antimicrobial Resistance Committee (NARC) whose membership consists of various disciplines and across sectors as an effort to address the issue of AMR. The Malaysian Action Plan on Antimicrobial Resistance (MyAP-AMR) which is carried out in phases every five (5) years, was started in 2017 and Malaysia is currently in the second phase of the action plan (2022-2026). In addition, Malaysia has established an AMR policy by prohibiting the use of Critically Important Antimicrobials (CIA) in humans and Veterinary Critically Important Antimicrobials (VCIA) in phases in food-producing animals for growth promotion and prevention.

FAVA Strategic Plan 2021-2015 on AMR and Current Situation of the Members

Kohei Makita

Professor of Veterinary Epidemiology, Rakuno Gakuen University, Japan

Abstract

Antimicrobial Resistance (AMR) is a critical threat to humans for anticipated burden of deaths and reduction of global gross domestic product, if urgent and allied actions are not taken. Following the publication of WHO Global Action Plan on AMR in 2015, the National Action Plan was developed in each country. There are key areas of focus in the Global Action Plan on AMR, but the progress in planning and implementation is varied between countries and regions. The FAVA Strategy to tackle AMR 2021-2025 was developed with three goals: (1) reduction of the risks for the emergence and spread of AMR while animal health, production and welfare are reinforced, (2) improvement of the practice of veterinary medicine and promotion of its national, regional and global relevance, and (3) enhance the quality of people's lives in the Asia-Oceania region. This talk introduces the FAVA Strategic Plan and summarizes the situation of the National Action Plans in the member veterinary associations (countries and regions), and the expectations to the FAVA for the support related with the promotion of AMR National Action Plans. In July 2023, a questionnaire designed by the FAVA AMR working group was electronically distributed to the member veterinary associations. The questions include the familiarity of the FAVA Action Plan on AMR, planning and implementation of the National Action Plans, and the request to the FAVA. The response rate was 29.2% (7/24 veterinary associations). Those returned were Hong Kong, Indonesia, Japan, Myanmar, and Timor-Leste Veterinary Associations, and FAVA Thailand Office. The majority (85.7%, 6/7) was familiar to the FAVA Strategic Plan on AMR. All the members responded that the national action plan was in place. Veterinary associations and health sector were involved in two and one members, respectively. Livestock (6), pet (5), and fish (5) were included in the majority of the national action plans, but environment was in only two members. The promotions of awareness raising, AMR surveillance, prevention of infections, and appropriate use were implemented well; however, the promotion of research and development and international cooperation remained low (28.5% - 57.1%, according to the questions). The areas of request to FAVA with high proportions of answers were providing information on all the awareness raising, surveillance, prevention of infections, research and development, and international cooperation, and all members responded that support to developing guideline of drug use is needed.

As the results suggested that questionnaire is useful in identifying the areas of focus for the future activities, active discussions will be expected in the congress for the way forward.

Antimicrobial Stewardship Programmes: Examples and Lessons Learned

Dr. Brian Lubbers

Abstract
(To be updated)

Building The Amr Tackle Box For Veterinarians In The Asia-Pacific Region: Understanding Field Challenges And Needs

Dr. Mary Joy Gordoncillo

Abstract
(To be updated)

Session 4:
Porcine Production & Diseases

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Emerging Pig Disease in Asia

Carlo Maala, DVM, FPCSP

Boehringer Ingelheim Animal Health, ASEAN, Korea, Australia & New Zealand (ASKAN), Swine Segment

Abstract

Porcine Circoviruses There are knowingly, or unknowingly for some, 4 Circoviruses in pigs: PCV1, PCV2, PCV3 and PCV4. PCV2 disease occurrence is gestationally age depended. From early and mid- infection resulting in abortions and mummifications to late gestation infection which can result in viable but already viremic pigs. Its pathogenicity is well established. For PCV3 however, there are still some pathological processes that are unclear but it has been experimentally reproduced to cause reproductive problems in immunocompetent fetuses but still lacks causational evidence.

Porcine Epidemic Diarrhea PED has been ravaging farms in most of SouthEast Asia since 2008 and has maintained its endemicity up to today. Farms that are of Farrow-to-Finish or Continuous flow as well as certain Environmental factors are considered risks. Control includes biosecurity, vaccination, rapid diagnostics and Herd Management. Today, depending on the epidemiological causality, targeted control is the best approach.

African Swine Fever In ASF endemic countries, as they move into recovery and re-stocking, biosecurity is all the more important. Increased on-farm biosecurity standards have to be raised, this then has to be imparted to enhance the knowledge of Farmers. Strict Monitoring, quarantine and rapid ASF detection must be a National commitment. With the increased cost of production, there is a need for better efficiency in the farms to survive in an ASF-endemic situation. As such, we see the trend of transformation of backyard to small farms moving towards large integrated operations or combined Cooperative groups. In an ASF-free situation, strict implementation of biosecurity at the borders (roads, airports and seaports) are critical. This is complemented by ASF pre-screening laboratories which are strategically located, Screening of ASF from illegal pork entry, increased level of Biosecurity in pig herds. Finally, Public Education on ASF is a must.

Disease Control We cannot just talk of these 3 Emerging Diseases without discussing their control. For PCV2, it is pretty much established that vaccine is an important aspect of control. It is important to know that PCV2 vaccines are only for PCV2-initiated diseases and does not cross protect against PCV3. For PED, biosecurity and hygiene are critical parts of its control. ASF is in the dawn of vaccine discovery and use. Nevertheless, biosecurity is still a vital complement to mitigate the entry and re-entry of the virus in a herd. One of the free ASF App that can easily be accessed is the ASF COMBAT which features 35 questions covering areas of animal, transport, management, people, feeding and location biosecurity risks. In all 3 diseases, a holistic approach of a safe and efficacious vaccine (or a need of it) coupled with Biosecurity especially for PED and ASF and an accurate Diagnosis of Circoviruses is important. It is important to know that PCV2 vaccines are only for PCV2-initiated diseases and does not cross protect against PCV3.

Porcine Circoviruses In Southeast Asia

Vivian Tan Chew Yee, Michelle Fong Wai Cheng, Ooi Peck Toung*

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Abstract

Porcine Circovirus Type 1 (PCV1) was initially identified in 1974 as a non-pathogenic contamination in cell cultures. Two decades later, the first clinical outbreak of postweaning multisystemic wasting syndrome (PMWS) was documented, and Porcine Circovirus Type 2 (PCV2) subsequently became widespread within the swine population. To collectively describe multifactorial diseases related to PCV2, the American Association of Swine Veterinarians (AASV) coined the term "porcine circovirus-associated diseases" (PCVAD). Currently, there are knowledge gaps in PCV2 research, including variations in host responses to PCV2 infections and potential immunological distinctions among PCV2 genotypes.

Twenty years after the discovery of PCV2, Porcine Circovirus Type 3 (PCV3) was unveiled during a field investigation into sow reproductive issues. PCV3 was also associated with porcine dermatitis and nephropathy syndrome (PDNS)-like symptoms, as well as cases of myocarditis and multi-organ inflammation. More recently, Porcine Circovirus Type 4 (PCV4) has been identified in both clinically ill and healthy pig populations. It has been suggested that PCV4 may be associated with clinical signs of respiratory disease, enteritis, and PDNS. To date, there have been no reports of PCV4 outside of Asia. The pathogenicity of both PCV3 and PCV4 has been confirmed through infectious clone studies, which have reported multi-organ pathological changes and upregulation of cytokines and chemokines.

In Malaysia, the Malaysian Veterinary Research Institute reported the first PCV2 case in 2004. PCV3 has been confirmed to be present among the Malaysian commercial pig population, with a molecular prevalence of 17.02% (24 out of 141 pigs) in sampled domestic pig populations in 2020. The presence of PCV4 has also been confirmed in Malaysia, with a detection rate of 4.08% (2 out of 49 pigs). However, this prevalence is considerably lower compared to the most recent figures for PCV2 and PCV3 in Malaysian pigs in 2022.

Current Status Of African Swine Fever In Malaysia

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Department of Veterinary Services, Malaysia

Abstract

African Swine Fever (ASF) is a highly contagious and economically important disease that affects the population of domestic pig and wild boar. The causative agent of ASF is African swine fever virus (ASFV), a large double-stranded DNA virus of the genus Asfivirus within the family of Asfarviridae. Although ASF is not a danger to human health, but it has devastating effects on pig populations and the farming economy, due to high mortality rate, which can reach up to 100%. There is currently no effective vaccine against ASF. Since the introduction of ASF into Sabah in February 2021, the disease has been spreading in an unprecedented way to Sarawak and other states in Peninsular Malaysia. In Sabah, the virus was first confirmed in wild boar in Kinabatangan on 8 February 2021, from where the disease spread quickly to other districts in Sabah, then to Sarawak and Peninsular Malaysia affecting wild pigs and domestic pig population raised in backyard and commercial farms. In Peninsular Malaysia, although there have been no confirmed cases of wild boars coming into contact with domestic pigs, the first notified case concerning domestic pigs was reported in December 2021 in Malacca state. Since then, there have been a total of 122 confirmed cases of ASF on Malaysian commercial pig farms involving the state of Sabah, Sarawak, Melaka, Perak, Negeri Sembilan, Pahang, Penang and Johore. Given the virulence of the ASF virus and the myriad of transmission routes across East Malaysia and Peninsular Malaysia, the monitoring of this disease must be a priority for Malaysia.

Session 5:
Poultry Production & Diseases

Managing Risks In Cage-Free Egg Production

Dr. Natasha Lee

Abstract

(To be updated)

Behavioural Management In Cage-Free System

Dr. Natasha Lee

Abstract

(To be updated)

Current Situation of HPAI and How to Mitigate the Pressure in Cage-Free Farming

Jessica LEE T.M.

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Abstract

Since 2020, Highly Pathogenic Avian influenza (HPAI) viruses H5N1 clade 2.3.4.4b causing unprecedented number of outbreaks reported in several regions of the world, had reached an alarming state causing devastating impacts on animal health and welfare, producers' subsistence, farmers' livelihoods , biodiversity, human health, food trade and food security globally. With this virus being endemic among the wild bird population, it is likely that this issue is going to stay. When migratory birds start to migrate during autumn or winter across different continents, new cases of AI are expected to rise again. Today, there is almost never a time when the risk of getting the disease is zero, even when there are no outbreak cases reported, it is still considered as low to medium risk situation. AI could enter the farm in many ways, either through direct or indirect contact with infected poultry or wild birds. Transmission may occur through movement of infected poultry; movement of contaminated equipment, vehicles, pest; and exposure to contaminated infectious organic material. Biosecurity represents the first and most important means of prevention. If biosecurity measures of a high standard are implemented and maintained, they create a strong barrier against infection penetration into the farm. Hence mitigating the pressure with stringent biosecurity is very important for cage-free farming. For the last two decades, stamping-out was the recommended control measures in HPAI infections in many countries. However, with the recent devastating magnitude of outbreaks, millions of poultry were dead or culled, had threaten the global food security. With the recent recommendation from European Food Safety Authority (EFSA) recommending preventive vaccination against AI as part of the strategy to minimize the number of outbreaks and duration of epidemic will move the bar forward in reshaping a new beginning in AI prevention and control strategies.

Upscaling Cage Free, PT Inti Prima Satwa Sejahtera: A Milestone Journey

Roby Tjahya Dharma Gandawijaya

PT Inti Prima Satwa Sejahtera (IPSS), Indonesia

Abstract

In 2002, PT INTI PRIMA SATWA SEJAHTERA (IPSS) made a significant shift from a family-owned broiler business to a leading player in Indonesia's cage-free egg industry. This change was driven by the issues plaguing traditional battery systems, such as hygiene problems, odors, and egg quality issues, along with substantial capital requirements.

In the pursuit of excellence, IPSS began its cage-free journey in deep litter houses, housing 12,000 birds. The approach was characterized by meticulous management encompassing deep litter, feeding, drinking, egg collection, and litter maintenance. Yet, the path was not without its trials, including managing drinkers, feeding, and deciphering the intricate behaviors of hens and chickens, all while vigilantly guarding against disease.

This transformative journey was marked by a profound learning curve. IPSS unearthed the pivotal role of high-quality feed in sustaining consistent production. While the deep litter system offered cost advantages, it underscored the need for precise execution to avert productivity fluctuations and uphold pristine hygiene. IPSS developed a special antibiotic-free diet tailored for cage-free layers and used enrichment materials to enhance bird health and prevent negative behaviors.Enrichment materials assumed a critical role in bolstering immunity and deterring feather pecking.

Housing optimization involved raised slatted systems, providing superior ammonia control, ventilation, and reduced bacterial contamination. Automation, including automatic feeding and nipple drinking systems, streamlined processes and reduced wastage.

IPSS prioritized bird welfare with continual observation, evaluation, and swift action, including training, behavior monitoring, enrichment, and disease control.The results were resounding—stability in egg production, high-quality egg production with fewer chicken health issues. This journey also strengthened IPSS's corporate systems, improving compliance with legal requirements, documentation, and market access. By focusing on feed quality, facility upgrades, and skill development, IPSS ensured consistent production of high-quality eggs while effectively marketing their products, demonstrating their dedication to excellence.

Session 6:
Equine Medicine & Surgery

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Dr. Paul Robinson	Common Conditions of Thoroughbred Racehorses	53
	Wound Management In Horses	54

Equine Respiratory Diseases and Disorders

Assoc. Prof. Dr. Ben Sykes BSc, BVMS, MS, MBA, DipACVIM (LAIM), PhD, FHEA

Massey University, New Zealand

Abstract

This lecture focus on understanding the various conditions that will affect the lower respiratory tract of the horse including a range of disorders, such as recurrent airway obstruction (RAO), inflammatory airway disease (IAD), Exercise Induced Pulmonary Haemorrhage (EIPH), and infectious respiratory diseases. Recurrent airway obstruction (RAO), commonly known as heaves or equine asthma, will be discussed. The lecture will highlight its causes and management strategies, such as environmental modifications, proper stable management, and pharmacological interventions. Inflammatory airway disease, another common lower airway disorder, will also be explored. IAD is characterized by inflammation of the airways in response to environmental irritants and characterise the key differences between IAD and infectious airway disease. The lecture will emphasize the importance of diagnostic techniques, including bronchoalveolar lavage (BAL) and trans-tracheal wash (TTW), to assess airway inflammation and guide treatment decisions. Exercise-induced pulmonary haemorrhage will also be discussed.

Common Conditions of Thoroughbred Racehorses

Dr. Paul Robinson

Abstract

(To be updated)

Wound Management In Horses

Dr. Paul Robinson

Abstract

(To be updated)

Session 7:
Small Animal Medicine & Surgery

How To Approach Acute Hind Limb Paralysis in Practice

Steven De Decker
Royal Veterinary College, United Kingdom

Abstract

INITIAL ASSESSMENT

Decreased spinal cord perfusion is an important factor in spinal injury. It can therefore be considered to stimulate spinal cord blood flow by providing adequate IV fluid therapy. Corticosteroids are not recommended as standard of care in patients with acute spinal injury. They are not associated with any benefit and are linked with a higher risk of severe complications.

TOP DIFFERENTIALS

The 4 most common causes of acute hind limb paralysis in dogs are acute intervertebral disc extrusion, ischemic myelopathy, acute non-compressive nucleus pulposus extrusion (ANNPE), and spinal fracture/luxation.

Acute intervertebral disc extrusion

Acute intervertebral disc extrusion typically affects young chondrodystrophic dogs. Clinical signs have an acute onset and are often, painful and progressive. Ambulatory dogs are often managed medically. Surgery is recommended in non-ambulatory dogs and is associated with a good prognosis if deep pain perception is present.

Ischemic myelopathy and acute non-compressive nucleus pulposus extrusion (ANNPE)

Ischemic myelopathy and ANNPE have an almost identical clinical presentation. They have a peracute onset of clinical signs and are often associated with strenuous activity. ANNPE can also occur after external trauma. Large non-chondrodystrophic dog breeds are most often affected. Although clinical signs can progress in the first 24 hours, both disorders are typically non-progressive. Although dogs often yelp when clinical signs occur, spinal pain is not an obvious feature during examination. Clinical signs can be lateralized. Physiotherapy and hydrotherapy form the cornerstone of treatment. Prognosis is considered good if pain perception is present.

Vertebral fracture/luxation

Vertebral fracture/luxation has a peracute onset of painful clinical signs and is most often associated with external trauma. Assessment of vertebral instability will determine if dogs can be managed medically or surgically.

The Corneal Ulcer is Not Healing: What Now?

Dr. Izak Venter, *BVSc, MMedVet Ophth*

Digital Veterinary Ophthalmology Services, South Africa

Abstract

Corneal ulceration is one of the most common ocular diseases leading to loss of vision in companion animal practice. An ulcer is a lesion of an epithelial surface with exposure of the underlying stroma or basement membrane. An erosion on the other hand refers to loss of some epithelial layers without the exposure of the basement membrane.

Classification

Corneal ulcers can be classified according to the depth of corneal involvement, their underlying cause or complicated vs uncomplicated ulcers.

Diagnostic approach

A complete history may give an indication of underlying cause for example trauma etcetera.

There are three main reasons why corneal ulcers become complicated.

The underlying cause is still present. If a superficial corneal ulcer does not heal within a week the eye should be re-examined with special attention eyelid abnormalities especially distichiasis and ectopic cilia. Examine the conjunctival fornixes and bulbar surface carefully for the presence of foreign bodies. Re do the Schirmer tear test, BUT and lissamine green stain.

The ulcer has become infected by bacteria. In these cases, there are stromal involvement and keratomalacia [melting] of the stroma is normally present. This is seen as a “gelatinous” appearance of the stroma.

It is an indolent ulcer. This is a superficial corneal ulcer with a lip of nonadherent corneal epithelium. In cats indolent ulcers are common in cases with Feline Herpes keratitis.

Maximizing Positive Outcome on Tumor Biopsy Submissions

Dr. Kok Mun Keong, DVM, PhD, DJCVP, DACVP
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Abstract

Neoplastic diseases are diagnosed by biopsy and histopathological evaluation. The pathology report provides critical information for clinicians, and is important in determining prognosis, therapeutic decisions, and overall case management of the cancer patient. This presentation aims to familiarize clinicians with the concepts, indications, and limitations of common biopsy techniques. An incisional biopsy provides information on the tumor type. Understanding tumor biology prior to resection enables better planning of the surgical dose and more accurate prediction of patient outcomes. Excisional biopsy provides a more reliable diagnosis and prognosis (ie, mitotic count, tumor grade), as it allows assessment of complete tumor architecture, surgical margins, and ensures adequate tissue for further ancillary testing (eg, immunohistochemistry). On routine samples, the evaluation of surgical margins is limited to the extent of the neoplasm in two cross sections. Routine margin evaluation evaluates minimal margin tissue and assumes symmetrical, expansile growth of the mass. In the case of a recurring neoplasm or an aggressive cancer (eg, high grade mast cell tumor, Grade 3 soft tissue sarcoma, Grade 3 mammary carcinoma), a complete margin evaluation, specifically via the tangential sectioning (shaved edge sections) method, is indicated. This method, also known as orange peel, covers the entire deep and lateral surface of the mass. In cases where neoplastic cells are detected in these tangential sections, the margin is regarded as dirty. A good biopsy report integrates microscopic findings into a meaningful interpretation. In addition to the tumor type, the report includes a prognostic assessment including lymphovascular invasion, mitotic count, extent of tumor infiltration, and histologic grade whenever applicable. In cases where a conclusive diagnosis cannot be ascertained, the report should include recommendations for additional testing to confirm the diagnosis. This session discusses possible outcomes of biopsy reporting, and postreport options that are available to clinicians and pet owners, especially in cases where conflict exists between the reported information and clinical impression. Successful management of oncology cases requires a highly communicative approach between clinicians, oncologists, and pathologists. This session advocates for a standardized approach to surgical pathology to help clinicians optimally handle biopsy submissions, allowing practitioners to better manage pet owners' expectations regarding cancer diagnosis

Latest Clinical Update on the Use of Photobiostimulation for Small Animal Treatments

Dr. Debora Severo
Indiba Asia

Abstract

Photobiostimulation therapy is a non-invasive treatment that uses specific wavelengths of light to stimulate cellular activity and promote healing. In modern Veterinary Medicine, the use of photobiostimulation or LASER (Acronym: Light Amplification by the Stimulated Emission of Radiation) for severe and chronic pain therapy has proved to be highly effective, accelerating the healing of soft tissues such as muscles, tendons, joints, and post-traumatic pathologies.

With its proven characteristics, photobiostimulation also offers an ideal solution in post-surgical rehabilitation and in rehabilitative therapy treatments. In general, photobiostimulation therapy uses several pulse frequencies to produce a combination of analgesia, inflammation reduction, biostimulation and antimicrobial effect, thus accelerating the regeneration of tissues and increasing cellular energy. Therefore, it is suitable for conditions such as chronic pain, musculoskeletal injuries, neuropathy, wound management, and skin disorders.

Photobiostimulation therapy is considered safe and well-tolerated, making it a promising option for those who seek an alternative or complementary approach to traditional treatments. In this session, Dr. Debora Severo will be sharing her 23 years of experiences incorporating photobiostimualtion therapy in her medical practice.

Dr. Debora Severo is a highly skilled and knowledgeable osteopath physician who specializes in the medical treatment and rehabilitation of animals. Over the years, she has often been involved in professional organizations and engages in collaborative efforts with other veterinary professionals to enhance her knowledge and skills.

Clinical Updates on the Use Of Radio Frequency Technology in Veterinary Rehabilitation for Small Animals

Dr. Kristina Shish
Indiba Asia

Abstract

Achieving successful recovery is one of the key tasks for veterinary teams involved in clinical rehabilitation for small animals. They offer many methods of medical care and rehabilitation practices which may be suited to the animals, based on the type of injuries or surgeries they have had. Hot and cold therapy, manual joint mobilisation, massage, physical exercises are amongst the common practice in the management of musculoskeletal injuries. Animal rehabilitation may also involve the use of electro physical agents such as ultrasound, neuromuscular stimulation (NMES), and transcutaneous electrical nerve stimulation (TENS) machines.

In recent years, radio frequency (RF) is gaining its popularity in the field of rehabilitation for both human and animals. Capacitive Resistive Electric Transfer (CRET) is a non-invasive therapy, with electrical (non-thermal) and thermal effects, based on the application of stable monopolar radiofrequency at 448kHz creating an electrical current within the treatment area. This passage of current increases biostimulation and ionic exchange between the intracellular and extracellular spaces. With increased cellular metabolism, this therapy can effectively induce vascularisation, thus leading to increased tissue microcirculation and vasodilatation, as well as tissue oxygenation, tissue drainage and better healing properties.

In this session, Dr. Kristina Shish will be sharing her clinical experiences incorporating RF therapy in the rehabilitation of small animals. Since 2014, Dr. Kristina Shish has been actively engaged in veterinary rehabilitation and canine sports medicine. She is also a certified canine fitness trainer.

Cytology - What You Give is What You Get - Getting the Best Diagnostic Output from Your Limited Smear Samples

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Abstract

Cytology, or cytopathology is a minimally invasive, rapid, and cost-effective diagnostic technique in veterinary medicine. Cytology encompasses diagnostic sampling techniques that includes impression smear, fine needle aspiration (FNA) and bodily fluid evaluation such as effusions. Cytology is considered as a minimally invasive technique and cost effective as the procedure is quick and most often require minimal restraint and it is unnecessary for sedation, such as impression smear of an ulcerated wound, and the evaluation is immediate. Firstly, the cytological evaluation is the quality of the sample that includes obtaining enough cellularity of diagnostic value which often might be overlooked by the clinicians. Secondly, the identification of the sample presented whether it is inflammatory cells, infectious or non-infection agents, hyperplasia, benign or malignant neoplasia. However, the crucial step of getting the best diagnostic output requires a good acquisition from the sampling collection with the intention of a pathological surface. Among other limitations include incomplete clinical history and the physical findings description of the wound or mass which more often causes difficulties to the clinical pathologist to make an informed decision and diagnosis of the sample given. Information that includes the location of lesion, species and age of the patient, the description of the lesion or mass such as ulceration, consistency of the mass and also the duration the lesion has existed are among the important information that are crucial in assisting the cytological diagnosis. Besides that, some of the samples can be of non-diagnostic value because of incorrect location taken which may have hit on the normal tissue rather than the pathological lesion, especially FNA technique. Hence, it is suggested that more samples should be taken when doing FNA, or repeated sampling for less invasive technique like impression smear and fluid aspiration from effusions.

Key words: cytology, impression smear, fine needle aspiration, effusion, sample handling

Session 8:
ELANCO Symposium

Lion Code; The UK Experience. Layers Salmonella Control – A Case Study

Nicholas Phuah DVM.

Elanco Malaysia

Abstract

Human salmonellosis is one of the most important foodborne diseases worldwide, causing an estimated 93.8 million cases of gastroenteritis globally each year[1].

Poultry meat and eggs are still causing most human zoonotic salmonellosis cases in the EU, although significant improvements have been achieved over the years[2]. The economic burden of *Salmonella* illness was estimated at 1,009 Euro for each case [3], indicating that the reduction of human cases also led to significant economic benefits.

Multiple countries have set up quality schemes in the layer industry to control the spread of Salmonella. Among these the UK Lion Code has been the most successful. The UK layer industry suffered a major setback in 1988. Between 1981 to 1993 the number of human Salmonella Enteritidis PT4 cases increased by 44 times in the UK. These lead to a series of changes in regulations which were implemented to control Salmonella.in 1989 the British Egg Industry Council initiated the first version of the Lion Code which has evolved into the most recognized quality scheme for the layer industry and had become the standard for new quality schemes in other countries.

[1] Majowicz, Shannon E., et al. "The global burden of nontyphoidal Salmonella gastroenteritis." *Clinical infectious diseases* 50.6 (2010): 882-889

[2] EFSA and ECDC (European Food Safety Authority and European Centre for Disease Prevention and Control), 2021. The European Union One Health 2019 Zoonoses Report. EFSA Journal 2021;19(2):6406, 286 pp

[3] The Costs of Animal Disease Final Draft v9 (bft-online.de)

Antibiotics Policy Updates in Malaysia

Dr Chee Ling Wun
Vice President (2023-2025)
Malaysian Veterinary Medical Association (MAVMA)

Abstract

Antimicrobial resistance is a global issue that has attracted attention across multiple stakeholders including medical professionals, global organisations, food brands, academics, policymakers and activist groups. Antibiotics are a critical tool for ensuring the health and welfare of animals, including the treat, control, and prevention of disease. If antibiotics were banned or severely restricted, then veterinarians, farmers, and pet owners would lose the ability to protect animal health, mitigate suffering from disease, and avoidable animal death.

There are three different circumstances for the therapeutic use of antibiotics in food producing animals: treatment, metaphylaxis/control and prophylaxis/prevention. In all cases where administration of an antibiotic is required, this should be prescribed following appropriate diagnosis by a veterinarian with a good knowledge of the disease epidemiology on the farm. Unfortunately, the simple terms 'prevention' is defined differently by the WHO, Codex and OIE. In fact, the WHO and Codex confusingly interchange 'prevention' and 'control' of a bacterial disease whilst the OIE specifically address 'prevention' in the strictest sense. This often results in antimicrobials being administered under the 'prevention' label claim where they may not be appropriate whilst in other cases antimicrobials not being administered under the 'prevention' label claim when there administration would have been wholly appropriate.

At a fundamental level, there also remains a great deal of confusion over even the basic of terms i.e. what is a 'non-medically important antibiotic' vs. 'medically important antibiotic'. Of greater concern is that a number of institutions are confusing 'medically important antibiotics' as being 'critically important antibiotics'. This is further complicated by different CIA list e.g. WHO, OIE and Codex.

This paper discusses the urgent need for clear definitions in regards to antimicrobial resistance and some suggestions on harmonisation between the WHO and OIE CIA list.

Canine Osteoarthritis Management: A Team's Sport With Your Clients

Melissa Phoon, DVM, MVM.

Elanco Malaysia

Abstract

Canine osteoarthritis (OA) is a degenerative joint disease that impacts synovial joints. It is accompanied by pain, low-grade chronic inflammation, and structural and functional deterioration of the joint. It commonly develops early in a dog's life[1]. Risk factors associated with canine OA include genetic predisposition, breed, conformation, age, sex/neuter status, and body weight[1]. Trauma to the joint is also considered a risk factor[2].

Managing OA is a complex task as it is a progressive, incurable disease. Pet owners who are clients of veterinarians may struggle to recognize the signs and may confuse them with pain signs from behavioural problems. Additionally, certain breeds are perceived as less sensitive to pain by the public.[3] Managing OA requires long-term commitment from owners, both physically caring for their pets with OA and being financially prepared to continuously support the monitoring and modification of treatment modalities as the disease progresses.

Given the substantial impact of OA on clients' welfare, their activities with their dogs, and the stress related to their dog's diagnosis, adopting a systematic approach to diagnosis, treatment, and communication with clients could be beneficial. The American Animal Hospital Association (AAHA) recommends several chronic pain and OA assessment tools, such as the Liverpool Osteoarthritis in Dogs (LOAD) and Canine Brief Pain Inventory.[4] The Canine OsteoArthritis Staging Tool (COAST) incorporates pet owners' observations at home via CMI as part of the assessment of OA disease progression. Treatment consensus guidelines are also proposed based on COAST.[2] With the aid of these tools, it is possible to involve clients proactively in managing canine OA.

Poultry Probiotics – Targeting Avian Pathogenic E.coli and Toxigenic Clostridium

Choong Jia Jie, D.V.M –
Elanco Malaysia

Abstract

Introduction to Microbiome

In recent years, the advancement of "omics" technology has allowed us to study the microbial community in the gut and in relation to health. Microbiome analysis provides us with the understanding of microbial diversity, functions, biogeography and their stability. The host and microbe co-evolutional relationship has led to a great impact to the gut health. In nature, chicks will acquire their microbiota directly from eggshell (from hen) once they hatch. But in current commercial practice whereby, eggs were removed from nests right after the hen laid, the practice of washing or cleaning the eggs and in ovo antibiotic treatments had hindered the natural process of passing down the microbiota from hen to the commercial day-old chicks. A healthy intestinal microbiota can help save energy for the host, thus improving productivity and performance of the birds. Pathogens is known to be negatively correlated with performance.

Introduction to Probiotics

There are generally 3 types of probiotics: spore-formers (e.g: Bacillus), live vegetative (e.g: lactobacillus, Bifidobacterium) and post-biotics (e.g: lactic acid). The common mode of administration of probiotics included 2 types: continuously feed/direct fed microbials (DFM) and target specific times. Probiotics work by improving intestinal integrity, preventing dysbiosis and modulating immunity. Bacillus sp. Is
known as Generally Recognized As Safe (GRAS) by FDA and also one the most common probiotic used in poultry production. The Bacillus functions by producing antimicrobial substances (e.g: bacteriocins), enzyme and immunological activity modulation. One single Bacillus strain can produce up to 8-11 bacteriocins targeting different pathogens and thus each strain is unique! Bacteriocins are ribosomal-synthesized antimicrobial peptides that kill or inhibit other bacterial strains but will not harm itself.

CorrelinkTM – A Precision Probiotics

A custom-made Bacillus based DFM targeted to control Avian Pathogenic E.coli (APEC) and Toxigenic Clostridium. Elanco is committed to continuously provide microbiome mapping, an effective process to characterize the pathogenic bacteria impacting performance within a poultry system.

Session 9:
World Organization for Animal Health (WOAH) Symposium
Veterinary Workforce Development

Veterinary Workforce Development and 'Future of Work' for Veterinary Personnel

Dr Miftahul Islam Barbaruah

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Abstract

An adequate, well-trained veterinary workforce is essential to ensure the health and well-being of animals and those who depend on them. To carry out their mission effectively, Veterinary Services need adequate numbers and a mix of qualified staff working in a positive, enabling environment. The presentation informs regarding the global occupational landscape in animal health and production. It introduces veterinary workforce development, discussing workforce assessment, steps in planning, the needed enabling environment, and future work situations for veterinary personnel.

Woah Activities on Veterinary Workforce Development

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Abstract

Introduction

Veterinary Services need adequate numbers of qualified staff, working in a positive, enabling environment to ensure the health and well-being of animals and people who depend on them. The World Organisation for Animal Health (WOAH) has developed a Veterinary Workforce Development (WFD) Programme to support its Members in systematically assessing their workforce needs and in establishing appropriate regulatory, educational and training frameworks to prepare and deploy veterinary personnel across public and private sectors. The Programme is built on three pillars: workforce assessment and planning; education and training and governance.

Workforce assessment and planning

WOAH offers the National Workshop on Veterinary Workforce Development to Members aiming to analyse a country's situation in terms of workforce education and legislation, identify strengths and gaps and design tailored action plans for workforce planning and development. The outputs of the workshop are the country's strategy and action plan for workforce development.

Workforce education and training

WOAH has developed a series of guidelines to help its Members bridge gaps in veterinary education. These include the Recommendations on the Competencies of Graduating Veterinarians, the Guidelines on Veterinary Education Core Curriculum and a Guide to Veterinary Education Twinning Projects. WOAH also support the capacity building of veterinary paraprofessionals (VPPs) by developing the Competency and Curricula Guidelines for VPPs and providing VPP Curriculum Support Missions.

Improving veterinary governance

Veterinary practice legislation is a key element in the enabling environment for an effective veterinary workforce. WOAH offers the Veterinary Legislation Support Programme (VLSP) to Members aiming to identify gaps and weaknesses in national veterinary legislation and to assist Members in revising or developing new legislation.

WOAH Gender Assessment of Veterinary Services in South-East Asia 2023

Pennapa Matayompong

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Abstract

The World Organisation for Animal Health (WOAH) assessed the current situation and future trends of gender equality in the Veterinary Services of South-East Asia (SEA) for veterinarians and veterinary paraprofessionals (VPPs) in 10 ASEAN Members, Timor-Leste, and Papua New Guinea between February and May 2023. The methodology included the online survey for in-service professionals (536 responses) and for students (134 responses) of all genders. Additionally, 29 in-depth semi-structured interviews were conducted targeting women in different professional backgrounds in animal health, to better understand women's experiences within the sector.

The feminisation of veterinary professions continues in SEA. Women students currently represent 70%-80% of pre-service veterinarians in most assessed countries. Women veterinarians are being promoted to the highest, Ministerial-level positions. However, such cases are still rare. The "glass ceiling" still exists. A quarter of women report being treated differently because of their gender. Young women professionals are most vulnerable in terms of discrimination and women are systemically discouraged from working on farms.

The study provides recommendations for the need to integrate gender consideration in the national workforce assessment and planning, develop family-oriented policies and facilities, both in urban and rural areas, implement mentorship programs for women, especially early-career professionals, and address gender stereotyping, particularly, within veterinary education and provide more hands-on experience for women to work on the farms.

Future research will include the assessment of specific gender discriminatory practices in veterinary industry and veterinary academic sphere, factors contributing to professional burnout and the ways to address them, gender issues specific to VPPs, community animal health workers and women livestock keepers, gender-related policies within the sector and their impact, and country-specific case studies.

Application of Competency Based Framework (CBF) for Human Resource Development (HRD) in Bhutan

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Abstract

The Royal Civil Service Commission (RCSC) of the Government of Bhutan is a constitutional body mandated to promote and manage a professional, accountable and productive civil service delivering efficient and effective services underpinned by technology, innovation and empathy. In order to achieve structured and exhaustive approach of capacity development while maintaining highest standards of ethics and integrity, RCSC launched CBF in 2019. The CBF is designed to help agencies identify and develop the specific skills needed by their employees to improve HR functions such as performance management, succession planning, talent management, and career progression.

CBF is a model that describes the skills, knowledge, and behaviors required for success in a particular job. It is a structured approach to human resource management that can be used to improve recruitment, selection, training, performance management, and career development. CBF is developed through job analysis, essential tasks and responsibilities, competencies required to perform the job effectively. The CBF instituted for Bhutanese veterinary officers in 2021 helped to identify the skill needs and provide continuous development opportunities to make them competent in delivering their responsibilities effectively and efficiently.

The CBF for veterinary officers is a progressive system that uses proficiency levels to help individual officials understand the competencies expected from them at each stage of their career path. This gives them the opportunity to develop the competencies they need to achieve their current and future career goals. The proficiency levels are also used to set benchmarks for recruitment and deployment. The key roles, competencies and behavioral indicators at different proficiency levels were assessed, gaps identified and training needs were developed. All HRD interventions are now based on CBF and supplemented by leadership development and management trainings to deliver excellence in service.

The CBF has streamlined training programs, improved skills and knowledge of the workforce, and has resulted in better service delivery for the public. CBF is expected to further boost the morale of the workforce and encourage civil servants to perform at their best.

Way Forward for Malaysian Veterinary Workforce

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Abstract

Veterinarians and veterinary paraprofessionals (VPP) are an integral part of the RM 25 billion Malaysian agriculture economy by Gross Domestic Product (GDP) in 2022. The roles of the veterinary workforce extend beyond the animal health sector and are critical in ensuring food security and animal welfare. Furthermore, protection of animal health is a crucial part of regulatory medicine to protect human population against diseases that could cross species barriers. In recent years, the predominant emphasis of the profession in Malaysia has shifted from farm animal health to the care of companion animals. Concerns are growing that this emphasis is directing resources away from veterinary medicine's other equally important roles, such as in fundamental research, policy and public service, food production, and other sectors, which may result in a workforce that is ill equipped to address the priorities in protecting and advancing animal and human health. The emergence of these trends is inevitable due to the evolving needs of the society, especially factors that are driven by post-pandemic recovery factors, the reorganisation of supply chains and logistics, as well as the emergence of new and disruptive technology, such as artificial intelligence.

Against the backdrop of these challenges, the regulatory priorities, future direction and even structure of the professional governance, may require re-thinking. This is so to be inline with the evolving needs of the profession, industrial and societal expectations. The current discourse focused on the compositional structure and current disposition of the veterinary workforce in Malaysia. This forms the context of change, as new trends and technology continuously reshape how animals and society are connected to the veterinary workforce in unprecedented ways. The Fourth Industrial Revolution (IR 4.0) with its hall mark seamless interconnection, information-driven analytics and decentralised decision-making that powers cyber-physical systems, would threaten and displace a broad range of traditional sectors. Projections and the way forward put forth in the current discourse is an important to ensure the Malaysian veterinary workforce is relevant and ready for tomorrow's challenge in nation building.

Session 10:
Animal Welfare

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Sentience, Animal Welfare And Other Components Of Sustainability

Donald M. Broom,
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Abstract

The one biology, one welfare and one health concepts mean that, for most human decisions a sharp distinction between humans and other species is not justifiable. Humans are animals and all people should be less human-centred if our species and other species are to survive. Biological processes are the same for humans and other species, health means the same for humans and non-human animals and health is an important part of welfare, not a separate topic.

People in all countries consider that using a non-human animal involves moral obligations to such animals and to the sustainability of systems. A system or procedure is sustainable if it is acceptable now and if its expected future effects are acceptable, in particular in relation to resource availability, consequences of functioning and morality of action. Consumers increasingly demand that systems used in all production and other activities be sustainable. They may refuse to buy unacceptable products and pressurise retail companies and governments to ensure that they are not sold. There are many components of sustainability and people who consider only one aspect may not advocate the best solution. The welfare of non-human and human animals are components of sustainability but all components of sustainability should be scored and taken fully into account when taking decisions about food production and all other human activities. If the focus is entirely on animal welfare, there can be other harms associated with: preservation of rare wildlife species, maximising local biodiversity or minimising greenhouse gas production. If carbon footprint is the only component considered, unsustainable actions may occur. For example, the best ruminant production systems are more sustainable than some other meat and plant production systems.

It is important to think about the biological functioning of each organism when deciding what is an acceptable action. For example, sentient animals may need anaesthetics and analgesics but non-sentient animals may not. 'Welfare' is the state of an individual as regards its attempts to cope with its environment and refers to all animals, i.e. all organisms with a nervous system. However, sentient animals should have more protection than non-sentient animals in order to take account of their functioning and abilities.

Environmental Perception in Animals and Its Influence on Welfare

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Abstract

Environmental perception in animals, driven by sensory input and cognitive processing, is a critical determinant of their welfare and survival. Animals possess an array of sensory modalities finely tuned to their ecological niches. These senses enable them to detect food, identify mates, communicate, and evade predators. The accurate perception of environmental cues is pivotal to their behavioural adaptations, which in turn influence their overall welfare. Environmental changes, whether natural or human-induced, can disrupt the sensory perception of animals, leading to stress, altered behaviour, and compromised welfare.

The present delivery explores the intricate connection between how animals perceive and interact with their surroundings and their implications for animal welfare. By assessing the role of sensory perception in various environments, this discussion sheds light on strategies to improve animal welfare in natural habitats and captivity.

Compassion, The Last Great Hope

Dr Amilan Sivagurunathan
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Deputy Chairman , MNAWF, Malaysia

Abstract

Compassion , the last great hope ; a topic once spoken by the reknown Prof Leo Bustad during the 50's and 60's at the dawn of modern veterinary science . This topic offers a perspective to animal welfare and service of veterinary medicine and is not limited to. Empathy is defined as the feeling the pain of someone, while Compassion is defined as feeling the pain and taking action to do something about it. Despite having much imrpovements in the understanding and knowledge of veterinary medicine, the profession remains much the same as in the early years, focused on service. Now plagued with its new set of hurdles previously not understood or factored. In the Ecological Model of Animal Welfare described by Stanley , Richardson and Prior 2015 , economics , politics , envronment , cultural values, pet related industries are all interrelated . Compassion is the adhesive that holds these models together. With the aim of creating a caring society , education plays an integral role from a young age and should be an integral part of the countrys value system . Compassion , requires the needs to look beyond, species, cultural beliefs , politics , race, etc etc . Just the same , Legislators , animal welfare volunteers and veterinarians all need to work together for a common good . A caring society is a building block for a developed nation. Since the pandemic , the global impact on veterinary services has been huge . As much as the demand of veterinary services grew exponentially , the attrition of veterinary professionals from service remains an equal challenge. Compassion Fatigue is more a norm than an exception among our younger collegues . Veterinary Education Centres globally now spend a greater amount of curriculum establishing programmes and projects to address empathy and compassion among young professionals. Such as Non Technical Competencies (NTC) that include communication, coorperation, adaptability, organisation, time management , creativity , prioritisation , empathy. Internships and housemanships have equally been proven effective in some countries. In some countries Laws have been established to facilitate rural veterinary service and to make it sustainable . Veterinarians have been made a high priority in the rural workforce. MNAWF, established in 1998 , is a Malaysian story based on trials , hardship , challenges and compassion in the veterinary industry. In 1972 Datuk Dr S Sivagurunthan took it on himself as a personal mission to educate people and the clinets around him on the need for caring and improving the human animal bond . The foundation was established to drive the animal welfare education framework and to establish a platform for dialogue for the veterinary profession.

"To promote a caring Malaysian society through creating awareness and a balanced approach to animal welfare for the well being of animal and mankind."

FAVA Strategic Plan 2021-2025 on Animal Welfare

Dr. Lina Policarpio

FAVA Committee on Animal Welfare, Philippines

Abstract

This paper aims to present the FAVA Strategic Plan 2021-2025 including some updates. The plan is based on three targets- welfare, education and emergencies. Due to lack of knowledge and understanding of animal welfare among the stakeholders, reports of animal welfare issues in Asia range from malnutrition, poor transport conditions, ill-treatment, poor slaughter procedures among others. In addition, not all countries have animal welfare legislations or policies in place. The plan aims to increase level of awareness on animal welfare through effective coordination, communication, education and training; achieve sustainable improvements in animal welfare; develop sustainable mechanism to coordinate animal welfare programs. Due to the pandemic, holding of webinars was the main platform used to reach out to the member countries. In 2021, we staged the webinar entitled "The Veterinarian's Role during Emergencies and Disasters in Asia". This was followed by "Stray Dogs and Shelter Management in Asia". The next two and half years will focus on implementation of the other plans.

Session 11:
Boehringer Ingelheim STOP Rabies Symposium

Boehringer Ingelheim STOP Rabies: The Goals and Strategies

Jerlyn Sponseller, Thaïs Vila, Do Yew Tan
Boehringer Ingelheim Animal Health, US

Abstract

Rabies is a neglected tropical disease that kills thousands of people each year. Human rabies deaths occur almost exclusively in rural, low-income areas of Africa and Asia, where health services and medical reporting are under-resourced. Almost all human deaths from rabies are the result of a bite from an infected dog. Although rabies is universally fatal after symptoms appear, it is also completely preventable. Achieving elimination of human rabies deaths would save both human and animal lives and lessen the economic toll of rabies on vulnerable communities. Lost household income from deceased family members, declines in nutrition and income from lost livestock, psychological trauma incurred by families of victims, and the direct costs of post-exposure prophylaxis for exposed people together comprise the burden of rabies, borne disproportionately by those already challenged by poverty. Reducing the threat of rabies increases the ability of families to sustain themselves.

Building on decades of work in rabies prevention and management, STOP Rabies is a program launched by Boehringer Ingelheim to contribute our expertise and heritage towards achieving the joint global goal of eliminating rabies in humans. We are committed to supporting communities most affected by rabies. Together with Global Alliance for Rabies Control, our aim through STOP Rabies is to support NGOs, governments, health authorities, veterinarians, and pet owners to deliver on-the-ground solutions for rabies control. Rabies is completely preventable with adequate vaccination, education, and surveillance programs. We believe that by creating tailored solutions that are partnership-driven, community-led, and fully sustainable, we can complement and contribute to the important initiatives already taking place around the world and endeavor to end human rabies deaths for good. We showcase examples of rabies vaccination, education, and surveillance efforts implemented in Asia and Africa. Eliminating rabies in humans is a shared global goal, and together, it is achievable.

Rabies: Dog or Human Problem – Is Anyone Truly Spared

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Abstract

Rabies has evolved into a growing concern in Asia as more human rabies deaths reported in comparison to other continents. Control measures to limit the spread of disease transmission have been difficult due to the wide geographical area, limited resources, lack of political will, community's awareness and acceptance on the current employed strategy. Although culling strategy has been used at some countries as a control measure, it was shown ineffective to reduce the burden of disease transmission. Rabies is preventable through vaccination in animal, pre-exposure prophylaxis for human-at-risk and post-exposure prophylaxis (PEP) for dog bite cases in human. It was frequently seen as dog problem of which isolated strategies involving dog population control and vaccination program were deployed. However, concerted efforts of multi-agencies, various societal components and transdisciplinary collaboration utilizing One Health approach are essential to ensure a successful rabies prevention and control program especially in endemic countries. United Against Rabies Collaboration outlined three objectives that fundamentally describe the approaches needed with aim to end human rabies by 2030. Through increase awareness, dog vaccination and improve access to PEP, it is hoped that disease control and prevention at country and regional level could curb disease transmission. In addition, the data generated from these interdisciplinary efforts would help to measure the efficacy of the strategy, assist decision makers, improving policy and future commitment and planning of resources. Nevertheless, a critical issue is the funding of such control programs in Asia. Therefore, it is suggested that effective communication for the coordination and maximum utilization of shared resources, comprehensive rabies control programmes should involve the combination of financial, manpower and material resources with other disease programmes. Ideally, we need all hands on deck to synchronize rabies control and prevention program and transform the societal approach to reach our goal of eliminating rabies globally.

Rabies Surveillance Systems: Challenges and Opportunities for Improvement

Scott, Terence., Amparo, Chari., Coetzer, Andre., and Nel, Louis H.

Global Alliance for Rabies Control, Kansas US

Abstract

The year 2030 is rapidly approaching, and with it, the target date to eliminate dog-mediated human rabies globally. While efforts continue through mass dog vaccination, dog population management, education and human post-exposure prophylaxis interventions, rabies remains a neglected tropical disease. There are various issues that hinder rabies elimination efforts, the most pertinent of these being poor surveillance. Despite national governments typically having disease surveillance systems in place, the majority of these lack the resolution and timeliness of data interpretation to facilitate data-driven decision-making, and effective and timely interventions and responses. In addition, these systems are seldom true One Health systems where data is shared in real-time between ministries and partners. Furthermore, civil society and private associations are seldom included, and their surveillance efforts are not accounted for in national strategies and government-led interventions.

To overcome the challenge of poor surveillance, GARC developed a suite of digital surveillance tools. Each tool addresses a specific need and is designed for easy, streamline and rapid data capture, followed by the automatic analysis of the data in real time. This enables and facilitates effective data-driven decision-making for rapid and timely responses, helping users to implement strategic interventions. In addition, each of the tools work seamlessly together, ensuring that data from different stakeholders and sectors can be analysed in a comprehensive, One Health manner. Importantly, the suite of tools is not designed to replace national systems, but rather supplement them to ensure high-resolution One Health rabies data in real-time. Furthermore, all data captured belongs entirely to the user.

These tools are provided free of charge and have been implemented across the globe. We explore the benefits of the system, its applicability to all stakeholders - including government and private animal health professionals – and showcase examples of its use.

STOP Rabies in Southeast Asia

Dr. Tan Do Yew, Amanda Goh, Dr. Tan Yian Ming (Eddie), Dr. Foo Mei Wan, Dr. Suannisa Nur Utami, Dr. Karenditta M Cahyaningtyas, Dr. Anna Esmeralda Nagera, Lourdes Banzon, Vo Ngoc Thanh, Ngo Thanh Hoai Linh, Dr. La Tra My, Dr. Bui My Thuy Khanh, Dr. Chanathip Limpawattana, Dr. Toungtam Srilajaroan, Dr. Rawintra Leelawilailak

Boehringer Ingelheim, Malaysia

Abstract

Southeast Asia is a rabies hotspot, with approximately 26,000 people dying from the fatal disease each year, accounting for about 45% of global rabies mortality rates. How can we move toward a rabies-free Southeast Asia and end human rabies deaths for good? Rabies is endemic in nine of Southeast Asia's eleven countries, with over 600 million people at risk of contracting this fatal infection. Rabies is prevalent in the region, for reasons such as large population of free-roaming dogs, low vaccination rates of pets and strays, dog and cat meat trade, recent resource diversion to COVID-19 pandemic control, and cross-border disease transmission. In 2022, Boehringer Ingelheim launched STOP Rabies in Southeast Asia to contribute our expertise and eliminate rabies in collaboration with the Global Alliance for Rabies Control, local governments, non-governmental organizations (NGOs), universities, and passionate stakeholders. STOP Rabies strives to provide customized, partnership-driven, community-led, and fully sustainable solutions, which focuses on three main pillars:

Contribute to and support the implementation of dog vaccination activities;

Raising awareness and educating the public, particularly children, about rabies and the importance of rabies vaccination; and

Surveillance entails working with local partners to track rabies cases and evaluate the effectiveness of our campaigns.

Since the program's inception, tailored approaches have been executed to vaccinate over 23,800 animals against rabies in Thailand, Vietnam, the Philippines, Indonesia, and Malaysia. The team also provided rabies education to nearly 900 students in Vietnam and Malaysia.

With close local collaboration and prioritized attention on rabies elimination, a rabies-free Southeast Asia within this decade is achievable. Let us join forces to eliminate rabies and improve the health of both animals and humans alike.

Session 12:
Small Animal Medicine & Surgery

Phytonutrients as an Effective Natural Alternative for Canine Atopic Dermatitis Management

Assoc. Prof. Dr. Ng Hui Suan (Grrace)

ExcelVite, Malaysia

Abstract

About 10 – 15 percent of dogs are affected by canine atopic dermatitis. Supplementation of EVFurryAid PRO plays a role in supporting the health and wellness of dog breeds that are predisposed to this disease. In this presentation, you will hear about -

A brief overview of CAD and how it affects quality of life for both pets and pet parents

Existing treatment options including non-drug products

The Effectiveness of EVFurryAid PRO – a natural nutrient mixture, tested by vets on atopic dogs

Management of Hemorrhagic Shock

Dr. Corrin Boyd
Veterinary Emergency Medicine & Critical Care (WA) Australia

Abstract

Haemorrhagic shock results in severe, often life-threatening defects in tissue oxygenation due to loss of both intravascular volume and haaemoglobin. Management requires both definitive control of haemorrhage and replacement of the lost volume and haemoglobin. This is complicated by factors from both the underlying disease and the resuscitation approach that promote coagulopathy, ongoing haemorrhage, and worsening impairment of perfusion. This session presents a clinical approach to identification, assessment, and management of haemorrhagic shock. Focus is placed on recognizing patients with severe uncontrolled haemorrhage that are at immediate risk of death. The role of fluid therapy, blood product transfusion, definitive haemorrhage control, and adjunct treatments will be discussed. Clinical examples and the author's haemorrhagic shock research data are be provided where relevant.

Sporothrix, The Spartan Fungus: What Can Cytological Evidence Tell Us?

Dr. Azalea Hani Othman

Abstract

(To be updated)

Session 13:
FAO Emergency Centre for Transboundary Animal Diseases (FAO ECTAD) Symposium

Veterinarians for Better Production, Nutrition, Environment, and Better Life

Dr. Kachen Wongsathapornchai

Abstract
(To be updated)

Enhancing National and Regional One Health Coordination and Multi-Sectoral Collaboration Among Stakeholders

Mary Joy Gordoncillo, DVM, MTVSc, PhD
Food and Agriculture Organization of the United Nations (FAO)
Emergency Centre for Transboundary Animal Diseases (ECTAD)
Regional Office for Asia and the Pacific
39 Phra Atit Road, Bangkok, Thailand 10200

Abstract

The One Health High Level Expert Panel defines One Health as an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals and ecosystems. It recognizes the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and inter-dependent. The Quadripartite Organizations – the Food and Agriculture Organization of the United Nations (FAO), the United Nations Environment Programme (UNEP), the World Organisation for Animal Health (WOAH, founded as OIE), and the World Health Organization (WHO) – collaborate to drive the change and transformation required to mitigate the impact of current and future health challenges at the human–animal– plant–environment interface at global, regional and country level. The unified work is underpinned by the Quadripartite One Health Joint Plan of Action (OH JPA) which aims to strengthen capacity to address complex multidimensional health risks with more resilient health systems at the global, regional, and national levels. FAO, in particular, promotes a One Health approach as part of agri-food system transformation for the health of people, animals, plants and the environment. This involves a spectrum of actors and work on sustainable agriculture, animal, plant, forest, and aquaculture health, food safety, antimicrobial resistance (AMR), food security, nutrition and livelihoods. The FAO emergency Centre for Transboundary Animal Diseases (ECTAD) programme promotes One Health to strengthen the capacity of animal health systems to prevent, detect and respond to health threats at the animal-human-environment interface. Initiatives include supporting Quadripartite One Health tools and programmes, and providing countries with relevant reinforcing tools specific to the food and agriculture sectors. Overall, it shares a vision of a world better able to prevent, predict, detect, and respond to health threats and improve the health of humans, animals, plants, and the environment while contributing to sustainable development.

Improving The Multidisciplinary Workforce And Institutional Capacity To Address Animal And Related Public Health Threats

Hao Tang, PhD (Veterinary epidemiology), MPA

Food and Agriculture Organization of the United Nations (FAO)
Emergency Centre for Transboundary Animal Diseases (ECTAD)
Regional Office for Asia and the Pacific
39 Phra Atit Road, Bangkok, Thailand 10200

Abstract

In the Asia-Pacific region, the growing threat of Transboundary Animal Diseases (TADs), zoonotic diseases, and issues like antimicrobial resistance is endangering public health and livelihoods. Recent global outbreaks like COVID-19 and avian influenza have highlighted the urgent need to strengthen the capabilities of veterinary services and animal health professionals. To tackle these challenges, the Food and Agriculture Organization's (FAO) Emergency Centre for Transboundary Animal Diseases (ECTAD) collaborates closely with international and national partners, adopting a systematic approach to enhance workforce and institutional capacity. This approach extends beyond improving individual capacities and includes strengthening organizational capabilities and fostering networks to establish a supportive environment for effective utilization and practices. Workforce development in the region emphasizes six key areas: epidemiology, laboratory, surveillance and early warning systems, antimicrobial resistance (AMR), One Health, and non-zoonotic concerns. A strong emphasis during the planning and implementation is to promote country ownership and leadership for long-term sustainability. This involves customizing training programs to address specific needs and structuring them around core competencies, thereby aligning with national and regional priorities. As an illustrative example, the China Field Epidemiology Training Program for Veterinarians (FETPV) achieved self-sustainability in 2018, and it is now under the management of the China Animal Health and Epidemiology Centre (CAHEC). This success has led to the establishment of similar FETPV programs in various provinces. Additionally, in late 2020, FAO introduced the Virtual Learning Centre (VLC) to support capacity development in the region through digital solutions. The VLC has enabled over 1,500 professionals from various sectors across 31 countries to access interactive, tailored, and cost-effective virtual learning products, facilitating their professional development. Furthermore, workforce development extends beyond training and includes elements that promote utilization and advocacy. For instance, efforts in AMR include tool development, planning, monitoring, resource allocation, network establishment, and overall system strengthening.

Enhancing Animal Health Capabilities For Preparedness and ResponseTo Public Health Threats, Including AMR-Related Issues

Dr. Gael Lamielle

Abstract
(To be updated)

Promote, Support and Advocate For Evidence-Based Policies That Support the Adoption of Veterinary Public Health and Biosecurity Practices Along the Livestock Value Chain

Dr. Yooni Oh

Abstract
(To be updated)

Session 14:
Poultry Production & Diseases

Sustainability Of The Malaysian Poultry To Meet The Future Market Demand

Dr Mohd Hishammfariz Mohd Amin

Department of Veterinary Services, Putrajaya, Malaysia

Abstract

The chicken industry in Malaysia is one of the livestock industries that is very important and contributes to the national economy. With the development in terms of breeding and rearing technology, especially the change to the closed house system from an open house system, it has contributed to the achievement of a high level of self-sufficiency.

The demand for chicken and eggs in this country is quite high. Chicken and eggs in this country are still considered a cheap and easy source of protein. The development of the downstream industry involving chicken and egg products has also made the demand for chicken and eggs increase such as sausages, nuggets and burgers. The impact of the covid19 pandemic has affected the production and value chain of chicken and eggs. In addition, an increase in the price of raw materials such as corn and soy were reported. The Russian-Ukrainian conflict also contributed to the increase in the cost of these food raw materials.

Government has introduced chicken and egg subsidies to farmers worth RM1.8 billion (2022) and RM1.8 billion (2023). This Subsidy is expected to end when price controls end. In order to ensure that the chicken industry continues to survive and grow, the Government has also provided a large number of allocations in the form of soft loans for farmers with low interest rates. As a result, the production of chicken and egg is considered sustained until the end of this year. Government also considering re-regulating the authorization of chicken and egg imports when domestic production has really exceeded the rate of domestic needs and consumption. Cumulative annual data throughout 2023 has shown a slight decrease in supply status with a rate of 21.6 million chickens compared to 44.8 million in 2022.

Behavioural Needs Of Egg-Laying Hens: Implications For Housing Systems

Saravanakumar S. Pillai and Sara J. Shields

Humane Society International, Malaysia

Abstract

Globally, cage-free egg production is beginning to replace battery cage confinement of egg-laying hens. This shift has a firm foundation in scientific research, which has established that hens retain the behavioural biology of their wild progenitors, despite domestication. Cage-free housing is designed around four key behavioural priorities: nesting, perching, foraging, and dustbathing. Each is supported by a large body of published research. For example, hens are highly motivated to access a discrete, enclosed nesting space as they approach oviposition. Behaviour experiments requiring hens to push through increasingly heavily weighted doors demonstrated that hens will work harder to reach a nest box when about to lay an egg than they will for feed. Nesting behaviour is triggered by changes in hormone levels associated with ovulation.

Roosting in trees is an anti-predator behaviour, and is conserved in domestic hens, who seek elevated perches for roosting at night. Chicks begin to show perching behavior after just 1

Research and diagnostic for ASEAN Avian Influenza Control

Dr. Faizah Hanim Mohd Saeid
Veterinary Research Institute (VRI), Department of Veterinary Services, 59, Jalan Sultan Azlan Shah, 31400 Ipoh, Perak, Malaysia

Abstract

Malaysia has had a terrifying record of zoonotic diseases over the last 20 years. One of the incidences was Avian Influenza (AI). AI is a viral infection of birds which leads to economic losses to the poultry industry throughout the world. The virus can infect chickens, turkeys, pheasants, quail, ducks, and geese as well as a wide variety of other birds, including migratory waterfowl. The virus also possesses a potential risk to public health significance. The first outbreak of highly pathogenic avian influenza (HPAI-H5N1) in 2004 involved the depopulation of poultry, followed by a series of H5N1 outbreaks in 2006, 2007, 2017, and 2018. However, Malaysia gained its self-declaration on the recovery of freedom from HPAI on 17th December 2018.

Following the ongoing circulation of AI viruses within the neighboring countries and globally, enhanced capacity to progressively control and eradicate the virus is crucial. Therefore, as the national reference veterinary laboratory for emerging and re-emerging diseases, the Veterinary Research Institute (VRI) is responsible for strengthening its capability and capacity for research and development of diagnostic technology or new test methods for economic and zoonotic diseases. It is important to explore the risk at source demonstrated by a variety of research directions. Simultaneously sustaining the recognition as ASEAN regional reference laboratory for AI, VRI offers a series of training and attachments to strengthen and maintain the laboratory capacity and capability for AI diagnosis. To maintain the recognition and accreditation of international standards, continuous optimum proficiency is a necessity for quality assurance by international standards, including ISO/IEC 17025 and Proficiency Testing (PT).

In addition, the improvement of the test methods for AI is critical to ensure fast detection and consequently reduce the risk of spreading to our domestic poultry and humans. Thus, the supply of animal-based protein and food products will be continued which guarantees national food security and secure public health significance.

Strategies to Control and Prevent Avian Influenza in Poultry

Abdul Rahman Omar
Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

Abstract

Avian influenza is an economically important poultry disease caused by infection with avian influenza type A viruses (AIV). These viruses naturally spread among wild aquatic birds and can infect domestic poultry and other animal species. The viruses are classified as highly pathogenic AIV (HPAI) and low pathogenic AIV (LPAI). This region is still battling against HPAI H5N1 in poultry which has caused more than 134 fatal human infections. Furthermore, the recent wave of HPAI H5Nx (H5N1, H5N8, H5N6) is unprecedented in its rapid spread, and high frequency of infections in poultry and wild birds and is a continuing potential threat to humans. LPAI such as the H9N2 virus, is endemic in poultry in several countries in this region, either asymptomatic or causing mild disease and a drop in egg production. However, secondary infection with other pathogens or immunosuppression enhanced the severity of the H9N2 infection. The emerging and re-emerging of HPAI H5N1 and the endemicity of LPAI H9N2 viruses in poultry and wild birds are enhancing the spillover of the viruses to other animals and humans, raising the concern of avian influenza (AI) epidemic and pandemic. Besides, the heavy economic losses due to high mortality, stamping out of infected and uninfected birds, and trade restrictions. The adoption of a vaccination policy is generally discouraged. Nevertheless, the need to boost eradication efforts to limit further spread of infection and avoid heavy economic losses, and advances in modern vaccine technologies, have prompted a re-evaluation of the use of vaccination as an additional tool in AI control strategies. In addition, the importance of vaccination in controlling HPAI in poultry has been addressed via the newly revised WOAH Terrestrial Animal Health Code Article 10.4.28.2. This code allows the use of vaccination under specific conditions (as an effective complementary control tool when a stamping-out policy alone is not sufficient) and without negatively impacting HPAI-free status if appropriate surveillance is conducted. This presentation describes the strategies to control and prevent AI in poultry.

Session 15:
Pharmacology/ Vaccines

Antimicrobial Agent Use: A Field in Incessant Evolution

Prof. Dr. Mario Giorgi

European Editor - Journal of Veterinary Pharmacology & Therapeutics

Dept of Veterinary Sciences (Clinical Venue), University of Pisa, Via Livornese (Lato Monte), 56121 San Piero a Grado, Pisa, Italy

Abstract

Antimicrobials are used in livestock production to maintain health and productivity and in pets to cure from infections. The non-judicious use of these drugs contribute to the spread of drug-resistant pathogens in both animals and humans, posing a significant public health threat. Global recognition of antimicrobial resistance as a threat across human, animal, plant, food, and environmental sectors has increased the level of scrutiny on veterinary antibacterial use. Antimicrobial stewardship is a key component of a multifaceted approach to preventing emergence of antimicrobial resistance. Good antimicrobial stewardship involves selecting an appropriate drug and optimizing its dose and duration to cure an infection while minimizing toxicity and conditions for selection of resistant bacterial strains. Several strategies, including prescriber education, formulary restriction, prior approval, streamlining, antibiotic cycling, and computer-assisted programs have been proposed to improve antibiotic use. Although rigorous clinical data in support of these strategies are lacking, the most effective means of improving antimicrobial stewardship will most likely involve a comprehensive program that incorporates multiple strategies and collaboration among various specialties within a given healthcare institution. The purpose of this talk is to inform the audience on the new knowledge in this field.

Phytobiotic: An Alternative to Antimicrobial Growth Promoters in Broiler Chickens

Muhammad Abdul Basit [1], Arifah Abdul Kadir [1*], Teck Chwen Loh [2], Annas Salleh [3], Zainul Amiruddin Zakaria [4] and Sherifat Banke Idris [1]

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Serdang, Selangor, Malaysia
[4] Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah,
88400 Kota Kinabalu, Sabah, Malaysia

Abstract

The extensive and irrational use of antimicrobial growth promoters (AGPs) resulted in drug resistance, which is a growing global issue that affects people, animals, environment, and economy. Therefore, it is essential to find alternatives that can improve the production performance of broiler chickens. The current experiment was designed to estimate the comparative efficacy of phytobiotics *Piper betle* leaf meal (PBLM) with halquinol and tetracycline in broiler chickens. The 120-day-old broiler chickens were randomly assigned to four dietary groups. The dietary supplementation groups were the basal diet (BD), which served as the negative control (NC), BD + 0.2 g/kg tetracycline, which served as the positive control (PC); BD + 0.03 g/kg halquinol (HAL), and BD + 4 g/kg PBLM (Pb4) were the treatment groups. On day 42, tibia bones were collected for morphometric characteristics. Significantly ($p < 0.05$) improved values of morphometric parameters of tibia bones were observed in phytobiotics (Pb4), HAL, and PC groups compared to the NC group. However, significantly higher bone weight and tibiotarsal index with the least ($p < 0.05$) medullary canal diameter was recorded in birds fed on diet Pb4 compared to other dietary groups. Additionally, supplementation of phytobiotics, HAL, and PC resulted in increased ($p < 0.05$) bone-breaking strength (N) relative to the NC group. In conclusion, dietary supplementation of selected phytobiotics Pb4 improved the geometric characteristic and strength of tibial bone. Based on current results, phytobiotics could be used as an alternative to AGPs for sustainable broiler chicken production.

Development, Commercialisation and Advancement of Poultry Vaccines and Vaccination

M. Hair-Bejo

Faculty of Veterinary Medicine, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

Institute of Bioscience, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia

Abstract

Vaccines and vaccination are crucial for preserving the health and welfare of chickens which can have serious negative economic, social and environmental effects (Sustainable Development Goals (SDG)). It reduces environmental infectious pressure and control the emergence and spread of zoonotic diseases as well as reduce the use of antibiotics (Antimicrobial Resistance (AMR), One Health (OH) and Planetary Health). The market for poultry vaccines, which had a value of USD 2.1 billion in 2022, is anticipated to increase to USD 3.65 billion by 2030 with a compounded annual growth rate (CAGR) of 7.5% from 2023 to 2030 (Adroit Market Research). The development of poultry vaccines involves at least five important phases namely the target product profile, discovery/feasibility phase, early-phase development, late-phase development (field trials) and registration phase. The advancement of poultry vaccines and vaccination is mainly due to the advancement of their ecosystem (Fourth Industrial Revolution (4IR)) such as new technologies in laboratory diagnosis techniques, invention of effective manufacturing techniques and facilities, adjuvants, vaccine administration technologies and disease monitoring programmes. The application of biotechnology further enhances the advancement of poultry vaccines and vaccination with the invention of the 2nd and 3rd generation of vaccines. These vaccines hold promise for more advantages ahead when compared with the 1st generation. Future vaccines within the poultry industry will be comprised of all three described generations. Recent technology improvements will enhance vaccines in each of these categories. However, the traditional 1st generation vaccines will probably decrease as new technologies enhance subunit, vectors and nucleic acid vaccines. The advancement of poultry vaccines and vaccination and their ecosystem enhance the development, invention and commercialization of poultry vaccines for wealth and well-being creation.

Session 16:
Equine Medicine & Surgery

Diagnostic Imaging in Horses

Dr. Paul Robinson

Abstract
(To be updated)

Suspensory Ligament and Tendon Conditions in Horses

Dr. Paul Robinson

Abstract
(To be updated)

Equine Respiratory Diseases and Disorders

Assoc. Prof. Dr. Ben Sykes BSc, BVMS, MS, MBA, DipACVIM (LAIM), PhD, FHEA

Massey University, New Zealand

Abstract

This lecture focus on understanding the various conditions that will affect the lower respiratory tract of the horse including a range of disorders, such as recurrent airway obstruction (RAO), inflammatory airway disease (IAD), Exercise Induced Pulmonary Haemorrhage (EIPH), and infectious respiratory diseases. Recurrent airway obstruction (RAO), commonly known as heaves or equine asthma, will be discussed. The lecture will highlight its causes and management strategies, such as environmental modifications, proper stable management, and pharmacological interventions. Inflammatory airway disease, another common lower airway disorder, will also be explored. IAD is characterized by inflammation of the airways in response to environmental irritants and characterise the key differences between IAD and infectious airway disease. The lecture will emphasize the importance of diagnostic techniques, including bronchoalveolar lavage (BAL) and trans-tracheal wash (TTW), to assess airway inflammation and guide treatment decisions. Exercise-induced pulmonary haemorrhage will also be discussed.

Equine Industry in Malaysia

Dato Dr. Shri Kanth Kanaesalingam

National Equine Hospital, Selangor Turf Club, Malaysia

Abstract

The equine industry in Malaysia is a niche sector with a growing presence. The Malaysian equine industry represents a dynamic and growing segment of the nation's recreational and sporting landscape. It encompasses various activities including horse racing, polo, equestrian sports, breeding, and leisure riding. These activities contribute to the country's economy but typically represents a relatively small percentage of Malaysia's Gross Domestic Product (GDP) which can vary from year to year based on factors such as the performance of the horse racing industry, tourism related to equestrian events, and investments in breeding programs. The governance and regulation of the equine industry in Malaysia involve a combination of government agencies, industry associations, and racing clubs. These entities work together to ensure the welfare of horses, promote the sport, and regulate various aspects of the equine industry in the country. The Malaysian government has been supportive of the industry's development, promoting equestrian tourism and hosting international events. There is also a dedicated community of individuals and organizations passionate about horses and equestrian activities. However, challenges include disease management, ensuring horse welfare, and expanding the industry's reach to a broader audience. Overall, the equine industry in Malaysia is a developing and diverse sector with potential for further growth.

WOAH's Support To Facilitation of International Horse Movement In The Asia and Pacific Region

Hirofumi Kugita

WOAH Regional Representative for Asia and the Pacific

Abstract

International movement of competition horses is a frequent practice globally. WOAH and the International Horse Sports Confederation (IHSC) are engaged in a public-private partnership to support safe cross-border movements of sport horses. This collaboration resulted in the development of alternative tools, adapted from existing international standards described in WOAH's Terrestrial Animal Health Code on zoning and compartmentalisation such as: The establishment of Equine Disease Free Zones (EDFZ) for hosting international sports events and support the safe re-entry of competing horses in their countries of origin. The High health, High Performance (HHP) framework to enable countries and regions to harmonise their sanitary requirements for temporary importation and re-entry of competition horses. The are several WOAH-listed equine diseases that are either present in Asia-Pacific or at risk of entering. After the unexpected incursion of African horse sickness to Thailand in March 2020, the importance of regional coordination among relevant public and private sector stakeholders was highlighted. The Asia-Pacific region has a very diverse range in the types of equids as well as their use and relationship with people. The WOAH RRAP is implementing the regional project to strengthen the networks among those involved with equine species in Asia and the Pacific to better respond to an equine disease emergency, control equine diseases (including zoonotic) and generally improve the health and welfare of equines in the Asia-Pacific region, eventually facilitate the international movement of horses. The project aims to achieve the four outcomes:

Outcome 1: Develop a regional coordination mechanism for international horse movement.

Outcome 2: Develop a capacity building program.

Outcome 3: Assess laboratory capacity to diagnose equine diseases.

Outcome 4: Facilitation of international sport horse movement.

Outcome 5: Presentation of project outputs to partners.

Session 17:
Guidelines for Veterinary Drug Regulations in Asia

Speaker	Presentation Title	Page
Dr. Amilan Sivagurunathan	Companion Animal Practice Malaysia , 2 Decades of Drug Inaccessibility.	109
Prof. Dr. Pawel Becowski	Access to Veterinary Drugs in Asia	110

Companion Animal Practice Malaysia , 2 Decades of Drug Inaccessibility.

Dr Amilan Sivagurunathan
BVSc(Hons), MRCVS, Cert(Ophth), MmedVet(Ophth)
Immediate Past President , MSAVA .Malaysia

Abstract

Drugs Inaccessibility is a clear and present problem in a number of developing countries around the world . From the title, by no means should we generalise these issues as an Asian problem . Many countries in Africa and the middle east may experience similar challenges. Pharmaceuticals are essential tools in the prevention and treatment of disease . At the same time, having access to a range of veterinary drugs is very much entrenched in the ethos of the Veterinary Oath and practicing good medicine. The need for Quality , Safety and Efficacy of Veterinary products should not be taken lightly , however Over- regulation and bottle-neck policies should be allowed for discussion and revision if necessary to facilite drug accessibility .

The veterinary industry is diverse, with veterinary professional servicing many different disciplines, and their dependence on a wide variety of phamaceuticals to carry out animal husbandry, therapeutics and welfare services (ie companion animals , livestock , equine , aquaculture , avian , exotic, wildlife and equine . off extensions into aquaculture , wildlife)

In Malaysia, Veterinary Biologicals and Food additives are under the purview of Department of Veterinary Services (DVS). It was the lack of current veterinary legislation to handle pharmaceutical registrations in Malaysia, that resulted in the Malaysian veterinary industry having to comply with NPRA guidelines and regualtions on pharmaceuticals ie REGOVP – Regulation Guidelines of Veterinary Products. Despite these guidelines , there remains a disconnect between what is needed and what is registered . Thailand and Taiwan embarked on a similar regulatory process as a result of trade and policy changes in the region , much later than Malaysia . The former countries have retained a greater accessibility to veterinarydrugs without compromising Quality , Safety and Efficacy . We could learn from our neighbours.

Malaysia embarked on Regulating veterinary drugs in 2007. The Department of veterinary services (DVS) in Malaysia is a division under the Ministry of Agriculture and Food Security (MOA) . The National Pharmaceutical Regulatory Authrority(NPRA), under the Ministry of Health (MOH) was tasked to establish a National Drug Registry to regulate unregulated markets in Malaysia . 2 decades on , the industry remains grappled with a limited number (840) and range (Predominantly antibiotics in various forms) of veterinary pharmaceutcials for the entire animal health industry. In order to overcome the shortages in drug accessibility in Asia , the following challenges need to be addressed promptly in stages .

1.The availabilty of Quality , Safe and Efficacious veterinary drugs globally is WOAH priority, but not at the expense of accessibility .

2. Recognise the diversity in the veterinary industry and establish policies to separated drug policies for animals in the food chain and those from companion animals.

3. The need to harmonise drug registration and approvals in Asia , remians a serious challenge despite efforts by WOAH to facilitate pathways.

5. The Malaysian Veterinary Laws are outdated and are in urgent need for an overhaul. It should be revised in include drug regulatory policies that could translate to better drug accessibility .

6.The WSAVA has developed an essential veterinary drug list , that be provides a guideline for drugs accessible in every country to meet global animal welfare standards ..... Yet to be adopted enforced locally.

7. For DCA to remain a legislative body for veterinary drug approvals , wider veterinary industry representation from the industry stakeholders is required for better policy resolution . Ie MSAVA, MAVMA , MAHNIA.

8. The limited range of veterinary products registered in Malaysia over the last decades is a clear indication of the red tape and over regualation that restricts the practice of good veterinary medicine.

9. Companion animal medicine is the fastest growing sector that demands a wide variety of pharmaceuticals and neutraceutcials . These pets donot enter the food chain and may require a modified pathway to facilitate drug registration.

Access to Veterinary Drugs in Asia

Paweł M. Bęczkowski 1,2
1 Therapeutic Guidelines Group, World Small Animal Veterinary Association,
2Department of Veterinary Clinical Sciences, Jockey Club College of Veterinary Medicine and Life Sciences, City University of Hong Kong, Tat Chee Avenue, Kowloon, Hong Kong

Abstract

Access to veterinary drugs in Asia varies greatly depending on the country and the level of development of its veterinary services. Some countries, like Japan, South Korea, and Singapore, have strict drug regulations in place. These include requirements for drug registration, quality control, and prescription. In other countries, the regulation of veterinary drugs is less stringent, which sometimes can lead to overuse of antibiotics and the availability of counterfeit or substandard drugs. Some of the biggest challenges in this area include the lack of access to essential veterinary medicines in rural areas, insufficient supply chains, misuse of drugs, antimicrobial resistance, animal ethics, environmental impact and overall need for better regulation and control. In the future, it is expected that the use of veterinary drugs in Asia will continue to increase, driven by the need to safeguard animal health. Improvements in this area require cooperation from governments, regulatory bodies, the pharmaceutical industry, and veterinary professionals across the continent. This talk will discuss challenges associated with access to veterinary drugs in context of recommendations of World Organisation for Animal Health (WOAH) and the Food and Agriculture Organization of the United Nations (FAO).

Session 18:
Veterinary Education in Asia

Current updates on Veterinary education in Asia

Dr. Pennapa Matayompong

Abstract

(To be updated)

FAVA Strategic Plan 2021-2025 on Improving Veterinary Education in Asia

Dr. Koichi Sato

Joint Faculty of Veterinary Medicine, Yamaguchi University, Japan

Abstract

Recently, veterinarians have been required to contribute in various fields, including ensuring food safety and security, preventing the spread of transboundary infectious diseases, translational research, and responding to the growing demand for animal protein due to population growth. In particular, Asia is an essential region for these events; it is necessary to secure quality veterinarians and educate undergraduate and graduate veterinarians to ensure the quality of veterinarian service in Asian countries. However, veterinary education in Asia has significant disparities due to differences in the situation in each Asian country and the educational resources it possesses. Also, considering the characteristics of the region of Asia, it is not desirable to apply the European or American veterinary education style as it is, and it is strongly desired to establish veterinary education with the characteristics of Asia.

FAVA needs to continue to consider the veterinary education required in the Asian region and support the improvement of veterinary education by promoting quality assurance and self-inspection of veterinary education. To achieve this goal, the veterinary education sub-committee set four following objectives. In my presentation, I will introduce our recent efforts, particularly establishing a cooperative framework with the AAVS.

Role of AVSBN on South East Asia Veterinary Education Establishments, VEEs Accreditation Standard

Achariya Sailasuta

Chair of ASEAN Veterinary Statutory Body Network, AVSBN and Director of FAVA office, Bangkok, Thailand

Abstract

The significant outcome on the initiative of establishing the ASEAN Veterinary Statutory Body Network (AVSBN), since 2017, of which the cooperation and collaboration of many related organizations in ASEAN Member States (AMS) is needed. The AVSBN will facilitate the development of the veterinary professional ASEAN Mutual Recognition Agreement (MRA). Therefore, it is necessary to have the ASEAN standardization for veterinary profession. Veterinary services (VS) are a global public good. High quality veterinary education (VE) and strengthened veterinary statutory bodies (VSBs) are major pillars of the good governance and quality of VS worldwide. On improving the quality of VE is therefore a key component of any plan to improve governance of VS. The OIE Day One Competencies serve as a tool for Veterinary Education Establishments (VEEs) and the accreditation of VEEs is internationally recognized as an integral part of quality assurance for VE. Accomplishment of the OIE VSB Twinning Program between Australasian Veterinary Board Council Inc (AVBC) and Veterinary Council of Thailand (VCT), 2018-2020, had subsequently contributed to the VEEs in AMS. AVSBN and South East Asia Veterinary School Association (SEAVSA) have collaborated actively aligning to the AVSBN's strategic plan 2018-2020, 2023-2025 with the fully support by WOAH SRR SEA. Which the outcomes have been demonstrated, the VEEs and VSBs/VSB equivalent authorities in AMS have adopted the OIE Day One Competencies as the minimum standard and used as the minimum criteria for SEA VEEs Accreditation Standard. The VEEs Accreditation Standard has been successfully established using the revised standards of the Veterinary Council of Thailand (VCT), comprising eleven standards as the model. Additionally, the SEA VEEs Accreditation body is now being established. The VEEs Accreditation Standard could be applied to provide objective criteria for intra-ASEAN mobility of veterinarians in the region.

Veterinary Education in Asia

Dato' Prof. Dr. Azmi Mohd Lila

Abstract

(To be updated)

Veterinary Accreditation - Sharing Seoul National University College of Veterinary Medicine Experiences

Min Su Kim, Je Kyung Seong

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Abstract

Introduction

Seoul National University College of Veterinary Medicine (SNU CVM) was founded in 1947 and has consistently worked towards meeting global standards with the objective of enhancing the well-being of animals and humans through education, research, and public service.

Purpose

SNU CVM is the first veterinary school in Asia to receive American Veterinary Medical Association (AVMA) Council on Education (COE) accreditation and intends to contribute to the development of veterinary education in Asia by sharing the accreditation process and the changes experienced by the university after accreditation.

Methods

Analysis involved reviewing various documents and presentations related to accreditation and examining significant developments in the education and research aspects of SNU CVM over the previous four years (2019-2022)

Results

obtaining AVMA COE accreditation was a very challenging process, but it allowed the university to offer globally standardized veterinary education. As a result, SNU CVM achieved a ranking of 38th in the veterinary field in the 2020 QS World University Evaluation. It provided for young Korean veterinarians to work on the international stage, as they could take the North American Veterinary Licensing Examination (NAVLE) with qualifications equal to those of students at American veterinary schools.

Conclusion

SNU CVM has enhanced the development of innovative education for the upcoming generation of veterinarians and is in the process of becoming a world-leading institution in the field of veterinary education.

Session 19:
Wildlife & Exotic Animal Medicine & Surgery

Habitat Enrichment Improves Reproductive Performance of The Bornean Banteng (Bos Javanicus Lowi) in Tabin Wildlife Reserve, Sabah

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Abstract

Banteng is a wild cattle, as with the gaur, serow, and anoa. Taxonomists divided the bantengs into three sub-species. The form native to Borneo is called the Bornean banteng or Tembadau. The Tembadau, Malayan tiger, and the Malayan gaur are the most endangered species in Malaysia. The Tembadau numbers were estimated to be 326. The current surveys showed their numbers is rapidly declining. Monitoring the largest population of Tembadau in Tabin Wildlife Reserve, Sabah started in 2019, using camera traps. The herd consisted of 2 bulls, 4-6 cows, 4 subadults and 2 calves. The parameters studied included demography, body condition score (BCS) and breeding performance. Habitat enrichment started in 2021 with habitat improvement, maintenance, and supplementation. The study area involves a 2.5km stretch of an old, unused logging road, including several trails and a natural salt lick. The road and road apron were weeded to remove non edible woody plants, ferns and yams. The natural grass included Axonopus compressus, Paspalum conjugatum and P.urvelli. In addition, several species of figs were planted within the area. Pennesetum purpereum was also experimented in-situ. A comparison was made with Tembadau images/videos captured before and after the intervention. Prior to the habitat enrichment, the BCS was 1-3, with an annual calving rate of two calves, from 2019, 2020 and 2021. A year after the habitat enrichment, the BCS improved significantly, but were variable between age groups, with juveniles – subadults and cows having a BCS of 1-2. However, calving increased threefold, in 2022 and, seven calves were born in 2023. The data showed, a naturally slow growth rate and the presence of cross suckling between calves. Old bulls were dominant due to their size difference. The study indicated, a low-tech intervention can result in an improvement in BCS and breeding performance of wild Tembadau.

Common Diseases of Pet Rabbits: Diagnosis and Treatment

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Abstract

Rabbits are herbivores and are loved by adults and children due to its' gentleness. The most popular breeds in Malaysia are Holland Hop, Netherland Dwarf, and Mini Rex. Rabbits require intensive care and management. In Malaysia, rabbits are raised by 3 groups of rabbit owners. First as pets by the general public (pet lovers), secondly for the meat industry (food consumption) and finally for laboratory research. The New Zealand White (NZW) rabbits are used in research. Rabbits seldom exhibit major clinical symptoms leading to difficulties in diagnosis. The common medical problems are of digestive system, musculoskeletal, integumentary, ocular, respiratory, central nervous, urogenital, and auditory. The digestive system ailments include anorexia, enteritis, lethargy, dental problems, gastrointestinal infection, bloat, constipation, intestine rupture and prolapse, and vomiting. The common musculoskeletal disorders were abscess and wound, limb weakness, tumour, sprain, fracture, and hind limb paralysis. Integumentary diseases include mange, alopecia, and ringworm. Ophthalmologic disorders include infection, inflammation, cataract, and disorientation. Ear disorders include canker and laceration. Respiratory disorders were the upper respiratory infection, nasal bleeding with purulent discharge, and breathing difficulty. The central nervous system includes torticollis, collapse/unconscious, seizure, fever, post-traumatic syndrome disorder, and CNS toxicity. The urogenital system includes hematuria, urinary retention, testicular tear, cryptorchidism, macroorchidism, and microorchidism. In conclusion, digestive system disorders were the most prevalent due to coccidiosis and dietary changes. Hence, the owners should provide proper nutrition, husbandry, and management.

Keywords: digestive system, muscular, anorexia, tumour, post-traumatic syndrome

Cutaneous Ulcerative Disease in Chelonians: Aetiopathogenesis and Treatment

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Abstract

Cutaneous ulcerative disease or shell rot is often a chronic and contagious pathological condition of aquatic and semi-aquatic chelonians in captivity. In the tropics, this disease is very common especially in captive turtles where the environmental conditions and nutrition may be suboptimal. Grossly the lesions vary considerably depending on the stage of the disease. Early-stage lesions appear as discolouration of the scutes, and may progress to ulcerated, necrotic and caseous foci with infiltration into the bony carapace or plastron. The disease is often a sequela of improper husbandry, malnutrition, and inappropriate environmental conditions, coupled with the loss of integrity of the keratinized epithelium. Pathogenic microorganisms may gain entry into the bone and celomic cavity leading to septicaemia. The disease may be fatal if left undiagnosed and appropriate treatment is not provided. Numerous gram-negative bacteria have been isolated from these cutaneous ulcerative lesions among tropical chelonians, with a number incriminated as causative agents. Fungal infection may be present as well, and standard microbiological diagnostics should be performed to ascertain the aetiology in order to institute target treatment. The environmental conditions, nutrition and husbandry need to be carefully evaluated and corrected if necessary. Deep and extensive lesions may take very long to heal, and permanent scarring of the carapace and plastron may occur.

Improving The Welfare Of Captive Wildlife Through Environmental Enrichment

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Abstract

Captive wildlife often face numerous challenges concerning their welfare, including restricted habitats and limited opportunities to express natural behaviour repertoire. Environmental enrichment encompasses diverse strategies to stimulate animals mentally and physically, promoting species-specific behaviours and improving their overall quality of life. These interventions may take various forms, such as physical enhancements to enclosures, cognitive challenges, sensory stimulation, and social interactions.

Studies indicate that implementing environmental enrichment programs can result in numerous positive outcomes, including reduced stress and stereotypical behaviours, increased physical fitness, enhanced mental stimulation, and greater overall contentment among captive animals. Furthermore, such programs engage visitors, fostering a deeper appreciation for wildlife and conservation efforts.

The present delivery highlights the importance of tailored enrichment activities that consider individual species' unique needs, social structures, and ecological requirements. By incorporating environmental enrichment as a standard practice in captive wildlife management, we can work towards ensuring that these animals experience a higher quality of life and contribute to ongoing conservation education efforts.

Diseases of Pet and Aviary Birds

Prof. Dr. Jalila Abu

Avian Medicine & Surgery

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Abstract

Research studies on pet and aviary birds especially on diseases in Malaysia are still in it's infancy stages but has become more important due to the increased demands for birds as pets as well as the importance of zoonosis. Avian veterinarians treat a wide range of birds such as cage and aviary birds, raptors, zoo birds, wild birds, fancy pigeons, waterbirds, ratites, and poultry. The unique avian species that belong to many orders also contribute to the challenging task of being avian veterinarians. Joining worldwide avian association can be a liaison for Malaysian veterinarians in expanding the horizon from treating small animals to avian species. A fundamental challenge for the avian practitioner is to offer quality patient care across this wide range of species as well as understanding the needs and expectations of their owners. By thinking beyond the examination room, veterinarians will gain insight into medical and behavioral problems of individual patients as well as playing a role in trying to preserve avian biodiversity for future generations. Infectious diseases such as Bacteria, Chlamydia, Mycoplasma, viruses, fungi, and parasites are common causes of infectious diseases in birds. Avian orthopedic is also one of the aspects that is important in the practice. In this presentation, research conducted on some important diseases of pets, cage and aviary birds mention above will be shared.

Session 20:
Edible-nest Swiftlet And Edible-birdnest (EBN) Production

Perspective and Challenges of The Swiftlet Industry In Malaysia

Dr. Norhaliza binti Abdul Halim

Abstract
(To be updated)

Blockchain and How It Improves Trades

Prof. Madya Dr. Mohamed Ariff Bin Ameedeen
Universiti Malaysia Pahang, Malaysia

Abstract

Blockchain is a decentralized digital ledger technology that records transactions across a network of computers, ensuring transparency, security, and immutability. In the context of trades, blockchain has transformative potential. It can streamline and secure trade processes by providing a tamper-proof record of transactions, reducing fraud, and increasing trust among parties. Blockchain technology can be applied to trade finance, supply chain management, and digital assets, revolutionizing the way trades are conducted and verified. Its ability to enhance trust, reduce intermediaries, and improve transparency makes blockchain a powerful tool for modern trade ecosystems.

Population Dynamics of Edible-nest Swiftlets in Natural Caves and Bird Houses

Dr. Lim Chan Koon

Abstract
(To be updated)

Insights of the Swiftlet and EBN Industry- from Industry Player Perspectives

Mr. Allen Tan Swee Meng

Abstract
(To be updated)

Session 21:
Ruminant Production & Diseases

Managing Health and Nutrition of Water Buffaloes in the Philippines through Mobile Apps: Challenges & Opportunities

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Abstract

Water buffaloes, also known as carabaos, are a substantial presence in livestock populations across continents, particularly as regards their contribution to milk and meat production, with the Philippines emerging as a key player within this landscape. The nation's dynamic carabao industry, spanning from 2014 to 2020 and marked by consistent growth rates, underscores its importance. Within this context, the exploration delves into the inherent challenges of managing water buffalo health and nutrition. These challenges encompass limited access to veterinary expertise, the intricacies of calculating optimal feed compositions, and the critical need for real-time information dissemination. In response to these challenges, mobile applications (apps) emerge as a transformative solution. Apps, which have reshaped various industries, offer tailored monitoring, diagnosis, and optimization tools for livestock operations. A comprehensive exploration distinguishes between free and paid app options available online, elucidating their distinctive features, customization potential, and applicability across varying farm scales. A pivotal shift occurs with the introduction of the "Knowledge Brokerage, Guidance, and Advisory Network" (KBGAN) under the auspices of the Philippine Carabao Center. At the core of KBGAN lies the "iHealth" module, designed as a diagnostic instrument for carabao health conditions. It facilitates seamless interaction between farmers and agricultural extension professionals or veterinary aides, expediting intervention strategies. In a similar vein, the "iFeed" module addresses the complexities of managing animal nutrition, simplifying real-time feed composition calculations. While opportunities for early detection of animal health issues, optimized nutrition, informed decision-making, and economic growth are abundant, using mobile apps comes with its share of difficulties. These challenges encompass connectivity constraints, financial considerations, and interface refinements. The roadmap for progress encapsulates initiatives for digital literacy, augmented rural connectivity, strategic partnerships, and the development of user-centric apps. In sum, the potential of mobile apps to revolutionize water buffalo management is profound. This narrative, anchored in global and Philippine contexts, underscores how technology can surmount challenges while fostering opportunities. Ultimately, it propels the enhancement of the water buffalo industry's health, nutrition, and overall sustainability.

Dairy Goat Production in Southeast Asia

Halimatun Yaakub

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Universiti Putra Malaysia

Abstract

Milk is primarily produced by mammals, with cow's milk being the most popular worldwide. Other animals like buffalo, goat, sheep, and camel also produce milk, each with its unique properties and uses. India, Bangladesh, Pakistan, and China are among the world's leading producers of goat milk, reflecting the significance of the dairy goat industry in these countries. In Southeast Asia, specific information on dairy goat production, particularly milk yield, is often limited. This may be because the dairy goat industry in the region is still developing and not as extensively documented as the dairy cow industry. The smaller volume of goat milk compared to cow milk can make it suitable for niche markets that are often valued for its potential health benefits, and sometimes used in pharmaceutical and nutraceutical products. Smallholders are indeed a significant part of dairy goat farming in Southeast Asia. The compact size of dairy goats makes them an accessible and attractive source of income for these smaller-scale operations. The choice of goat breeds can vary by country and region. The choice of breeds depends on factors like climate, local preferences, and the intended use of the goats (milk, meat, or dual-purpose). Throughout Southeast Asia, goat-rearing systems are relatively consistent, with goats raised for either meat or dairy purposes, or as dual-purpose animals. The specific practices may vary, but small-scale and mixed farming systems are common.

Anthelmintic Resistance in Small Ruminants – Myth or Reality

Chandrawathani Panchadcharam

Former Department of Veterinary Services Malaysia

Abstract

Parasitic helminth infections in small ruminants are prevalent in South East Asia (SEA), limiting productivity and causing major economic loss for farmers. The hot, wet, tropical climate all year round favours trichostrongylid infections, predominantly haemonchosis in sheep and goats. Commercial large scale farms, with more than 300 animals, as well as small holders or backyard farmers with less than 50 animals face the debilitating effects of haemonchosis when they graze their animals as effective worm control is often hampered by anthelmintic resistance. In Malaysia, frequent and indiscriminate use of anthelmintics in the past has resulted in the majority of the small ruminant population facing resistance to one or more anthelmintics. Several alternative methods of worm control are being employed by farmers; the most important and effective being cut and carry or zero grazing, where the animals are kept in pens and grass is cut and fed. As there are a large number of small holder farms, there is a need to explore more user friendly methods of worm control other than the use of drugs. There is an urgent need to increase awareness and information on the need for testing faecal samples regularly before drenching, conducting faecal egg count reduction tests on a yearly basis, use of the FAMACHA technique to enable selective treatment of individual animals The use of alternative worm control methods to manage helminthosis will help promote effective ruminant production with reduced drug use and encourage “green” farming methods. Extension of research on local bioactive plants which may have the potential to control helminthosis may also be beneficial in the longer term.

Contribution on Inherited Diseases of Cattle

Arcangelo Gentile

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Abstract

Genetic disorders might be caused by a complete or partial change in the DNA sequence when compared with the reference sequence. They might be associated with pathogenic variants in one gene (monogenic disorders), in multiple genes (polygenic disorders), or in combination with environmental factors that might render the individual more or less susceptible to develop certain disorders. In addition, genetic disorders might be associated with chromosomal abnormalities.

With particular respect to the monogenic disorders, the apparent increased prevalence of inherited diseases that the Authors have been observing for the recent decades might be considered a direct consequence of the increased degree of inbreeding due to intensive breeding programme.

In fact, we can say that inbreeding has allowed the homozygous presence of recessive genes - responsible for the defect - in the inbred progeny.

However, the new genomic technologies enables to characterize many dominantly inherited defects that so far had been considered of unknown etiology.

The investigative strategy for approaching inherited diseases is based on the sequence of clinical, genealogical, gross/histopathological and genetic study of the affected individual(s). Genomic technologies, such as single nucleotide polymorphism (SNP), array genotyping and whole-genome sequencing (WGS), allows for straightforward locus mapping and the identification of candidate causal variants.

However, the above-mentioned investigative sequence is possible only if suspected cases are referred to diagnostic centers, being the practitioners the first and most important link in the investigative chain.

“Online Mendelian Inheritance in Animals (www.omia.org)” is a unique database providing information on animals inherited diseases.

Session:
Royal Canin Nutrition Talk

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Charting Their Path – A Guide to Puppy and Kitten Growth

Dr. Dylan Choy Siew Fen, D.V.M

Royal Canin Malaysia

Abstract

This scientific talk delves into the essential topic of puppy and kitten growth charts, shedding light on the critical aspects of early-life development in companion animals. Developed by the renowned Waltham Petcare Science Institute, these growth charts represent a paradigm shift in understanding and managing the early-life development of puppies and kittens. The Waltham Growth Chart, rooted in extensive research and meticulously curated data, offers precise insights into the growth trajectories of various breeds, enhancing the accuracy of health assessments and clinical interventions.

This presentation illuminates the distinctive features of the Waltham Growth Chart, highlighting its role in clinical applications. By incorporating breed-specific data and considering various factors such as genetics, nutrition, and environmental influences, this growth chart provides veterinarians with a comprehensive framework for evaluating the development of puppies and kittens. Its unique algorithms allow for realtime analysis, empowering clinicians to tailor their recommendations and interventions dynamically.

The talk will also highlight the transformative potential of these growth charts in elevating the quality of companion animal healthcare. By empowering clinicians with precise tools for assessment and intervention, this research contributes significantly to the well-being and longevity of puppies and kittens.

This holistic approach emphasizes the symbiotic relationship between scientific inquiry and clinical application, fostering a new era of comprehensive and personalized care in veterinary medicine.

Abstracts of Oral Presentations *(General Submissions)*

Session 1: Small Animal Medicine & Surgery

Primary Splenic Torsion in Large Breed Dogs, a Challenging Diagnosis: A Case Report

Dr. Joel Tan, Dr. Siti Sarismahanim Ismail
University Veterinary Hospital, University Putra Malaysia

Abstract

Diagnosing splenic torsion in dogs based on clinical symptoms can be challenging. Diagnosis must be quick as this disease can be fatal. Ultrasonography and blood tests are some of the modalities to assist with the diagnosis. This is a case report involving 2 dogs, an indoor 9-year-old intact male German Shepherd (GSD) and a 4-year-old working dog intact male Belgian Malinois (MAL). Both dogs were presented to University Veterinary Hospital (UVH), University Putra Malaysia (UPM) with clinical presentations. The GSD came with complaints of inappetence and lethargy. Physical examination revealed pale mucous membrane and dog was responsive but lethargic. Abdomen was tense upon palpation. MAL was presented with pollakiuria and haematuria with no other abnormalities. Complete blood count (CBC) revealed anaemia for both dogs. Abdominal radiograph revealed enlarged spleen with evidence of displacement of the abdominal organs and decreased serosa detail. Ultrasound was done on both dogs. The classical ultrasonographic appearance of splenic torsion were seen in both cases; splenomegaly with abnormal position, hypoechoic to anechoic parenchyma with diffuse interspersed linear echoes known as lacy appearance, absent Doppler flow in the splenic veins, evidence of splenic infarction and peritoneal fluid seen greater in GSD compared to MAL. Surgery was done and both dog had different outcome and prognosis as it need to be done immediately after the diagnosis has been made.

Morphometric and Histologic Characterisations of the Menisci of Domestic Cats (Felis Catus)

Nur Izzati Inani Zabiddin, Dr. Siti Mariam Zainal Ariffin
Faculty of Veterinary Medicine, Universiti Putra Malaysia.

Abstract

Knowledge of healthy menisci anatomy is essential for all veterinarians to recognize early the development of any abnormalities at the stifle joints. The study aimed to determine the morphometric and histomorphologic characteristics of the medial and lateral menisci of domestic cats. 180 menisci were obtained from 45 skeletally mature cat cadavers. The menisci peripheral extension, width and thickness, circumference of the body, articulating height, and superior articulating length were measured. A histomorphometry assessment was also determined. Each meniscus was evaluated and scored at different regions and zones. The proteoglycan content and collagen distribution were examined. The most common shape of the medial meniscus was crescentic (62.2%), and that of the lateral meniscus was C-shaped (62.2%). The morphometric analysis revealed that the lateral menisci significantly differed in circumference, thickness, width, and articulating height from the medial menisci. The cellularity decreased from the outer zone to the deep zone of the menisci. Proteoglycan content was not found to differ in different regions but was significantly increased in the middle meniscal zone. Types I, II, and III collagens were distributed throughout the meniscal regions and zones. Type I and II collagen distributions were abundant in the cranial and deep zones, while type III collagen was mainly identified in the middle zone. This study has revealed variations in the morphometrics of medial and lateral menisci and histological features of the region and zone of feline menisci.

Highly Pathogenic Avian Influenza A (H5N1) clade 2.3.4.4b Virus in Sheltered Cats, South Korea, 2023

Kyungmoon Lee, Dr. Minjoo Yeom
Seoul National University, South Korea

Abstract

Background: In June 2023, highly pathogenic avian influenza H5N1 outbreaks occurred in a cat shelter in South Korea, resulting in the death of 38 out of 40 cats.

Purpose: The objective of this study was to characterize the identified virus and investigate its potential source of infection.

Methods: Two nasal swabs were inoculated into embryonated eggs to isolate the virus. Subsequently, real time RT-PCR was performed to confirm the genotype. Following this, next generation sequencing and phylogenetic analysis were performed.

Results: The isolates SNU1 and SNU2 were confirmed as highly pathogenic avian influenza H5N1 clade 2.3.4.4b. Whole-genome sequencing indicated that both isolates shared identical sequences, demonstrating the highest identities of over 99.6% with Japanese avian isolates collected during the winter seasons of 2022-2023. The isolates displayed five amino acid changes. Notably, the D701N mutation in the PB2 protein is recognized molecular marker for the mammalian adaptation. Additionally, changes in amino acids R204G and K385B of the PA protein and I255V of the NA protein have not yet been reported. Two other amino acid changes, V113I in the PB1 protein and T46M in the PB1-F2 protein, were reported in avian isolates other than the Japanese ones.

Conclusion: One potential route of infection may involve cats ingesting raw poultry meat infected with avian influenza viruses. Enhancements are necessary in comprehensive surveillance systems for avian as well as potential mammalian hosts like cats, which may come into contact possible sources of infection.

Session 3: Porcine Production & Diseases

Hemiglossectomy and Canine Teeth Trimming in a Vietnamese Pot-Bellied Pig

Dr. Michelle Fong, Dr. Azlan Che' Amat
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Abstract

In this case report, hemiglossectomy and canine teeth trimming was done on a 2 years old intact male Vietnamese pot-bellied pig with a BCS of 3.5/5. On 14th November 2022, Cash was presented to UVH with a primary complaint of wound at the tip of the tongue. He was brought to a private clinic a week prior to presentation to UVH and was prescribed with an antibiotic and anti-inflammatory. Upon physical examination, a lacerated wound and necrosed tissue was observed at the right body and cranial apex of the tongue. There were no significant findings from the CBC and SBC except there were mild neutrophilia and lymphopenia due to infection or inflammation. Hemiglossectomy and canine teeth trimming was done on 15th November 2022. There were no complications post-operatively and Cash was able to eat unassisted after the surgery. The prognosis was good since Cash was bright, alert and not showing any signs of pain and he also was able to eat and drink unassisted.

Nucleic Acid Testing Strategy for African Swine Fever: Sabah's Perspective

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Abstract

Sabah was the first state in Malaysia to be detected for African swine fever virus (ASF) in February 2021. The outbreak has affected the wild boar population and further caused mortalities in backyard and commercial pig farms. As an effort to control and eradicate the disease, PCR method was used for the detection of the virus. Two strategies were employed by the department which is to detect ASF on clinical cases and screening commercial pigs from government slaughterhouses. The use of PCR (endpoint or real-time) for detection of ASF from clinical cases is a direct test as these cases originates from animals with clinical symptoms (high predictive value). On the other hand, this form of test is not suitable for detection for pigs from slaughterhouses due to their health status, the inspected internal organs do not show signs of clinical symptoms (low predictive value). The application of PCR designed for detecting disease caused by ASF infection on healthy animals may result in a false negative rather then a true negative. In order to overcome this critical bottleneck, Makmal Diagnosa Veterinar Kota Kinabalu (MDVKK) has developed an in-house nested Sybr Green PCR strategy to deal with this type of sample. This can ensure that the results obtain are able to differentiate between the status of false negative or true negative. Tissue samples (internal organs) obtained from Kiansom slaughterhouse were detected positive for the presence of ASF virus in 2021 (27/353 cases) and 2022 (38/175 cases).

PCV3 IN MALAYSIA: MOLECULAR PREVALENCE & IN SITU HYBRIDIZATION TECHNIQUE DEVELOPMENT

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Porcine circovirus type 3 (PCV3) is a newly emerging virus in the swine industry, first reported recently in 2016. Since its first discovery, PCV3 has been increasingly reported in countries including Thailand and U.S. with whom Malaysia shares trade and geographical relationship. PCV3 has been detected from pigs with porcine dermatitis and nephropathy syndrome (PDNS), clinical signs of reproductive failures, myocarditis, porcine respiratory disease complex (PRDC) and neurologic disease. The pathogenicity of PCV3 has also been demonstrated through infectious clone studies. Closer to home, PCV3 was recently reported in Malaysian commercial pig population in 2020 at a molecular prevalence of 17.02% in the sampled domestic pig population. Malaysian PCV3 strains were classified as PCV3 strain A1 and A2, and phylogenetically related to Spanish, U.S. and Mexico strains. Notably, inguinal lymph nodes and lung samples exhibited the highest molecular detection rates, at 81.82% and 71.43%, respectively. Aligning with these findings, an in situ hybridization method was developed and tested on the mentioned organs. Digoxigenin-labeled ISH probes were designed to target a 69 bp region of PCV3 ORF1 spanning from the nucleotide positions (282–350). This ISH approach successfully visualized PCV3 antigens within the cytoplasm of pneumocytes and lymphocytes through chromogenic staining. As PCV3 is still relatively new and under-researched, the practical DIG-ISH protocol presented in this study would be useful in advancing future investigations of PCV3 in Malaysia in the direction of tissue tropism and pathogenic mechanisms.

Keywords: chromogenic *in situ* hybridization, porcine circovirus type 3, porcine circoviruses, pigs

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ASSESSMENT OF MECHANICAL TRANSMISSION OF AFRICAN SWINE FEVER VIRUS BY FLIES AND RATS

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African Swine Fever (ASF) is a highly infectious and fatal viral disease that affects both domestic pigs and wild boars. It is caused by the African Swine Fever Virus (ASFV) and is responsible for significant economic losses in the global swine industry. In February 2021, an ASF outbreak was confirmed in multiple locations in Sabah, Malaysia, affecting backyard pig populations. The Department of Veterinary Services Malaysia promptly implemented a stamping-out policy to eradicate the disease. As of the present, the ASF outbreak continues to pose a significant challenge. ASF is primarily transmitted among pigs through both direct and indirect contact. To mitigate its spread, closed-house farming systems and enhanced biosecurity measures have been introduced within pig farms. However, there is growing interest in exploring potential mechanical vectors for ASFV, such as flies and rodents, due to their prevalence in livestock environments despite stringent biosecurity measures. Flies and rodents are known carriers of various veterinary pathogens, making their role in ASFV transmission a subject of research importance. This study aimed to assess the mechanical transmission of ASFV by flies and rats in four different farms. Fly samples were collected using sticky traps placed at various locations within the farm, and rat samples were obtained through the use of rat cages, buckets, and sticky traps, also positioned in different areas of the farms. Fly samples were divided into head and body components, with five randomly selected flies from each area pooled together as one sample. Similarly, specimens were collected from rats by swabbing their mouths, thoracic parts, and paws. Real-time PCR analysis was performed on all collected sample for ASFV detection. Positive results obtained from specific farms strongly suggest the potential for mechanical transmission of ASF by flies and rats to farm pigs. Strengthening pest control measures on the farm is crucial to present ASF.

Keywords: African Swine Fever, Flies, Rodents, pigs

Session 6:
Equine Medicine & Surgery

Dysphagia- Complication of Laryngoplasty

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Abstract

Prosthetic laryngoplasty is a commonly performed surgical treatment of laryngeal hemiplegia, which can cause exercise intolerance in horses. Well-documented complications of prosthetic laryngoplasty (or "tieback" surgery) include coughing, nasal discharge, and dysphagia. Treatment options of cough and dysphagia complications traditionally comprised of loosening or removing the prostheses, with resulting compromise of athletic performance. A newly described treatment showing encouraging results for the resolution of cough and dysphagia complications was the augmentation of either the aryepiglottic fold and/or the vocal fold with a bulking agent injected into the ventral aspects of these folds to thicken them and help block the passage of food material into the trachea during swallowing. This paper describes a case of augmentation (injection of both aryepiglottic and vocal folds) with initially Arthramid® and then subsequently bone cement in a thoroughbred racehorse with coughing and nasal discharge after undergoing prosthetic laryngoplasty surgery. While initially successful in the resolution of clinical signs, the augmentation was only of a relatively short duration (Arthramid® 4 weeks, bone cement 3 months) until swelling resolved and signs of dysphagia returned. Also, the levels of complications in other cases using bone cement (7/7 augmentation only temporary, 3/7 necrosis and sloughing, 2/7 initial excess swelling) have led this clinic to determine that the technique may not be as promising as initial reports suggest.

Prognosis Following Carpal Arthroscopy in Thoroughbred Racehorses

Daniel Shaw
Singapore Turf Club, Singapore

Abstract

The published evidence related to the success of carpal arthroscopy is of lower levels, and sometimes conflicting. To determine the prognosis and investigate which surgical variables significantly affect clinical outcomes and race day performance, a retrospective cohort study was carried out on 251 carpal arthroscopies at the Singapore Turf Club between October 2008 and May 2011, a unique environment with detailed accurate unbiased records and without loss of cases to follow up. Exposure variables studied were limb, joint, intra articular medication, degree of pre-existing osteoarthritis, size of fragment, and grade of cartilage damage. Outcome variables measured were race day performance and clinical outcome. Veterinary histories were obtained from management software, the pre-surgery X-rays read from stored images by a single blind observer, and the race records obtained from the club website. Horses race performance post-surgery was as per previous studies (77% return to race), but complications such as ongoing lameness (60%) severe osteoarthritis (27%), and repeat of the bone chips requiring a 2nd surgery (20%) were more common. Radiocarpal lesions had a much better prognosis than intercarpal lesions ($p < 0.01$). Grades 1 and 2 cartilage lesions also had a better prognosis than 3 and 4 lesions. Radiological findings of the size of fragment and degree of pre-existing arthritis were not related to outcomes. Horses undergoing a repeat surgery had a slightly reduced but overall acceptable prognosis. Post-surgical administration of intra articular cortisone appears to be contra-indicated, and more attention should be given to post surgery rehabilitation.

Repair of Avulsion Fracture of The Premaxilla and Rostral Incisors in a Horse

Assoc. Prof. Nurul Hayah Khairuddin, Dr. Syahirah Ahmad Affandi
Universiti Putra Malaysia

Abstract

A 9year old Thoroughbred horse was presented to the University Veterinary Hospital, Faculty of Veterinary Medicine, Universiti Putra Malaysia for traumatic injury of the dental maxilla. The horse was casted inside the stable and exerted full force on its rostral maxilla to the stable wall in the effort to stand up from being in casted position. The force resulted in avulsion fracture of the premaxilla and rostral portion of its incisors. Radiographic examination confirmed that there were premaxillary fracture between tooth number 101-201, and 202-203. Tooth 203 was fractured longitudinally one-third of the tooth. Surgical repair using interdigital cerclage wire figure of eight pattern between incisors 101 to 201, and 202 and 203 were performed on the same day of injury. The fracture was stabilized, but the cerclage wires became loose on the second day. A second surgery was performed to tighten the loose wire and add another figure of eight pattern between 201 and 202. However, on the third day, tooth 203 fractured entirely and causing failure of the wire fixation. A third surgery was then performed and the decision was to change to a bigger size cerclage wire and to loop the wire in between 201, 101 and anchored to the 102. There was a big gingival gap in between 202 and 203 where surgical fixation to oppose this gap had failed. There was a need to provoke faster gingival healing to oppose this gap, and RGTA heparin sulphate mimics were used to accelerate the formation of granulation tissue. The cerclage wires were tightened periodically until 12 weeks post-operatively.

A Surgical Approach of Ocular Setariasis in a 13-year old Arabian Stallion

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Abstract

A 13-year-old Arabian stallion was observed to have corneal opacity and excessive ocular discharge. An ophthalmic examination revealed a moving thread-like cylindrical worm in the anterior chamber of the left eye. For removal of the worm, the horse was sedated with Detomidine Hydrochloride and affected eye was prepared for procedure by regional nerve block analgesia. The parasite was successfully removed by needle paracentesis. Topical antibiotic was administered postoperatively to check secondary bacterial infection and corneal opacity. After surgery, the vision was restored and corneal opacity was reduced gradually. Morphologically, the worm was identified as Setaria spp.

A Preliminary Case Report on the Use of ReGeneraTing Agents (RGTA®) as a New Option to Improve Traumatic Injuries Outcomes in Equine

Dr. Syahirah Ahmad Affandi, Assoc. Prof. Nurul Hayah Khairuddin
Fakulti Perubatan Veterinar, Universiti Putra Malaysia

Abstract

Emergency situations involving serious traumatic injuries and extensive soft tissue damage are common cases encountered by the veterinarians. A notable increase in medical expenditures was observed in cases of severe traumatic injury and non-healing wounds resulting from prolonged wound management. In recent years, there has been a significant advancement in the field of wound healing treatment through the utilization of regenerative therapies, which involve the application of growth factors and matrix therapy. We had the privilege of evaluating the efficacy of a novel product called Dermapliq® Spray. This product utilizes matrix therapy with the aid of RGTA® (ReGeneraTing Agent),an advanced technique in the field of regenerative medicine. The primary objective of this approach is to facilitate tissue regeneration by reconstructing the cellular microenvironment subsequent to tissue damage. A total of six equine patients presented with either a fresh traumatic wounds (2/6) or chronic non-healing wounds (4/6) were subjected to treatment using Dermapliq® Spray, twice a week. Rapid healing was observed in all six cases, where wound contracture of 50% took place within a week of application. The present preliminary study represents the initial reported case series documenting the successful utilization of RGTA® in the treatment of equine wounds management. The results are promising, therefore an effort for a larger sample size and longer duration for clinical assessment is needed to evaluate the safety and efficacy of the drug in accelerating wound healing in veterinary patient.

Session 7:
Small Animal Medicine & Surgery

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Pemphigus Foliaceus in a Pekingese Dog

Dr. Wei Yee Chan, Dr. Kuan Hua Khor
Faculty of Veterinary Medicine, Universiti Putra Malaysia

Abstract

A 9-year-old, spayed female Pekingese was presented to University Veterinary Hospital, Universiti Putra Malaysia for unresolved generalized skin problems for more than a month. Generalized crusted pan-follicular erythematous pustules on ear concaves, dorsum, limbs and ventrum were found upon physical examination. Diagnostic investigations of trichogram, superficial skin scraping, direct impression smear and tape impression for cytology, complete blood count and serum biochemistry analyses, and skin punch biopsy for histopathology were conducted. Trichogram and superficial skin scraping showed no significant findings. Eosinophilia, elevated urea level and ALP level, and hyperproteinaemia due to hyperglobulinemia were observed from the haemogram and serum biochemistry profile. Cytological results revealed the presence of acantholytic cells with neutrophils and eosinophils. Histologically, intact epidermis was observed with neutrophilic and eosinophilic encrustation, and vascular congestion was present in the dermis with interstitial infiltration of neutrophils, eosinophils and plasma cells. The mixture of acantholytic cells, neutrophils and eosinophils could be observed within an abscess underneath the epidermal layer. The final diagnosis of pemphigus foliaceus was made based on the presence of acanthocytes, neutrophils and eosinophils present in the cytology and histopathology of the skin. This case had been initially treated with prednisolone alone and then switched to a combination therapy of cyclosporine and ketoconazole. The prognosis was fair to good.

Session 10:
Animal Welfare

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The Effectiveness of Enrichment Ball to Reduce Sumatran Tiger's Stereotypic Behaviour at Tambling Wildlife Nature Conservation Rescue Centre

Dr. Genoveva Kiranaputri D.V.M., M.Si., Ari Yana
Tambling Wildlife Nature Conservation, Indonesia

Abstract

Tigers may show stereotypic behaviour such as pacing, excessive self-grooming, or self-biting in the captivity. Enrichment techniques are used to reduce tiger's stereotypic behaviour and as implementation of animal welfare. The purpose of this research is to analyses the effectiveness of a ball as tiger's enrichment. Tigers' behaviours were observed by focal animal sampling in an Individual Cage (6 x 3 x 6 metres) from 11.00 - 12.00 a.m. then 13.00 - 18.00 p.m. every three days for each pre-enrichment and post-enrichment. Five adults tigers were observed in this research. Tiger A and B were both male (age: 12 years) born in captivity. Tiger C was male (age: 11 years) born in captivity. Tiger D was male (age estimation > 5 years) conflicted tiger from Palembang. Tiger E was female (age estimation > 23 years) conflicted tiger from Jambi. Tigers' husbandry and management were following animal welfare principle at Tambling Wildlife Nature Conservation Rescue Centre. Tigers' behaviours were categorized as inactive, active, interaction and stereotypic behaviours. A ball was given in the centre of the Individual Cage as enrichment. Pre-enrichment and post-enrichment's behaviours were analyzed using Wilcoxon test. The results were (i) there was no significant difference for inactive behaviour ($Z=-1.753$, $P=0.080>0.05$), (ii) there were significant difference for active ($Z=-2.023$, $P=0.043<0.05$). The enrichment ball was effective to reduce stereotypic behaviour from 11.83% to 3.16%. Another enrichment techniques should be explored even more to support tiger's welfare in captivity.

Session:
Rabies: Epidemiology And Control

Development of Support Tools for Understanding Clinical Symptoms of Rabies

Dr. Kazutoshi Sugiyama, Dr. Kanae Shiokawa
The Japan Society of Clinical Study for Rabies, Japan

Abstract

Background: Japan successfully eradicated rabies 65 years ago and there has been no domestic case since then. This means most of veterinarians in Japan have no experience to diagnose rabies clinically. If rabies would invade Japan again, it could lead a critical situation. To reduce the risk of missing rabies in the clinical practice, we have developed audiovisual materials to help veterinarians learn the clinical signs of canine rabies.

Method: Clinical signs of rabid dogs were filmed at the Thai Red Cross. All cases were confirmed rabies positive by the laboratory tests. The interpretation of symptoms in dogs was based on a paper reported by Veera et al. at the Thai Red Cross Institute. The video was produced in the form of a DVD. The first edition provides an overview of rabies and its symptoms. The second edition focuses on the progression of the disease and describes the paralytic and severe forms of canine rabies.

Results and Discussion: Our DVDs have been distributed by 100 requests in Japan and 50 from overseas. Japanese veterinarians have commented that they could visualize the symptoms and progression of the disease that the DVDs could provide self-training in case of emergency. This tool was created to help veterinarians in Japan, a rabies-free country, learn about the symptoms of rabies, but it may also be useful to veterinarians in rabies-endemic countries. We would like to get advice from veterinarians in rabies-endemic countries on utilizing this DVDs in their clinical practice. We will give DVDs at free of charge upon receiving requests with your comment.

An Update on Characteristics of Rabies Outbreaks in Southern Thailand during 2022 – 2023

Patamaporn Khucharoenphaisarn, Wandee Kongkaew
Veterinary Research and Development Center (Upper Southern Region), Thailand

Abstract

Rabies has long been recognized a fatal contagious zoonotic disease transmitted from animal to human. Globally, WHO reports an annual average of 59,000 rabies-related deaths. In 2023 Thailand has already reported three human rabies and 193 animal rabies cases. Thirty animal cases were reported in southern Thailand. This study describes the epidemiology of animal rabies outbreaks in southern Thailand. We analyzed data from 2022 to 2023, combining the diagnostic dataset and telephone-based outbreak investigations. Our study mapped spatial rabies outbreaks and categorized cases based on demographic, clinical, vaccination, and geographical factors. We also calculated median response times. We identified 56 rabies outbreaks: 44 in dogs and 12 in cattle, with a median of 2 cases per month. Median affected ages were 2 years for dogs and 3 years for cattle, with 67% male dogs and 83% female cattle. Among affected dogs, 55% were strays, and 75% were unvaccinated. The median time from sample submission to result confirmation was within 1 day. Common clinical symptoms in rabid dogs included aggression (58%), aimless wandering (40%), and muscular rigidity (40%), while cattle predominantly showed muscular rigidity (92%), charging or chasing (67%), and anorexia (25%). Risks of contracting rabies in animals included being bitten by a rabid dog (36%) and close contact with one (48%). In summary, this study highlights critical factors influencing rabies prevalence in southern Thailand, emphasizing the importance of timely vaccinations and effective stray dog management to prevent outbreaks.

Session 12:
Small Animal Medicine & Surgery

Effect of Low-Dose Medetomidine Injection into Yin Tang Acupoint in Cats

Dr. Benedict Ong Huai Ern DVM, MVM, PhD,
UVH, Universiti Putra Malaysia

Abstract

Alpha-2 agonist, such as medetomidine (MED), was used to sedate and reduce heart rate and thus increase ventricular filling time in cats with hypertrophic cardiomyopathy. However, alpha-2 agonist was occasionally found to induce bradyarrhythmia and vomiting in cats. Pharmacopuncture with low doses of xylazine was found to sedate cats without causing significant changes in the heart rate. This study's purpose is to compare the sedative effect and the reduction of heart rate after medetomidine and normal saline (NS) injected into the Yin Tang acupoint. After being medicated with 3 mg/kg tramadol IV, general anesthetized with isoflurane and propofol 8 mg/kg IV, 0.005 ml/kg of NS and MED 0.1% (5 mcg/kg) was injected into the sedation point located between the eyebrows subcutaneously. Within 4 minutes after injection, pulse rate decreased drastically from 174 to 121 beats/min (-30%) after MED injection; while maintained within the range of 138-141 beats/min (+2%) after NS injection. The recovery time from cessation of gas isoflurane till extubation is longer in MED (1 hour 10 min) than in NS (1 min). Between 4th-60th min after injection, pulse rate remained high after NS injection (range: 138-208 beats/min) and low after MED injection (range: 89-121 beats/min). Low-dose MED injected into the Yin Tang acupoint in this cat promotes sedation and reduce the heart rate. No arrhythmia or vomiting was found in either treatment. Low-dose MED injection into the Yin Tang acupoint may be considered as the alternative to sedate a cat with hypertrophic cardiomyopathy.

Anesthetic Management of A Hypertrophic Cardiomyopathy Cat Undergoing Mastectomy: A Case Report

Maria Ghazali, Dr. Benedict Ong Huai Ern
UVH Universiti Putra Malaysia (UPM)

Abstract

This case report presents the anesthetic clinical management of a 12-year-old spayed female Persian cat with hypertrophic cardiomyopathy (HCM) with systolic anterior motion (SAM) leading to dynamic left ventricular outflow tract (LVOT) obstruction, undergoing mastectomy. The cat presented with a suspected mammary gland tumour (MGT) concurrent with feline asthma. Considering the potential exacerbation of LVOT obstruction with tachycardia under general anesthesia, a multimodal analgesic approach was adopted to prevent excessive sympathetic stimulation. Pre-anesthetic medications consisted of gabapentin at a sedation dosage of 20 mg/kg, per oral (PO) and tramadol 3 mg/kg, intramuscularly (IM) were given. Neuroleptanalgesia was achieved with midazolam 0.2 mg/kg, intravenously (IV) administered five minutes before induction. Patient was induced using propofol with total of 3.8 mg/kg, IV and proceeded with intubation. Tumescent anesthesia was performed to achieve local vasoconstriction and minimise bleeding intraoperatively. Isoflurane was used for maintenance of anesthesia. By employing this anesthetic strategy, the cat was successfully managed during the mastectomy procedure. The prevention of tachycardia and hypotension played a crucial role in minimising the severity of LVOT obstruction, potentially reducing the risk of complications. This case report emphasises the importance of individualised anesthetic management in cats with pre-existing cardiac abnormalities, such as SAM and LVOT obstruction, to ensure optimal patient outcomes and reduce perioperative risks.

22nd FAVA CONGRESS 2023
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Global Distribution of *Leptospira sp.* Serovars in Domestic Cats: a Systematic Review and Meta-Analysis

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Abstract

The occurrence of leptospirosis in domestic cats is still controversial, especially since most of the reported clinical manifestations are asymptomatic. Thus, epidemiological information on leptospirosis in domestic cats is necessary to control disease transmission from cats. This study aimed to assess the distribution of *Leptospira sp*. serovar in the domestic cat world widely using systematic review and meta-analysis. Related articles for analysis were obtained from Scopus, PubMed, Web of Science, and Google Scholar, which searched using terms 'leptospirosis' and 'domestic cats'. Heatmap and Principal Component Analysis (PCA) were conducted to analyze the global distribution of *Leptospira sp*. serovar in domestic cats using R software version 4.3.0. A total of 48 from 1204 articles were included for the systematic review and meta-analysis. The findings revealed that there was a distribution pattern of *Leptospira sp*. Serovars in domestic cats across continents. Specifically, the Bataviae, Copenhageni, Canicola, Hardjo, and Balum serovars emerged as the most common serovars in Asia and Oceania. On the other hand, the Pomona, Bratislava, and Grippotyphosa serovars dominate Europe, South America, North America, and Africa, indicating a specific trend for each region. Interestingly, the Icterohaemorrhagiae serovar shows a ubiquitous distribution across continents. In conclusion, it was found that the distribution pattern of leptospirosis serovar in cats is widespread in various regions, with certain serovar dominant in each continent, indicating the complexity of this disease's global epidemiology.

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Knowledge, Attitudes, and Practices of Cat Owners in Opisthorchiasis Endemic Areas in Thailand

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Abstract

The latest Roadmap for Neglected Tropical Diseases highlights the *Opisthorchis viverrini(OV)*, which involves cats and dogs. The primary focus of veterinary intervention is directed towards treating livestock and domestic animals. However, there are still some challenges to overcome, particularly in the needed data support for multidisciplinary approach. This study aimed to investigate the knowledge, attitudes, and practices (KAPs) of *OV* among cat owners residing in an endemic region of Northeast and North Thailand. 116 cats from 70 households were examined for fecal *OV* eggs. The owners were also interviewed using a KAPs questionnaire. A household was considered positive for infection if at least one cat in the household was positive. Demographic data and KAP results were compared between positive and negative households. The overall prevalence of *O. viverrini* infection in cats was 25.0%. The mean age of the cat owners was 53(±14) years and female (73.1%) and were engaged in agriculture (64.2%). There was no significant difference in KAP mean score between negative and positive households. The mean attitude and practice scores of the knowledgeable participants were higher than those of the non-knowledgeable participants, but the differences were not statistically significant. However, the practice score predictor increased the odds of obtaining negative households (OR=1.26, p=0.05). These results highlight the need for increased health promotion and veterinary education about *OV* infection among cat owners in endemic areas. By improving knowledge and practices, owners can help to reduce the risk of *OV* infection.

Keywords: Cats, *Opisthorchis viverrini*, liver fluke, KAP

Canine Atopic Dermatitis in a Local Breed Dog

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Abstract

A 2-year-old, castrated male, local breed dog was presented to the University Veterinary Hospital with complaints of chronic, intense pruritus, generalized alopecia, and localized erythema at the left tail base in November 2021. A thorough diagnostic work-up which included hematology, serum biochemistry, superficial and deep skin scrapings, trichogram, Wood's lamp examination, acetate tape impression, food elimination diet trial, and an ectoparasitic treatment trial were done during the course of 24 months. Based on the ruling out of other skin conditions including ectoparasitic and infectious diseases, as well as Cutaneous Adverse Food Reaction (CAFR), and a detailed interpretation of the historical and clinical features of the condition, the case has been diagnosed as Canine Atopic Dermatitis (CAD). Antipruritic and anti-inflammatory drugs along with nutritional supplementation of omega fatty acids and vitamins resulted in great improvement of clinical signs. A multimodal approach of long-term allergy management has been designed to control flare factors, prevent pruritus and restore the skin barrier.

Session 14:
Poultry Production & Diseases

Isolation and Characterisation of Probiotic Candidate Bacteria in the Small Intestine of Layering Hens (Gallus Gallus Domesticus)

Agnesia Endang Tri Hastuti Wahyuni Prof. Dr. drh. M. Si, Gaik Syuen Lee
Universitas Gadjah Mada, Indonesia

Abstract

The performance and productivity of eggs can be directly influenced by the health of the digestive tract in laying hens. Probiotics are beneficial microorganisms that help improve the microbial balance in the digestive tract. This study aims to isolate and characterize potential probiotic bacteria from the small intestine of laying hens (Gallus gallus domesticus).

A total of five healthy laying hens of the Isa Brown strain, aged 22 weeks, were used in this research. The methodology involved sampling from the small intestine (duodenum, jejunum, ileum) of the laying hens and characterizing the bacteria through observation of colony morphology, cell morphology using Gram staining, as well as biochemical and physiological tests such as carbohydrate fermentation, motility, catalase, urease, NaCl, and acid tolerance.

From the duodenum, 50% of the bacterial cells were rod-shaped Gram-negative, 30% were rod-shaped Gram-positive, and 20% were cocci-shaped Gram-positive. In the jejunum, 30% of the cells were rod-shaped Gram-negative, 10% were cocci-shaped Gram-negative, 10% were rod-shaped Gram-positive, and 50% were cocci-shaped Gram-positive. The ileum showed an equal distribution of Gram-positive and Gram-negative rod-shaped bacteria. Among the sixteen Gram-positive isolates (rod/coccus), further biochemical and physiological tests showed that one bacterial isolate from the jejunum organ with the code 1B was identified as a candidate probiotic bacteria, belonging to the genus Lactobacillus and classified as a lactic acid bacteria (LAB).

A Case-Control Study of Factors Associated with Marek's Disease Occurrence in Chicken Farms: Southern Thailand, 2019-2020

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Veterinary Research and Development Center (Upper Southern Region), Thailand

Abstract

Marek's disease (MD) present in chicken production units worldwide. It continues to cause substantial economic loss in Asia, despite the available of effective vaccine. This study in southern Thailand described epidemiological characteristics of MD in chicken farms and identify factors associated with the disease occurrence. Study population was all chicken farms submitted sick or dead chickens for diagnosis at the regional veterinary laboratory center in southern Thailand between 2019 and 2020. The MD case was any chicken farms that has chicken laboratory confirmed MD by conventional PCR. Seventy-four chicken farms were included in this study, comprising 34 layer farms and 40 native chicken farms. Marek's disease was confirmed in 55% of farms, 52.9% (18/34) layer farms and 57.5% (23/40) native chicken farms. The MD affected farms distributed in 8 of 14 provinces in the region. Sequencing results from 8 PCR products indicated the presence of the Chinese strain with no observed mutations. Multivariable analysis revealed three factors influencing MD occurrence in chicken farms; the practice of importing chickens from multiple sources, raising chickens of varying ages, and the absence of MD vaccination. This study underscores the importance of veterinarians disseminating knowledge about MD and its implications to poultry farmers in southern Thailand. Providing guidance on disease control measures and preventive strategies is essential to mitigate the impact of MD in the region.

Session 15:
Pharmacology / Vaccines

Development of Melanoma Therapy Targeting Gicerin Protein, A Cell Adhesion Molecule

Naoki Kirimura, Mitsuki Watanabe
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Abstract

Targeting specific molecules has been shown to be effective in cancer therapy. Antibodies play important roles in cancer therapy because of the specificity of antigen-antibody reactions. Gicerin, a cell adhesion molecule in the immunoglobulin superfamily, is involved in early stages of development through its cell adhesion activity. Interestingly, gicerin is strongly expressed in many cases of malignant melanoma. In the present study, the potential function of gicerin in melanoma metastasis was analyzed. In in vitro experiments, the implantable murine melanoma cell lines (gicerin positive) adhered to the surfaces of culture dishes coated with gicerin protein, but these cell adhesions were inhibited with an anti-gicerin antibody. Moreover, many melanoma cells adhered to human endothelial cell lines and these cell interactions were inhibited by the anti-gicerin antibody. In mice intravenously inoculated with melanoma cells, metastatic areas were commonly observed in pulmonary tissues, and tumor emboli and extravasation were seen in blood vessels. In contrast, the inoculation with anti-gicerin antibody also suppressed the formation of tumor lesions in the lung. These findings suggested that gicerin acted to enhance the lung metastatic properties of melanoma cells by promoting endothelial-tumor interactions. Furthermore, it was suggested that antibody therapy targeting gicerin proteins on cell surface could contribute to the suppression of the pulmonary metastasis of melanoma.

Development of Cervical Cancer Therapy Targeting Cell Adhesion Molecule, Gicerin

Mitsuki Watanabe, Chizuki Hattori
Kyoto Prefecture University, Japan

Abstract

Background and purpose: Cervical cancer is one of the most common cancers in women, and the development of novel therapies such as molecular targeting is be requiring. We have investigated the usefulness of anti-gicerin antibodies to prevent progression of cancers. Gicerin is a cell adhesion molecule and overexpressed in various tumor cells. In this study, we investigated the role of gicerin in cervical cancer cells and the effect of anti-gicerin antibody in tumor progressions.

Materials and Methods: Immunofluorescent antibody staining revealed that gicerin protein was expressed in human cervical cancer HeLa cells. In a cell aggregation assay, many formations of aggregates by cell-cell adhesions were clearly observed in the cultures, which were significantly inhibited with the anti-gicerin antibody. A chemotaxis assay revealed that the number of migrated cells was significantly lower in the wells in the presence with the anti-gicerin antibody. Next, HeLa cells were implanted subcutaneously in the cervical region of nude mice. The mice were inoculated with anti-gicerin antibody into the tumor lesions. The tumor volume was significantly smaller in the mice inoculated with anti-gicerin antibody. Histopathologically, antibody-injected animals also showed reduced malignant progressions of tumors in the dermal lesions.

Conclusion: Gicerin might be involved in the adhesion and migration ability of HeLa cells, and also in vivo tumor progressions. We believe that antibodies targeting gicerin on tumor cell surface become to be a powerful weapon for cervical cancer therapeutics.

Development of A Therapeutic Method for Pollen Dermatitis Using Ostrich Antibodies

Moe Mizuno, Mitsuki Watanabe
Kyoto Prefecture University, Japan

Abstract

Typical allergic symptoms caused by pollen exposures are " pollinosis" such as sneezing, runny nose, and conjunctivitis, but pollen dermatitis is also known to be induced in the skin. In this study, we attempted to suppress pollen dermatitis using ostrich antibodies against cedar pollen allergens. Cedar pollen allergen Cryj1 was exposure to the auricular skin of mice. No symptoms such as itching or macroscopic allergic lesions were observed in mice, but in histopathological examination confirmed dermatitis due to edema of auricular dermal tissue and infiltration of inflammatory cells such as eosinophils. A large numbers of heterochromatic mast cells showing metachromagia were found in the dermal tissue, indicating that allergic dermatitis was induced in the mice. When the ostrich antibody was applied to the auricular legions of mice, and the inflammation reactions was clearly slighted: edema and infiltrations of eosinophils and mast cells are decreased. A patch test of cedar pollen allergen on the medial forearm skin of human subjects with cedar pollinosis showed a clear allergic reaction, but the addition of ostrich antibody solution suppressed the symptoms. These results showed that administration of ostrich antibodies masked cedar pollen allergens and alleviated dermatitis by suppressing allergen recognition reactions in the body. Interestingly the ostrich antibodies produced by immunization with cedar Cry j1 showed cross-reactivity to cypress pollen Chao1 and Chao2, indicating the possible effects of the antibodies on allergies caused by various pollens.

A Trial Of Development Of Novel Prophylactic And Therapeutic Methods For Herpes Simplex Virus-2 Infection By Using Ostrich Antibodies

Chizuki Hattori, Mitsuki Watanabe
Kyoto Prefecture University, Japan

Abstract

Background: Herpes simplex virus types 1 and 2 (HSV-1 and HSV-2, respectively) are clinically important human pathogens with high global medical needs, characterized by long-term latency in the nervous system and frequent lifelong recurrence. However, no prophylactic or therapeutic vaccine against HSV-2 has yet been developed with clear results, resulting a need for simpler and more effective antiviral drugs.

Objective: We have focused on ostrich antibodies which can be mass-produced at low cost, and produced ostrich antibodies against HSV-2, and then attempted to apply them to the prevention and treatment of genital herpes.

Results: The recombinant HSV-2 antigens in viral envelop was immunized to ostriches, and the antiserum with high antibody titer was obtained. Next, a viral infection model using HEK cells was generated using HSV-2 pseudovirus. Adsorption of pseudo HSV-2 virus onto HEK cells resulted in numerous infections, however the viral infection was suppressed in the presence of ostrich antisera.

Conclusion: The anti-HSV-2 ostrich serum showed neutralizing activity against HSV-2 infection: ostrich antibodies in anti-serum bind to the antigens of the virus particles and inhibit the adsorption of virus onto the receptors on the cell surface. Accordingly, our results might lead an ideal antibody therapy for HSV-2 infection. In the future, it is necessary to purify a large volume of anti-HSV-2 antibody from ostrich egg yolk and to figure out the therapeutic effectivity on in vivo animal and human HSV-2 infections.

Development of Candies for Influenza Virus Neutralization Using Ostrich Antibodies

Saaya Ueno, Mitsuki Watanabe
Kyoto Prefecture University, Japan

Abstract

Background and Purpose: Antibodies are effective in inactivating antigens such as pathogens, but they are not suitable for mass consumption products due to high production costs and difficulty in preserving. Using ostriches, we succeeded in low-cost and mass-producing antibodies that are heat-resistant and retain their function even in acidic conditions. In this study, we mass-produced the ostrich antibodies with neutralizing activity against influenza virus and attempted to make a candy using it to prevent the infections.

Methods and Results: Laying female ostriches were immunized with HA antigens of influenza viruses (A/H1N1pdm, A/H3N2, B, A/H5N1). Then a large volume of immunoglobulin yolk (IgY) was purified from the egg yolk laid by the ostriches. In each influenza virus infection experiment using MDCK cells, the IgY showed high neutralizing activity. We added IgY to a paste-like high-temperature candy base, stirred it well, put it into a candy production line, and succeeded in mass-producing hard candy weighing 3 g each. An ELISA revealed that the binding activity of IgY in the candy to each influenza viral antigens were highly remaining for at least 1 year. Interestingly, antibody activity against the influenza virus was also found in saliva at 3 hours after the human subject licked the ostrich antibody candy.

Conclusion: We succeeded in developing a candy that can inactivate the influenza virus by using ostrich antibodies. We are now attempting to create powerful foods for preventing infection with various pathogens by incorporating ostrich antibodies.

Session 16:
Equine Medicine & Surgery

Speaker	Presentation Title	Page
Mr. Mohamed Hamad	Species identification of equine strongyles by using nemabiome metabarcoding	173

Species Identification In Equine Strongyle Parasite By Using Nemabiome Metabarcoding Technique

Mohamed Hamad, Associated professor Piyanan Taweethavonsawat
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Abstract

Mixed strongyle infections in horses have a significant impact on horse health and performance. However, understanding of equine strongyles is limited by the inadequacies of non-invasive traditional morphological techniques, which are unable to accurately identify the majority of species. In this study, we used the ITS2 DNA metabarcoding "nemabiome" assay to characterize the strongyle species present in horse fecal samples collected from two separate groups inhabiting the same geographical location in Thailand. The study identified strongyle species and their relative abundance in each section and constructed a phylogenetic tree for the identified amplicon sequence variants (ASVs). Our results identified a total of 14 strongyle species across both studied horse populations, with varying prevalence between them. Notably, the most dominant species identified was Cylicocyclus nassatus, appearing consistently across both sections, while no occurrences of Strongylus spp. were detected. The phylogenetic tree showed that there were 208 ASVs in the sample set. Sequences from known cyathostomin species displayed a perplexing pattern, with some species positioned across multiple clades, exhibiting close associations with various species and genera. Overall, our study provides a characterization of strongyle communities in horses in Thailand using the ITS2 DNA metabarcoding assay and highlights the potential of this method for studying complex parasite species in diverse environments.

Session 19:
Wildlife & Exotic Animal Medicine & Surgery

Exploring Antimicrobial Resistance in Bird-of-Paradise: A Shotgun Metagenomic Approach

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Abstract

Antimicrobial Resistance (AMR) is a growing problem worldwide and involves a wide range of animal species. Wild birds have been postulated as sentinels, reservoirs, and potential spreaders of AMR. Antibiotic-resistant bacteria have been isolated from a multitude of wild bird species but very few studies exist on endemic Indonesian species such as Bird-of-Paradise (Paradisaeidae). An in-depth understanding of AMR in Birds-of-Paradise is important to identify potential risks and design effective management strategies to maintain environmental health and combat the wider spread of antimicrobial resistance. So, this study aims to explore the potential of birds of paradise as reservoirs and propagators of AMR genes.

The fecal samples were collected from Papua, Indonesia. The initial stage involved DNA extraction using the QIAamp Extraction Kit. Shotgun metagenomic sequencing MGI DNBSEQ-G400 process was carried out. The resulting DNA sequence data were then analyzed using MEGAN6 software using the SEED and KEGG databases.

SEED revealed that the most present gene resistance is bacitracin resistance while KEGG identified resistance to vancomycin, beta-lactamase, and CAMP with multiple genes. These findings indicate the presence of AMR genes in birds of paradise. This gene can occur naturally from fungus in the environment or from the transport of the gene through plasmid or other methods. This finding also suggests that these birds may and can act as reservoirs and spread AMR genes into the environment. It's important for understanding the spread of AMR and should be managed.

A Case Report: Trauma Induced Entropion in a Panthera Pardus

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Abstract

Entropion is the inversion of the eyelid margin and most commonly observed in dogs and cats. Currently there are no articles or journals describing reconstruction of entropion in big cats. This abstract describes a case report of trauma induced entropion in a Panthera pardus. A five year old Panthera pardus from a personal collection was presented to the teaching hospital for a chronic blepharospasm following trauma to the left eye during transportation. The cat was immobilized using a blow dart with Medetomidine and Ketamine. Physical examination under deep sedation revealed the lateral canthus of the lower eyelid on the left eye rolled inward causing persistent irritation, blepharospasm and epiphora. Reconstruction of the lower eyelid utilizing modification of the Hotz-Celsus technique was performed. The eyelid healed after 2 weeks without any other complication.

Peritoneopericardial Diaphragmatic Hernia in Chinchilla: A Case Report

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Abstract

Peritoneopericardial diaphragmatic hernia (PPDH) is the most common congenital hernia found in young chinchillas. PPDH is a congenital abnormal development of the diaphragm and pericardium, resulting in communication between pericardial sac and abdominal cavity, which leads to displacement of abdominal organ into the pericardial sac. A 3-month-old, 0.5 kg, male chinchilla presented with acute onset of open mouth breathing, anorexia and lethargy lasting for a day. On physical examination, the patient showed restrictive dyspnea with muffled heart sound. The owner insisted on no occurring traumatic injury. The initial differential diagnosis was upper airway obstruction and lung disease. On the third day of hospitalization, the patient was stable enough for further diagnostics, therefore radiography, echocardiography, and abdominal ultrasonography were performed. Chest radiography showed a soft tissue density mass located in thoracic area. The echocardiogram and abdominal ultrasonography revealed presence of a portion of liver in contact with caudal margin of the heart within the pericardium sac with concomitant cardiac abnormalities, atrioventricular valve regurgitation. In this case, the 6-month-old chinchilla still survived. Although the surgical treatment was recommended in PPDH, the owner refused to do surgery because of poor to grave prognosis. The aim of this reports was to demonstrate the imaging evaluation of PPDH in a tiny chinchilla and acknowledgement of PPDH as one of the differential diagnosis in dyspneic chinchilla.

Partial Glossectomy in Prairie Dog With Lingual Squamous Cell Carcinoma : A Case Report

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Abstract

Squamous cell carcinoma (SCC) is one of the most common oral tumors in both dogs and cats. Only few tumors have been studied in prairie dogs, with odontoma being the most common. In general, SCC is described as a pink or red, locally invasive, ulcerated mass that bleeds easily. The metastatic rate is considered to be high for lingual and tonsillar tumors.

A 5-year-old, 1.1 kg, male, intact prairie dog (Cynomys ludovicianus) presented with bleeding from the oral cavity, reluctance to eat, and a lingual mass was found. On physical examination, a 1x2 cm diameter pink, firm, ulcerated mass was found adhered to the apex area of the tongue. The prairie dog was treated with antibiotics and nonsteroidal anti-inflammatory drugs for 1 week before surgery. A partial glossectomy was performed, excising the distal 40 percent of the tongue, including the mass, with 0.5 cm gross surgical margins. A biopsy sample was submitted for histopathology, which revealed a squamous cell carcinoma.

Weekly rechecks after discharge from the hospital showed that the patient began eating and the tongue was healing without complications. However, four months later, there was tumor recurrence at the surgical site, and the patient showed clinical signs of anorexia, emaciation, and died.

Limited information is available regarding tumors in prairie dogs, including treatment and prognosis. In this case, the owners strongly refused radiation treatment after surgery. Histopathologically, the neoplasm was excised with narrow margins of normal tissue, raising concerns about recurrence and metastasis.

Session 21:
Ruminant Production & Diseases

Performance Evaluation of Biofiltration Reactor in Treating Cattle Slaughterhouse Wastewater

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Abstract

Cattle slaughterhouses generate a large volume of highly polluted wastewater, consisting mainly of organic and inorganic pollutants that could cause severe environmental problems if discharged untreated. Therefore, there is an essential need for a proper wastewater treatment system to achieve satisfactory control of wastewater quality. In this study, cattle slaughterhouse wastewater was treated using a Submerged Upflow Aerated Biofilter Reactor (SUABR). This process involving upflow filtration through a cylindrical biological bed of plastic filter media to support biofilm growth. The aim of this study is to evaluate the performance of the Submerged Upflow Aerated Biofilter Reactor (SUABR) by assessing its potential in removing pollutants. The reactor's performance was evaluated based on various pollutant parameters, including Biochemical Oxygen Demand (BOD5), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Ammonia-Nitrogen (AN), and Oil & Grease (O & G). The results indicated that the system was highly effective in removing BOD5, COD, and TSS with average removal efficiencies of 93 ± 3.1%, 90 ± 5.2%, and 94 ± 3.7%, respectively. However, the reactor's performance was less efficient in removing Ammonia-Nitrogen (AN) and Oil and Grease (O & G), with lower removal efficiencies of 32 ± 40.2% and 42 ± 45.6%, respectively. In conclusion, the system was found to be effective and efficient in removing pollutants from slaughterhouse wastewater for BOD5, COD, and TSS parameters, which meet the discharge limits specified in the Environmental Quality Acts in Malaysia.

A Case of Holstein Calf With External Iliac Arterial Thromboembolism Diagnosed by Contrast-Enhanced Computed Tomography

Dr. Kei Kazama, Naoyuki Aihara
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Abstract

Thromboembolism occurs when blood clots form in the blood stream and occlude blood vessels and cause various organ failures due to peripheral circulatory failure. In cattle, thromboembolism is rarely definitively diagnosed. In this study, we report an overview of a Holstein calf in which contrast-enhanced computed tomography (CT) allowed antemortem diagnosis of external iliac arterial thromboembolism. A 28-day-old Holstein calf with astasia, right hind limb flaccid paralysis, was referred to Large Animal Veterinary Educational Center. Blood examination revealed anemia with hematocrit 20% and hemoglobin 6.0 mg/dL. Thoracic radiographs showed an air bronchogram and pulmonary lobar signs indicating pneumonia, whereas skeletal radiography showed muscle atrophy of the right hind limb but no abnormalities in the coxofemoral and stifle joints. Contrast-enhanced CT revealed the pulmonary abscess in the right cranial pulmonary lobe and a thrombus (5 × 20 mm) in the right external iliac artery distal to the bifurcation of the abdominal aorta. These findings were confirmed on pathological examination. Streptococcus bovis/equinus complex colonies were isolated from the thrombus and pulmonary abscess. Thus, the pulmonary abscess was considered the infectious source of the thromboembolism in the right external iliac artery. Arterial thromboembolism should be included in the differential diagnoses in calves with astasia but without radiographic skeletal abnormalities.

Prevalence of Bovine Leptospirosis Using Serum and Milk Samples in Selected States in Malaysia

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Abstract

Bovine leptospirosis causes significant cattle reproductive failure and economic losses. Although classified as a notifiable disease by the Department of Veterinary Services due to potential human transmission, its obscure nature in animals results in under-diagnosis and under-reporting. In dairy cattle, it presents as 'milk drop syndrome' and leads to lifelong carriage. The most common diagnostics involve Microscopic Agglutination Test (MAT), which induces animal stress through extraction of blood. Enzyme-linked Immuno-sorbent Assay (ELISA), is another method but is limited by its cost and does not identify serovars. In this study, we analysed the prevalence of leptospirosis using both methods on serum and milk collected from dairy cattle in selected Malaysian states. One hundred seventy-nine samples were tested with ELISA (serum and milk) and a MAT panel of 24 serovars (serum). From the serum samples, 76 (42.5%) tested positive for MAT, encompassing 18 distinct serovars. Notably, Pomona exhibited the highest seropositivity (17.1%), followed by HOSHAS (14.5%). Furthermore, seropositivity was observed for Lai Langkawi, Hardjo, Kmetyi, Copenhageni, Hardjobovis and LEP 22. ELISA results indicated positive outcomes for 62 serum samples (34.6%) and 51 milk samples (29.6%). Notably, a subset of serum samples, 50 (27.9%), displayed dual positivity for both MAT and ELISA. From the overall results, Johor had highest MAT seropositivity; Pahang showed the highest positivity for ELISA. Results from this study suggest the under-reporting of bovine leptospirosis in Malaysia.

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Carbapenem-Resistant Enterobacteriaceae in Cow's Milk in Asia: A Systematic Review and Meta-Analysis

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Abstract

Background: Carbapenem-resistant *Enterobacteriaceae* (CRE) is an important concern for the World Health Organization. Unfortunately, it has been found in cow's milk in Asia.

Purpose: This study aimed to evaluate the pooled prevalence of CRE in cow's milk in Asia using a systematic review and meta-analysis, following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines.

Methods: The articles were searched from four databases, resulting in 1,421 articles for initial screening. After screening, the data from included studies were used to assess the estimated pooled prevalence and conduct subgroup meta-analysis using a random-effects model. Heterogeneity and risk of bias were also assessed. All meta-analysis were performed using 'meta' package in R.v.4.3.0.

Results: In total, data from 25 studies were analysed, encompassing 20,491 milk samples from 12 countries in Asia. The estimated pooled prevalence of CRE in Asia was 0.71% (95% CI, 0.24-2.09). Subgroup meta-analysis revealed no significant differences in CRE prevalence among milk samples, species of *Enterobacteriaceae*, testing methods, and carbapenem antibiotics ($p>0.05$). Funnel plot and Egger's test indicated the presence of study bias ($p<0.01$), and trim and fill showed 11 studies were added. However, the leave-one-out test showed no significant changes if one study was removed.

Conclusion: In conclusion, the overall pooled prevalence of CRE in cow's milk in Asia is relatively low; however, it still poses a public health threat through raw milk consumption. Monitoring of CRE in dairy cow's milk and its environment should be conducted.

Keywords: Carbapenem-resistant Enterobacteriaceae, milk, meta-analysis, prevalence

Prevalence Of Digenean Trematode Cercaria In Snails From Buffalo- Oil Palm Integration In Larut, Matang And Selama (Lms)

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Abstract

Snails play an essential role in the transmission of trematode that can infect animals and humans. The snails release trematode cercaria into the environment, encysts into metacercaria which is the infective stage of trematode. There are limited and scarce data available on the trematode cercaria particularly buffalo-oil palm integration farms in Malaysia. Therefore, this study is to investigate the prevalence of trematode cercaria in snails collected from several buffalo farms under oil palm integration in Larut, Matang and Selama (LMS). A total of 876 snail samples were collected, and the snails were crushed to observe the trematode cercarial emergence. The infection rate by trematode cercarial in snails was 8.73% (73/836). Morphological analysis revealed four types of trematodes cercaria namely *Echinostome*, *Xiphidiocercaria*, *Gymnocephalous* and *Furcocercous cercaria*. *Echinostome cercaria* showed the highest infection rate 78.1% (57/73), followed by *Xiphidiocercaria* 26% (19/73). Both *Gymnocephalous cercaria* and *Furcocercous cercaria* had 4.1% (3/73) infection rate. The molecular analysis of the ITS2 showed three cercaria morphotypes belonged to three trematode species; *Echinostome* , *Fasciola* and *Plagiorchis*. These three trematode species belong to trematode that are zoonotic. This study is first report on the prevalence of zoonotic trematode cercaria in snails from buffalo-oil palm integration in LMS.

A Pilot Study on The Effects of Preventive Claw Trimming on Acute Stress and Lying Behaviour in Non-Lame Dairy Cows

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Universiti Putra Malaysia

Abstract

Introduction: claw trimming is an important intervention for preventing lameness in dairy cows, but little is known if the process elicits stress in the animals. Purpose: This study investigated the effects of claw trimming (CT) on locomotion scores, behavioural activities, cortisol levels, and milk yield in non-lame cows. Methods: A total of 20 healthy Australian Friesian Sahiwal cows with a normal gait, and without hoof lesions were randomly allocated to 2 groups: TRIM (n = 10) and Control (n = 10). All the feet of cows in the TRIM group were trimmed using the five-step Dutch method, while the control group underwent sham trimming by restraining the limbs. Blood samples were collected before and after CT (immediately and on days 1 and 2) and analyzed for serum cortisol levels. The locomotion scores, time spent lying down, feeding, and standing were also recorded using installed video cameras. Results: Cortisol levels were not different ($P > 0.05$) before CT, but increased significantly ($P < 0.05$) in both groups immediately after CT. TRIM recorded a significantly higher cortisol level and time spent lying down on days 1 and 2 post-CT compared to the control group. No significant difference was detected in the locomotion scores, milk yield, and time spent standing and feeding between the groups at all time points. Conclusion: Preventive CT may elicit acute stress in dairy cows even in the absence of claw lesions. Ensuring cows have access to comfortable lying-down areas may assist in ameliorating the associated stress.

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Small Animal Medicine & Surgery

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1. Successful Management of Intra-Cardiac Free Floating Ball Thrombus In Hypertrophic Cardiomyopathy Cat: Case Report

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Abstract

Systemic arterial thromboembolism (ATE) are the most common clinical complications in cats with hypertrophic cardiomyopathy (HCM). This case report describe a 4-year-old, male castrated domestic shorthair with acute bilateral pelvic limb paralysis, pulmonary edema and free floating ball thrombus (FFBT) in the left atrium. The cat was diagnosed with Hypertrophic cardiomyopathy stage C, concurrent with left atrium FFBT based on the results of physical, radiographic and echocardiographic examination. An intra-cardiac FFBT is a rare finding in cardiomyopathic cats. The cat has been on intravenous furosemide for congestive heart failure, and 18.75 mg of clopidogrel once a day and 1 mg/kg of Enoxaparin 4000 IU (40mg)/0.4ml) admister subcutaneously every 8 hours for 70 days and then Enoxaparin reduced from every 8 hours to every 12 hours for another 60 days and then switched to Rivaroxaban 2.5 mg once a day on day 130, the cat was improved dramatically. The femoral pulse was noticed after 10 day of treatment. The clinical sign of posterior paralysis was resolved and no evidence of aortic trifurcation thromboembolism on day 16. The intra-cardiac FFBT was disappeared on day 99. The cat had recurrent bilateral pelvic paralysis but LA-FFBT was not detected in day 86 later. Prognosis was poor to grave. The owner refused treatment and requested euthanasia.

2. Traumatic Urinary Bladder Injuries in Rottweiler

Dr. Nur Anis Adilah Binti Rosli, Dr. Norazura Binti A. Hamid
Veterinary Research Institute (VRI), Department of Veterinary Services Malaysia

Abstract

Uroperitonium due to a rupture urinary bladder is a common problem in cats and dogs. This is a case report of a 3-year-old male Rottweiler with a history of urinary obstruction prior to death. A general examination revealed shaved area on the both forelimb and the centre of the abdomen. Fat necrosis was found around the incision area on the left lateral section of the abdomen. On the abdominal muscle, a 10-cm incision with 16 stitches was discovered. Between the 9th and 10th stitches, the sutures broke down. Multifocal whitish spot discovered on the liver. Both kidneys were congested and the distinction between cortex and medulla was barely visible. Pus was oozing out in the right renal pelvis. Moreover, the brain showed notable generalised submeningeal congestion. The urinary bladder was empty and congested. The bladder wall was thickened and had a rubbery texture. At the ventral region of the urinary bladder, a 4 cm incision wound and stitches were seen and a 1 cm puncture hole was discovered in the caudal region of the urinary bladder. The water leaking test was positive as water escaped through the puncture hole into the abdominal cavity during the continual bladder irrigation procedure. The sample was taken for further diagnosis by the Mammalian Bacteriology Unit, VRI. The only small colonies of E.coli and Streptococcus sp. were isolated from organs (lungs, liver, heart, kidney, spleen, kidneys and bladder swabs). In conclusion, this case was finally diagnosed as ruptured bladder concurrent with septicaemia based on pathological findings.

3. Non-Feasibility of Hardness Meters for Quadriceps Contracture Diagnosis

Kanokwan Suwankanit, Miki Shimizu
Tokyo University of Agriculture and Technology ,Japan and Mahidol University, Thailand

Abstract

Introduction: Quadriceps contracture is the permanent shortening of quadriceps muscle resulting in muscle atrophy and fibrosis. It usually occurs after femoral fracture in young dogs. Currently, it is diagnosed by history taking and physical examination by palpating affected muscle which is a subjective assessment. Objectives: To improve the diagnosis method in a small animal field, we investigated the feasibility of a hardness meter to detect quadriceps contracture in rats. Methods: In an experimental study, fifty Wistar rats were divided into an immobilization group (N=26) and a control group (N=24). Rats in each group were divided into 1, 2, 3, and 4 weeks. Animals in the immobilization group were done with bilateral bandages at the stifle joint full extension. After completing each period, the progression of quadriceps contracture was determined by measuring muscle hardness muscle by using a hardness meter, stifle joint range of motion, and pathohistological changes in the quadriceps muscle. Results: Decreased range of stifle joint motion, muscle atrophy, and muscle fibrosis developed gradually ($P<0.05$) following the duration of the experiment and significant differences ($P<0.05$) from the control group in the same duration. However, muscle hardness value increased ($P<0.05$) only 1 week after immobilization. The result of muscle hardness level was no correlation with the quadriceps contracture progression. Conclusion: These results indicate that quadriceps contracture developed following the immobilization period, but the muscle hardness cannot utilize to detect it.

4. A Case Report: Low grade Liposarcoma in a 11-year-old Persian Cat

Dr. Nadiah Syuhada Roslan, Dr. Nur Atikah Hashim
Universiti Malaysia Kelantan

Abstract

Liposarcoma is the most common soft tissue tumor in humans, however rarely reported in felines and canines. This report describes a case of low-grade liposarcoma in an eleven-year-old spayed Persian. The cat was presented as a referral case for an abdominal mass located 2 centimeters caudal to the umbilical scar. The mass was 3 cm by 4 cm, immobile, firm, rounded, and non-painful. Fine-needle aspiration was performed with no significant findings. An excisional biopsy was done to surgically remove the mass, and impression smears showed an abundance of round and large cells with diffuse cytoplasmic vacuolation and some mitotic figures. The histopathological findings revealed numerous pleomorphic rounds, oval to polygonal shapes of adipocytes, which show adipocytic atypia interspersed within fibrous tissue, indicating a diagnosis of well-differentiated and low-grade liposarcoma. The cat was reported to be healthy with no other signs of a new lump or mass on the body one and a half years after surgical removal of the mass. Any soft tissue mass in felines without any other neoplastic syndrome should be considered for surgical removal to help in diagnosis and future treatment.

5. A Case Report: Blastomycosis in A 2-Year-Old Mainecoon Cat

Dr. Nik Nur Afina Nik Alwi, Dr. Mimiarmiladiana Mohamad
Universiti Malaysia Kelantan, HPVUMK

Abstract

Blastomycosis is a mycotic disease caused by the inhaling spores of the dimorphic fungus Blastomyces spp., which is most commonly diagnosed in dogs and humans, but also reported in cats, horses, and other mammals that affect systemically and cutaneously. This is a case report on a 2-year-old mainecoon cat from Kelantan, Malaysia, that contracted blastomycosis. Following a two-month stay at a private boarding facility, the cat developed chronic flu symptoms, including sneezing, greenish nasal discharge, and intermittent dyspnea. The cat was brought to many private clinics and treated with different antibiotics, but the symptoms persisted. A bronchoalveolar lavage (BAL) was performed at Veterinary Medicine Teaching Hospital University Malaysia Kelantan (HPVUMK) to collect bacteriology and mycology analysis samples. The BAL sample analysis revealed the cat had Blastomyces spp. based on morphological cytology. Itraconazole was prescribed as part of the treatment at a dose of 5 mg/kg daily for 4 months and the cat's condition improved. The owner was informed about how soil and decaying material serve as the reservoir for the organism in mycelial form. Aerosols cannot be used to spread the yeast phase of the organism from one animal to another, or from one animal to humans. As a result, this disease is not regarded as zoonotic. Based on the Author's knowledge, this is the first case report of blastomycosis in a mainecoon cat from Kelantan, Malaysia.

6. Acute Hemolytic Transfusion Reaction After Administration of Intravenous Human Gamma Immunoglobulin in a Dog

Sehoon Kim, Chaeyoon Im
BK21 FOUR Future Veterinary Medicine Leading Education and Research Center, Seoul National University, South Korea

Abstract

A female Pomeranian dog weighing 4.9 kg was diagnosed with immune-mediated thrombocytopenia 21 months ago and recovered well. However, during the tapering of immunosuppressive drugs, IMT relapsed. After treatment with prednisolone and mycophenolate mofetil failed, human gamma globulin was administered. The patient developed hemoglobinuria, vomiting, and anemia as side effects. Hematocrit level dropped from 45.6% to 12.3% and hemolysis continued to progress with severe hematuria. Therapeutic plasma exchange was performed with one and a half times the volume of fresh frozen plasma. After the treatment, bloody urine was lightened and hemolysis stopped progressing. Immunosuppressive drugs were continually prescribed and the thrombocytopenia was resolved after one month of plasmapheresis. The patient has survived for 7 months after receiving treatment without any clinical signs.

7. The Successful Treatment of Heart Failure Caused by Hypertrophic Cardiomyopathy in A Persian Cat

Wipada Ngamsanguan
Thonglor Pet Hospital, Rayong Branch, Thailand

Abstract

An 8 year old, male Persian cat was treated for chronic kidney disease (CKD) stage 4 for 7 months. Investigation found a dull lung sound at both lower lung lobes, a crackle lung sound at both upper lung lobes, hypotension, pleural effusion, ascites with inspiratory and expiratory dyspnea. The case was referred from another practice, to a general practitioner who consulted a cardiologist. Pleural effusion and ascites comprised clear light non viscous yellow fluid. The Rivalta test was negative, fluid analysis was classified as transudates, RT- PCR for FCoV was negative.

Intravenous loop diuretic treatment was used to facilitate echocardiography, which showed concentric left ventricular hypertrophy (LVH; thickened left ventricular [LV] wall) with left atrial enlargement without spontaneous echocontrast ("smoke") and left ventricular outflow tract obstruction. The cat was diagnosed with heart failure caused by Hypertrophic Cardiomyopathy (HCM). A course of treatment comprised; positive inotropes (Pimobendan 0.25 mg/kg/bid), and antiplatelet agent (Clopidogrel 18.75mg/cat/sid). The patient was discharged after 5 days on medical management without dyspnea or third space fluid and exhibited normal vital signs

8. Management of Heart Failure in Siamese Cat

Wipada Ngamsanguan
Thonglor Pet Hospital, Rayong Branch, Thailand

Abstract

Restrictive Concentric Cardiomyopathy (RCM) is type of cardiomyopathy in cats, characterized by diastolic dysfunction and atrial enlargement without myocardial hypertrophy. This abstract presents a case study focusing on the diagnosis, treatment, and management of heart failure caused by RCM in a female Siamese cat named Ploy. The case was presented for consultation due to lethargy, exercise intolerance, and respiratory distress.

The notable findings included the accumulation of fluid within the pleural space, creating pleural effusion between the lower lung and diaphragm, as well as left ventricular enlargement without left ventricular hypertrophy. The course of treatment consisted of the following: an antiplatelet agent (Clopidogrel 18.75 mg/cat/sid), a loop diuretic (Furosemide 1.6 mg/kg/bid), and spironolactone (1 mg/kg/sid). The patient was discharged after three days of medical management, displaying normal vital signs. During the follow-up in the next 10 days, mild respiratory distress and increased lung opacity were observed. The dosage of the loop diuretic was adjusted to manage the clinical signs, while being mindful of the kidneys. On the third day, the cat showed normal radiography results and clinical signs.

9. Assessing the Efficacy of Hypochlorous Acid (Hocl) as an Active Ingredient in Superoxidized Solution and Antimicrobial Gel for Treating Chronic Feline Wounds

Dr. Patricia Paskalia Maharani
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Abstract

Chronic non-healing wounds pose a considerable challenge in the realm of small animal care. Left untreated, these complex wounds in small animals can lead to microbial infections consequently impeding the natural course of wound healing. Thus, the necessity for interventions that can effectively combat infections while also maintaining the unimpeded trajectory of the wound healing process is becoming more apparent. Superoxidised solution (SOS) is a recognized bactericidal agent known to enhance the wound healing process, particularly in the context of chronic wounds. The purpose of the study was to evaluate the effectiveness of SOS used with antimicrobial gel in treating the non-healing chronic wound in feline patient. The wound was flushed and soaked by SOS daily and the wound bed was mechanically debride using soaked gauze with the solution for 10 minutes. This followed by the application of the gel prior to non-adhesive bandage. The dressing was performed daily for 10 consecutive days until the wound bed is ready for surgical closure. Post the surgery, the surgical and incision sites were regularly cleansed using SOS, accompanied by the daily application of the antimicrobial gel. The regimen was maintained until the 10th day, coinciding with suture removal during the course of treatment, no oral or IV antibiotics were prescribed. Notably, the complete wound healing was able to be observed within 3 weeks from the initial visit. The inherent attributes of HOCl, serving as a natural, wide-ranging microbicidal agent, eliminated microbes without compromising wound healing.

10. Retrospective Longitudinal Survey on Mycoplasma haemofelis infection in cats: Trends of 5 Years of Occurrence of Veterinary Clinics in Kota Bharu

Dr. Mohammed Dauda Goni, Aravin Kumaran A/L S Thiruvara
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Abstract

This retrospective study aimed to assess the trend of Mycoplasma haemofelis infection in cats within the Kelantan state. The study also investigated the diagnostic methods employed and identified risk factors associated with M. haemofelis infection in cats across veterinary clinics in Kelantan. Data from 2017 to 2021 were retrieved from the records at veterinary facilities. Data analysis was done using SPSS 27. Descriptive statistics was used to present the results and Chi-square test was used to discern the risk factors associated with the occurrence of M. haemofelis infection in cats over the study period. Throughout the five-year timeframe, the overall prevalence of M. haemofelis infection in cats was determined to be 64.75% with 2021 having the highest amidst the COVID-19 pandemic. Among the diagnostic methodologies employed, polymerase chain reaction (PCR) emerged as the most prevalent, being utilized in 68.03% of the cases. In terms of risk factors, this study highlighted the association of M. haemofelis infection in cats with seasonality, roaming status, and household conditions. These risk factors were identified based on the comprehensive analysis of the data collected over the specified period. This study sheds light on the prevalence and diagnostic dynamics of M. haemofelis infection in cats within Kelantan, Malaysia. The insights gained from this retrospective investigation contribute to a deeper understanding of the infection's epidemiology and associated risk factors.

11. Geospatial Analysis of Clinical Cases of Suspected H5N1 Infections of Cats - and Their Relation to Avian Influenza in Poultry and Wild Birds. Case Study on Outbreak of the Disease in Pets in Poland.

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Abstract:

Background: Infections of cats with avian influenza virus (AIV) are a new and not fully understood problem in Poland. They are of interest to both veterinarians and human medicine physicians, mainly because the H5N1 virus subtype can infect humans and other mammals. In wild felids and domestic cats, it can cause severe infections, ending in death.

Methods: In June 2023, Poland reported a high number of avian influenza virus-infected cats. In accordance with the Communication of the Chief Veterinary Officer from Juli, 17th 2023 (https://www.wetgiw.gov.pl/main/komunikaty) out of the total 61 samples (nasal swabs or organs) examined in diagnostics laboratory of Poland, 34 were positive. In the same period, the Chief Veterinary Officer announced that a declaration to the World Organisation for Animal Health (WOAH) has been made to regain the HPAI-free status of Poland as of 25 June 2023. At the same time, a bottom-up initiative was set up by concerned cat owners, who offered a first-hand information on observed cases of the disease. The number of cats declared to manifest symptoms, which correlated with H5N1 infection was however higher than described as a positive after laboratory examination in official reports. The limitation of an accurate detection system based on laboratory testing may follow by the fact that not all dead cats were probably examined.

Conclusion: Using this crowdsourced information, we conducted a geospatial analysis of voluntarily reported cases of cats potentially affected by H5N1 based on its characteristics (clinical manifestation) and characterized their correlation with outbreaks of avian and wild-birds influenza in the selected period (May-June 2023). Spatial correlation between geographical location of clinically sick cats and outbreaks of H5N1 in wild birds has been observed.

12. Clinical and Histopathological Findings in Cat Originating from Wrocław City (Poland) Infected With H5N1 Avian Influenza Virus.

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In June 2023, Poland reported a high number of incidents initially unrecognized disease and unusual deaths in pet cats, which correlated with avian influenza manifestation. It was a first incident in the world that avian flu in cats covered a wide geographical area across the country. In this report, we summarised clinical presentation and results obtained in post-mortem examination in cat coming from a Wrocław, Lower Silesia Region.

The patient was a nine years old male siberian cat, without the history of previous diseases. A cat had possibility leaving home, routinely was fed with raw poultry and pork meat and in three-weeks prior to oncet of the disease hunted free-living sparrow. No contacts with poultry in environment was confirmed, On June 30st 2023 it showed the symptoms of an influenza-like symptoms including apathy, high fever, pale mucous membranes, dyspnea and shortness of breath. Illness rapidly progressed during a next six days with accompanied neurological manifestation like rigidity of limbs, problems with walking, trembling and convulsions, epileptic seizures, vocalization, ineffective swallowing reflex. Diarrhea was also observed. In laboratory examination we noted thrombocytopenia, hyperglycemia and increased levels of AST, CK and SAA. H5N1 virus was confirmed ante-mortem in nasal swabs examined by the immunochromatographic Combo Antigen Flu AB/ Covid-19 and RSV test (Diather, PL) as well as by PCR performed in the reference institute for avian influenza in Pulawy (National Veterinary Research Institute-State Research Institute). On July 07st the cat was euthanized on the owners request. With the consent of owners to use of carcasses for scientific purposes autopsy and post-mortem examination of the lungs, brain, liver, spleen, kidneys, lymph nodes, gastrointestinal tract was performed. Necropsy showed submandibular and peripharyngeal lymph nodes slightly enlarged. Trachea is slightly filled with foamy, mucous, blood-tinged secretion. Approximately 50 ml of bloody fluid was found in the chest. Focally injected blood vessels are visible under the parietal pleura. Lungs of varying degrees strongly, focally congested, with rounded edges, swollen, airy, with single foci of marginal emphysema. Fatty pericardial sac, about 3 ml of slightly bloody fluid in the sac. A heart of the correct size and shape. The wall of the left ventricle was slightly thickened, firm in consistency. Approximately 30 ml of bloody fluid was found in the abdominal cavity. The liver is light brown, heavily dripping with blood on the cross-section. The texture of the liver is brittle. The gallbladder is moderately filled with thin bile; the bile ducts are patent. Empty stomach. The gastric mucosa was unchanged. Intestines contain a small amount of mushy content. Small intestinal mucosa pale pink, normal. Pancreas unchanged. A small amount of loosely formed fecal masses is visible in the rectum. Mesenteric lymph nodes are not enlarged. The spleen is slightly swollen. Histopathological examination revealed venous stasis in the lungs, liver, and kidneys. The lungs were dominated by severe edema and diffuse interstitial inflammation. There were signs of intravascular coagulation (DIC).

The above picture of post-mortem changes allows us to conclude that the cause of death of the cat was a sudden circulatory and respiratory failure with clearly marked features of pulmonary edema and venous stasis in the lungs and liver

13. Electroencephalographic Changes Associated With Classical Music Therapy On Preoperative Stress In Canine

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Abstract

Introduction New surroundings such as veterinary hospitals, preoperative settings and unfamiliar caretakers are perceived as stressful for dogs. The stress responses can have detrimental implications on their physiology and may confounds clinical parameters. Additionally, stressful dogs can be challenging to handle and pose serious occupational risks to veterinary personnel. Therefore, it is crucial to manage the stress by using practical and efficient methods.

Purpose In current experiment, classical music therapy was used as an auditory stimulus to alleviate the preoperative stress in dogs.

Methods Six dogs were enrolled in this study. The heart rate, blood pressure, behaviour assessment and electroencephalogram (EEG) readings were recorded immediately as the dogs arrived as pre-music (T0). Then, classical music of chosen, ranged from 70-130 beats per minute (BPM) was played for over 20 minutes. Afterwards, the parameters were repeated and recorded as post-music (Tm). Stress evaluation was based on the quantitative heart rate, blood pressure, EEG and a verified Clinic Dog Stress Scale (CDSS).

Results Results showed that music reduced the heart rate from 126±8.29 to 90±11.79. Blood pressure also decreased with systolic, diastolic and mean of 119.8±16.15, 65.4±19.90, 82.8±18.35 pre-music to 114.6±11.48, 58.6±8.44 and 77.2±9.68 post-music respectively. The Median Frequency (MF) decreased from 35.37±18.37 pre-music to 13.15±12.15 post-music. The ptot reduced from 31.36±16.43 to 21.83±1.51. The assessment of behaviour using CDSS scoring showed decrease of score for body posture (1.33±0.516 to 0.50±0.548), ear posture (1.67±1.506 to 0.33±0.516), gaze (2.50±0.837 to 0.83±0.408), respirations (2.00±0.894 to 0.50±0.837) and lips (1.67±0.516 to 0.17±0.408). Although the mean values decreased, no statistically significant differences were observed due to small sample size.

Conclusion Thus, the overall results of this study suggested that classical music therapy is effective in reducing the preoperative stress in canine undergoing elective surgery. The result of this study warrants future studies with larger sample size.

Keywords: electroencephalography; stress; classical music therapy; canine; welfare

Session 2:
Zoonosis & One Health in Asia

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14. Melatonin Inhibits Japanese Encephalitis Virus Replication and Neurotoxicity via Calcineurin-Autophagy Pathways

Dr. Sang-Youel Park, Jeong-Min Hong
Jeonbuk National University, South Korea

Abstract

Background: The Japanese encephalitis virus (JEV) is a mosquito-borne flavivirus that has no specific treatment except for supportive medical care. JEV is a neurotropic virus that affects the nervous system and triggers inflammation in the brain.

Methods: Melatonin is used as a sleep-inducing agent in neurophysiology and may serve as a protective agent against neurological and neurodegenerative diseases. Herein, we investigated the effects of melatonin and the critical roles of the serine/threonine protein phosphatase calcineurin during JEV infection in SK-N-SH neuroblastoma cells.

Results: Melatonin treatment decreased JEV replication and JEV-mediated neurotoxicity. Calcineurin activity was increased by JEV infection and inhibited by melatonin treatment. Through calcineurin regulation, melatonin decreased JEV-mediated neuro-inflammatory response and attenuated JEV-induced autophagy.

Conclusions: Calcineurin inactivation has a protective effect in JEV-infected neuronal cells and that melatonin is a novel target for the development of anti-JEV agents.

15. Autophagy Flux Impairment by Prion Protein Limited Japanese Encephalitis Virus Propagation

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Abstract

Flaviviruses are a major cause of viral diseases worldwide, for which effective treatments have yet to be discovered. The prion protein (PrPc) is abundantly expressed in brain cells and has been shown to play a variety of roles, including neuroprotection, cell homeostasis, and regulation of cellular signaling. However, it is still unclear whether PrPc can protect against flaviviruses. In this study, we investigated the role of PrPc in regulating autophagy flux and its potential antiviral activity during Japanese encephalitis virus (JEV) infection. Our in vivo experiment showed that JEV was more lethal to the PrPc knocked out mice which was further supported by histological analysis, western blot and rtPCR results from infected mice brain samples. Role of PrPc against viral propagation in vitro was verified through cell survival study, protein expression and RNA replication analysis, and adenoviral vector assay by overexpressing PrPc. Further analysis indicated that after virus entry, PrPc inhibited autophagic flux that prevented JEV replication inside the host cell. Our results from in vivo and in vitro investigations demonstrate that PrPc effectively inhibited JEV propagation by regulating autophagy flux which is used by JEV to release its genetic material and replication after entering the host cell, suggesting that PrPc may be a promising therapeutic target for flavivirus infections.

16. Detecting the Virus in Ticks Collected in the Environment Around Sever Fever with Thrombocytopenia Syndrome Virus-Infected Cats

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Abstract

Introduction: Severe fever with thrombocytopenia syndrome (SFTS) was first identified as an emerging tick-borne infectious disease caused by the SFTS virus (SFTSV) in China and has also been found to be endemic to Japan, South Korea, Taiwan and Vietnam indicating that SFTS is of great concern in Asia. In Japan, 40–102 cases are now confirmed annually since 2013. Cases of infection in dogs and cats have also been reported, and cases of infection from infected dogs and cats to their owners and veterinary personnel have been confirmed.The fatality rate is reported to be 6.3-30% in humans, 62% in cats, and 25% in dogs.

Purpose: In Ohshima Island, Imabari City, Ehime Prefecture, Japan, two domesticated cats were confirmed to be infected in May 2019, and a human infection was also confirmed in the same area in September 2018. In order to investigate the SFTS infection ring in this area, we collected ticks in the cat's activity area and tested them for viruses.

Methods: The 3,078 ticks of three genera and six species collected from vegetation from June 2019 to May 2020 were divided into 146 pools based on species, developmental stage, sex, and collection date.

Results and Conclusion: In addition to SFTS virus, six viral genes including three novel viruses were detected. Ticks are important vector arthropods that transmit various pathogens to humans and other animals. Tick-borne viruses are of particular concern to public health as these are major agents of emerging and re-emerging infectious diseases. Further study is needed to clarify.

17. Phylogenetic Characterisation of Acetate: Succinate Coa-Transferase Enzyme in Adult Angiostrongylus Malaysiensis Energy Metabolism

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Abstract

Acetate: succinate CoA-transferase catalysed acetate production in helminth parasites and classified into three subfamilies within the family I CoA-transferase (IA, IB, IC). Acetate formation is an attractive drug target since it is absent in mammalian hosts. The current study describes the phylogenetic characterisation of A. malaysiensis ASCT and further analyses the genetic variations between subfamilies of ASCT. The ASCT gene of A. malaysiensis was identified from the ongoing de novo transcriptome assembly and annotation. BLAST searches were conducted using previously characterised ASCTs [IA: Fasciola hepatica (ACF06126.1), IB: Trichomonas vaginalis (XP_001330176), IC: Trypanosoma brucei (EAN79240)]. All sequences were subjected to multiple sequence alignment followed by phylogenetic tree construction using MEGA11. Further pairwise comparison was conducted to infer the genetic variation of the three subfamilies. The A. malaysiensis ASCT sequence has the conserved regions of the family I CoA-transferases and is clustered with the subfamily IB of F. hepatica. The genetic variations within subfamilies ranged from 0.04-0.85%, 0.005-0.78%, and 0.56-0.63% for IA, IB, and IC, respectively. Subfamilies IB and IC are found to be closer to each other than each is to subfamily IA. The ASCT gene of A. malaysiensis was clustered with the previously characterised ASCT of F. hepatica, which suggested it belongs to subfamily IB of the family I CoA-transferase. Further study on the biochemical activity of the ASCT of A. malaysiensis is required to understand its enzymatic function.

18. Identification of Causative Virus Using Next-Generation Sequencing and Newly Designed Real-time PCR in a Gastroenteritis Outbreak Case

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Abstract

Introduction: The real-time PCR method is used for rapid detection of enterogastric viruses. However, because there are numerous causative microorganisms, not all pathogens that cause gastroenteritis can be detected through real-time PCR. This study aimed to identify the etiological agent responsible for infectious gastroenteritis cases using Next-Generation Sequencing (NGS).

Materials and methods: The specimens, which were feces, were homogenized and the RNA was extracted from the supernatant. Real-time RT-PCR was conducted using the extracted RNA as a template. The targeted viruses tested were NoV, RVA, SaV, AdV, and HAstV. NGS was employed to perform total RNA-seq on samples that yielded negative results for viruses via real-time PCR assays.

Results: No viruses were detected using the real-time PCR method in the cases of gastroenteritis that occurred at the daycare center.Therefore, NGS analysis was conducted, revealing full-length sequences of genotype MLB1, a subtype of HAstV. New real-time PCR primers and probes were designed based on the full-length sequence of HAstV-MLB1. In two additional cases of gastroenteritis, HAstV-MLB1 was detected using the HAstV-MLB1 real-time PCR set.

Conclusion: The current testing method for HAstV typically targets types 1–8, also known as classical human astroviruses. However, the novel human astroviruses, including MLB1, it cannot be detected using the classical astrovirus testing method. By using the newly designed real-time PCR targeting HAstV-MLB1, we could detect this virus in two additional cases.

19. Molecular Detection and Epidemiological Risk Factor of Plasmodium Cynomolgi Infecting Macaca Fascicularis in Peninsular Malaysia

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Abstract

Malaria caused by Plasmodium is one of the most important infectious disease worldwide. In Malaysia, primate malaria is naturally found in long-tailed macaques (Macaca fascicularis). These primates may harbour a number of malaria parasites that are zoonotic (P. knowlesi, P. cynomolgi and P. inui). The recent case of human malaria involving P. cynomolgi infection in Peninsular Malaysia has heightened the need to study this parasite. This study aims to determine the molecular prevalence, spatial distribution, and epidemiological risk factors associated with P. cynomolgi infecting M. fascicularis in Peninsular Malaysia. Blood samples were collected from 1587 free-ranging macaques from 122 locations in Peninsular Malaysia. 768 out of 1587 (48.39%) animals were infected with Plasmodium and the highest infection belong to P. cynomolgi (28.92%). The hotspot area was revealed to be at the Mid-eastern zone and along the Mid-inland of Peninsular Malaysia. Single infection of P. cynomolgi was the most prevalent and higher infection rates were observed in the juvenile female macaques. Macaques inhabiting forested area, those sampled at the elevation between 60-<80m above sea level and further away from the coast showed significantly higher prevalence with P. cynomolgi. Univariate and multivariate logistic regression were used to determine the association of risk factors with P. cynomolgi infection. This study constitutes the first attempt in in Southeast Asia to screen a large number of macaques to determine the epidemiological risk factors of P. cynomolgi infection.

20. Genetic Diversity of *Plasmodium Knowlesi* Infecting *Macaca Fascicularis* in Peninsular Malaysia Based on Microsatellite Analysis

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Abstract

Plasmodium knowlesi is a zoonotic malaria parasite of primates in Southeast Asia and is currently the most common form of human malaria in Malaysia. In spite of this threat to public health, very little is known about its epidemiology, transmission dynamics and genetic diversity among its natural reservoir host the Long-tailed macaques (*Macaca fascicularis*). The present study was therefore undertaken to determine the genetic diversity of *P. knowlesi* infecting *M. fascicularis* in Peninsular Malaysia. Sixty-nine *M. fascicularis* inhabiting 24 different locations from five states in Peninsular Malaysia that were confirmed to be infected with *P. knowlesi*, were subjected to PCR amplification of six *P. knowlesi* specific microsatellite loci. All microsatellite loci were moderately polymorphic as the number of alleles per locus ranged from five (at NC03_2) to 10 (at CD08_61). The mean number of alleles per locus across all samples was 7.5. The expected heterozygosity (*He*) was moderate with values ranging between 0.392 (NC09_1) to 0.800 (CD08_61), with an average 0.590 per locus. *Plasmodium knowlesi* isolated from macaques in Terengganu recorded the highest mean *He* value (0.64) while Kelantan recorded the lowest (0.56). The inbreeding coefficient (F_{IS}) value was high and varied from 0.563 (CD08_61) to 0.880 (CD05_06) with an average of 0.744 per locus. *Plasmodium knowlesi* isolated from macaques in Negeri Sembilan recorded the highest mean F_{IS} values (0.769) and Selangor recorded the lowest F_{IS} value (0.691). A Bayesian model-based STRUCTURE analysis of multi-locus genotype data from all the macaque hosts indicated the existence of three sub-population clusters of *P. knowlesi.* The genetic diversity and population structure data obtained in this study suggest an expansion of a favourable genetic population and active selection process for *P. knowlesi* infecting macaques in Peninsular Malaysia, which may be an evolutionary strategy for maintaining persistent infection.

21. Leptospirosis in Dogs and Cats in Malaysia: A Systematic Review

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Abstract

Leptospirosis, a neglected disease, is resurging as a significant zoonotic threat, necessitating attention under the "One Health". The disease's focus has shifted toward increased human interaction with animals, particularly dogs and cats, in Malaysia. Limited research on leptospiral infection in these animals prompted a systematic review to assess their prevalence in the country. Ten relevant studies published between 2016 and 2021 were identified through database searches. These studies predominantly covered urban areas in Selangor and Johor states, enrolling a total of 1000 dogs (857 healthy, 143 with liver and kidney disease) and 289 cats. Different diagnostics, including the Microscopic Agglutination Test

(MAT), culture isolation, and PCR, were used. The pooled estimates revealed a seroprevalence of 22.4% (191/850) and 20.0% (48/239) for dogs and cats respectively. Notably, Icterohaemorrhagiae (5.5%), Bataviae (4%), Javanica (4%), and Ballum (3.3%) were the predominant serovars in dogs. Among cats, Bataviae stood at 12.9%, while Javanica and Ballum both registered 3.8%. Culture isolation yielded 22 isolates, primarily L. interrogans (21) and L. borgpetersenii (1). PCR indicated an overall prevalence of 14% (69/495) with L. interrogans being the most commonly detected species. The study emphasizes the potential of dogs and cats as carriers of Leptospira, necessitating their inclusion in public health strategies despite dog vaccination efforts. Continued investigation is crucial to unravel their precise roles in leptospirosis transmission cycles within the Malaysian tropical environment.

22. Risk Factor Alert: Prevalence Of Leptospirosis In Rodents Captured From The Market In Kudat Town, Sabah

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Abstract

Rodents are globally known as the most common carrier for pathogenic Leptospira, the bacteria that are responsible for the zoonotic transmission in humans called leptospirosis. Since 2010, leptospirosis has been declared as a notifiable disease and remains endemic in Malaysia. A study was conducted to identify the presence of rodents and their carrier status for Leptospira spp. in the vicinity of a market, where rodents were regularly found and in close contact with humans. Sampling protocols were performed in conjunction with the cross-sectional study ofleptospirosis among the market traders, the common occupational group in the market of Kudat Town, Sabah. A total of 44 rodents were captured from 75 traps during the five days of sampling (58.7 % success rate). Among the captured rodents, the most dominant species (29/44, 65.9 %) were Rattus rattus, followed by Rattus norvegicus (10/44, 22.7 %), and the least were the Rattus exulans (5/44, 11.4 %). The laboratory results showed that 27.3 % (21/44) sera samples of the rodents detected positive for leptospirosis by microscopic agglutination test (MAT). Meanwhile, 47.7 % (21/44) and 11.4 % (5/44) of the rodent kidneys detected positive for leptospirosis by flaB gene polymerase chain reaction (flaB-PCR) and culture (Leptospira isolation), respectively. This study revealed a high prevalence of pathogenic Leptospira spp. among the captured rodents, indicating that these small mammals play a potential risk factor for leptospirosis to the local community. Therefore, holistic educational and intervention programs are pivotal to reduce the risk of leptospirosis transmission, the quintessential one health disease which coexists in humans, animals and in the environment.

Session 4:
Porcine & Production Emerging Diseases

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23. Status Of Pollution Control Monitoring Program By Department Of Veterinary Services (Dvs) At Pig Farms In Peninsular Malaysia 2021-2022

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Abstract

DVS has coordinated and monitored the implementation of the Pig Farm Pollution Monitoring Program in Peninsular Malaysia starting in 2022. A total of 750 farms were monitored throughout the period, 450 (2021) and 300 (2022). Monitoring program involves eight (8) states in 2021 and seven (7) states in 2022. Data has shown a reduction of 33% (150) farms in 2022 compared to the previous year. More than 80% of farms that have been monitored in this program are in Penang, Selangor, Perak and Johor. It was found that 88% (661) of the monitored farms complied with the effluent discharge standard limits at the farm's end point, while 89 (12%) of the farms failed to comply with the standards. Of that number, 39% (35) farms have carried out re-sampling to evaluate the effectiveness of remedial actions as directed by the relevant state DVS.

Keywords: Effluent, Pig farm

Session 5:
Poultry Production & Diseases

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24. Detection and Serological Surveillance of Avian Influenza Virus Subtype H9n2 in Malaysia's Commercial Poultry Farms

Dr. Hung Wui Ho, Dr. Jin-Ee Lee
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Abstract

Low Pathogenic Avian Influenza (LPAI), for instance H9N2 subtype, could cause serious respiratory signs and 60% reduction of egg production in the commercial flocks. As H9N2 is a non-notifiable disease to OIE, the importance of this disease is often overlooked and therefore the prevalence and the policy for control measures of H9N2 are unclear in Malaysia. The objectives of the study were to determine the prevalence of the H9N2 virus using qRT-PCR and H9 antibody using Hemagglutination Inhibition (HI) test in Malaysia's poultry farms. Thirty-five pooled trachea and cecal tonsils were collected from 18 broiler farms subjected to qRT-PCR targeting the Matrix gene for general screening of AI. All samples were found negative for qRT-PCR. In addition, 1024 serum samples from 71 poultry farms comprised of broiler (n=44), broiler breeder (n=12), layer (n=10) and native broiler (n=5) were collected for the HI H9 test. The HI H9 test resulted in 14% (10/71) farm seroprevalence and 7% (68/1024) samples seroprevalence. Broiler breeder farms recorded the highest prevalence (41.7%), followed by native broiler (40%) and broiler farms (6.8%). Within the seropositive farms, broiler had the highest prevalence of seropositive serum samples (61.9%), followed by native broiler (60.7%) and broiler breeder (32.1%). No H9 antibody was found in all the layer farms tested. As 75% of H9 are paired with N2 NA subtype sequences, authorities need to be alerted to strengthen the control measures in order to prepare for any possible H9N2 outbreaks in the future.

25. Behavioural Needs of Egg-Laying Hens: Implications for Housing Systems

Dr. Saravanakumar S.Pillai, Dr. Sara Shields
Humane Society International, Malaysia

Abstract

Globally, cage-free egg production is beginning to replace battery cage confinement of egg-laying hens. This shift has a firm foundation in scientific research, which has established that hens retain the behavioural biology of their wild progenitors, despite domestication. Cage-free housing is designed around four key behavioural priorities: nesting, perching, foraging, and dustbathing. Each is supported by a large body of published research. Hens are highly motivated to access a discrete, enclosed nesting space as they approach oviposition. Nesting behaviour is triggered by changes in hormone levels associated with ovulation. Roosting in trees is an anti-predator behaviour, and is conserved in domestic hens, who seek elevated perches for roosting at night. Chicks begin to show perching behavior after just 1 week of age and increasingly use perches over the following weeks. Perching has real, physical effects—it increases bone density and strength. Food searching behavior is integral to survival. Hens spend approximately half their waking time budget foraging (ground scratching and pecking). In behaviour tests where feed was both freely available in a feeder and scattered on the ground, hens often preferred to forage rather than eat from a feeder. It is important to provide lose litter to hens for foraging as well as dustbathing. Dustbathing helps balance plumage lipids and can help control mites. Hens kept in cages attempt to dustbathe, but the movements are incomplete and fractured. This "Sham" dustbathing in cages does not satisfy dustbathing motivation.

26. The Effects of Piper Betle and Alpinia Galanga Powders as Feed Additives on Carcass Qualities of Broiler Chickens

Dr. Mohd Farhan Hanif Reduan, Dr. Luqman bin Abu Bakar
Universiti Malaysia Kelantan

Abstract

Piper betle (also known as betel or sirih) and Alpinia galanga (commonly referred to as galangal or lengkuas) have been utilised as medicinal herbs and plants in Asia for generations. Despite their historical use, research into their potential as broiler feed additives remains insufficient. Carcass characteristic is one of the significant parameters in evaluating broiler performance. Therefore, this study aims to investigate the carcass characteristics of broilers supplemented with betel and galangal. A total of 60 day-old chicks were separated into four groups randomly that consisted of three replicates, with five chicks per replicate. Three groups were supplemented with different percentages of betel and galangal powder and named R1 (0.50% betel, 1.50% galangal), R2 (1.00% betel, 1.00% galangal) and R3 (1.50% betel, 0.50% galangal). The other group was made as baseline control, named BC. The broilers were slaughtered on day 35. The dressing percentages for the carcasses in groups R1 and R2 were significantly higher ($p<0.01$) than in group BC. Despite no significant differences, all the supplemented groups R1, R2, and R3 had heavier breast weight than the BC group. In addition, the drumstick weights in the group R2 and R3 were heavier than BC. For head, both R1 and R3 groups had heavier head weight than control, but only R1 was significant ($p<0.05$). The neck of chickens in the control group was significantly heavier ($p<0.01$) than groups R1, R2 and R3. In conclusion, supplementing betel and galangal powders in broiler diet improved broiler carcass characteristics.

27. A Case Report: LPAI (H9N2), E.Coli and Infectious Bursal Disease Co-infection in a Broiler Flock in Papar, Sabah

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Department of Veterinary Services Sabah, Malaysia

Abstract

An investigation was conducted into a case of Low Pathogenic Avian Influenza (LPAI) in a broiler flock in Papar, Sabah, which was further complicated by co-infections with E. Coli and Infectious Bursal Disease (IBD). Necropsy of four broiler carcasses revealed widespread polyserositis, including pericarditis, perihepatitis, air sacculitis, and peritonitis. Bacterial analysis confirmed E. Coli, and virus isolation identified Avian Influenza Virus (AIV). Veterinary Research Institute analysis confirmed AIV as serotype H9N2. Subsequently, five more carcasses and 36 cloacal swab samples were received and processed for necropsy, bacterial isolation, virus isolation, and molecular testing. Necropsy and bacterial isolation results were consistent with the initial findings, but molecular testing detected IBD virus. This case suggests a potential co-infection involving LPAI, E. Coli, and IBD. IBD's immunosuppressive nature likely contributed to LPAI's occurrence, with E. Coli possibly worsening respiratory complications when mucosa was compromised by IBD, H9N2, or both. This could lead to severe respiratory issues. Given the high prevalence of subclinical IBD in broiler farms, it's crucial to implement effective IBD vaccination strategies to reduce subclinical IBD, preventing LPAI emergence and complex respiratory diseases in broiler flocks.

28. Sybr Green RT-PCR and Melt-Curve Analysis for Rapid Newcastle Disease Virus Pathotyping

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Universiti Malaysia Sabah

Abstract

Newcastle Disease Virus (NDV) causes a serious poultry disease that affects the global economy. The virus has different levels of virulence in chickens. This study proposes a technique to identify the virulence level of NDV from positive samples of allantoic fluid. The technique uses Sybr green RT-PCR with melt-curve analysis on the fusion gene and compares it with sequencing. Twenty-five samples from different districts in Sabah collected in 2022 and 2023 were grown in embryonated chicken eggs (ECE) and tested for mean death time (MDT). The fusion genes in the samples were amplified using RT-PCR with Sybr green dye. Then, melt-curve analysis was done to separate the NDV strains by their virulence level using a qPCR machine. Sequencing was also done using another pair of primers that amplify 700bp of the F gene region. The melt-curve analysis [Tm] showed that velogenic NDVs from chicken samples had a mean Tm of 84.14 ± 0.60 °C, while lentogenic NDV isolates had a higher mean Tm of 87.44 ± 0.70 °C. These results matched with virus isolation using MDT. For velogenic and lentogenic, the MDT is less than 60 hours and more than 90 hours respectively. The sequence showed a positive correlation between virulent and avirulent fusion motive. This technique can quickly and efficiently diagnose and pathotype NDV from allantoic fluid samples, without needing gel electrophoresis in PCR product analysis. In conclusion, this study demonstrates the effectiveness of Sybr green RT-PCR in combination with melt-curve analysis using a qPCR machine.

Session 6:
Equine Medicine & Surgery

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29. Detection of Foaling Using a Tail-Attached Device With a Thermistor and Tri-Axial Accelerometer in Pregnant Mares

Takahiro Aoki, Guilherme Violin
Obihiro University of Agriculture and Veterinary Medicine, Japan

Abstract

It is desirable to attend to the mare at the time of foaling in order to assist fetal delivery and prevent complications. The early detection of the onset of labor is an important issue for the equine industry. The purpose of this study was to examine the applicability of a sensor for foaling detection using the data of surface temperature (ST), roll angle (rotation about the y-axis) and y-axis (long axis of the tail) acceleration which were collected from a multimodal device attached to the ventral tail base of the mare. The data were collected every 3 minutes in 24 pregnant mares. The hourly sensor data with a lower ST (LST < 35.5℃), a recumbent posture determined by the roll angle (roll angle change from the reference value by +/- 0.3 radian or more), and tail-raising (TR, decline of 200 mg or more from the reference value in y-axis acceleration) was significantly higher during the last hour prepartum than 2−120 hours before parturition. The accuracy of foaling detection within one hour was verified using the following three indicators: LST; lying down (LD, change from standing to recumbent posture); and TR. When LST, LD and TR were individually examined, even though all indicators showed that sensitivity was 100%, the precision was 15.5%, 8.5% and 3.0%, respectively. When the data were combined as LST+LD, LST+TR, LD+TR and LST+LD+TR, detection of foaling improved, with precisions of 100%, 36.9%, 60.0% and 100%, respectively. In conclusion, the tail-attached multimodal device examined in this present study is useful for detecting foaling.

30. Herniorrhaphy in a Filly: A Case Report

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Abstract

A two-month-old filly was diagnosed with a hernial ring of five centimetres in diameter. There was a reducible soft tissue mass that protruded from the hernial opening. The filly exhibited no observable indications of pain or discomfort both before and during the presentation. An ultrasonography examination revealed presence of an intestinal loop within the hernial sac. In this case, the surgical procedures of open herniorrhaphy and hernioplasty were performed, utilising a non-absorbable synthetic polypropylene monofilament surgical mesh (VigiMesh®, Vigilenz Medical Devices Sdn. Bhd, Malaysia) under general anaesthesia. Postoperative treatment consist of administration of anti-inflammatory medications Flunixin meglumine, 0.5mg/kg, (Range Pharma, Malaysia), antibiotics Penicillin-Streptomycin 1ml/25kg, (Interchemie, Estonia, Holland), Gentamicin, 6.6mg/kg, (Range pharma, Malaysia) and intravenous fluid Sodium chloride 0.9%, 40ml/kg (B.Braun Medical, Malaysia). Immediate surgical repair is necessary for this type of umbilical hernia due to the size of the hernial ring, and the presence of herniated intestine within the hernial sac. A mild ventral oedema was observed at the suture site beginning on the second postoperative day which resolved by the fifth day. The filly recovered well from the surgery with minimal complication. The use of VigiMesh® were found to be helpful in this case as tissue reinforcement preventing recurrence of hernia.

31. May Maternal Vaginal Microorganisms Enrich Composition of A New-Born Foal Conjunctival Microbiome During Parturition?

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Abstract

Background: Thanks to use of next-generation sequencing (NGS) techniques, it has become obvious that the uterine microenvironment and placenta hosts distinct microbiota. During pregnancy, the amnion is the innermost extraembryonic membrane that surrounds the foetus, forming an amniotic sac. On the other hand, the normal foal is born with the eyelids open, making the conjunctiva susceptible to colonisation. Studies on the human ocular microbiota have demonstrated a high similarity between the composition of microorganisms that inhabit the neonate's conjunctiva and the uterine cervix.

Purpose: The aim of our research was to examine similarities between the mucosal microbiome content of the mare's vagina and the conjunctiva of the newly born foal, including statistically significant dependencies.

Methods: The research included six mares of Konik Polski horses (KPHs) and their foals. Conjunctival swabs from both eyes as well as vaginal swabs were collected. GENOMED S.A. (Warsaw, Poland) carried out sequencing analysis. Statistical analyses using beta diversity indices, as well as principal component analysis (PCA), were performed to create clusters for all individuals and their mothers.

Conclusion: The Jaccard distance showed the existing compositional heterogeneity between the bacterial communities of the five examined foals. One foal's conjunctival microbiome differs strongly from the other and represents apparently colonization or contamination of the ocular surface by maternal microorganisms, what was confirmed by the PCA analysis. At higher taxonomic levels, shared candidates between mucosal environments were *Actinobacteriota*, *Bacteroidota*, *Firmicutes*, *Campilobacterota* and *Fusobacteriota* on the Phylum level and *Actinobacteria* and *Bacilli* covering the Class level. Both examined niches share also Orders like *Corynebacteriales* and *Lactobacillales*.

The composition of the conjunctival microbiota is probably shaped by many factors. However, the results obtained allow as concluding that spontaneous fracture of the amnion during parturition and the mode of delivery (with and without foetal membranes) may enrich conjunctival microbiota by vaginal microorganisms in some individuals.

Session 10:
Animal Welfare

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34	Dr. Masud Parvej	Hematobiochemical and Histopathological Investigation of Different Vital Organs in Pigeons Due to Prolonged Exposure to Electromagnetic Radiation of Mobile Phone	227

32. The Surprising Discovery of Trichobezoar in a Feline Postmortem: A Forensic Postmortem Analysis

Dr. Nurshuhada Binti Abdul Hamid, Dr. MUHAMAD ASYRAF BIN RAZALI
Veterinary Research Institute (VRI) Malaysia

Abstract

Trichobezoars, also called hairballs, are a common occurrence in the gastrointestinal tract of domestic cats. While trichobezoar is commonly observed in small animals, the discovery of trichobezoar in cat postmortems is rare, raising the question of its forensic significance. This study aimed to investigate the presence and significance of trichobezoar in cat postmortems through forensic analysis. Gross findings included a spherical or cylindrical mass occupying the junction between the esophagus and stomach, approximately 2 cm in diameter, with a compact mass of keratinized hair fibers mixed with mucus and food debris. The presence of a trichobezoar was also found to have caused a significant obstruction in the gastrointestinal tract, leading to severe inflammation and organ damage. In conclusion, this study highlights the importance of understanding the possible causes and effects of trichobezoar in cats, as it revealed that trichobezoars can provide valuable forensic evidence as they can indicate a history of pica, which is a disorder characterized by the consumption of non-food substances. This information can be helpful in criminal investigations, as the presence of pica can be linked to cases of animal abuse or neglect.

33. The Judgement of Gunshot Post Mortem in a Guard Dog by Animal Welfare Perspective

Dr. MUHAMAD ASYRAF BIN RAZALI, Dr. Nurshuhada Binti Abdul Hamid
Veterinary Research Institute (VRI) Malaysia

Abstract

A carcass of female mixed-breed guard dog had been presented to VRI Pathology Section for a forensic post-mortem. The dog kept to guard a fish pond was shot by a neighbor using a shotgun a day before being presented to VRI. The objective of post-mortem was to observe any abnormalities of the carcass grossly related to gunshot. A physical examination and post-mortem was done. The physical examination revealed ten (10) gunshot wounds with a 3 mm diameter at the left lateral of elbow joint, ventral part of thorax and frontal lobe of the skull. All muscles around the gunshot wound were reddened with ecchymotic hemorrhages. Post-mortem on the thoracic part revealed dark red blood clots filling the thoracic cavity. Both lungs and heart showed generalized congestion with no surface traumatic injuries detected. The trachea filled with dark red blood clots. Spleen revealed two reddish spots about 1 cm in diameter at the dorsal part and one reddish spot about 1.5 cm in diameter at the ventral part. There were no fractures detected at the frontal part of the skull around the gunshot wound. Two (2) metal bullets with a 3 mm diameter were found inside the muscle of the skull frontal lobe and one (1) metal bullet was found around the left radius bone. In conclusion, the post-mortem revealed that the dog was dead due to hypovolemic shock due to blood loss due to internal bleeding due to a gunshot wound. These findings can become valuable informations for enforcement teams to be considered in the case investigation.

34. Hematobiochemical and Histopathological Investigation of Different Vital Organs in Pigeons Due to Prolonged Exposure to Electromagnetic Radiation of Mobile Phone

Masud Parvej, Zahid Hossain
Sylhet Agricultural University, Bangladesh

Abstract

In recent years, public concern has been raised about the effects of electromagnetic radiation emitted by smart phones on biological systems. This study aimed to investigate the potential impact of radiation exposure from fourth-generation cell phones on various hematological, biochemical parameters and histopathological changes in different vital organs of pigeons. In this research, 24 pigeons were randomly assigned to one of three groups, each consisting of 8 birds (n = 8). The control group (C) did not receive any radiowave exposure. Groups B and A received radiation from two 2600 MHz 4G smart phones daily for 60 and 90 minutes, respectively, while an active call was in progress for a period of 75 days. Hemato-biochemical analysis revealed a significant increase ($p < 0.05$) in the values of lymphocytes, heterophils, basophils, serum creatinine, ALT, and AST in both groups exposed to radiation when compared to the control group.

Whereas histopathological examination showed that there was a significant increase in mononuclear cellular infiltration in different tissues of both exposed groups. Additionally, testicular degeneration, a reduced number of spermatozoa in the lumen of seminiferous tubules, and a decrease in developing follicles were also observed in the ovarian cortex. This indicates that it can disrupt normal tissue structure and blood hemostasis. Based on these findings, it is extremely crucial to raise public awareness about the potential dangers of cellphone electromagnetic radiation exposure.

Session:
Rabies: Epidemiology and Control

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35. Case Report: Re-Emerging of Rabies at Peninsular Malaysia In 2015

Dr. Norazura Binti A. Hamid, DR. NINY FARIZA JUNOH
Veterinary Research Institute (VRI), Malaysia

Abstract

Rabies becomes the world's deadliest transmissible disease to animals and humans. The disease caused by Rabies virus (RABV) belongs to the genus Lyssavirus, from family Rhabdoviridae. A 3-years old male dog brain was referred by Northern Regional Veterinary Laboratory (MVZU) suspected for Rabies case. Prior to death, the animal was in-appetence, vicious, and on lateral recumbency. The dog was forced feed by the owner as it refused to eat and hydrophobic. The owner was then, gets bitten by the dog. History of being bitten by other dogs was not obtained. Eventually, the owner decided to put the dog to sleep humanely by the veterinarian. The dog has undergone sampling procedure at MVZU and part of the cerebrum was submitted to Veterinary Research Institute (VRI) for RABV detection using Fluorescent Antibody Test (FAT). Further laboratory investigation was performed including nested Reverse Transcription PCR (nRT-PCR) and histopathological examination. The result of FAT turned out positive for RABV. Whereas, nRT-PCR and histopathology result turned out consistent with FAT. As a consequence, Rabies-free country status was then revoked from Malaysia after being granted by WOAH in 2013. Therefore, rapid control measure was taken within 1 km of the case area and passive surveillance was conducted within a 10 km radius of the foci area. Biosafety measure was taken into consideration while handling the Rabies suspected case to prevent further infection. In addition, animals that are raised near the Thailand border were also vaccinated with Rabies vaccine to break the infection.

Session 15:
Pharmacology/Vaccines

36. Hematological Profile and Histopathological Changes of Induced Periodontitis Irrigated by Lemongrass Cymbopogon Citratus (DC.) Staph on Male Rats Rattus Norvegicus.

Dr. Fara Suehana Mohd. Safani, Prof. Bambang Sektiari Lukiswanto
Makmal Diagnosa Veterinar Kota Kinabalu, Faculty of Veterinary Medicine, Universitas Airlangga, Indonesia

Abstract

The systemic impact of periodontitis can interfere the quality of life of an animal. The purpose of this study was to evaluate whether lemongrass Cymbopogon citratus (DC.) Staph extract irrigation given supragingival affect the hematological profile and histopathological changes of male rats Rattus norvegicus. Under general anaesthesia, this research was performed on 25 male Wistar rats by placing 3/0 non-absorbable silk thread ligature around the lower incisors. After 7 days of periodontitis induction, three sample groups were given lemongrass extract irrigation of 0.13%, 0.25% and 0.50% twice daily for 7 days while the negative and positive control group were given sterile aquadest solution and 0.2% chlorhexidine solution respectively. Blood samples were obtained from each rat through cardiac puncture. Hematological profile were assessed. Result show a significant change on the number of red blood cells for 0.25% treatment and increase in the number of leucocytes to promote wound healing. Lower incisive of each rat were sectioned for histopathological evaluation where it shows an intense inflammatory cell infiltration for negative control group and the least amount of inflammatory cell infiltration and osteolysis using 0.25% extract. The result of this research showed that lemongrass extract irrigation of 0.25% is the most effective extract to treat periodontitis which can act as an anti-inflammation alternative herbal treatment from using chemical treatments.

37. Regulating the Prudent Use of Veterinary Vaccines Through Licensing

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Abstract

Veterinary vaccines continue to play an important role in protecting animal health and public health, reducing animal suffering, efficiently producing healthy livestock to feed the growing population, and reducing the need for antibiotics to treat livestock and companion animals. In 2022, the Department of Veterinary Services (DVS) under the Ministry of Agriculture and Food Security (MAFS) has enforced the licenses to possess culture or veterinary vaccines as stated in Section 30 of the Animal Act 1953. The Director General of the DVS will issue licenses to the applicants to permit the possession of vaccines or live culture. Without the license, those who possess vaccines or live cultures violate the Animal Act 1953 and may be subject to legal action. Licences to possess plays a vital role in controlling the prudent use of veterinary vaccines in Malaysia. It ensures that only responsible and qualified persons can possess high-quality, safe, and effective vaccines or live cultures in the country. If the application complies with the requirement, the whole process of the issuance of a license to possess the vaccine or live culture will take about two to four months. The most crucial criterion is all the vaccines should be registered with DVS before the applicant could possess, sell and use the vaccine. In 2022, DVS gradually issued the possession licenses starting with Marketing Authorization Holders (MAH). To date, DVS has issued 32 licenses to MAH so that the chain of custody of the veterinary vaccines which are from importation to use is in a good manner, and the vaccines are safe and effective (registered). In summary, the licensing is critical in controlling and promoting the prudent use of veterinary vaccines, improves standards of veterinary care, promotes public trust, and contributes to the overall well-being of animals in the country.

Keywords: Licensing, Vaccine

Session 19:
Wildlife & Exotic Animal Medicine & Surgery

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38. Relationship Between Soil in the Rearing Environment and Aspergillosis Occurrence in Captive Penguins in Japan

Megumi Itoh, Naoya Matsumoto
Obihiro University of Agriculture and Veterinary Medicine, Azabu University, Japan

Abstract

Aspergillosis is a fungal respiratory disease caused by an infection the Aspergillus spp. It is considered as an opportunistic infection as it occurs in individuals with weakened immune systems. It is also the major cause of death of captive penguins. These fungi are ubiquitous in soil and air; however, there are some aquariums and zoos in Japan where penguins can come into contact with soil. Therefore, we investigated the relationship between the presence of soil in the rearing environment and occurrence of aspergillosis in captive penguins in Japan. The survey of 2,910 penguins of 11 species (119 groups) kept in 64 aquariums and zoos in Japan revealed that 73 penguins of 8 species (41 groups) at 35 facilities died of aspergillosis over the past 5 years. The penguin groups that were kept in outdoor enclosures rather than indoor enclosures, those who were moved out of enclosures for exercise, or those who came in contact with soil had a significantly high incidence of aspergillosis ($p < 0.01$). Another survey of 54 penguins that died of aspergillosis found that 48% of them had contact with soil. Additionally, about 76% had 1–3 individual risk factors (younger than a year, older than 20 years, and molting period etc.), and 54% had 1or 2 environmental stress factors (high temperature, high humidity, poor ventilation, etc.). Only 2 of 54 penguins were unrelated to these risk factors. Aspergillosis was considered to occur when individual risk factors as well as environmental stress factors were present along with the risk of Aspergillus exposure for instance contact with soil.

39. Clinical Management of Myxoma Tumour in Californian Kingsnake (Lampropeltis Californiae)

Dr. Luqman Abdul Samad, Dr. Azlan Che' Amat
Faculty of Veterinary Medicine, Universiti Putra Malaysia

Abstract

Myxoma is described as mesenchymal neoplasms originates from fibroblast and considered as rare cutaneous tumours in snakes. This case study was done to review the clinical management including intralesional chemotherapy on myxoma tumour in Californian kingsnake. An adult Californian kingsnake was presented with mass at the dorsal to pre-cloacal vertebrae area. Impression smears of the excised mass were sent for cytology and tissue biopsy for histopathology. Results showed spindle shaped cells with tailing of cytoplasm alongside with pinkish extracellular matrix (cytology), and loosely arranged neoplastic cells characterised by bland, spindled to stellate cells set in myxoid stroma and were alcianophilic revealing presence of mucin production (histopathology). These supported the diagnosis of myxoma tumour. A total of 10 cycles of intralesional cisplatin (IL-Cisp) treatment was planned (1 mg/cm3) with intralesional prednisolone at (3 mg/kg), and tramadol as analgesic. Tumour size regression was significant only on 5th IL-Cisp with no body weight changes. The body condition deteriorated with poor feed intake was observed on the 6th cycle onwards. The body weight and tumour size decreased gradually on physical examinations prior to the 7th prednisolone cycle. However, the condition of the patient deteriorated immediately after the 7th cycle and pronounced dead after a few hours. In conclusion, the use of IL-Cisp benefits to reduce the tumour size in snakes in this study. However, additional research is needed to investigate the possible side effects of chemotherapy in snakes.

40. The Presence of Endoparasites in Captive Asian Elephants (Elephas Maximus) in Malaysia.

Dr. Mohammad Sabri Abdul Rahman, Dr. Subeinthiran Rinagasamy
Universiti Malaysia Kelantan

Abstract

Endoparasitism may cause severe health issues to elephants, depending on the type of endoparasites they are infected with. There would be a potential for the infected elephant to spread the parasites, infecting other species in the wild or captive, as well to people living in rural areas or workers, causing a potential zoonotic risk. Therefore, this study was conducted to identify the endoparasite in captive Asian Elephants (Elephas maximus) in Malaysia as limited reports on endoparasites in Asian Elephants is produced. Altogether, 30 elephants were recruited from Zoo Taiping & Night Safari (n=5), Zoo Negara (n=2), Kuala Gandah National Elephant Conservation Centre (n=13), and Kenyir Elephant Conservation Village (n=10). The demographic data of the elephants were recorded for risk factor analysis. Faecal samples were collected and faecal analysis (faecal flotation, McMaster and faecal sedimentation) were performed. For statistical analysis, the significance between the risk factors against the parasite load was calculated using Fisher's Exact Test. The overall detection rate of endoparasite worm infestations in the captive Asian Elephants from all four locations was 76.67%. Fasciola sp., Ancylostoma sp., Strongyloides sp., Oesophagostomum sp., and Demodex sp. eggs were identified. No significant findings were obtained from the four risk factors against the parasite load. The outcomes of this study would provide a preliminary understanding of endoparasite infestation in captive elephants with crucial diagnosis confirmation to improve treatment and prevention management.

41. Echoes of the Past: Rhinoceros Histopathology, 1987-1998 - An 11-Year Odyssey

Dr. Fara Suehana Mohd. Safani, Dr. Nieccorita Wong
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Abstract

Rhinoceros, magnificent and functionally extinct species in Sabah, hold a unique place in the natural world. Their significance transcends the realm of biology, extending to cultural heritage, environmental balance, and conservation efforts. In the pivotal years from 1987 to 1998, a span of eleven years, the health of rhinoceros populations faced challenges intertwined with environmental changes. This study delves into this critical period, unravelling the echoes of time within the histopathology of these iconic beings and shedding light on their resilience amidst conflict. Slides were systematically examined using a light microscope to identify and document any abnormalities or structural changes. Findings from the two time periods were compared to reveal insights into rhinoceros health across this temporal span. Histopathological examinations meticulously explored the lung, liver, and spleen within the eleven years. The lung exhibited signs indicative of pneumonitis, while the liver revealed cirrhosis and necrosis. Moreover, the spleen exhibited alterations to its normal architecture suggestive of splenitis. During the 11-year period, the health of the rhinoceros population may be affected by conflicts between humans and wildlife, shedding light on the consequences of this 11-year journey. Noteworthy limitations include a small sample size and the functional extinction of the studied rhinoceros population, limiting further research possibilities on this species.

42. Use Of Ketamine Hydrochloride As Intranasal Anaesthesia In Pet Birds

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Abstract

Intranasal anaesthesia is a newly developed anaesthesia technique which utilizes administration of drug through nasal route to overcome stress and mortality due to painful parenteral anaesthesia. Nasal anaesthesia is not adopted in Malaysia for birds. This study investigates the effectiveness and recovery of using intranasal anaesthesia in pet birds compared to parenteral anaesthesia. Ketamine Hydrochloride (HCl) were administered as nasal drops with starting dose of 10mg. Thirty birds were analysed. Fifteen of them are prospective data for intranasal anaesthesia and another fifteen are retrospective parenteral data from previous records. Data were analysed by SPSS 20 using Independent T-test. Success of delivery is 100 percent after intranasal anaesthesia, no death of pet birds due to induction of intranasal anaesthesia by using Ketamine Hydrochloride solution while 86.67 percent success of delivery after parenteral anaesthesia and 13.33 percent had complications which led to death. Onset of action for intranasal anaesthesia with is slower than parenteral anaesthesia. This is because 100 percent of parenteral anaesthesia are delivered into the body system while some of the nasal drops used for intranasal anaesthesia run off from nostrils or flow into throat or respiratory tract. Recovery rate in birds by intranasal anaesthesia is faster than parenteral anaesthesia. The birds are subjected to less stress and trauma, thus need less time to heal. Recovery profile is better in intranasal anaesthesia as compared to parenteral anaesthesia. 100 percent of the subject using intranasal anaesthesia obtain normal recovery and restores normal physiological function after the anaesthesia recovery while nearly half of the subject using parenteral anaesthesia have abnormal recovery after anaesthesia. As a conclusion, usage of Ketamine Hydrochloride as intranasal anaesthesia in pet birds is as effective as parenteral anaesthesia. Intranasal anaesthesia shows excellent recovery in pet birds and reduces the mortality of pet birds due to parenteral anaesthesia.

43. A Study of Mites in Pet Hedgehog (*Atelerix albiventris*) in Klang Valley, Malaysia

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Abstract: Mite infestation is one of the common health problems in pet hedgehogs (*Atelerix albiventris*). The objective of this study is to identify species of mite that infest pet hedgehogs. It is important to create awareness among the pet hedgehog owners and encourage the pets to be routinely examined by veterinarian. This study was conducted at Faculty of Pharmacy, Universiti Teknologi MARA, Selangor (UiTM) and the samples were taken from Veterinary Exotic Animal Clinic, Taman Melawati, Kuala Lumpur. Direct microscopic examination was done on both samples of body and ear of the affected hedgehog. The samples were fixed and identified using a light microscope under 10× and 40× magnification. The species of mite were identified based on their morphology. Results obtained show that all samples contain *Caparinia tripilis*. There was no presence of other mites like *Otodectes cynotis* and *Sarcoptes scabiei*. Findings show that *Caparinia tripilis* is the highly species of mite that infests the hedgehog. Symptoms of mite infestation in hedgehogs include loss of hair and quills associated with dry, scaly, and flaking of the skin. The positive cases were treated with topical 1% ivermectin which is given based on their body weight. It is important to eradicate mites to avoid zoonotic problems among the owners.

Keywords: Hedgehog, *Caparinia tripilis,* Veterinary Exotic Clinic, direct microscopic, loss of quills

44. Retrospective Study on the Isolation of Foreign Bodies from Gastrointestinal Tract in Exotic Pets in an Exotic Animal Clinic in Kuala Lumpur: A 8-year study

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Abstract

Ingestion of foreign bodies in exotic companions is a common encounter, albeit preventable. Most of the ingestion went unnoticed by the owner as there were seldomly signs right after the incidence. Furthermore, the signs and symptoms were general and likely to be neglected until the condition of the pets had worsened. The FBs retrieved from the gastrointestinal tract (GIT) usually related to the environment provided to the pets. Owners' unattentiveness and the pets' behaviour were all contributed to the risk of FBs ingestion. This study investigated the types of GIT FBs isolated from exotic pets in an exotic animal clinic at Taman Melawati, Kuala Lumpur. In addition, this study also explored the outcomes of the GIT FBs. Medical records were recovered from Exotic Animal Veterinary, Taman Melawati, 53100 Kuala Lumpur. The eligible records from 2013 to 31st December 2020 were taken, and the information included was animal species, the year of each case, type of GIT FBs isolated, and the outcomes which whether alive or dead. The data were processed and presented using Microsoft® Excel for Office 365. Most GIT FBs retrieved in birds were feeding tubes, and birds were the most presented animal with GIT FBs. There were eight deaths of exotic pets due to GIT FBs. The pet owners may lack knowledge in exotic pet care and handling, triggering the risk of FBs ingestion. Therefore, owners should be cognizant of potential risks, monitor changes in pets' behaviour and appetite, and not hesitate to visit the vet.

Keywords

Exotic pets, foreign bodies, gastrointestinal tract

45. Husbandry and Veterinary Medical Care of Infant Leaf Monkeys in Peninsular Malaysia

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Abstract

Leaf monkeys are the Old World Monkeys of the *Colobinae* family. The leaf monkeys in peninsular Malaysia include dusky, silver and banded leaf monkeys. The orange colour of the infants misleads them as the Chinese 'golden monkey' as believed by the public. This attracts the public to keep them as companions. Their cuteness and cuddly character attract the public to raise them in captive. Raising them can cause medical problems to the infant primates. Primates are susceptible to acquire diseases from human and transmit the diseases to human. They need special attention from the owners which can affect their behaviour. As they grow, they tend to be violent and bite the owners. Leaf monkey babies are difficult to raise. They leaf eaters compared to other species of primates such as baboons and macaques. This is due to their specialized digestive system which consists of three sacs namely saccus gastricus, tubus gastricus and nest pylorica. Improper diet and husbandry could cause medical problems and die. Thus, this interviewer-administered survey was conducted to determine the frequency of death, medical problems and feeding behaviour of the captive leaf monkey infants. Twenty (20) respondents answered the survey. Based on the survey, most of the captive leaf monkey infants died due to various medical problems such as aspiration pneumonia, upper respiratory infection, bloat and food poisoning. This is the first study to postulate the protocol of keeping leaf monkeys in captivity.

Keywords: leaf monkeys, husbandry, diet, captivity

46. Oral Anaesthetic in Primates and its Pharmacokinetics

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Abstract

This research involves the administration of the anesthetic agents through oral route in primates. Five species of primates were used in this research namely Concolor Gibbon, Pig-tailed macaques, Long-tailed macaques, Chimpanzees and Orang utans. Anesthetic agents used are Ketamine and Zoletil. The purpose of primates to be anesthetized are for physical health examination, treatment and minor surgery. Anesthetic agent can be given through oral route as it can minimize stress, prevent traumatic injuries in primates and to reduce the risk of getting injury by the primates to the handlers. The objective of this research is to study the efficacy of oral administration of anesthetic drugs based on the onset of action and recovery. For methodology, it is divided into two. For drug administration, Zoletil or Ketamine was added into food or carbonated drinks and was administered orally to the primates. Sweetened condensed milk or honey was added to counteract the bitterness of the drug. Once the primate was sedated, all medical examinations and treatments were done. For analyzing the data, time for the drug to give its effect (onset) and recovery rate are taken into consideration to study the efficacy of oral administration. All the data was collected and analyzed by using Independent Student T-test. The result shows that the oral route has faster onset of action but slower recovery rate as compared to intramuscular route. Administration of anesthetic drugs through intramuscular route causes the primates to agitate and build up stress. Stressed primate has an increase in adrenaline level due to insufficient administration of the drug. Intramuscular route require higher dose of anesthetic to achieve anesthesia. Oral route has slower recovery rate due to the slow rate of metabolism of the drug in primate body. There is no significance difference between both routes. Administering anesthetic agent through oral route has similar efficacy as intramuscular route. Administering drug through oral route reduce the aggressiveness in primates. This will also reduce any injury to the animal handlers. Oral route administration of anesthetic is done effectively among primates. This is considered as a breakthrough in zoo and exotic animal anesthesia. We advocate clinical veterinarians to use oral anesthesia for primates for easy administration and less stress condition.

Keywords: Oral anaesthesia, primates, zoletil, ketamine, less stress, easy administration

Session 21:
Ruminant Diseases

47. Evaluating The Usefulness Of Excretory Urography For Detecting Morphological Changes In The Urinary Bladder Of Calves

Kazutaka Yamada, Itsuki Morita
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Abstract

Recently, there has been an increase in the prevalence of omphalitis, which subsequently leads to persistent urachus and pyourachus, resulting in the sporadic occurrence of urinary disturbances in farm animal practice. Excretory urography plays an important role in evaluating the renal pelvis, ureters, and urinary bladder in small animals. In this study, excretory urography was performed on 10 calves weighing, including 4 clinically healthy calves and 6 calves with urinary disturbances to evaluate morphological changes in the urinary bladder. Excretory urography was conducted with the calves in a standing position without sedation. Images were obtained using a digital radiography system before and 5, 10, and 15 min after intravenous administration of a contrast agent. The contrast-enhanced images in all 10 cases clearly depicted the urinary bladder, and no adverse effects were observed. In one case involving a 5-month-old male Holstein calf weighing 112 kg who exhibited frequent urinary disturbances, a fusiform-shaped urinary bladder was depicted on excretory urography, which suggested persistent urachus adhesion after ruling out renal and ureteral disorders. Following surgery, excretory urography confirmed the successful release of the bladder adhesions with the persistent urachus. Subsequently, the urinary condition of the calf returned to normal. In conclusion, excretory urography was a valuable tool for evaluating abnormal morphological changes in the urinary bladder of calves.

48. Economic Impact of Ivermectin as Anthelmintic on Body Weight Gain of Goat in Bangladesh

Dr. Sohag Talukder
Sylhet Agricultural University, Bangladesh

Abstract

Background: Goat is an important livestock animal in Bangladesh. Purposes: To count the efficacy of selective anthelmintic for their treatment effects on body weight gain in goats. Methodology: A field experiment was conducted at KotaliparaUpazila in Gopalgonj district of Bangladesh. The study was performed during the time from December 2020 to February 2021. The goats were selected randomly for this experiment and divided into two equal groups (treatment group and healthy control group) where each group consisted 30 goats. One injectable Ivermectin (0.2mg/kg body weight, S/C) preparations (Techno Drugs Ltd. Bangladesh) were used for as treatment group in different rearing system. All goats were reared intensively and same feeding status. The efficacy of selected anthelmintic was recorded with measure live body weight from day 0 through day 14 and day 28 of the trial period. Results: Overall live weight gain recorded was 0.14 kg in goats of healthy control group whereas 0.76 kg weight recorded in goats of treatment group. The net return obtained by the day 28 of experimental study was Tk. 186 in goats of treatment group as against a profit of Tk. 46 obtained in goats of healthy control group. Conclusion: The administration of Ivermectin has a clear beneficial impact on live body weight in goat.

49. A Snapshot of Caseous Lymphadenitis (CLA) Seroprevalence in Sheep and Goats of Sabah: 2022 Analysis

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Abstract

Caseous lymphadenitis (CLA) is one of the most important and common disease of ruminants caused by the bacteria Corynebacterium pseudotuberculosis that affects ruminants worldwide. Moreover, it is a worldwide chronic contagious disease of ruminants and causes considerable economic impact. In Malaysia, CLA is a disease significant to goat and sheep where it is further classified by two forms of manifestation, internal and external whereby the transmission occurs usually through environmental contamination. In Sabah, CLA monitoring program within farms are carried out routinely to identify the presence of CLA. The purpose of this study was to evaluate the seroprevalence of CLA cases in Sabah within the year 2022 through the serum sample submission result. The laboratory test assessment was conducted through agar gel precipitation test (AGPT). The total number of samples received in the year 2022 were 1458 serum from across Sabah. After analysing the serum using AGPT for CLA, 1.3% of the total samples received were identified as seropositive, and the remaining 8.7% were negative through AGPT evaluation. Interestingly, AGPT test were conducted as screening since the sheep and goats does not show any clinical signs of CLA during the monitoring program. Based on these figures, the assessment provides insights into the occurrence of CLA in different livestock populations of Sabah and the need for effective management strategies.

50. Effect of Oral Administration of Royal Jelly Towards Fertility Performance of Rabbit through Artificial Insemination

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Abstract

The rabbit livestock industry is rising rapidly as an alternative protein source in Malaysia. Since the global population is increasing, an alternative food source like rabbit-based products is significant. Assisted reproduction technologies (ART) like artificial insemination (AI) are being introduced to improve the production of rabbit. This study aims to investigate the fertility rate of rabbits using artificial insemination compared to natural mating (NM) and to determine the effect of different concentrations of royal jelly (RJ) towards semen quality. A total of 12 bucks and 20 does of American White rabbits (Oryctolagus cuniculus) were involved with ages between 7 to 12 months and average body weight of 2.5 kg to 3 kg. The bucks were assigned into four experimental groups for oral administration: (a) control A, 0 mg/kg of royal jelly; (b) control B, 0 mg/kg of royal jelly; (c) treatment 1, 100 mg/kg of royal jelly; (d) treatment 2, 50 mg/kg of royal jelly. Control A rabbits were mated naturally, while the other groups used AI. Sperm quality was evaluated (volume, colour, pH, odour, and viscosity). Pregnancy diagnosis (manual abdominal palpation, real-time ultrasound) was performed to evaluate the conception rate of the doe. The result shows that the conception rate of natural mating (83.33 %) was higher than that of artificial insemination (16.13%), whereas 0 mg/kg of royal jelly showed 36.36%, 100 mg/kg with 0 % and 50 mg/kg with 10 % of conception rate. In conclusion, he oral administration of Royal Jelly had no effect on the conception rate and fertility of rabbits.

51. Growth Performance of Jersey-Friesian Dairy Cattle Weaners in Malaysia

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MARDI, Malaysia

Abstract

Jersey-Friesian cattle is a dairy cross breed that usually found in tropical country. The breed produces an acceptable amount of milk per lactation as well as requires significant lower amount of feed for milk production. Male dairy cattle have been deemed unsuitable for meat production due to its inferior performance compared to beef cattle. The study aimed to determine the growth performance of dairy cattle weaners under a period of controlled feeding regime. Thirteen Jersey-Friesian dairy cattle weaners were placed in a Central Performance Testing (CPT) facility for 114 days in individual pens. The weaners were allowed to acclimatise for fourteen days prior the study. Throughout the duration of the study, commercial maintenance diets were given according to individual body weight and daily feed consumption was determined. The feed adjustment was determined by the amount of the refusal measured daily. Fluid intake was limited to water ad libitum. Body weight was taken fortnightly. Average daily gain (ADG) and feed conversion rate (FCR) was determined. The results revealed that male weaners had an average ADG and FCR of 1.025±0.05 and 6.263±0.27kg, respectively for the female weaners, ADG were lower, and higher FCR compared to male weaners. The average ADG and FCR for female weaners were recorded as 0.694±0.03 kg, and 7.923±0.4 kg, respectively. In conclusion, the average daily gain of male dairy weaners was superior indigenous cattle (0.5kg per day) in Malaysia while the feed conversion rate obtained were within the established standard for beef cattle (4.5 to 7.5kg).

52. Cost of Dairy Buffalo Production in Peninsular Malaysia

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Abstract

The study aims to calculate the costs of milk production on the dairy buffalo farm to support the decisions of the farm management. A survey was conducted on 14 dairy buffalo farms from selected regions on Peninsular Malaysia: Selangor (six farms), Kedah (four farms), Penang (three farms), and Pahang (one farm) using a developed questionnaire. The questionnaire consists of farm management aspects like general management, nutrition management, health management, and the calculation of the cost. The collected data were edited in Excel and analyzed descriptively using IBM SPSS Statistics. From the 14 surveyed, there were 6 traditional farms (fewer than 29 cows), 5 semi-commercial farms (30-49 cows), and 3 commercial farms (more than 50 cows). The results showed (85.7%) of farmers preferred semi-intensive system, practiced total mix rations for their animals (78.6%), and provided different places for calves, weaner, cows and calving areas (100%). The cost of a 1-liter of milk on traditional farms was RM7.06, RM3.25 for semi-commercial farms, and RM2.44 for commercial farms. The net profit was RM79,444.56, RM1,924,24.82, and RM2,220,519.02 in traditional, semi-commercial and commercial farms, respectively. This study reveals that milk costs are lowest at commercial farms, indicating the efficiency of farms. When more output is produced, the cost per unit production is reduced. Hence, the government should initiate and encourage the farmers to expand their farm's business from traditional to commercial business, and at the same time, produce more skilled farmers.

53. Milk Production of Imported Jersey-Friesian Dairy Cattle in Malaysia

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Jersey-Friesian dairy cattle breed is a popular dairy cross breed in Malaysia. Despite being smaller compared to pure Friesian dairy, it can adapt to the tropical climate in Malaysia. In addition of their adaptability, the milk production is the crucial and important factor. Therefore, the purpose of this study was to assess the milk production of imported Jersey-Friesian dairy cattle in their 1st and 2nd parity. Fifteen imported Jersey-Friesian dairy cattle from Australia were brought to MARDI Muadzam Shah, Pahang. The cows were placed in a pen of 5 animals each. Total feed rations (TMR) consisting of mash feed and Guinea grass were given as feed and adjusted according to individual bodyweight. Water was given *ad libitum*. The cows were milked twice a day. Milk production data were collected over a 300 days of milking period. Total milk production for the 1st and 2nd parity was 51351.6 litres and 43283.1 litres, with the average daily milk production calculated at 11.41±1.14 litres.

Litres (1st parity) and 9.61±1.14 (2nd parity) litres per day, respectively. In conclusion, the milk production for Jersey-Friesian dairy cattle is comparable to local available dairy breeds (10 litres per day) in Malaysia.

54. Silage as an Alternative Feed for Ruminant Production

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Abstract

Effects of climate change on the ruminant production will give negative impact to the industry. Napier grass or elephant grass silage is regarded as an alternative feed for ruminant livestock. Seasonal feed shortage has a substantial impact on the production of small ruminants and is a challenge that farmers typically encounter in addition to natural disasters like drought, flood, cyclones, and earthquakes. Making silage is a frequent and efficient way to preserve forages, as well as a way to occasionally reclaim underused pastures and improve their acceptability, degradability, and utilization. The objective of this study is to determine silage can be use as alternative feed for ruminant production during uncertain condition. The production of silage using legumes, mixed forages, alternative forages, and by products from the fruit and vegetable industry. Silage also can reduce the cost of feeding and can be store for in long time period without effect their nutrition. Using this application give positive impact to ruminant production. The results can be shown during Covid-19 pandemic and resilient climate. From the viewpoint of food security, silage is viable for farmer as an alternative feed for ruminant production.

***Keyword**:* Silage, climate change, alternative feed, ruminant production, nutrition

55. Microbiome dynamic: Diversity in healthy and mastitis milk herd

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Abstract

Bovine mastitis is the persistent, inflammatory response in the udder caused by physical injury or microbial infections. The milk from both healthy and mastitis infected cows presents the microbial communities and ecosystems that can impact the mechanisms and pathophysiology of mastitis. An increasing number of studies provided evidence indicating the occurrence of dysbiosis in the microbiota during clinical mastitis. Our study aimed to investigate the shifts in mastitis milk microbiota over a three weeks period within a Jersey Friesian mastitis herd in a local farm. The 16S amplicon sequencing analysis revealed that predominant phyla in the core microbiota were *Firmicutes*, *Actinobacteriota*, *Proteobacteria*, and *Bacteroidota*. Alpha diversity indicated the presence of lower bacterial diversity in the clinical mastitis group across the weeks (W1, W2, W3) in comparison to the healthy (HT) group. Among the four dominant phyla, *Firmicutes* exhibited the highest percentage of abundancy (HT=35.40%; W1=63.10%; W2=89.32%; W3=90.86%), followed by *Actinobacteriota* (HT=34.08%; W1=7.87%; W2=1.01%; W3=6.95%), *Proteobacteria* (HT=11.17%; W1=18.69%; W2=7.50%; W3=1.14%), and *Bacteroidota* (HT=14.77%; W1=1.86%; W2=1.01%; W3=0.88%). The diversity indices exhibited a decreasing trend from W1 to W3 (Chao1 index: HT=323, W1=297, W2=69, W3=35; Shannon index: HT=3.41, W1=3.87, W2=1.50, W3=0.92; Simpson: HT=0.74, W1=0.88, W2=0.58, W3=0.47). Beta diversity displayed a scattered pattern of sample clustering in PCA plots among different groups. In conclusion, the dominance of *Firmicutes* persisted throughout the weeks, while other populations decreased over the specified time frame. The healthy (HT) group maintained a more diverse distribution of phyla. This study supports the idea of dysbiosis in mastitis samples. The prevalence of specific bacteria in clinical mastitis samples indicates their potential as causative mastitis pathogens on the respective farm. This finding provides valuable information in developing targeted treatment strategies for the dairy herds.

56. Overview on Current Meat Inspection in Approved Ruminant Abattoir

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Abstract

Meat inspection in approved ruminant abattoir is one of the elements in ensuring food safety. Meat inspection includes inspection of livestock before being slaughtered (ante-mortem) and inspection of livestock after being slaughtered (post-mortem). Ante-mortem inspection is carried out to prevent the slaughter of livestock, showing clear evidence that the livestock has a disease or is in a condition that renders the carcass unfit for consumption. Post-mortem inspection is carried out to detect any abnormalities on carcasses and organs so that only fit for human consumption products are approved as food. Meat inspection is carried out in 28 approved ruminant abattoirs, which are operated by the Department of Veterinary Services. Meat inspection is carried out by Meat Inspectors appointed by the Director General of Veterinary Services among veterinary supervisors consisting of Veterinary Officers, Assistant Veterinary Officers and Veterinary Assistants.

Keywords: Meat inspection, approved ruminant abattoir, ante-mortem inspection, post-mortem inspection, Meat Inspector

Session:
Aquatic Animal Diseases & Aquaculture

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57. Formaldehyde Traces and Quality Characteristics of Indian Mackerel (Rastrelliger Kanagurta) from Markets in Kota Bharu

Dr. Nur Zulaikha Mat Zawawi, Dr. Ruhil Hayati Hamdan
Universiti Malaysia Kelantan

Abstract

Formaldehyde is a naturally occurring organic compound found to be present in fish, yet higher traces formaldehyde has significant effect on health of the consumers and quality characteristics. Formaldehyde also use as food preservative. This study is conducted to analyse the formaldehyde traces and quality characteristics in Indian Mackerel (Rastrelliger kanagurta) in Malaysia. A total of six Indian Mackerel samples was randomly collected from Wet Market and Mall Supermarket located in Kota Bharu, Kelantan. Formaldehyde was extracted from the fish samples using Trichloroacetic acid followed by the Gas Chromatography – Mass Spectrometry (GC-MS) method for qualitative analysis of formaldehyde traces. There were no traces of formaldehyde present in all six Indian Mackerel samples. The quality characteristics of the Indian Mackerel was assessed using the sensory quality assessment and pH to determine the differences in fish qualities obtained from Wet Market and Mall Supermarket. Sensory quality was assessed based on characteristics such as odour, appearance and texture of the Indian Mackerel along with the pH. The result analysis has shown that Wet Market has higher degree of fish quality compared to Mall Supermarket. The amount of formaldehyde obtained was compared with at most 5 ppm which is regulated by The Food Act 1983 and The Food Regulations 1985 of Malaysia. Surprisingly, this study recorded no formaldehyde in purchased Indian Mackerel in either wet market or supermarket indicating it is safe for human consumption.

Session:
Anti-Microbial (AMR) Resistance

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58. Distribution of Antibiotic Use in the Poultry Industry and Patterns of Antibiotic Resistance

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Abstract

Antibiotics are a type of drug used to fight infections caused by bacteria in the bodies of humans and animals. The main purpose of using antibiotics is to overcome or treat diseases in poultry resulting from bacterial infections, however practice in the field shows different things. In the poultry industry, the use of antibiotics is still out of control, due to limited supervision and knowledge regarding the use of antibiotics. This can trigger antibiotic resistance. The aim of this case study is to determine the distribution of antibiotic use in the poultry industry, and determine the pattern of antibiotic resistance that has occurred in the poultry industry. The method used in this case study was to provide questionnaires and conduct interviews with a number of poultry farmers, as well as testing antibiotic resistance in Escherichia coli bacteria which had been previously reported. The results of this case study show that there are 6 groups that are most frequently used by poultry farmers, namely Beta lactam (amoxicillin 68.5%), Peptide (colistin 60.3%), Potential Sulfonamide (trimethoprim sulfamethoxazole 42.5%), Tetracycline (oxytetracycline 30.14%), Quinolone (norfloxacin 19.2%), and aminoglycoside (spectinomycin 12.3%). The highest resistance is found in the AMP/S/E/TE/SXT pattern at 86/345, the AMP/S/E/SXT resistance pattern at 71/345. These results show the high level of antibiotic resistance which has led to multidrug resistance. The poultry industry is not doing well, this could be an early warning about the wise use of antibiotics, supervision and knowledge of the use of antibiotics as a treatment for infections must be improved.

Keywords: antibiotic using, antimicrobial resistance, multidrug resistance, poultry

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