January - March 2019

BULLETIN OF THE

PET PRACTITIONERS ASSOCIATION OF MUMBAI.

(For Circulation amongst PPAM Members)

Contents:

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The Secretary, PPAM.
Shop No. 1, Bramhandev CHS,
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Editorial

Antibiotics: Handle with care

All humans and animals have bacteria in their gut. When they are given antibiotics, many of these bacteria are killed, but the resistant ones may survive and multiply. This is why the responsible use of antibiotics is so important in both humans and animals. Antibiotics are an important tool to treat diseases caused by bacteria, but using antibiotics inappropriately can lead to the development of organisms that are resistant to the drugs commonly used to treat them. It is a specific type of drug resistance. Antimicrobial resistance is a growing problem and is a significant public health issue. An increasing number of organisms are developing resistance to many of the antimicrobial agents available for treatment of infections in both humans and animals. These resistant organisms often result in greater disease severity, longer hospitalization, and increased care and treatment costs.

These antibiotic-resistant organisms can spread between people, animals, food, and the environment. The more antibiotic-resistant germs there are, the harder it is to treat serious infections in people and animals.

Antibiotic resistance is the ability of a microorganism to withstand the effects of an antibiotic. Methicillin-resistant Staphylococcus aureus (MRSA) is the most frequently identified antimicrobial drug-resistant pathogen. If a bacterium carries several resistance genes, it is called multiresistant or, informally, a superbug.

Antibiotic resistance is of particular concern in developing nations, including India, where the burden of infectious disease is high and healthcare spending is low. India has among the highest bacterial disease burden in the world. Antibiotics, therefore, have a critical role in limiting morbidity and mortality in our country.

Over-use and misuse of antibiotics in animals and humans is contributing to the rising threat of antibiotic resistance. Some types of bacteria that cause serious infections in humans have already developed resistance to most or all of the available treatments, and there are very few promising options in the research pipeline. The new WHO recommendations aim to help preserve the effectiveness of antibiotics that are important for human medicine by reducing their unnecessary use in animals. In some countries, approximately 80% of total consumption of medically important antibiotics is in the animal sector, largely for growth promotion in healthy animals. Other factors contributing towards resistance

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include incorrect diagnosis, unnecessary prescriptions, improper use of antibiotics by patients, and the use of antibiotics as livestock food additives for growth promotion.

Overuse of broad-spectrum antibiotics, such as second- and third-generation cephalosporins, greatly hastens the development of methicillin resistance. Antibiotic resistance evolves naturally via natural selection through random mutation, but it could also be engineered by applying an evolutionary stress on a population. Once such a gene is generated, bacteria can then transfer the genetic information in a horizontal fashion (between individuals) by plasmid exchange. CA-MRSA (Community-acquired MRSA) has now emerged as an epidemic that is responsible for rapidly progressive, fatal diseases including necrotizing pneumonia and severe sepsis.

Antibiotic resistance is accelerated by the misuse and overuse of antibiotics, as well as poor infection prevention and control.WHO strongly recommends an overall reduction in the use of all classes of medically important antibiotics in food-producing animals, including complete restriction of these antibiotics for growth promotion and disease prevention without diagnosis. Healthy animals should only receive antibiotics to prevent disease if it has been diagnosed with a disease and in contact with other animals in the same flock.

Antibiotic resistance is rising to dangerously high levels in all parts of the world. New resistance mechanisms are emerging and spreading globally, threatening our ability to treat common infectious diseases. A growing list of infections are becoming harder, and sometimes impossible, to treat as antibiotics become less effective. Some of the factors that have led to this crisis include the over prescription of antibiotics, poor sanitation and hygiene practices in hospitals, and insufficient laboratory tests that can detect an infection quickly and accurately.

Globally, an estimated 50% of all antimicrobials serve veterinary purposes. Bacteria that inevitably develop antibiotic resistance in animals comprise food-borne pathogens, opportunistic pathogens and commensal bacteria. The same antibiotic resistance genes and gene transfer mechanisms can be found in the microflora of animals and humans. Direct contact, food, water link animal and human habitats. The accumulation of resistant bacteria by the use of antibiotics in agriculture and veterinary medicine and the spread of such bacteria via agriculture and direct contamination are documented.

Veterinarians have very important role to play in reducing the menace of Antibiotic resistance.

1. Steps can be taken at all levels of society to reduce the impact and limit the spread of resistance. Hospital and clinical waste and excretory products from patients need to be appropriately disposed.
2. Prevent infections by ensuring hands, instruments, and environment are clean.
3. Only prescribe antibiotics when they are needed, according to current guidelines.
4. Report antibiotic-resistant infections to professional groups/professional institution.
5. Talk to pet parents about how to administer antibiotics correctly, about antibiotic resistance and the dangers of misuse.
6. Talk to your pet-parents about preventing infections by vaccination, maintaining hygienic conditions and regular health check-up of pets.
7. Do not use antibiotics for growth promotion or to prevent diseases in healthy animals.
8. Vaccinate animals to reduce the need for antibiotics and limit use of higher antibiotics only to selected cases whenever possible at appropriate dosage.

WHO is also playing and important role in tackling antibiotic resistance.

a. The global action plan aims to ensure prevention and treatment of infectious diseases with safe and effective medicines.

b. To improve awareness and understanding of antimicrobial resistance.

c. To strengthen surveillance and research.

d. To reduce the incidence of infection.

e. To optimize the use of antimicrobial medicines.

To ensure sustainable investment in countering antimicrobial resistance.

Antibiotic resistance is putting the achievements of modern medicine at risk. Organ transplantations, chemotherapy and surgeries such as caesarean sections will become much more dangerous without effective antibiotics for the prevention and treatment of infections.

Scientific evidence demonstrates that overuse of antibiotics in animals can contribute to the emergence of antibiotic resistance. The volume of antibiotics used in animals is continuing to increase worldwide, driven by a growing demand for foods of animal origin, often produced through intensive animal husbandry. By the year 2050, some researchers predict that antibiotic resistance will cause 10 million human deaths every year, surpassing cancer as the leading cause of mortality worldwide.Using our antibiotics appropriately means we preserve them for future use to fight diseases. The main issue has been that antibiotics should always be handled in such a way that limits their potential for stimulating the development of resistant bacterial strains. They should be used as little as possible, but as much as necessary. Let's Pledge to use antibiotics appropriately.

Recent Advances in diagnostic procedure for endocrine disorders in dogs and cats

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Dr. Santosh H. Dalvi

INTRODUCTION

The purpose of this article to provide the veterinary physicians with the broader view to achieving a recent diagnostic procedure in the most commonly encounter endocrine disorders in dogs and cats. This will enable the practitioner to handle the routine cases with confidence. There are 5 most common endocrine disorders affecting dogs and cats of different age groups. The organs affected are adrenals, thyroid and endocrine pancreas. The disease state of these organs is generally brought about by very similar pathomechanism leading to hormone overproduction or underproduction. Most of the overproduction endocrine diseases are due to neoplasia, most commonly functional adenomas. So the presentation of this disorder is one of a chronic slowly progressing, breed and gender associateddisease in older patients. Hormone underproduction tends to be cause by immune associated process. These diseases tend to strike much younger patients. There is stronger genetically linked and also strong family, breed, gender and species predisposition. So, the presentation is one affecting middle-aged to older patients, with a reasonably rapid onset, progressive disease that has strong breed and gender associations and almost invariably has a few other "striking" abnormalities on routine laboratory profiles. Again, such clusters, when associated with a few "classical" clinical signs, greatly facilitate the choice and interpretation of diagnostic tests.

1. Hyperadrenocorticism (HAC) or Cushing's syndrome:

Pituitary induced bilateral adrenocortical hyperplasia also known as pituitary dependent Cushing's disease (PDH) accounts for 85% of all cases in dogs.It may be due to ACTH secreting adenomas or over secretion of corticotrophin releasing factor (CRF) by the hypothalamus. Adrenal tumours consist of either functional adenomas or adrenocarcinomas of adrenal cortex. This comprises 15% cases of all cases of spontaneous cases of Cushing syndrome in dogs. Endogenous Cushing's disease is commonly reported in Poodles, Dachshunds, and Terriers. The average reported age is 8 years, but can range 3-12 years. There is no particular sex predilection. About 85% of HACs are due to benignfunctional adenoma of the pituitary and neoplasia of one of the adrenal glands. Half of those are adenocarcinomas. Approximately 85% of cases are pituitary dependent HAC and15% of cases are adrenal dependent HAC. PDH is predominant in small breed dogs but their breeds may be affected but their prevalence is much lower. ADH in larger dog breeds more than 20kg dogs. The disease, though recognized in the cat, is rare but often concurrent with Diabetes Mellitus.

Clinical signs

It is slowly, progressively developing disorder. Major signalment includes, bilateral alopecia, pigmentation of skin, poor hair re-growth, Polyuria and Polydipsia, urinary "incontinence" in a "house-trained" pet.Appetite is usually good and even "very good". Cats are generally polyphagicwith weight loss.A dog shows lethargy and disinclination to exercise. Loss of muscle mass, "Obesity" with "pot-bellied" pendulous abdomen Nervous signs likecircling, ataxia, blindnessetc. in 8-13% dogs with PDH. Cushing's disease is also associated with hypercoagulable state in both dogs and human.

Cushing Syndrome

A. General Biochemistry and haematology profile:

Serum of the affected animals is often "lipemic". There will be hypercholesterolemia and/or hypertriglyceridemia. The serum non specific enzymes viz. ALT and ALP activity will increase. This elevated activity is generally seen in dogs and not in cats. Urinary tract infections are very common in this condition with urine specific gravity 1.007 to 1.013. As regards to haematology polycythemia, lymphopenia, eosinopenia with and/or mild/moderate thrombocytosis is reported in some cases. Sporadic marginal/mild hyperglycaemia and mild glycosuria may be observed in some cats.

B. Specific hormone assays:
Hormone assay can be done if clinical signs along with biochemistry and haematology reports as mentioned in A and B above are consistent. There are two important hormone assay tests can be done for the diagnosis and confirmation of Cushing's syndrome (Edward C. Feldman; 2009;Carmel T. Mooney, 2008)

1. ACTH stimulation test: To conductthis test first collect basal plasma cortisol sample and then inject corticotropin (5µg/kg) i.v. or i.m. route. After an hour later, take second (post stimulation) sample. Sensitivity 85-95% for PDH but 60% for ADH. Majority of HAC cases are PDH (Hans S. Kooistra, 2010)

Interpretation of the ACTH-stimulation test:
Typical pituitary induced Cushing's dog will hyper secrete cortisol to the level in excess of 170 microgram/dl following ACTH injection. A very low to minimal response may be due to prior glucocoticoids treatments or the presence of an adrenal tumour.

2. Low-dose dexamethasone suppression test (LDDST)
Inject 0.01mg/kg dexamethasone phosphate i.m.or i.v and collect blood sample 8 hours later for cortisol estimation. In the normal dogdexamethasone will suppress pituitary ACTH secretion by negative feedback inhibition and thereby suppress adrenocortical cortisol secretion. The test is 90-95% reliable for diagnosis of endogenous hypercorticism. Sensitivity for this test is about 85-100% but lower in PDH (up to 40% false negatives). Suppressed cortisol levels to <1µg /dl rule out endogenous Cushing's syndrome. No suppression indicates Cushing's, but doesn't differentiate adrenal tumour from pituitary induced adrenal hyperplasia.

Urine cortisol/creatinine ratio (UC/C ratio): To calculate the ratio Urine cortisol is measured by Radioimmunoassay (RIA), and urine Creatinine measured by Jaffe's Reaction. These values are expressed in µmol/L and all ratio values expressed as 10-6. Test results more than 10x10-6 suggest Cushing's syndrome and test results less than 10x10-6 rules out Cushing's syndrome. But the ratio will be high in virtually all dogs with polyuria and polydipsia and most dogs with other non adrenal diseases. So if we select our cases on the basis of classical clinical signs then this test become redundant.

3. Single basal Cortisol assay.
It estimation is generally not recommended. This is a waste of both your time and the client's money as cortisol is produced/released by the adrenal in a pulsed manner and thus, the basal level varies enormously.

2.Hypoadrenocorticism (Addison's disease)

This condition is rareas compared with Hyperadrenocorticism. Generally a disease of younger to middle-aged dogs (3-8 years) but can occur in older dogs. Females outnumber males strikingly (2:1).

A. Clinical Signs
The disease, though recognized in the cat, is relatively uncommon. The onset of the disease is relatively rapid and progressively developing, Dogs may show Anorexia, vomiting, diarrhoea. Weakness, depression, exercises intolerance. Stressful event may precipitate signs. Often "Addison's Crisis" such as severe weakness, bradycardia, arrhythmia and shock is reported.

B. General Biochemistry and haematology profile
Common biochemical changes observed during Addison's crisisare hyperkalemia, hyponatremia, hypercalcemia, hypoglycemiaalong with mild/moderate azotemia. Lymphocytosis along with eosinophilia also reported in majority of the cases.

C. Specific hormone assays
Hormone assay can be done if clinical signs along with biochemistry and haematology reports as mentioned in A and B above are consistent. ACTH-stimulation test which is discussed in Cushing syndrome above is the only diagnostic test and is very reliable.

3. Hyperthyroidism (The most common endocrinopathy of cats)

Hyperthyroidism is the most common feline endocrinopathy,affecting around 10% of older cats. It is generallycaused by benign changes (adenomatous hyperplasiaor follicular cell adenoma) to one (30%) or both(70%) thyroid glands, although a small percentage (1-3%) of affected cats are diagnosed with a malignantthyroid carcinoma (Elsa Edery 2017). Feline hyperthyroidism also called "thyrotoxicosis" is a well defined common clinical syndrome generally seen in older cats.Hyperthyroidism in cats caused by nodular hyperplasia or adenoma is clinically and histologically similar to toxic nodular goiter in humans. Subclinical hyperthyroidism in humans expresses low TSH in conjugation with within reference range thyroid hormones concentrations. Euthyroid old cats as defined by total thyroxine with low TSH are likely to have histological evidence of nodular thyroid disease and such cats could be consider subclinically hyperthyroid (Jenifer et al., 2007). In most cases, enlargement of thyroid glands is caused by a non-cancerous tumor called an adenoma. Some rare cases of hyperthyroid disease are caused by malignant tumors known as thyroid adenocarcinomas (Shiel RE & Mooney CT., 2007; Peterson ME & Ward CR., 2007).

A. Presentation and Clinical Signs
It is almost exclusively a disease of old and geriatric cats (above 8yr). Females seem to outnumber males. Gradual onset and progressive developmentof the condition. Major clinical signs include weight loss despite good appetite, hyperactive, hyper-excitable, tachycardia, hypertension, polyuria/polydipsia are prominent. In some cases enlargement or nodules of one or both thyroids (normal feline thyroids difficult to find) are noticed. Vomiting and Diarrhoea is not uncommon.

Hyperthyroid cat

B. General Biochemistry/haematological profile
Increased in serum enzyme viz. ALT and/or ALP is seen. Polycythemia, leukocytosis and thrombocytosis variably present in affected cats.Azotemia is common, but usually not severe.

C. Specific hormone tests
Feline hyperthyroidism is usually easily diagnosed by the demonstration of elevated total thyroxine (tT4) or free thyroxine (fT4) concentration. (Peterson ME et. al., 2001). Total Thyroxine (TT4) is the most reliable (91% sensitivity). Free T4 by Chemiluminescence (CLA) not better than Tt4. Total triiodothyronine (TT3) sensitivity approx 70% (not worth using). TSH concentration are not routinely used for the diagnosis of hyperthyroidism in cats due to lack of commercial available specific assay, But TSH concentration can be measured using Chemiluminicent (CLA) Canine TSH assay. This assay has been validated for use in cats (Wakeling J. et al., 2008).

D. Interpretation of hormone assays
TT4 in range 40-60nmol/L would need very convincing clinical signs. TT4 > 60 nmol/L usually diagnostic, but clinical signs should be reasonably consistent. Euthyroid (as definedby TT4) senior cats with low TSH are likely to have histological evidence of nodular thyroid disease and such cats could be considered to be subclinically hyperthyroid(Jenifer et al., 2007).

4. Hypothyroidism (the most common endocrinopathy of dogs)

Primary hypothyroidism occurs commonly in dogs and is usually associated with thyroidatrophy or lymphocytic thyroiditis. Autoimmune thyroiditis is an immune mediated disease that results in gradual destructions of thyroid gland leading to hypothyroidism (Grahum PA et al., 2007). In over 90% of dogs it is due to primary atrophy of theglands, either focal or more of the follicle (Benjamin et al, 1996). In 95 % cases there will be Immune destruction (lymphocytic and idiopathic) of the thyroid glands. Other forms are rare. Middle-aged to older dogs (4-10 year) are generally affected. A large range of breeds are affected. Mainly relatively large breedsLabradors, Spaniels, Poodles, Dobermans, Dachsies, Rotties. Rare in small and "toy" breeds.

A. Presentation and Clinical signs
Very few clinical signs until >75% of gland destroyed. Thereafter the condition is rapidly progressive. Lethargy, mental dullness, exercise intolerance, cold intolerance, weight gain. Dermatologic abnormalities are noted in more than 70% of affected dogs. Skin/haircoat abnormalities, dry coat, seborrhea, hyperpigmentation, pyoderma., alopecia especially bilaterally symmetrical and involving areas of friction with classical "rat tail" condition. Small proportion develops dermal myxoedema (tragic face) and even cardiac and CNS myxoedema (accumulation of intracellular mucin leading to non-pitting edema) leading to tragic facial look. Somecases inverted T-waves and bradycardia, weak pulse and reduced myocardial contractibility also reported (Panciera, 1994; Scott-Moncrief, 2007).

Golden Retriever with alopecia of the tail
Generalized alopecia with chronic hypothyroidism

Hypothyroidism, myxoedema (tragic face)

B. General Biochemistry/Haematological profile
Lipaemia and hypercholesterolemia and/or hypertriglyceridemia are very consistent (80% sensitivity). Mild normocytic, normochromic anaemia is reported. Sometimes increased serum ALP and/or CK activity is observed in some cases.

C. Specific hormone tests:

Thyroid Function Test:

Measurement of serum total thyroxine (Tt4) when clinical signs absent is not recommended because of limited specificity of the test. Many factors such as age, breed, body condition, reproductive stage exercise, non-thyroidal illness and drugs can affect the thyroid hormones concentration. Thyroid function test must be therefore interpreted in the light of clinical findings. T4 concentration is the hormone most frequently used for initial testing of thyroid function because it is widely available, relative inexpensive and results can be obtained quickly. It has high sensitivity (89-98 %) but the specificity is low. Serum concentration of fT4 is the most sensitive and specific single test for diagnosis of hypothyroidism. However, it is more costly, less available and to be done by equilibrium dialysis method (David Panaera, 2017). But T3 and T4 assay can also be done by Chemilluminicence assay (CLA) and Radioimmunoassy and it is as reliable as other methods of analysis. Canine-specific thyroid stimulating hormone (c-TSH) is a useful adjunct to TT4 to improve specificity.

Interpretation of hormone assays

Because non-thyroidal inflammatory diseases causes low TT4 by suppressing production, low serum TT4 is poorly specific for hypothyroidism. The combination of TT4 and canine specific c-TSH data allow a more reliable evaluation of a dog's thyroid status, as in the table, below, based on a few small studies (Ferguson, 2007).

TTT4 nmole/L l/L	TSH ng/ml	Classification
> 24.0	Immaterial	Not hypothyroid
12 to 24	= or <0.5	Euthyroid
12 to 24	>0.5	Suspected Hypothyroid
<12	>0.5	Hypothyroid

5. Diabetes Mellitus (DM)

Diabetes mellitus is now considered as one of the most common endocrinological disorders in dogs with estimated prevalence between 0.3-1.3% of the canine population (Sara Correndini & Federico Fracassi, 2017). Most of the dogs with DM diagnosed between the ages of 5-15 yrs with peak prevalence between 7-9yrs. In canines DM generally due to destruction of pancreatic β-cells by an autoimmune mediated mechanism but has multifactorial pathogenesis. The most common form of DM in dogs is type 1 and its onset is middle aged and older animals. Administration of diabetogenic drugs such as corticosteroids induces insulin resistance and promotes gluconeogenesis can be predispose to the development of DM. It has been demonstrated that the majority of diabetic cats (80 to 90%) suffer from diabetes mellitus (DM), similar to type II in humans. The clinical characteristics of diabetes mellitus type II are presented in obese, adult cats(Rios L& Ward C 2008). This diabetes is often transient or reversible. Obesity is a determinant factor in the pathophysiology of diabetes mellitus type II.

A. Clinical Signs

Polyuria and polydipsia, recurring urinary tract infections, polyphagia with weight loss, cataracts in dogs,Plantigrade stance in cats are common clinical signs exhibited by both the animals. Theicterus observed (possibly due to hepatic lipidosis) in some cats. Dogs presented with sudden onset of visual impairment due to development of diabetic cataract due to accumulation of sorbitol within the lens which draws water.Cats and dogs with diabetic ketoacidosis may show elevated blood glucose concentrations, azotemia, and decreased total CO2 secondary tometabolic acidosis, osmotic diuresis, dehydration, and, in the case of profound hyperosmolarity and coma (Ellen Behrend et. al., 2018)

Diabetes Mellitus in cat(Plantigrade stance)

Diabetic Cataract in dog

B. Diagnostic laboratory findings

There are no useful hormone tests for the diagnosis of Diabetes Mellitus for the General Practitioner. A single, one-off hyperglycaemia finding is very sensitive for Diabetes Mellitus but very poorly specific. DM is characterized by persistent fasting blood sugar more than 140mg/dl. Concurrentmarked/severe glycosuria leads to strong suspicion. Establishing the presence of ketonuria is important in managing the patient.In cats the glycosuria may have to be assessed at home and cases with repeated hyperglycaemia and glycosuria that do not have convincing clinical signs need serum fructosamine (reflects 2-3 week glycemia status in dogs and 1-2 week status in cats).

Monitoring dogs on treatment by blood and urine glucose works quite well. Monitoring cats often requires additional serum fructosamine assay due to non-diabetic glycemia. Lipaemia and associated hypercholesterolemia and hypertriglyceridemia are common findings.Increased serum enzymes ALP and ALT are reported in dogs. Surprisingly "high" urine SG due to glucose content is also observed.

HbA1c in dogs

Diabetes mellitus is common endocrinopathy in pet animals. The available insulin and technical ease of therapy provide the means of increasing the life expectancy of the affected animals. However frequent evaluation of glucose status is required and such testing involves many hurdles to the client and interpretative problem for the physician. A reliable means for monitoring long term control of glucose is to be sought. The method would eliminate confounding factors such as age, sex, diet, exercise, patient excitability etc. The measurement of glycosylated haemoglobin (HbA1c) levels in humans is used to indicate the degree of long term diabetic control. Using an available methods for humans values could be obtain for diabetic dogs. But the normal ranged established in dogs are broad and overlap considerably. So the test is not found to be value for dogs and cats (J.B. Delack and. Stogdale., 1993); The use of glycosylated hemoglobin levels for the assessment of long term control of DM in dogs and cats warrant further validation (Yu-Hsin Lien and Hui-Pi Huang, 2009)

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High lights of PPAM Meet the Industry-10 Event held on 16-December-2018.

Meet the industry event -10 was held on Sunday 16.12.2018 at Hotel Express Inn, Ghodbunder Road Junction, Thane.

Cricket match was followed by Seminar on Feline medicine by Dr. Afzal H Mohamed on Feline Lower Urinary Tract Disease. This was followed by Quiz, felicitations of Corporate personal. MAFSU rank holders Ms Adey KhushbooSuratsingh first in B.V.Sc & A.H, Shri Kalmegh Anup Nanasaheb second rank and Shri Sanat Sunil Bhadsavle third in B.V.Sc & A.H in Maharashtra. Release of PPAM Directory and PPAM Bulletin was also carried out. The evening programme consisted of visit to stalls, corporate interaction, fun games, lucky draw, prize distribution, DJ night, refreshments and dinner.


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MAFSU Toppers Felicitation (2017-2018)

Ms. Adey Khushboo Suratsingh
First Rank - B.V.Sc & A.H.

Mr. Kalmegh Anup Nanasaheb
Second Rank - B.V.Sc & A.H.

Mr. Sanat Sunil Bhadsavle
Third Rank - B.V.Sc & A.H.


High lights of Small Animal Clinical Oncology CE and PPAM Annual day event on 06.01.2019.

PPAM conducted a CE on Small Animal Clinical Oncology on 06.01.2019 by Dr. Nupur Desai, B.V.Sc & A.H, M.V.Sc (Surgery), Assistant Professor in Integrated Oncology at Ohio State University, College of Veterinary Medicine, USA.

She delivered a talk on 1. Clinical approach to patients with Cancer. Basics, Diagnostics and Staging. 2. Multicentric lymphoma 3. Mast Cell Tumour: Common pit falls and how to avoid them. At Hotel Mini Punjab, Lake Side, Powai, Mumbai.

This was followed by PPAM Annual Day Event.




Veterinary Practitioners Welfare Association (VPWA) Kartutva Gaurav Awards on 13 01.2019


High lights of FSAPAI meeting held on 24.03.2019.

FSAPAI AGM was held on 24.03.2019 at Hotel Grand Hyatt, Santa Cruz East.

The following was the state wise representation.

Sr. No	Association	State
1	SACA	Chandigarh
2	USAPA	MP/Chattisgarh
3	SAPA	Assam
4	PPAM	Maharashtra
5	SAVA	Delhi
6	PPAT	Telangana
7	PPAK	Karnataka
8	CAPAK	Kerala
9	SAPAC	Tamilnadu

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