



BULLETIN OF THE PET PRACTITIONERS ASSOCIATION OF MUMBAI.

(For Circulation amongst PPAM Members)

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Editorial

New Managing Committee New Challenges

On 21.08.2022 a new managing Committee for PPAM was formed. The team comprises of a diverse and talented team of experienced and young PPAM members.

Teamwork makes the dream work, but sometimes it can be a challenge. As PPAM MC members let us identify our strengths and weakness. Let us create a road map of our plans for the next three years. As a team if we work together in unity it will resonate with the wise words of Aristotle – “The whole is greater than the sum of its parts”, are particularly poignant when it comes to teamwork.

The strong team comes in all shapes and sizes but is united by a few key characteristics. As many in the PPAM managing committee are experienced and quite senior we must set an example for the rest of the team, motivating young and new team members, giving the team feedback on our interaction with PPAM members, and nurture a variety of skills that are being developed under the leadership of our young members.

Many of us in the PPAM committee operate in fast-paced work environments, where change is constant. It's hard to keep pace with work, let alone move our teams forward in the face of day-to-day difficulties. However, let us together create optimal conditions that help MC members and PPAM members be cohesive, nimble, and productive, despite the difficulties posed by pace and change. Experts believe that there are three coping mechanisms that organizations need to operate effectively: adaptability, resilience, and agility (ARA). These include authenticity, trust, flexibility, empowerment, and collaboration—characteristics that are essential for teams to successfully manage disruptive, fast-paced change.

Successful organizations don't avoid change; they simply create internal conditions, similar to the ARA values to triumph over change, repeatedly. When choosing PPAM members for a specific project can help us find the right balance of skills. MC members are aware of how to identify a challenge and provide a solution. The team will also need to devise methods to keep the morale and performance of PPAM members high. The team will need to build trust which can form both through professional performance and personal bonds. We as the MC team should understand that

personal or professional motivations should not overrule the best interests of PPAM. We need to have open communication with every PPAM member, knowing what to expect from each member. Managing committee members requires a fair and continued emphasis on collaborative work. We at MC must encourage all PPAM members to express their concerns and preferences while still making a final decision for PPAM. We are professional, wired to respect and love our professional brothers and sisters. The bottom line is that teams are comprised of humans and trust is a major factor in successful human interaction, but trust is not something that can be engineered or optimized, like processes or formulas. Trust is emotion-bound and earned over time. As MC members it is critical to developing strong connections with those around us—in the veterinary profession and beyond and also connection with PPAM members is the key. Let us develop a team that has strong internal links and will proactively share information with others well before the information is necessarily needed so that each team member can digest the information and plan accordingly. Let us never have a stagnated approach to communication which will always lead to panic and struggle among team members, not to mention finger-pointing when things fall apart.

For PPAM to be better we must with precision focus on the importance of connection to society (and how it's changing), the types of leaders we groom, and the nature of teamwork, we embrace. All of this impacts how our teams perform, and the success that we all achieve together. We all should strive to develop Interpersonal communication a process of communicating information, ideas, and feelings to each other. We at PPAM must have a sense of purpose behind each event, it is a deep understanding of the reasons behind our efforts and a desire to pour in time and energy because that purpose resonates with the impact we'd like to make. One of the challenges PPAM will face in the future is financing the events and CE programs so as MC members we must believe success is all about being willing to take risks.

As MC members let us invest in good people. A simple method to start is by investing in future PPAM leaders. How well a team communicates with one another can dictate whether a team succeeds in meeting its goals, or fails at the first hurdle. Let us all be a well-organized team that communicates effortlessly and never in an urgent, reactive manner.

Since there will never be more than 24 hours on any given day, mastering time management is a key to developing our MC team and leadership skills.

Let us Invest in the training and development of our PPAM members. We also need to come forward to carry out continuous mentorship of our young PPAM members.

Let the MC members lead by example. We cannot preach water and drink wine.

In today's modern competitive world, it is not enough to rest on our past laurels and wait for new developments to fall into our lap, we at PPAM need to plan and work hard.

We at PPAM need to be aware that we don't know everything. We at MC must also be comfortable in acknowledging that we do not have ready answers to all our professional problems, but we must have a spirit of openness, we can invite our founders and past MC members to provide input. We at the MC PPAM level must have a combination of direct access from members and willingness to accept feedback, which will require both leadership humility and confidence. We at PPAM MC not only need to handle the day-to-day needs of PPAM but also need to be aware of what's changing in the technology world, as well as how those

changes can help PPAM grow and develop.

In our members, we need to create a growth mindset and develop an appetite for continuous learning. As MC members let us inculcate three leadership attributes responsibility, an issue or problem and we take ownership for it, execution, which means being able to implement our ideas and pace, because particularly in the world of technology if we at PPAM don't move fast, we are going to get left behind.

We at MC PPAM need to remember that there is no elevator to success we all have to take the stairs. Talent in our members is our vehicle, passion is the fuel and potential is our destination. So let us all meet often, share ideas, views, and plans, and work hard for the next three years.



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New Managing Committee 1.04.2022 to 31.03.2025

Sr. No	Post	Name
1	Hon. President	Dr. Dhananjay Bapat
2	Hon. Secretary	Dr. Makarand Chavan
3	Hon. Joint Secretary	Dr. Anil Vade
4	Hon. Treasurer	Dr. Hitesh Swali
5	Hon. Joint Treasurer	Dr. Nihar Jayakar
6	Ordinary Managing Committee Members (4 posts from MMRDA Region)	Dr. Sangeeta Vengsarkar Shah, Dr. Vaibhav Pawar, Dr. Smita Tamhankar, Dr. Shantaram Gadge
7	Ordinary Managing Committee Members (2 posts for Non-MMRDA Region)	Dr. Milind Hatekar, Dr. Suhas Rane
8	PPAM Bulletin Editor	Dr. Shriniwas. V. Vishwasrao
9	PPAM Representative to FASAVA (1post)	Dr. Jairam Ramani
10	Head Scientific Committee	Dr. Sunita. K. Patel
11	PPAM Co Opted Members	Dr. Prabhakar Ukale, Dr. Parag Pawar, Dr. Amrita Deb, Dr. Jamshyd Cooper, Dr. Pradnya Pethe, Dr. Rashmi Gokhale, Dr. Milind Mhatre and Dr. Nishit Gokarn

PPAM Annual Report (2021-22)

Dr. Makarand Chavan
(Hon Secretary, PPAM)

1. PPAM CE on Feline Nutrition and Feline Breeds in India

Date : 10th October 2021

Venue : The Learning Galaxy , Lower Parel, Mumbai 400 013.

Speaker 1 : Dr. Dhananjay Pandit, Clinical Nutrition Expert

Topic : Think Like a Cat

Speaker 2 : Mr. Sudhakar Katikineni, Felinologist & Cat Judge

Topic : Feline Breeds in India and Breed Predisposition

It was attended by 36 participants.

This event was sponsored by Fredunvet and it was followed by PPAM AGM 2021.

2. PPAM Meet The Industry – 13 (Mi13)

Date : 19th December 2021

Venue : Hotel Express Inn, Thane, Maharashtra. The event opened with a Cricket Match between PPAM members and Industry Representatives.

It was followed by a Session on Radiology followed by quiz.

Speaker 1 : Dr. S. V. Vishwasrao, MVSc, PhD, Ex Ass. Professor of Dept of Surgery & Radiology, MVC, Mumbai.

Topic : How I Interpret-1-Interesting Clinical Radiograph

Speaker 2 : Dr. R. Jayaprakash, Director Of clinics, Retd (TANUVAS), Chennai, President – FSAPAI.

Topic : How I Interpret-2-Interesting Clinical Radiograph

The main sponsors presentation was given by Mr. Yogesh Khadke, Divisional - Head, Fredun and Mr. Fredun Medhora, Managing Director, Fredun.

The Guest of Honour : Dr. Ashish Paturkar (Honourable VC, MAFSU, Govt of Maharashtra).

The Chief Guest : Dr. Dhananjay Parkale. (Addl. Commissioner, Dept of Animal Husbandry, Govt Of Maharashtra).

The event felicitated UG toppers from Veterinary Colleges in Maharashtra, and special invitees from field and industry.

Dr. Sunita Patel, who was the PPAM President for nine years (2007-2016), received the PPAM Award 2021 for Most Valuable Contribution.

Attendees enjoyed the exhibits and the stall visits. The event completely mesmerised many and it was evident how happy the professionals were to meet their industry partners and friends again. It was attended by 66 companies and over 300 vets.

3. PPAM ANNUAL DAY

Date : 5th and 6th February 2022

Venue : Shri Ramkrushna Anandvan Krushi Paryatan Kendra, Ratnagiri. PPAM arranged this outing for PPAM members and their family members at this beautiful resort. This annual day was celebrated by 161 participants. Dr. Girish Bapat was the main coordinator for this successful event.

4. PPAM- KNPCVS - Shirwal (MAFSU) : OUTREACH EVENT

Date : 23rd June 2022

Venue : RKVY Hall, Faculty Block A, KNPCVS, Shirwal, Dist- Satara.

Speaker 1 : Dr. Adarsh Kumar, Professor, Vet. Surgery and Radiology, College of Veterinary Science - Palampur, Himachal Pradesh.

Topic : Recent Updates in Veterinary Diagnostic Imaging in Companion Animal Practise

Speaker 2 : Dr. Hariprasad Aithal, Prinicipal Scientist, IVRI, Pune.

Topic : Recent Updates and Challenges in Orthopaedics

Speaker 3 : Dr. Mukulesh Gatne, Ex Professor, Parasitology, MVC, Mumbai.

Topic : Management of CVBD, Indian Scenario

Chairman of Organising Committee : Prof. Dr. Vilas Aher, Associate Dean, KNPCVS, Shirwal.

Organising Secretary : Dr. Ajit Mali , Ass. Professor, ARGO, KNPCVS, Shirwal.

Event was attended by 150 participants including Faculty and Students of KNPCVC, Shirwal and Pet Practitioners.

5. PPAM SGM

Date : 20-3-2022

Venue : Hotel The Lalit, Andheri East, Mumbai 400 059.

Single Point Agenda - Budgetary Provision and Planning for FASAVA Congress 2023, Mumbai - Meeting ended after detail discussion which lead to approval of Jio Convention Center, BKC, Mumbai, as the venue of the event and it was unanimously decided to form a comprehensive organizing committee for the same. In case, if any change in venue is needed due to any reason, PPAM MC will take decision and inform all members, Event was attended by 37 PPAM members.

6. Virbac-PPAM Event

Date: 20th March 2022

Venue : Hotel The Lalit, Andheri East, Mumbai - 400 059.

Topic : ZOLETIL and its Surgical Application in small animal anaesthesia.

Chief Speaker : Dr. P. V. Parikh (Professor & HOD - Surgery & Radiology, College of Veterinary Science & Animal Husbandry, Anand.

Distinguished Panel Speakers : Dr. L. D. Pawar, Dr. Vikram Dave, Dr. Makarand Chousalkar with Dr. Barry Kalsi & Dr. Shivangi Pai, Dr. Nihar Jayakar.

This event was attended by 65 Participants.

7. WIGGLES - PPAM Event - Joining Hands – Panel Discussion

Date : 26th March 2022

Venue : Peninsula Grand , Andheri, Mumbai - 400 059.

Speaker 1 : Dr. Rajiv Gaikwad, Professor and HOD, Dept of Medicine, MVC, Mumbai.

Topic : Epilepsy and Levetiracetam

Speaker 2 : Dr. Chandrakant Galdhar, Asst. Professor, Dept. of Medicine, MVC, Mumbai.

Topic : Use of Doramectin

This event was attended by 91 Participants.

8. April 2022 - Penn State University in collaboration with PPAM conducted an online survey study to ascertain the knowledge, attitudes, and practices of small animal practitioners on antimicrobial use and resistance in Mumbai.

These findings would be helpful in developing antimicrobial stewardship programs and educational training on judicious antimicrobial use. Many PPAM Members participated in this online study-survey. Dr. Bhushan M. Jayarao, MVSc, PhD, MPH, Director, Animal Diagnostic Laboratory, Pennstate Univeristy, USA was chief coordinator for this valuable initiative.

9. PPAM Hands on Training program on "Gaseous anaesthesia in Rabbits, Rodents and Birds".

Date : Saturday, 28th May 2022

Venue : Hotel Karl Residency, Mumbai, 400 058.

Course Teachers : Dr. Nihar Jayakar (MVSc), Dr. Shiwani Tandel, MVSc, M.Vet.Sci. (Cons Med). This event was sponsored by SAVAVET and co-sponsored by Virbac. This event was attended by 25 participants.

10. PPAM - Hands on Training program on "Gaseous anaesthesia in Dogs".

Date : 29th May 2022

Venue: Hotel Karl Residency, Andheri W, Mumbai - 400 058.

Course Teachers : Dr. Makarand Chousalkar (MVSc), Dr. Dipti Walawalkar (MVsc), Dr. Deepti Deshpande (Bvsc & AH, MVS).

This event was sponsored by SAVAVET and co sponsored by Virbac. This event was attended by 40 participants.

11. Royal Canin - PPAM Event

Date : 12th June 2022

Venue : Hotel The Lalit, Andheri East, Mumbai.

Speaker : Dr. Ronnie Kaufman, HOD , Dermatology, Hebrew College of Jerusalem, Israel.

Topic : Diagnostic Approach and Management of An Itchy Pet

This event was attended by 159 participants.

Defending Allopathy

Dr. Sangeeta Vengsarkar Shah



I gave the prescription to Rogers guardian and started explaining the doses when she said suspiciously.... "I hope there are no steroids in this".... As it happened- there were no steroids for Roger, but variations of this scenario play out almost daily in most veterinarian's clinics. And we then need to give explanations of why steroids / antibiotics / whatever else they are suspicious about - are needed.

I am beginning to lose patience with these new age educated class who read 'informative articles'..... Not Surprisingly written by practitioners of alternative therapies. I have nothing against alternative medicine. If you feel it works, by all means, use it. But for heavens sake, give credit where it's due. All the age-old therapies- be it Ayurveda, homeopathy, faith healing, reiki have been around for thousands of years. What was the expected life span of people then? In our great grand-parents time, people died rampantly of infections, cancer, autoimmune diseases- the average life expectancy was about 55-60 years at most. It is only after the discovery of antibiotics, steroids and chemotherapeutic drugs that people's life span increased. With every generation- life expectancy has increased due to advances in medical science, and we now expect to live into our eighties.

Science should be moving us forward, bringing about a better understanding of how phenomena work. Unfortunately pseudo-scientists introduce mysticism and magical thinking into the mix, which is very attractive to many New Age healers because it supports their spiritual leanings. They dress up their healing methods in scientific sounding jargon about energies, quantum physics, activated molecules of water or whatever catches their fancy. However, such thinking does not advance science; it takes it back to an earlier time, a time when the world was dominated by magical powers, a time when people died young.

It does little to advance our understanding of medicine and it will continue to fail to convince the scientific community at large, which has a higher standard of evidence.

Allopathic Medicine is a system of rigorous testing, evidence collection, statistical analysis and controls, to ensure that a treatment is effective when recommended to patients. If it works and it is strongly corroborated, we call it allopathy – whether the source is molecules derived from plant extracts or synthetic molecules, and it is available to professionally-trained medical doctors to use or prescribe for their patients. Allopathy is nothing but a system of healing that is backed by science. It includes several active ingredients derived from plants. e.g. One of the most common medicines used for heart failure is digoxin, extracted from a plant called Foxglove. Similarly, Vincristine, a medicine used to treat certain types of cancers is extracted from the Vinca plant. Both these medicines have uses and side effects. It is silly to presume that anything natural is safe, and anything synthetic is toxic. Some of the most deadly poisons known to man are derived from plants- remember Hemlock? There is a long list of plant poisons, just as there is a long list of safe and useful chemicals. The point is to understand what works and what doesn't - what really acts, and what is a placebo in self limiting illnesses.

Alternative medicine is simply that – alternative to medicine. It is not rigorously tested, double-blind controlled or statistically analysed. It is built on belief without true empirical evidence.

Actually no one should have to defend allopathic medicine. The evidence is there for all to see. It is an open and honest science. Every side effect is documented as rigorously as the benefits. Most allopathic medicines have benefits that far outweigh any side effects.

Antibiotics have helped millions of people with deadly infections. Steroids have helped patients with crippling autoimmune disease, amongst other things. Chemotherapy has healed millions of cancer patients. For every patient who has been healed with faith healing, there are thousands who have been cured with allopathy.

Haematological Interpretations

Dr. P. R. Vinod Kumar

BVSc & AH, PG (Dip) SAM Director,
Malabar Pet Clinic, Kozhikode, Kerala



Introduction

A complete blood count (CBC) is a useful and very often-used method of screening and diagnosing patients who present for a wide variety of conditions. It may include both quantitative information about cell numbers, sizes, variability, etc. as well as descriptive information based on evaluation of a blood smear and description of any morphologic abnormalities or infectious agents present. A CBC is probably the most useful when both types of information are reviewed.

RBC in dogs

The main function of red blood cells (also called erythrocytes) is to carry oxygen to the tissues, where it is required for cellular metabolism. Oxygen molecules attach themselves to carrier molecules, called hemoglobin, which are the iron-containing proteins in red blood cells that give the cells their red color. Oxygen is carried from the lungs and delivered to all body tissues by the hemoglobin within red blood cells. Oxygen is used by cells to produce energy that the body needs. Carbon dioxide is left behind as a waste product during this process. The red blood cells then carry that carbon dioxide away from the tissues and back to the lungs, where it is exhaled. When the number of red blood cells is too low, this is called anemia. Having too few red blood cells means the blood carries less oxygen, resulting in fatigue and weakness. When the number of red blood cells is too high, which is called polycythemia, blood can become too thick, impairing the ability of the heart to deliver oxygen throughout the body. An animal's metabolism is geared to protect both the red blood cells and the hemoglobin from damage. Interference with the formation or release of hemoglobin, the production or survival of red blood cells, or their metabolism causes disease.

The total number of red cells, and thus the oxygen-carrying capacity, remains constant over time in healthy animals. Mature red blood cells have a limited life span; their production and destruction must be carefully balanced, or disease develops.

Production of red blood cells begins with stem cells in the bone marrow and ends with the release of mature red blood cells into the body's circulation. Within the bone marrow, all blood cells begin from a single cell

type called a stem cell. The stem cell divides to form immature forms of red blood cells, white blood cells, or a platelet-producing cell. Those immature cells then divide again, mature even more, and ultimately become red blood cells, white blood cells, or platelets.

The rate of blood cell production is determined by the body's needs. Erythropoietin, a hormone produced by the kidneys, stimulates development of red blood cells in the bone marrow. Erythropoietin increases if the body lacks oxygen (a condition called hypoxia). In most species, the kidney is both the sensor organ that determines how much oxygen the body's tissues are receiving and the major site of erythropoietin production; so chronic kidney failure leads to anemia. Erythropoietin plays a major role in determining whether to increase the number of stem cells entering red blood cell production, to shorten maturation time of the red blood cells, or to cause early release of red blood cells. Other factors that affect red blood cell production are the supply of nutrients (such as iron and vitamins) and cell-cell interactions between compounds that aid in their production. Some disorders are the direct result of abnormal red blood cell metabolism. For example, an inherited enzyme deficiency reduces the life span of red blood cells and a condition known as hemolytic anemia.

It is important to remember that a decrease in the total number of red blood cells in the body (anemia) is a sign of disease, not a specific diagnosis. Anemia may be caused by blood loss, destruction of red blood cells (hemolysis), or decreased production. In severe blood loss anemia, red blood cells are lost, but death usually results from the loss of total blood volume, rather than from the lack of oxygen caused by loss of red blood cells. Hemolysis may be caused by toxins, infections, abnormalities present at birth, drugs, or antibodies that attack the red blood cells. In dogs the most common cause of serious hemolysis is an antibody directed against that dog's own red blood cells (immune-mediated hemolytic anemia).

Factors that may prevent red blood cell production include bone marrow failure or malignancy, loss of

erythropoietin secondary to kidney failure, certain drugs or toxins, long-term debilitating diseases, or antibodies targeted at developing red blood cells. The outlook and treatment depend on the underlying cause of the anemia.

WBC in Dogs

The function of white blood cells (also called leukocytes) is to defend the body against infection. There are 2 main types of white blood cells formed in the bone marrow: phagocytes and lymphocytes.

Neutrophils / Phagocytes

Phagocytes (from the Greek word meaning "to eat") are cells in the bloodstream and tissues that surround and consume foreign particles, cell waste material, and bacteria. Their main function is to defend against invading microorganisms by engulfing and destroying them. There are 2 types of phagocytes: granulocytes and mononuclear phagocytes.

Granulocytes protect against bacteria, fungi, and parasites. Some types of granulocytes are involved in allergic reactions. Neutrophils are the most numerous of the white blood cells and are the first line of defense against bacterial invasion. Eosinophils and basophils are involved both in protection against some parasites and in the response to allergy. Mononuclear phagocytes have a single nucleus. They travel from the blood to tissues where they become large cells called macrophages that consume foreign particles and cell debris.

As with red blood cells, the production and number of phagocytes are tightly regulated by chemical messengers of the blood, including interleukins (chemicals found in white blood cells that stimulate them to fight infection). Unlike the red blood cells, which remain circulating in the blood, the phagocytes use the blood's circulatory system as a pathway to the tissues. Because of this, the number of phagocytes in the blood can provide an indication of circumstances in the tissues and the function of the bone marrow. For example, the number of neutrophils increases when inflammation is present anywhere in the body. An abnormal response, such as a low number of circulating white blood cells due to marrow failure, infections, drugs, or toxins, can lower resistance to bacterial infections. Finally, those elements that produce phagocytes may become cancerous, resulting in a disease called myelogenous leukemia.

Lymphocytes

Lymphocytes are white blood cells that recognize

"non-self" antigens, such as infectious organisms, foreign tissue, and cancer cells. Lymphocyte production in mammals begins in the bone marrow. Lymphocytes then become T cells, B cells, or natural killer cells. Lymphocytes destined to protect cells from disease travel to the thymus (an organ located at the base of the neck) where they become T cells under the influence of hormones there. T cells are responsible for a variety of functions, especially fighting off viral infections and cancers. Most T cells remain in the circulation, but some are also present in the spleen and lymph nodes. The B cells are responsible for producing antibodies that coat invading organisms or foreign substances, marking them for elimination by the immune system. For example, bacteria coated with antibody are more easily recognized and removed by neutrophils or macrophages. Natural killer cells and some types of T cells ("cytotoxic" T cells) destroy foreign material, whereas antibodies and other T cells ("helper" T cells) stimulate other components of the immune system to do so. If lymphocytes are reduced or abnormal, the dog is immunodeficient and susceptible to a wide range of infections.

Antibody molecules are called immunoglobulins. They fall into several classes, each of which has a different function. For example, one class (IgA) is commonly found in the lungs and intestines; another (IgM) is the first antibody produced in response to newly recognized foreign microorganisms; a third (IgG) is the main antibody in the bloodstream; and a fourth (IgE) is involved in allergic reactions.

Lymphocytes usually act appropriately to rid the body of foreign "invaders" that cause disease. However, sometimes lymphocytes do not react appropriately. One inappropriate response occurs when antibodies are produced against the body's own cells, such as red blood cells. Another inappropriate response of the immune system is allergy. When antibody-primed cells are exposed to an allergen, the allergic reaction may be mild (hives) or life-threatening (anaphylaxis).

An increase in the number of lymphocytes in the bloodstream occurs in some species as a response to the secretion of epinephrine (a hormone also known as adrenaline). A reduction in the number of circulating lymphocytes may be caused by hormones that may also be secreted in times of stress. Unusual lymphocytes may be seen in the blood in response to antigenic stimulation, such as vaccination.

Malignant tumors originating in a lymph node (lymphoma) or lymphoid leukemia can also occur.

Thrombocytes

Platelets are small, cell-like particles produced in the bone marrow and then released into the blood. They function to start the formation of blood clots. Platelets gather where bleeding occurs and clump together to form the initial plug that stops or slows the flow of blood. Platelets also release substances that are needed to complete the clotting process.

Platelet disorders can result from having too few or too many platelets or from impaired platelet function. In general, when platelet counts fall very low there is an increased risk of bleeding. Decreases in platelets may be caused by anti-platelet antibodies, drugs, toxins, or disorders of the bone marrow. Conditions that consume a large number of platelets (such as massive bleeding or severe clotting disorders) can also deplete platelet numbers. Finally, large numbers of platelets can become trapped in an enlarged spleen, decreasing the number of platelets in the blood.

An abnormal increase in the number of platelets is rare and often the cause is not known. It may be associated with bone marrow disease or with long-term blood loss and iron deficiency.

There are also disorders in which platelets do not function properly. Von Willebrand disease is one example. Other hereditary disorders of platelet function have been described but are rare. Probably the most common platelet function defect in animals is a side effect of aspirin.

Classification by RBC indices

The other way to classify anemia is to use red blood cell indices. These are generated by essentially all hematology analyzers and are commonly provided by commercial laboratories. The most valuable of these indices are the mean corpuscular volume (MCV) and mean corpuscular hemoglobin concentration (MCHC).

Anemia can be microcytic, normocytic, or macrocytic, depending on whether the RBC MCV is less than, within, or greater than the reference values. Anemia can be hypochromic or normochromic, depending on whether the MCHC is less than, or within the reference values. Hyperchromia doesn't really occur, but the MCHC may be higher than the reference range as a result of artifact (hemolysis or administration of cell-free hemoglobin-based blood substitute).

As a general rule, regenerative anemia due to hemorrhage or hemolysis will be macrocytic,

hypochromic anemia. The stronger the regenerative response, the higher the MCV will typically be. Anemia that are microcytic and hypochromic are most often due to iron deficiency.

Another index that is provided by automated hematology analyzers is the red cell distribution width (RDW). This is basically a quantitative (rather than qualitative) measurement of anisocytosis. It is a coefficient of variation of the erythrocyte volume. It is expected to be higher in cases of regenerative anemia, where younger (and therefore larger) cells are present. It may give a better idea of the variation in cell size than the MCV, which is an average cell volume. The RDW may also be increased in iron-deficiency anemia where there are smaller than normal cells, and when there are lots of fragmented cells. It is usually normal in non-regenerative anemia.

HCT / PCV

A decreased PCV generally means red blood cell loss from any variety of reasons like cell destruction, blood loss, and failure of bone marrow production. An increased PCV generally means dehydration or an abnormal increase in red blood cell production. TS is a measurement of plasma proteins.

Neutrophilic responses in different animal species

A phenomenon quite common among animals is known as a stress leukogram. This condition can occur when the animal is nervous, excited or scared. It is also known as the epinephrine mediated response. Within short time, the WBC population can shift dramatically and alter many parameters of the CBC analysis. As the NEU response might differ between species, the stress leukogram as well as inflammatory responses can look different in various animals. Inflammation leukogram together with toxic neutrophils usually indicates a more severe inflammation.

1. Dogs

In general, both infections and stress tend to increase the NEU counts in dogs (typically to $10-30 \times 10^9 / L$). A significant left shift of about $1 \times 10^9 / L$ band NEU is often seen in inflammation. It is possible to categorize the left shift as regenerative or degenerative based on the total WBC count where a value above normal total WBC indicates regenerative left shift and below WBC normal indicates a degenerative left shift. Dogs generally do not give "stress leukograms", meaning that the blood status is not usually affected. However, if it happens, all different cell types (WBC, LYM, EOS,

MON, NEU) tend to increase and be on the high end.

2. Cats

Unlike dogs, cats tend to often give “stress leukograms”. This is usually shown by high LYM values (lymphocytosis) when it is induced by excitement. When stress is involved, it usually is indicated by a neutrophilia (high NEU) without a left

shift and, in some cases, also by low EOS values (eosinopenia) and low LYM values (lymphopenia). An inflammatory leukogram in cats is associated with WBC of $25-40 \times 10^9 /L$, where more than $1 \times 10^9 /L$ of band neutrophils signifies a substantial left shift. The inflammation is either regenerative or degenerative depending on the WBC count, if above normal indicating regenerative and normal or below indicating degenerative.

Practical and Safe Whole Blood Transfusion in Dogs and Cats

Dr. Shailesh G. Pethe

B.V.Sc & A.H, M.V.Sc (Medicine).

Deputy Commissioner, Quality Control, Aarey colony, Goregaon, Mumbai.



Blood transfusion is defined as the intravenous transfusion of blood or its components. Historically, blood transfusion has always been transfusion of whole blood. However, after the advancements in component therapy of blood, such as pRBC's, frozen plasma and platelet rich plasma. Although blood transfusions may be life-saving, they are not a definitive treatment for disease but play a critical role in patients with acute blood loss, improving oxygenation capacity and the patients' ability to overcome the underlying diseases. Blood transfusions are indicated for the management of anemia, coagulopathy, and, rarely, for other conditions such as thrombocytopenia, thrombopathia, and hypoproteinemia.

based on the antigen they possess.

• Cross matching

◆ Cross-matching reveals the serological compatibility or incompatibility between donor and recipient.

◆ Blood typing tests reveal the blood group antigens on the red blood cell surface.

◆ Cross matching, tests for the presence or absence of naturally and induced antibodies, does not replace blood typing.

Selection of Donor

Thorough clinical examinations and a thorough donor history should be obtained; haematology (complete blood count) and biochemistry (urea, creatinine, total protein/albumin /globulin, ALT, ALP, blood glucose, Na, K, Cl) should be confirmed to be normal.

Dogs

1. Screened for general health and for endemic and infectious diseases such as heartworm infection, tick-borne diseases (Ehrlichia canis, Babesia, Borrelia burgdorferi, Rickettsia rickettsii)
2. Adult (2-8 years), healthy (neutered male or spayed female are preferred),
3. Weighing more than 30 kg, with a PCV 40% for dogs and or more,
4. Fully vaccinated

When to Transfuse

Packed Cell Volume (PCV) < 15%
Haemoglobin < 5 gm/dL of blood.

Definitive Markers

Clinical signs of anemia include tachycardia, tachypnea, lethargy, weakness, respiratory distress, pale or discolored mucous membranes, and prolonged capillary refill time.

Availability of Donor and Blood Groups

- Canine blood groups are classified by the DEA system.
- DEA 1.1 and 1.2 are the most important blood groups and are found in 60% of the population of canines
- Feline have three main blood groups A, B and AB

Cats

1. Weight (>4 kg) and non-obese, have a calm disposition
2. Between the ages of 2 and 8 years (preferably 3 to 5 years).
3. Healthy (indoor, fully vaccinated cats are preferred) and clinically sound.
4. The donor cat should be checked for blood borne infectious illness-esp (FeLV, FIV, Bartonella screening).

Blood collection

- The maximal blood volume to be donated is 20 ml blood/kg or one regular blood bag unit of 450 ± 45 ml per ≥ 25 kg dog.
- 20% of estimated blood volume can be safely donated.
- Estimated blood volume (litres) = $0.08-0.09 \times$ Body weight (kg)
- Standard Blood collection bags capacity is 100, 350, 450ml. It contains CPDA solution.
- Heparin 5 U per mL of blood is adequate. However it potentiates the activity of anti-thrombin, resulting in the inactivation of thrombin and hence has to be used judiciously.

Dosage and volume of blood administered

- Blood required to raise PCV by 1% is 2.2 ml when assumed anticoagulated donor PCV 40% for dog and 30% for cats.
- As a general rule, 2ml/kg of whole blood will raise the PCV by 1 percentage point or Hb level by 0.3g/dL

Amount of donor whole blood =

$\text{Body wt} \times \text{RV} (\text{dog } 90 \text{ ml or cat } 66 \text{ ml}) \times$
(Desired PCV-PCV of recipient)

PCV of Donor

Blood administration to recipient

- The preferred route of transfusion is slow intravenous, but sometimes intra intramedullary (or intraosseous) infusion at the trochanteric fossa
- The initial infusion rate should be approximately 0.25 ml/kg for the first 30 minutes, after which the rate can be increased if no reactions are seen. The entire volume should be administered within 4 hours to prevent functional loss or bacterial growth.
- JMS Transfusion IV set 20 drops = 1ml

Monitoring transfusion

- The rate of transfusion is dependent on the recipient's cardiovascular status, hydration status, degree of anemia, comorbidities, and general condition.
- The transfusion should be given more slowly (i.e., 4 ml/kg/hr) in animals with cardiac illness, and close monitoring is essential.
- The transfusion should be monitored using the standard transfusion record form. The parameters like attitude, pulse rate and quality, rectal temperature, respiration rate, and pattern and colour of the mucous membrane, and urine.
- Adverse reactions to the transfusion
Adverse reactions usually occur during or shortly after the transfusion and can be caused by any component of the infused blood. Fever, vomiting and hemolysis;
- Transfusion reactions
—immunologic or non-immunologic
—acute or delayed.

Treatment of a suspected transfusion reaction

1. Stop the transfusion
2. Diphenhydramine, glucocorticoids, epinephrine, Isotonic fluid administration is most commonly used to treat these reactions.

Appeal to PPAM Members to Renew Membership

1. Renewal of Annual Membership

Rs. 1500.00 + GST (Rs. 270.00) = Total Rs. 1770.00

2. New Membership

Rs. 1750.00 + GST (Rs. 315.00) = Rs. 2065.00

3. Life Membership

Rs. 17500.00 (No GST)

Bank Details: Indian Bank; A/c name - Pet practioners association, Branch- Santacruz (w).

A/c no. 744946564, IFSC: IDIB000S010

(As soon as payment transfer is made please send a message to Treasurer Dr. Anil Vade on 9820016420. Please also mention your complete name, date of payment and transaction id)

Highlights: PPAM CE and AGM

on Sunday 21.08.2022 at Jio World Convention Centre, BKC, Bandra (E), Mumbai.



PET PRACTITIONERS ASSOCIATION OF MUMBAI
Reg No: PFR NO-21562-Mumbai

21-08-2022

Dear PPAM Members
PPAM will have CE on Sunday, 21-08-2022 at Jio World Convention Centre, BKC, Bandra (E), Mumbai - 98 (Entry for Vehicles from Gate no -20) Venue : Meeting room 204 A&B
This event is free for all PPAM members

SCHEDULE 9:00am to 9:30am- Breakfast and Registration

9:30am to 10:30am
Speaker - Dr Shalish C Partho, BVSc & AH, MVSc (Medicine)
Deputy Commissioner, Quality Control, Aurore Colony,
Corogation, Additional Charge: Assistant Commissioner (Wildlife) SCNP, Mumbai
Topic 1- Blood Transfusion in Small Animal Practice

10:30am to 11:00am
Speaker - Dr Nikin Chavan, BVSc & AH, MVSc(LPM)
Livestock Development Officer, Govt Of Maharashtra
**Topic 2- Procedure for Registration of pet shop and breeding
license under PCA act 1960**

Tax Break 11:00am to 11:15am

11:15am to 11:30am
Sponsors Presentation

11:30am to 1:00pm
Speaker - Dr P R Vinod Kumar, BVSc & AH, PG (Dip)
Small Animal Medicine, Director, Malabar Pet Clinic, Kochikode, Kerala
Topic 3 - Clinical Interpretations of Blood Reports in Small Animal Practice

1:00pm to 2:00pm
Lunch Break Followed by PPAM AGM 2022 (2:00pm onwards)

RSVP - On or Before 18.08.2022 to PPAM MC Members -
Dr Smita Tamhankar (98208 76218) or Dr Parag Pawar (9323560250)

Regards
PPAM Managing Committee
reachppam@gmail.com



Photos cont'd... from page no. 17

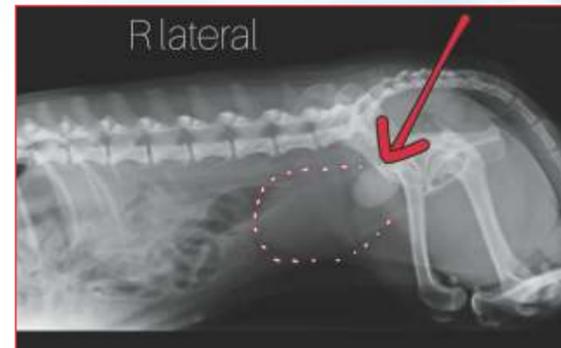
Lumpy Skin Disease Health Camp



Unilateral Nephrectomy of Polycystic Kidney in a 7-year-old Female Shih Tzu

Top Dog Surgery Team: Dr. Barry Kalsy, Dr. Shivangi Pai, Dr. Akshata Gulvady

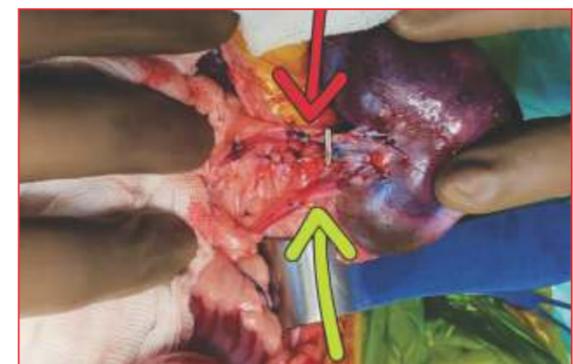
A 7y old Female Spayed Shih Tzu presented with chronic stranguria. She was previously diagnosed with a urolith and a polycystic L kidney with loss of normal architecture. Routine blood checks and abdominal USG confirmed the same. She was operated on for Unilateral Nephrectomy and Cystotomy. The patient had an uneventful recovery with post-operative renal values within normal limits.



Pre-operative radiograph showing outline of UB and urolith



USG showing loss of architecture of L kidney



Ligated renal vessels (red arrow) and intact ureter (green arrow)



Left kidney

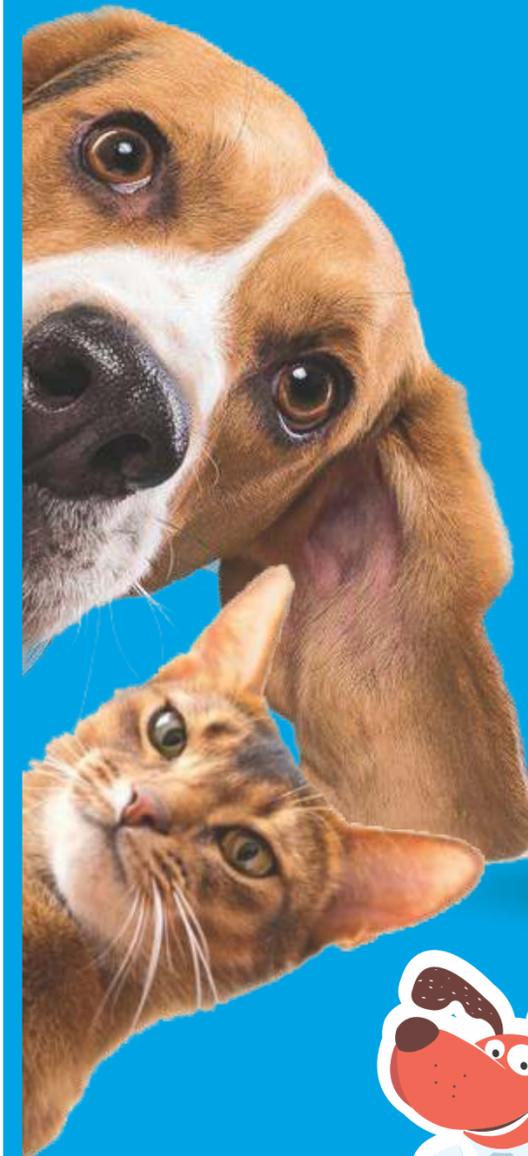


Kidney removed along with ureter (just proximal to its entry in UB)



Cross section of L kidney

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- Soothes & Relieves
- Instantly Soothes Skin
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- Healthy & Glossy Coat
- Protects & heals Skin

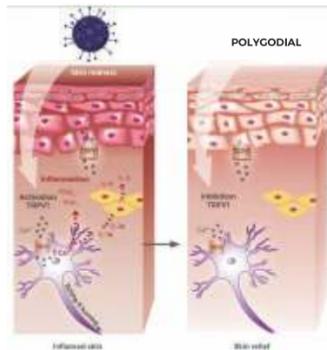
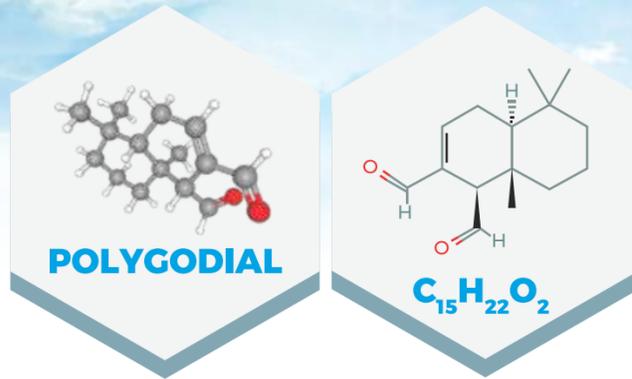


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TazSoothe
Topical Anti-Inflammatory



Clinical Benefits

- Itch Relief
- Reduces Skin Erythema
- Soothes inflammation in canines with sensitive skin

Pharmacological Mechanism of Action of Polygodial

Transient Potential Vanilloid Receptor 1 (TRPV1) is an ion channel found on keratinocytes and sensory neurons. This receptor gets activated by microbial pathogens and allergens, leading to the release of serial pro-inflammatory cytokines including IL-1 α and PGE2. Polygodial blocks TRPV1 and acts as an antagonist by inhibiting this inflammatory pathway, which results in the reduction and control of clinical dermatological symptoms.

Indications for Use of TazSoothe

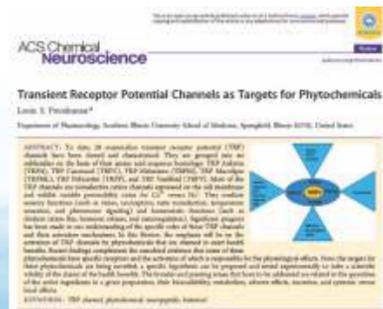
Topical application in dermatological conditions that cause inflammation and pruritis in Dogs. Safe for long term use Atopic Dermatitis. A clinical diagnosis of the cause of itch made by the veterinarian is essential for the appropriate indication and prescription of this remedy.

Topical Therapy Prescription of TazSoothe

TazSoothe Itch Relief Shampoo: Twice a week shampooing for first 3 weeks followed by once a week.

TazSoothe Itch Relief Spray: Twice a Day for 3 weeks on non-bath days. Safe for long term use in Atopic Dermatitis.

Supporting Scientific Studies



Lumpy Skin Disease Health Camp

PPAM, Animal Husbandry Department and
Bombay Veterinary College Retired Teachers Group.

PPAM in Association with the Animal Husbandry Department and Retired Teachers group of Bombay Veterinary College carried out a two-day day health camp against Lumpy Skin Disease on 25.09.2022 at Sakharawadi, and on 26.09.22at Jinti Village, Tal. Phalatan, Dist. Satara. The team consisted of Dr. Suhas Rane, Dr. C. C. Wakankar, Dr. Birajdar and Dr. Ukale. Special Thanks to Ex Professor Dr. Daya Suryavanshi, Omega LAB Lonand for testing LSD Sample, Dr. Mali, Along with our team, local team including DD Satara Dr. Parihar, DAHO Dr. Shinde, Dr. Pawar, Dr. Falake, Dr. Sachin, Dr. Morakane, Dr. Bagawan, LSS Mane and Ranavare.

Lumpy Skin Disease is a viral disease in cattle (mostly cows and oxen). It is a vector-borne pox disease and is characterized by the appearance of skin nodules. Large-scale vaccination is the most effective way of limiting the spread of the disease. The principal vector is likely to vary between geographical regions and ecosystems. The common stable fly (*Stomoxys calcitrans*), the *Aedes aegypti* mosquito, and some tick species of the *Rhipicephalus* and *Amblyomma* spp, have demonstrated ability to spread the disease.

The incubation period in naturally infected animals may be up to five weeks. Clinical signs include lachrymation and nasal discharge – usually observed first. Subscapular and pre-femoral lymph nodes become enlarged and are easily palpable. High fever (>40.50C) may persist for approximately a week. Sharp drop in milk yield. Appearance of highly characteristic, nodular skin lesions of 10-50 mm in diameter.

Sometimes, painful ulcerative lesions develop in the cornea of one or both eyes, leading to blindness in the worst cases. Skin lesions in the legs and on top of the joints may lead to deep subcutaneous infections complicated by secondary bacterial infections and lameness. Pneumonia caused by the virus itself or secondary bacterial infections, and mastitis are common complications. Subclinical infections are common in the field. In a post-mortem examination, pox lesions can be found throughout the entire digestive and respiratory tracts and on the surface of almost any internal organ.

Prevention can be done by

1. If possible, separate the suspected case(s) from the rest of the herd
2. Stop cattle movement from/to the farm and limit visitors to essential services
3. Disinfect your hands, footwear.
4. Disinfect equipment and materials used in the affected holding.



Photos cont'd... on page no. 13

PPAM participation in the 16th World Rabies Day Program

This year's World Rabies Day theme was: "One Health, Zero Death".

The theme highlights the connection of the environment with both people and animals. Dr. Shefali and Dr. Sunita Patel enthusiastically participated in the program on 28.09.2022. MSD company was generous in donating the vaccines.

PPAM has donated AntiRabies Vaccine to the following NGO.

Sr. No	PPAM and MSD donated vaccine to following NGO's
1	Thane CPCA
2	WFA
3	MAA
4	BSPCA
5	IDA
6	WSD
7	AHIMSA
8	INDEVETS
9	YODA
10	FELINE FOUNDATION
11	ARPAN CHARITABLE TRUST

WFA



WFA



Vaccination at BSPCA Parel

BSPCA



Vaccination at IDA Deonar

IDA



Vaccination at WSD

(WSD Team and Dr. Kunal Dalvi And Dr. Radhika Ranjane)

WSD



WFA

Proud moment for PPAM members to be invited as speakers to various CE Programs

Sr. No	PPAM members invited as Speaker	Location
1	Dr. Sangeeta Vengsarkar Shah	Thekkady (Kerala) and Goa
2	Dr. Nihar Jayakar	Patna and Thekkady (Kerala)
3	Dr. Shriniwas V. Vishwasrao	Bhatinda (Punjab), Pune and Guwahati

Dr. Sangeeta Vengsarkar Shah



Dr. Nihar Jayakar



Dr. Shriniwas V. Vishwasrao



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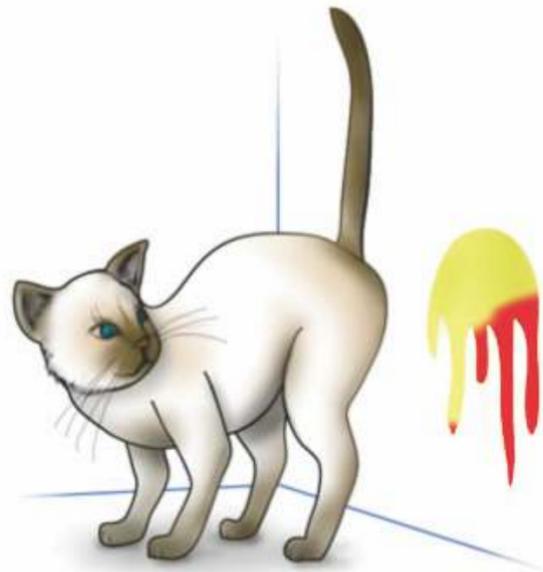
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Feed Real. Feed Clean.

In cases of UTI, Use VET-PRO Cat UTI today!

Use **SURFACE** to learn and recognise the symptoms



- S** - Straining to urinate
- U** - Urinating in small amounts
- R** - Red coloured urine (presence of blood)
- F** - Frequent or prolonged attempts to urinate
- A** - Area of urination is outside the litter box
- C** - Crying out while urinating
- E** - Excessive licking of genital area

Urinary tract infection

Dr. Adarsh J., M.V.Sc (Animal Nutrition)

Asst. Techno-commercial Manager (Drools Pet Food Pvt. Ltd.)

1. Introduction

Diseases of the feline lower urinary system involve the urinary bladder or urethra, and they could be linked to different combinations of signs including dysuria, hematuria, pollakiuria, stranguria, and periuria. The normal pH range of cat urine is approximately 6.0 to 6.5. Various cat diseases can lower or raise urine pH. Nutritional management is an important component in the treatment of cats with these lower urinary tract disorders. Nutritional management is also largely indicated for dissolving struvite uroliths and decreasing the risk of struvite uroliths, urethral plugs, and calcium oxalate uroliths returning.

2. Causes of Urinary tract infection/ FLUTD

There are many different lower urinary tract diseases that can occur in cats; however, only a few are common, and these can vary depending on the cat's age, the presence of concomitant diseases, and geographic location. Based on findings from several clinical studies, the three most prevalent lower urinary tract illnesses in cats are FIC (Feline idiopathic cystitis), urolithiasis, and urethral plugs (Robertson et al, 2002).

FLUTD symptoms can be brought on by bacteria, fungi, parasites, or even viruses infecting the cat's urinary tract. Bacterial infections in cats are still quite rare, although being more frequent than fungal, parasitic, or viral illnesses.

3. Pathogenesis

Cats naturally produce highly concentrated, acidic urine that contains a complex mixture of minerals. Small crystals may form in urine when certain minerals, such as struvite, calcium oxalate, and urate, are either insufficient or overproduced (Johnson et al, 2007). This may lead to lodging of bacteria such as Streptococcus, Staphylococcus and E. coli further leading to infection.

4. Diagnosis

Initial diagnostic evaluation of all cats with lower urinary tract signs should include urinalysis and some form of diagnostic imaging (i.e., plain abdominal radiographs, and abdominal ultrasound). Quantitative urine cultures should be carried out on all cats exhibiting symptoms of the lower urinary tract, because urine sediment examination is an unreliable method of detecting UTI.

a. Urinalysis

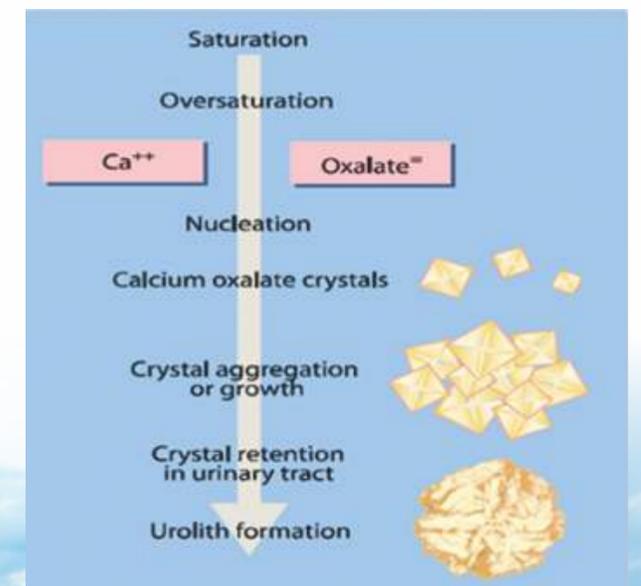
Complete urinalysis including determination of specific gravity, dipstick analysis, and sediment examination is indicated in all cats with lower urinary tract signs. Whenever possible, urine should be collected before treatment and evaluated promptly. This is especially important for patients with crystalluria because crystals may begin to form immediately in urine as its temperature decreases (Johnson et al, 2007).

b. Urinary pH

Urinary pH influences the formation of several crystal types. In general, struvite uroliths are associated with more alkaline urinary pH values (>6.4) and calcium oxalate uroliths are associated with lower urinary pH values. Struvite crystals are more common in females, and oxalates are more common in males according to several studies.

c. Urine Culture

When there is a higher risk of UTI, urine cultures should be performed on all symptomatic or asymptomatic cats. The gold standard for diagnosing UTI is a quantitative bacterial culture of urine obtained by ultrasound-guided cystocentesis. Any bacterial growth from a urine sample obtained by cystocentesis is abnormal, if many species are grown, contamination during collection should be considered (Johnson et al, 2007).



d. Radiography

The majority of feline uroliths and crystalline-matrix urethral plugs can be found using radiography of the urinary tract, which includes the whole urethra in male cats (Johnston et al, 1996). Urolith size, shape, location, and number can all be determined by radiography. The relative radiodensity of uroliths can be utilised to make an educated guess at the mineral composition.

e. Ultrasonography

A quick, secure, non-invasive imaging method for assessing the urinary bladder is ultrasonography. Uroliths, tumours, or indications of persistent inflammation may be seen using urinary bladder ultrasonography. Uroliths in the bladder that are radiopaque or radiolucent show strong echogenicity and distinctive acoustic shadowing. So, Diagnosis should be proper before treating for urinary tract infection.

f. Urolith Analysis

Both qualitative and quantitative analysis is possible for uroliths. Spot tests are used in qualitative analysis to identify radicals and ions, however they cannot disclose the proportion of mineral types or find some mineral crystals (like silica) or drug crystals (e.g., sulfadiazine). Analysis of feline and canine uroliths using qualitative techniques is lacking in sensitivity and specificity (Robertson et al, 2002).

g. Nutritional Factors

Increased incidence of FIC and calcium oxalate uroliths, but not struvite uroliths, has been linked to decreased water intake and/or decreased moisture content of foods (feeding dry food) (Lekcharoensuk et al, 2001).

5. Treatment

Dislodging the obstruction is necessary to treat this problem, and this is typically done by flushing a sterile solution through a small tube inserted into the urethra. The cat's condition will determine what steps are taken after the impediment has been removed. Dehydration and electrolyte abnormalities are corrected with intravenous fluid therapy. In addition to prescription medications that aid in regaining bladder function, antibiotics may be administered to treat or prevent infections.

a. Nutritional/feeding plan during FLUTD

Cats with diverse lower urinary tract disorders must be successfully managed, which calls for a multifaceted strategy and efficient communication between the owners and the medical staff. Patients with FIC, struvite disease (uroliths and urethral

plugs), and calcium oxalate uroliths benefit greatly from nutritional care (McClain et al, 1999).

Table 1. Key nutritional factors for UTI control cat foods

Factors	For Weight loss
Energy density	≤ 3.6kcal (ME)/g
Fibre	2.5-4.5%
Fat	09-15%
Protein	28-32%
Lysine	≥ 1.7%
Carbohydrates	≤ 30%
Magnesium	0.07-0.14%
Phosphorus	0.5-0.9%
Sodium	0.3-0.6%
Calcium	0.6-1.0%

- Reduced magnesium and phosphorus help in minimizing concentration of struvite building blocks
- Antioxidants defend cells from free radical oxidation.
- Targeting urinary pH to keep it at 5.9 - 6.1 helps in reducing the formulation of crystals.
- Balanced fat levels and maintaining low sodium content which helps in maintaining a healthy weight and ideal body condition

All these above-mentioned nutritional corrections are mandated in Drools VET PRO (Cat UTI) in order to promote urinary tract health in cats and to avoid struvite/oxalates to reoccur.

6. Conclusion

The most common forms of FLUTD include FIC, struvite disease (uroliths and urethral plugs), and calcium oxalate uroliths. Trends in the occurrence of urolith types have changed in the past 25 years. Foods formulated to prevent recurrence of struvite uroliths or urethral plugs are indicated after urolith dissolution or removal of urethral plugs. Treatment for calcium oxalate uroliths involves urolith removal, followed by feeding moist food formulated to decrease the risk of urolith recurrence.

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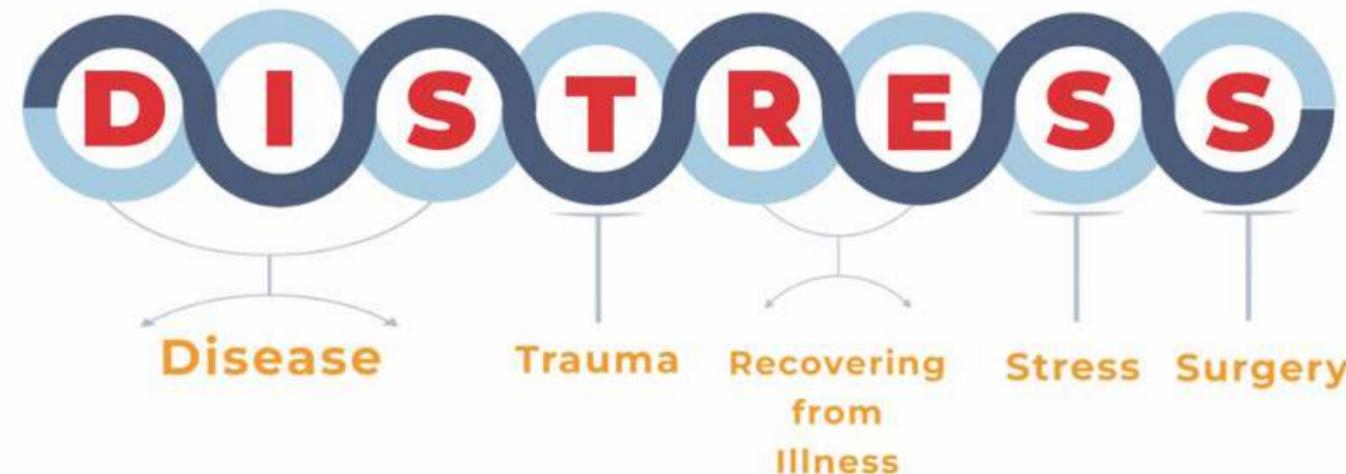
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Is the Diet You Need

When our Dog/Cat is in Distress



Canine Obesity a review

Dr. Punit G., M.V.Sc (Animal Nutrition)

Asst. Product & Techno-commercial Manager (Drools Pet Food Pvt. Ltd.)

1. Introduction

Obesity is the mother of many diseases; obese dogs are more likely to suffer from osteoarticular disorders, heart problems, respiratory problems or skin disease and even diabetes mellitus. Obesity has become an emerging challenge at the global level to the practicing veterinarians and pet-owners, and requires newer methods of diagnosis and treatment approaches for its effective control. Obesity is officially classified as a disease and unfortunately it is the most common nutritional problem seen in our companion animals today. Obesity in general is defined as the accumulation of excess body fat, which results in negative effects on the quality of life, longevity and the risk of developing associated pathologies (Rolph et al., 2014). This is the result of an imbalance between the intake and usages of calories, when the intake is higher and the body stores these extra calories as fat (Markwell et al., 1990). Dogs are considered to be "overweight" when the body weight exceeds 10% and considered "obese" when the body weight exceeds 20% above the ideal body weight, respectively (Burkholder and Baurer, 1998).

2. Clinical importance

Most veterinarians would agree that obesity is also an important medical disease in dogs. Obesity is a real disease and is thought to be the most prevalent form of malnutrition in pets, where the prevalence in USA & Greater Britain is around 24-30% (Armstrong and Lund, 1996). About 42% of the dogs are overweight and the most prone age group is 5-11 years of age (Lund et al, 2005, 2006). In a lifelong study of two groups of Labrador retriever dogs, the treatment group was fed 25% less than the control group (Kealy et al, 2002) and the study revealed that the animals of control group which are obese tend live two years of lesser life span when compared to the leaner group. Adipocytes produce and secrete numerous cytokines and hormones. Studies have shown that obesity increases oxidative stress. The consequences of prolonged oxidative stress to cell membranes, proteins and DNA have been associated with cancer, diabetes mellitus, urinary tract disease, heart disease and liver disease (Tanner et al, 2006; Sonta et al, 2004).

3. Risk factors related with canine obesity

The cause of dog obesity includes both dog and owner factors.

3.1 Dog factors

3.1.1 Age

Most of the recent studies showed that dogs of old ages were more at risk for obesity (Mao et al., 2013). Usui et al. (2016) reported that obesity-proneness increases with age, and highest probabilities of a dog becoming obese or overweight were between 7 and 9 years of age, with the prevalence being around 71%.

3.1.2 Breed

Certain breeds are more likely to be overweight, which include Labrador, Cocker Spaniel, Dalmatian, Dachshund, Rottweiler, Golden Retriever, Pug, Beagle, Yorkies & Bulldog (Colliard et al. 2006; Lund et al. (2006), German et al. (2017)

3.1.3 Gender

The highest prevalence of dog obesity was found in female than in male dogs Payan-Carreira et al. (2015).

3.1.4 Neutering

Jeusette et al. (2004) and Mc Greevy et al. (2005) documented that higher incidence of obesity in neutered dogs of either sex was due to reduced metabolic rate. Colliard et al. (2006) observed that risk of obesity increased 2.23 fold in neutered dogs as compared to normal dogs.

3.2 Owner factors

3.2.1 Type of feed

Ad-libitum feeding, supplementation, feeding homemade meals lead to excess calorie consumption. Begging, competitive eating with other pets and specific food addictions might also contribute for obesity. Obese dogs were more often fed kitchen scraps in addition to their meals (Crane, 1991; Kienzle et al., 1998). Even dogs fed with label instruction of commercial foods can gain weight if the energy recommendation provided by NRC is exceeding. Yam et al. (2017) reported that owners could not correctly estimate how much wet and dry food

to feed which finally results in giving those extra calories which makes the animal obese.

3.2.2 Feeding frequency

Mao et al. (2013) reported that obese dogs have several feeding times and were associated with higher rates of suffering from obesity in dogs.

3.2.3 Exercise

Confining a dog to a particular area and not providing proper amount of exercise can also contribute for obesity in dogs. The higher energy food intake with short duration of exercise led to positive energy balance leading to excessive fat accumulation in dogs and making them obese (Mao et al., 2013).

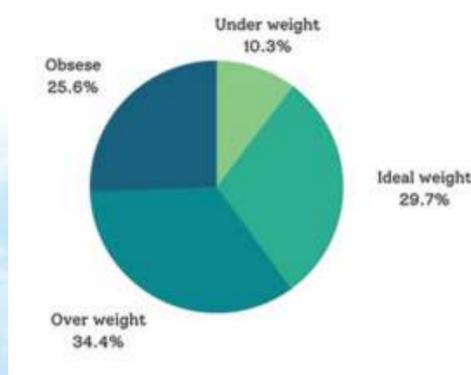
3.2.4 Housing

Bland et al. (2009) reported that dogs reared in houses with a greater number of people were less prone to obesity as a greater number of people lead to playful environment resulting in greater expenditure of energy. Dogs in apartments are at a greater risk of overweight/obesity. 62.2 % of obese dogs lived in apartment buildings, while 37.7% lived in houses (Colliard et al., 2006).

3.2.5 Owner awareness

Canine obesity is a prevalent disease, but many owners are unaware of it, partly due to the misperception of their dog's body shape. Most owners incorrectly estimated their dog's body condition, both with (64 %) and without (65 %) the chart. Many owners do not know if the dog is obese, or do not know why it is dangerous. One way to prevent obesity may therefore be to increase the owners' awareness and knowledge about obesity.

Dogs in India, a survey taken in - 2020



4. Diagnosis

Body condition score is an established, inexpensive, and non-invasive technique for assessing body fat percentage and is widely used in veterinary practice. Typically, a five-point or a nine-point scale is used for the assessment where 3 & 5 being ideal in respective scales. Body condition score chart is given in picture 1.

5. Role of Nutrition in management of canine obesity

The traditional method to achieve weight loss in overweight pets and to prevent regain of lost weight is to feed calorie restricted foods. The high protein low carbohydrate diet used in obese dogs was reducing body fat content and body weight. The high fiber diet can be used to dilute or reduce the calorie density of foods, which can aid in calorie restriction for weight loss (Fekete et al., 2001).

A deficiency in energy and other nutrients can occur if the amount of a maintenance food being fed is markedly decreased to produce weight loss. A better approach is to use an energy-restricted food. A properly formulated restricted-calorie food will be replete in all nutrients except energy so that protein, essential fatty acids, vitamins and minerals are present in amounts sufficient to support normal physiologic processes and retention of lean body tissue. The goal of a weight-management food should be to restrict only energy, not other nutrients.

Fat has about 2.25 times the calories of an equivalent weight of carbohydrate or protein. In addition, fat is a very efficiently digested and metabolized source of energy. A food with more calories supplied from fat will tend to support retention of body weight and body fat even when total calories consumed are reduced.

Typical calorie-diluting agents are dietary fiber, water and air. Water and air are removed from the gastrointestinal (GI) tract and contribute only transiently to GI fill. Dietary fiber helps produce weight loss by diluting calories, increasing satiety and limiting food consumption as a result of more bulk being present during its transit through the GI tract (Levine and Billington, 1994). Fiber may also help produce weight loss by decreasing the availability of calories by interfering with the digestion and absorption of fat, protein and digestible carbohydrate (Levine and Billington, 1994). Although both soluble and insoluble fibers slower intestinal transit, insoluble fiber

(e.g., purified cellulose) produces the greater effect (Bueno et al, 1981). Fiber decreases the apparent digestibility of energy-providing nutrients in the food by 2 to 8% (Levine and Billington, 1994). Fiber also decreases pancreatic enzyme activity in vitro and pancreatic lipase secretion in vivo (Isaksson et al, 1982). Along with this, it also increases the fecal excretion of bile acids and fat (Vahouny, 1987). Pet owners need to be advised that increased levels of dietary fiber will have noticeable effects on normal defecation habits.

Dog foods for weight loss should contain at least 25% DM crude protein (the higher the better) to help prevent loss of lean body mass (Jewell and Toll, 2007). Not only is the amount of protein important in protecting against loss of lean body mass during weight loss, it is also equally important to maintain the protein quality (Yamka et al, 2007). The recommended amount of DM lysine in dog foods for weight loss is at least 1.7% (Yamka et al, 2007).

Similar to effects in people, consumption of different sugars and carbohydrate sources alters postprandial glucose levels and insulin secretory patterns in dogs and cats (Flickinger and Sunvold, 2005). As a result, it has been suggested that foods producing low glycemic responses should be fed to animals that are diabetic, obese and for the prevention of both conditions.

L-carnitine improves nitrogen balance, increases protein accretion and reduces fat deposition (Odle et al, 2000). The recommended level of L-carnitine in foods intended for weight loss in dogs is at least 300 ppm (DM).

Obesity increases oxidative stress, which may also contribute to diseases associated with obesity (Tanner et al, 2006; Sonta et al, 2004). Obese rats receiving dietary vitamin E supplementation had lowered oxidative stress biomarkers compared to those in similarly supplemented lean rat cohorts (Laight et al, 1999). Effective inclusion levels have been studied for vitamins E and C and selenium for their antioxidant benefits in dog foods. Key nutritional factors which are required for calorie restricted food have been presented in Table 1.

6. Conclusion

Obesity is the most prevalent abnormal condition in companion animals, with recent epidemiological studies indicating that between 15% to 65% of dogs are overweight or obese, respectively. Duration and status of exercise, as well as the feeding person have major roles in the development of obesity. Body weight and BSC are the best techniques commonly used in small animal practice. A right food with less calories and all the nutrients kept optimal to help the animal in losing the excess body weight, which also stops the weight regain, will be helpful to control canine obesity.

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Table 1. Key nutritional factors for calorie-restricted dog foods

Factors	For Weight loss	To prevent weight regain
Energy density	= 3.4kcal (ME)/g	= 3.4kcal (ME)/g
Fat	= 9%	= 14%
Fibre	12-25%	10-20%
Protein	= 25%	= 8%
Lysine	= 1.7%	= 1.7%
Carbohydrates	= 40%	= 55%
L-carnitine	= 300 ppm	= 300 ppm
Vitamin E	=400 IU vitamin E/kg	=400 IU vitamin E/kg
Vitamin C	=100 mg vitamin C/kg	=100 mg vitamin C/kg
Selenium	0.5 to 1.3 mg selenium/kg	0.5 to 1.3 mg selenium/kg

- Low fat thus low-calorie content
- Choline chloride, lysine & l-carnitine for increasing fat metabolism
- High protein: calorie ratio to maintain healthy body
- High natural fibre to satisfy appetite & healthy digestive tract
- Yucca extract to reduce the stool odour
- Chondroitin and glucosamine to aid in arthritis

All these above-mentioned nutritional corrections are mandated in Drools Vet pro Obesity in order to therapeutically solve obesity issues in dogs.

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Picture 1. Body condition score chart



Signature

Twelve years of dedication towards animal nutrition, continuous evolution, consumer interactions and valuable adds on with newer teams coming in, vet alliances, industry talks and so much more is what together sums up Drools Pet Food. Proudly home grown, Drools today is one of the largest revenue and employment generator for the pet industry. A variety of choices in food, snacks, grooming kits, bowls to playtime accessories, Drools is offering and engaging pet parents at all levels.

Very recently, Drools launched its premium line of pet foods, "SIGNATURE". Autonomous in its operations, individually engaging with the industry at all levels, be it pet parents, vets, retail or pet influencers, this master stroke by the gigantic brand was an answer to the change that the fraternity needed right now. With premium imported brands facing availability issues given to global logistics meltdown, skyrocketing price rises in quick successions and monotony setting in variants available, Signature Petfoods is like summer breeze to concerned pet parents.

True to its name, Signature is a cut above the rest. Deep research, quality ingredients, human grade proteins, antioxidant packs, and guarantee of wellness is what sets the brand apart. It understands the new age consumer, who are well read and zealous to seek out the best for their poodles.



Amidst significant members of pet fraternity, Signature range was launched by Dr. Dhananjay Bapat (President – Pet Practitioners Association of Mumbai) and Mr. Saquib Pathan (President - Feline Club of India). Also present to grace the occasion were Dr. Makarand Chavan, Dr. Anil Vade and Dr. Hitesh Swali to name a few. Brand's distribution partners, retail partners, some select influencers and leadership team of Drools had all come together to celebrate this special occasion on 31st July at JW Marriott, Juhu Mumbai.

Signature will hold two variants of dry kibble pet food currently, "Grain Zero" and "Freedom" for both dogs and cats. While GrainZero variant is grain free, Freedom will use long grain sushi rice. Both variants are holistic nutritional choices with up to 48% clean deboned meats, farm fresh veggies and organic fruits and herbs. Gluten and GMO free, Signature brands will use a variety of fresh proteins from chicken, sardines, mackerel to eggs. Going forward, the brand will also work to bring in healthy treat options, wet foods and many more.

Stylized packaging, reasonable pricing and an aggressive team with a 'spirit to serve', Signature is drawn to success from the moment go.

Dr. Shashank Sinha (Group CEO – Drools & Signature) says: It's been a very endearing journey of over 12 years, where we have proudly become the 1st Indian pet food brand to export to over 18 countries. Our production facilities are unbeatably the largest in India with a production capacity of close to 5000 tons a month. We can boast of a robust distribution network spread across 28 states, catering to 30,000 retail stores and a staff strength of over 1500 employees. Signature is such an organic growth to Drools and our promise to deliver quality in reasonable pricing will help us win hearts all over again. I wish Team Signature the very best!

Mitu Paul (Brand Head – Signature) quotes: Necessity is the mother of all inventions but to know and identify that necessity well in advance, is what will keep us ahead of the curve. I'm grateful to be the chosen one to lead this ambitious project and we are committed to making pet parenting a joy with our products and services.

Signature brands are all set to be on pet stands near you by the 1st week of September 2022 and will surely be worth the wait!

By : Mitu Paul (28/08/2022)

Vets in Conservation

Dr. Shiwani Tandel

Ever since I studied conservation medicine I have been keen to branch out into this field where veterinarians are a rare commodity. Conservation Medicine, what does it mean? It doesn't merely mean to conserve wildlife. It's actually a science that marries the study of ecology, animal and human health, a little similar to One Health but not with such an acute anthropogenic view. Trying to get my footing like many other veterinarians in the field of wild animal medicine has not been easy. Last year I was made aware of the opportunity which required a veterinarian to be on field for a series of projects related to reptile medicine.



Me at the field station at Kukrail Gharial Centre in Lucknow

Turtle Survival Alliance (TSA) a name that speaks for itself primarily works with the fresh water turtle species in the North rivers of the Ganga, Brahmaputra, Chambal, Bhadra and other tributaries of the large rivers. Their work is intense, identifying turtle populations, isolating populations that need help due to the barrages and Dams built on the large rivers systems, understanding their micro requirements to make each and every species unique is a work that cannot be taken lightly. There are 19 fresh water turtle species in the north only! Turtles are the indicators of our rivers, they are directly influenced by the river waters becoming polluted by the effects of effluents and such.....

Dr. Shailendra Singh, Head of TSA India had spoken to me about the problems they face during their conservation effort for eg. If there is a major illness or infections in turtles there is not many veterinarians who can help them. For a minute alienate yourself as a reader from this situation, don't you Veterinarians hat and tell me, do we even know what we are talking about here. Forget about the soft-shelled turtle

species that we see in Maharashtra, think about the magnificent turtles which are sometimes almost 3 feet long from head to tail. I also realized even if we want to treat these animals we are unaware of what their normal physiology is, what their temperature requirement is and what food do they prefer, are they primary piscivores or do they eat floating vegetation too? Another thing we don't know is how they are constructed on the inside, I mean literally how often do we perform a PM in a turtle or even know how to draw blood from them, and even if we end up drawing what are the normal ranges? What makes them the epitome of survivors, what are their adaptations that help them pull through months of cold without really eating substantially. All this lack of knowledge made me



Our first intern Dr. Sayali Shinde working with some hatchlings at Kukrail in Lucknow.

restless and I approached Dr. Singh and asked him about being their veterinary partner and I was thrilled when replied with an affirmative.

This is an opportunity that will not present itself again once we get into the rut of being veterinarians. So here goes, we at Phoenix Veterinary Specialty have designed a 3, 4-month internship in Lucknow at the TSA head office where a practicing veterinarian will be exposed to all the conservation projects being carried out on field. The intern should be able to spend a month learning the nuances of turtles medicine at Phoenix Veterinary Specialty in Mumbai. The work itself involves being present as a veterinarian on call for any medical emergency or regular looking after of turtle populations under the care of TSA. Understanding the ecology and health and assisting in rescue operations. Conducting Triage on confiscation of poached reptiles. Learning about conservation of other reptiles like gharials. Spending days on the boat

with the water, turtles and some brilliant and dedicated researchers for company. During the course of the project the intern will write a lead paper on a scientific study conducted on field on at the centre, in Lucknow or Assam depending on the location current projects. The veterinarians will have a place to lodge, food and travel is paid for!

I've seen people pay man a dollar to work at institutes like this abroad and pay money to learn. What better opportunity to help an Indian community and be an author of a never previously researched subject. I think it's a win-win situation.



Our second intern Dr. Siddh Chedda, impersonating a test-tube holder

Our 2 interns Dr. Sayali Shinde (who is currently working with the Penguins at VJBU Zoo) and Dr. Siddh Chedda have recently completed their internships and have had some amazing experiences.



Measurements and collecting valuable data for analysis.

I would like veterinary students with an interest in wildlife to find conservation opportunities like these, to further our roles as veterinarians, in projects that give our lesser known Indian wildlife a chance to be recognized and to give the veterinary profession a fighting chance in conservation medicine.

Official Add : Shop No 1, Dog and Cats Veterinary Clinic, Bramhandev CHS, Padmabai Thakkar Rd., Shivaji Park, Mahim, Mumbai 16.

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Some soft-shelled turtles in a temple pond in Assam at the North east project site.



Late night Gharial rescue operation



Imparting knowledge to the future stakeholders in the conservation effort.

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